

# PRITECH

*Technologies for Primary Health Care*

## CONTROL OF DIARRHEAL DISEASES

An Annotated Bibliography  
of PRITECH Holdings, 1992



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## **CONTROL OF DIARRHEAL DISEASES**

### **An Annotated Bibliography of PRITECH Holdings, 1992**

Edited by:

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## INTRODUCTION

PRITECH, the Technologies for Primary Health Care Project sponsored by the U.S. Agency for International Development, is a consortium of experienced, internationally known organizations led by Management Sciences for Health that assists developing countries to implement national diarrheal disease control programs.

The PRITECH Information Center has developed a bibliographic database that covers the topics of diarrheal disease, ORT, and related primary health-care issues. This annotated bibliography was drawn from the database and reflects the most recent additions to the center's current collection of 5,500 documents.

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## DIARRHEAL DISEASE RESEARCH AND EPIDEMIOLOGY

- 4924 Abbar, F.; Khalef, S.; Yonis, D. A PROSPECTIVE STUDY OF SOME DIARRHOEAGENIC *ESCHERICHIA COLI* IN INFANTS WITH DIARRHOEA IN MOSUL, IRAQ. *Annals of Tropical Pediatrics*, vol.11, 1991, pp.99-102.

The incidence of diarrheagenic *Escherichia coli* was investigated in Mosul, Iraq, in 304 infants with diarrhea. Enterotoxigenic *E.coli* was isolated from 12.8% of the cases and enteropathogenic *E.coli* from 13.8%. Infants under age 18 months had greater incidence rates than those ages 19 to 36 months. The strains were highly resistant to most common antimicrobials, although nalidixic acid, cephalothin, and gentamicin were found to be effective in treatment.

- 5370 Al-Rijami, A.; Haynes, L.G.; Campbell, A.M. THE CONSTRUCTION OF A MONOCLONAL DIAGNOSTIC SYSTEM FOR THE FIELD DETECTION OF *VIBRIO CHOLERAE*. *FEMS Microbiology Immunology*, vol.76, 1991, pp.25-32.

An enzyme-based double monoclonal field diagnostic system detecting both serotypes of *Vibrio cholerae* has been developed. The system uses nitrocellulose as a solid support, 1.25% skimmed dried milk as blocking reagent, water as washing reagent, and alkaline phosphatase cross-linked to antibody by means of glutaraldehyde as detecting reagent. The sensitivity of the system was  $10^5$  vibrios per ml. [published abstract]

- 5446 Albert, M.J.; Leach, A.; Asche, V.; et al. SEROTYPE DISTRIBUTION OF *CAMPYLOBACTER JEJUNI* AND *CAMPYLOBACTER COLI* ISOLATED FROM HOSPITALIZED PATIENTS WITH DIARRHEA IN CENTRAL AUSTRALIA. *Journal of Clinical Microbiology*, vol.30 no.1, January 1992, pp.207-210.

A study was conducted in Central Australia to determine the prevalence of serotypes, prevalence of mixed infections with more than one serotype, duration of serotype excretion, and acquisition of new serotypes of *Campylobacter jejuni* and *Campylobacter coli* in hospitalized patients (predominantly aboriginal people) with diarrhea. *C.jejuni* and *C.coli* were cultured from 218 of 1,078 patients of all ages and a total of 46 serotypes were identified. Several patients had multiple infections and repeated infections with different serotypes were seen in some. Some patients showed long-term excretion of the same serotype, and one patient showed evidence of excreting the same serotype for up to 73 days.

- 5593 Allmann, M.; Candrian, U.; Luthy, J. DETECTION OF WHEAT CONTAMINATION IN DIETARY NON-WHEAT PRODUCTS BY PCR. *The Lancet*, vol.339 no.8788, February 1, 1992, p.309, letter.

Coeliac disease, a gluten-induced enteropathy, is a common, chronic gastrointestinal illness in children and adults. Symptoms such as malnutrition and diarrhea occur after ingesting gluten-containing foods that are based on wheat, rye, oat, or barley. In this letter to the editor the authors report on a study done to investigate the potential of DNA analysis by polymerase chain reaction to detect contamination by wheat in dietary non-wheat products, the main source of involuntary gluten intake by coeliac patients.

- 5542 Andrew, M.E.; Boyle, D.B.; Coupar, B.E.H.; et al. VACCINIA-ROTAVIRUS VP7 RECOMBINANTS PROTECT MICE AGAINST ROTAVIRUS-INDUCED DIARRHOEA. *Vaccine*, vol.10 no.3, 1992, pp.185-191.

The authors investigated the use of recombinant vaccinia viruses expressing rotavirus antigens to stimulate immune responses in rabbits and mice. They compare the abilities of these vaccines to provide immunity by using a murine disease model that assesses protection from diarrhea induced by the simian rotavirus SA11. The results are reported in this article.

- 5694 Arthur, J.D.; Bodhidatta, L.; Echeverria, P.; et al. DIARRHEAL DISEASE IN CAMBODIAN CHILDREN AT A CAMP IN THAILAND. *American Journal of Epidemiology*, vol.135 no.5, 1992, pp.541-551.

The etiology of acute diarrhea and persistent diarrhea was determined in Cambodian children under age five in a refugee camp in Thailand; potential risk factors associated with persistent diarrhea were examined in a case-control study. Persistent diarrhea was associated with several different agents; the most important risk factors were being undernourished and living with other children.

- 5022 Aye, D.T.; Bact, D.; Sack, D.A.; et al. NEONATAL DIARRHEA AT A MATERNITY HOSPITAL IN RANGOON. *American Journal of Public Health*, vol.81 no.4, April 1991, pp.480-481.

Between 1981 and 1986, 1,540 infants born at the Central Women's Hospital in Rangoon were transferred to the Sick Baby Unit due to diarrhea. Morbidity rates among cesarean births were five times greater than those born vaginally. The authors conclude that neonatal diarrhea is endemic in this hospital and that control efforts should be particularly targeted to cesarean and low-birthweight infants.

- 5383 Baltazar, J.C. THE POTENTIAL OF THE CASE-CONTROL METHOD FOR RAPID EPIDEMIOLOGICAL ASSESSMENT. *World Health Statistics Quarterly*, vol.44 no.3, 1991, pp.140-144.

Case-control design has gained popularity and importance over the past few decades. This article focuses on key methodological considerations of the design when applied to the assessment of the impact of water and sanitation interventions. The strengths, limitations and potential usefulness of the method for rapid epidemiological assessment are briefly discussed.

- 5082 Bang, A.T.; Bang, R.A. BREATH COUNTER FOR DIAGNOSIS OF CHILDHOOD PNEUMONIA. *The Lancet*, vol.338 no.8759, July 13, 1991, p.116, letter.

In this letter to the editor the authors describe a simple device that was created to assist traditional birth attendants in India to diagnose childhood pneumonia.

- 5528 Baqui, A.H.; Black, R.E.; Yunus, M.D.; et al. METHODOLOGICAL ISSUES IN DIARRHOEAL DISEASES EPIDEMIOLOGY: DEFINITION OF DIARRHOEAL EPISODES. *International Journal of Epidemiology*, vol.20 no.4, 1991, pp.1057-1063.

A review of the diarrheal disease literature reveals considerable variability in the definition of diarrheal episodes. The use of various definitions of diarrhoea and episodes leads to misclassification, affects the estimates of the disease burden in communities, and reduces comparability of the findings from different studies. This study is an attempt to validate the definition of diarrheal episodes using prospectively collected community-based surveillance data. In comparative validation analyses, three or more loose stools or any number of loose stools containing blood in a 24-hour period seemed to be the best definition of diarrhea. Three intervening diarrhea-free days seemed to be the optimum to define a new episode. The implications of using differing definitions and the importance of using a validated definition are discussed. [published abstract]

- 5282 Baqui, A.H.; Yunus, M.D.; Zaman, K.; et al. SURVEILLANCE OF PATIENTS ATTENDING A RURAL DIARRHOEA TREATMENT CENTRE IN BANGLADESH. *Tropical and Geographical Medicine*, 1991, pp.17-22.

In May 1983, a surveillance system was set up at a rural diarrhea treatment centre at the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), to study a 20% systematic sample of all admissions. Between May 1983 and April 1984, 2,635 patients were studied. A recognized enteric pathogen was detected in 69% of the patients screened, 15% of whom had a mixed infection...Although 91% of the patients reported that they had prior experience of use of ORT, 54% of the patients came to the treatment center with no or mild dehydration and more than half of them did not use ORT before coming to the treatment center. Most of these patients could have been safely treated at home if ORT could be made available and acceptable. [published abstract]

- 5465 Begue, P. ASPECTS INFECTIEUX DE LA DIARRHEE AIGUE DE L'ENFANT EN FRANCE: POURQUOI CE SUJET EN 1991? Médecine et Maladies Infectieuses, vol.21, 1991, p.555.

The author of this brief editorial comments on acute childhood diarrhea in France, particularly in terms of etiology and diagnosis. He states that it is still an everyday issue in pediatric health because of cases associated with new pathogens that are often difficult to diagnose.

- 5425 Benitez, O.; Uribe, F.; Navarro, A.; et al. ETIOLOGIA DE DIARREA CON SANGRE EN NIÑOS DE UNA COMUNIDAD RURAL. Boletín Medico del Hospital Infantil de México, vol.48 no.2, February 1991, pp.65-70.

The epidemiology and etiology of bloody diarrhea was investigated longitudinally in a cohort of 75 rural Mexican children from birth through the first two years of life. Of the 636 diarrheal episodes, 71 (11%) showed presence of blood. The most common pathogens were *E.coli*, *Shigella*, and *Salmonella*. The incidence of bloody diarrhea rose steadily during the first two years of life and prevalence was seasonal.

- 5424 Bennett, S.; Woods, T.; Liyanage, W.M.; et al. A SIMPLIFIED GENERAL METHOD FOR CLUSTER-SAMPLE SURVEYS OF HEALTH IN DEVELOPING COUNTRIES. World Health Statistics Quarterly, vol.44 no.3, 1991, pp.98-106.

This article presents general guidelines for use of cluster-sample surveys for health surveys in developing countries. The authors emphasize methods that can be used by practitioners with little statistical expertise and no background in sampling. Topics discussed include sample design, methods of random selection of areas and households, sample-size calculation and the estimation of proportions, ratios, and means with standard errors appropriate to the design.

- 5040 Bennish, M.L.; Wojtyniak, B.J. MORTALITY DUE TO SHIGELLOSIS: COMMUNITY AND HOSPITAL DATA. Reviews of Infectious Diseases, vol.13 suppl.4, 1991, pp.S245-S251.

Data on mortality due to shigellosis in developing countries are generally compiled from three sources: in investigations of epidemics caused by *Shigella dysenteriae* type 1, surveillance of endemic diarrheal disease, and reports from hospitals. This review presents data that have been compiled from these three sources, primarily from Bangladesh, and discusses the limitations of each.

- 5690 Bernstein, D.I.; Sander, D.S.; Smith, V.E.; et al. PROTECTION FROM ROTAVIRUS REINFECTION: 2-YEAR PROSPECTIVE STUDY. Journal of Infectious Diseases, vol.164, 1991, pp.277-283.

To measure protection induced by natural rotavirus infection, 163 infants enrolled in a rotavirus vaccine trial were followed for two years. Serotype-1 rotaviruses were the predominant circulating strains during the study. Over the two years of observation, significantly fewer infants infected before enrollment developed a symptomatic reinfection or any reinfection compared with previously infected infants. Asymptomatic primary infection appeared to be as protective as symptomatic primary infection. In this study, protection against homotypic serotype-1 reinfection appeared to last more than two years.

- 5357 BILE ACIDS, DIARRHOEA, AND SEHCAT. *The Lancet*, vol.338 no.8782/8783, December 21/28, 1991, pp.1563-1564.

This article briefly describes the Se-labelled homochoiic acid conjugated with taurine (SeHCAT) test which can be used to investigate idiopathic type-2 bile-acid malabsorption in patients with diarrhea.

- 5016 Bingnan, F.; Unicom, L.; Rahim, Z.: et al. ROTAVIRUS-ASSOCIATED DIARRHEA IN RURAL BANGLADESH: TWO-YEAR STUDY. *Journal of Clinical Microbiology*, vol.29 no.7, July 1991, pp.1359-1363.

In this study [the authors] examined the current contribution of RV [rotaviruses] to the total incidence of diarrhea in the Matlab area of Bangladesh...RV diarrhea was evident throughout the year, with peaks in the dry winter months and in September 1988, coinciding with a major flood. RV was isolated from 46.6% of patients between seven and 12 months old. Among children under 24 months of age with RV diarrhea, 1.2% (10 of 828) died. The corresponding percentage for children with diarrhea from all causes is 0.9% (29 of 3,301). [published abstract]

- 5190 Bishop, A. APPROPRIATE TECHNOLOGIES FOR HEALTH. *Africa Health*, vol.13 no.5, July 1991, pp.10-11.

In this article the author discusses the importance of appropriate technologies to improve health in developing countries. For a technology to be considered appropriate, it must be easy to use and maintain, affordable, effective, locally sustainable, culturally and politically acceptable, and environmentally safe. She briefly reviews technologies developed for safe birth, contraception, diarrhea management, immunization, and AIDS prevention.

- 5336 Black, R.E. OVERVIEW OF DIARRHEAL DISEASES AND STRATEGIES FOR THEIR CONTROL. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES FOR ENTERIC INFECTIONS. D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990. pp.47-59.

Diarrheal diseases continue to be a major problem for children of developing countries. A large number of enteropathogens have been associated with diarrhea. Among the diarrheal diseases, those due to *V.cholerae* and rotavirus would seem most amenable to an immunological control strategy. Other strategies to prevent diarrhea largely involve behavioral approaches.

- 5313 Blanco, J.; Gonzalez, E.A.; Blanco, M.; et al. ENTEROTOXIGENIC *ESCHERICHIA COLI* ASSOCIATED WITH INFANT DIARRHOEA IN GALICIA, NORTH-WESTERN SPAIN. *Journal of Medical Microbiology*, vol.35, 1991, pp.162-167.

The authors studied the role of enterotoxigenic *Escherichia coli* (ETEC) in diarrhea in infants and young children in Galicia, northwestern Spain. Four hundred and eighty-two children with diarrhea and 103 controls were studied. Rotavirus and *Salmonella* were the most common causal agents, followed by ETEC. ETEC was more frequently isolated from children under one month of age with diarrhea than from older children. These findings suggest that ETEC is an important cause of neonatal diarrhea in this area.

- 5525 Boerma, J.T.; Black, R.E.; Sommerfelt, A.E.; et al. ACCURACY AND COMPLETENESS OF MOTHERS' RECALL OF DIARRHOEA OCCURRENCE IN PRE-SCHOOL CHILDREN IN DEMOGRAPHIC AND HEALTH SURVEYS. *International Journal of Epidemiology*, vol.20 no.4, 1991, pp.1073-1080.

In the context of the Demographic and Health Surveys program (DHS), data were collected on diarrheal diseases in childhood and related treatment patterns. In this paper, [the authors] assess the accuracy and completeness of mothers' recall of diarrhea in 19 national DHS surveys and discuss the implications for health interview surveys in developing countries. It is concluded that there is under-reporting of diarrhea if the recall period is longer than two or three days, whereas there may be over-reporting of very recent or current diarrhea in most DHS surveys...The implications of the findings for retrospective surveys on childhood morbidity and treatment patterns are discussed. [published abstract]

- 5117 Boerma, J.T.; Sommerfelt, A.E.; Rutstein, S.O. COMPARATIVE STUDIES 4: CHILDHOOD MORBIDITY AND TREATMENT PATTERNS. Columbia, MD, Institute for Resource Development/Macro International, Inc., August 1991, 39p.

The majority of childhood mortality in developing countries can be attributed to recurrent episodes of infectious diseases and malnutrition. This has been documented by many large-scale studies and surveys. Childhood morbidity, however, has not been the subject of many national surveys. Morbidity data usually come from smaller studies or from health-facility records. This report presents data on the prevalence and treatment of diarrhea, respiratory infections, and fever in over 25 countries. The data were acquired primarily from Demo-

graphic and Health Surveys on population and maternal and child health, conducted during 1985-89.

- 5555 Bowers, A. DEMOGRAPHIC AND HEALTH CARE UTILIZATION CHARACTERISTICS OF CHILDREN LESS THAN FIVE YEARS OF AGE WHO DIED WITH DIARRHEA: A COMMUNITY SURVEY IN THE MANICA DISTRICT OF MOZAMBIQUE. Ministry of Health and Mozambique Health Committee of Seattle, unpublished report, nd, 24p.+app.

From October 1990 to February 1991, a community survey was carried out in the Manica District of Mozambique to identify characteristics of children who died of diarrhea. Study results showed that these children lived in lower quality housing and had less access to functioning latrines. The majority of these children died within two to four days after onset of illness, or within two to four days after being seen at a health post. The author makes two main recommendations based on these findings: 1) improve community education regarding early diarrhea treatment; and 2) improve case management at health facilities.

- 5707 Bowie, M.D.; Mann, M.D.; Hill, I.D. A DESCRIPTIVE TERMINOLOGY OF DIARRHOEAL DISEASE IN INFANTS AND YOUNG CHILDREN. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.55-56.

This editorial suggests that it is time for a formal agreement on definitions of acute and ongoing diarrhea in infants and young children. It offers definitions for acute diarrhea, prolonged acute diarrhea, persistent diarrhea, and chronic diarrhea.

- 5284 "BREAKTHROUGH" CHOLERA VACCINE TRIAL. *Scrip*, no.1651, September 13, 1991, p.23.

A new cholera vaccine, which consists of one of the least virulent natural strains of *V.cholerae*, is about to begin safety and immunogenicity trials in Peru. This brief article describes the vaccine as well as the trial plans.

- 5135 Brown, P. CHOLERA UNDER ATTACK FROM 'ALTERED' VACCINE. *New Scientist*, August 24, 1991, p.10.

This brief article reports on a newly developed live cholera vaccine, which will soon be tested in Chile. The vaccine has been genetically altered so that it produces a strong immune response with virtually no side effects.

- 5044 Bukenya, G.B.; Nwokolo, N. COMPOUND HYGIENE, PRESENCE OF STANDPIPE AND THE RISK OF CHILDHOOD DIARRHOEA IN AN URBAN SETTLEMENT OF PAPUA NEW GUINEA. *International Journal of Epidemiology*, vol.20 no.2, 1991, pp.534-539.

A cohort of children under age five from an urban settlement of Papua New Guinea was followed to identify etiological factors associated with childhood diarrhea. The presence of feces or pigs in the compound was associated with a 48% and 69% increase in diarrhea incidence, respectively. Having a standpipe in the compound was associated with a 56% decrease in diarrhea morbidity. None of these factors were dependent on the literacy of the children's mothers.

- 5385 Cannon, R.O.; Poliner, J.R.; Hirschhorn, R.B.; et al. A MULTISTATE OUTBREAK OF NORWALK VIRUS GASTROENTERITIS ASSOCIATED WITH CONSUMPTION OF COMMERCIAL ICE. *Journal of Infectious Diseases*, vol.164, November 1991, pp.860-863.

This report describes the epidemiological, environmental, and laboratory investigations of a cluster of outbreaks caused by the Norwalk virus in Wilmington, Delaware, and Philadelphia, Pennsylvania. The outbreaks were traced to the consumption of contaminated ice.

- 5602 Cheesbrough, J.S.; Makin, T.; Taxman, B.C.; et al. FALSE-POSITIVE LEGIONELLA SEROLOGY IN *CAMPYLOBACTER* INFECTION. *The Lancet*, vol.339 no.8790, February 15, 1992, p.429, letter.

The authors of this letter to the editor comment on Boswell et al's findings on frequent detection of antilegionella antibodies in patients with *Campylobacter* infection. They note that false-positive legionella IFAT tests are a potentially important source of diagnostic error, which may result in inappropriate treatment and epidemiological investigation.

- 5567 Cheesbrough, M. LABORATORY INVESTIGATION OF DIARRHOEAL DISEASE IN PRIMARY HEALTH CARE. Report prepared for AHRTAG, London, United Kingdom, 1990, 12p.

This leaflet outlines the role of the primary healthcare laboratory to investigate the causes and sources of diarrheal disease and details essential techniques, training needs, and facilities. It offers diagrams and illustrations of techniques and identification of specific diarrhea agents. A list of other sources of information and materials is provided.

- 5172 CHOLERA VACCINE EVALUATION. *Epidemiological Bulletin of PAHO*, vol.12 no.2, 1991, pp.11-14.

This article reports on a meeting convened by the Pan American Health Organization in May 1991 to discuss recent developments and recommendations regarding cholera vaccines. The status and evaluations of current candidate vaccines are reviewed, as well as possibilities for developing new candidate vaccines.

- 5471 Chunge, R.N.; Nagelkerke, N.; Karumba, P.N.; et al. LONGITUDINAL STUDY OF YOUNG CHILDREN IN KENYA: INTESTINAL PARASITIC INFECTION WITH SPECIAL REFERENCE TO *GIARDIA LAMBLIA*, ITS PREVALENCE, INCIDENCE AND DURATION, AND ITS ASSOCIATION WITH DIARRHOEA AND WITH OTHER PARASITES. *Acta Tropica*, vol.50, 1992, pp.39-49.

In Nderu, Kenya, 84 children were followed for up to 10 months to study morbidity due to intestinal parasitic infections, particularly those due to *Giardia lamblia*. *G.lamblia* was the most frequently isolated pathogen and there was a significant probability of finding *Giardia* in stool within approximately two weeks of a report of diarrhea. Poly-parasitism was common and several paired associations were significantly positive, especially between ameba species.

- 4971 Clemens, J.D.; van Loon, F.; Sack, D.A.; et al. FIELD TRIAL OF ORAL CHOLERA VACCINES IN BANGLADESH: SERUM VIBRIOCIDAL AND ANTITOXIC ANTIBODIES AS MARKERS OF THE RISK OF CHOLERA. *Journal of Infectious Diseases*, vol.163, 1991, pp.1235-1242.

The relationship of serum vibriocidal and IgG anti-cholera toxin antibodies to the risk of cholera was evaluated during the first year of follow-up of recipients of three oral doses of B subunit-whole-cell vaccine, whole-cell vaccine, or *Escherichia coli* K12 strain placebo in Bangladesh...Each vaccine conferred [approximately] 65% protective efficacy against cholera, but antibody titers did not correlate with vaccine efficacy, indicating that serum vibriocidal and anti-cholera toxin antibodies are poor markers of the longitudinal pattern of vaccine efficacy. [published abstract]

- 5537 Clemens, J.D.; Ward, R.L.; Rao, M.R.; et al. SEROEPIDEMIOLOGIC EVALUATION OF ANTIBODIES TO ROTAVIRUS AS CORRELATES OF THE RISK OF CLINICALLY SIGNIFICANT ROTAVIRUS DIARRHEA IN RURAL BANGLADESH. *Journal of Infectious Diseases*, vol.165, January 1992, pp.161-165.

A case-control study was carried out in rural Bangladesh to investigate whether serologic immunity to rotavirus was associated with a lower risk of rotavirus diarrhea of sufficient severity to cause patients to seek medical care. The authors conclude that titres of serum IgG antirotavirus antibodies induced by earlier

infection were inversely related to the risk of clinically significant rotavirus diarrhea.

- 5691 Cohen, D.; Block, C.S.; Ambar, R.; et al. PILOT STUDY OF AN EXTENDED RANGE OF POTENTIAL ETIOLOGIC AGENTS OF DIARRHEA IN THE ISRAEL DEFENSE FORCES. *Israel Journal of Medical Sciences*, vol.28 no.1, January 1992, pp.49-51.

The aim of this pilot study was to investigate the possible role of enteropathogens other than *Shigella* in diarrheal disease in the Israeli defense force. While *Shigella* is confirmed to be the major etiologic group, indicators emerged that *E.coli* and Norwalk-like viruses may be of greater importance than previously believed.

- 4881 Cohen, M.B. ETIOLOGY AND MECHANISMS OF ACUTE INFECTIOUS DIARRHEA IN INFANTS IN THE UNITED STATES. *Journal of Pediatrics*, vol.118 no.4 part 2, April 1991, pp.S34-S39.

This review examined (1) the etiology of diarrhea in American children; (2) the mechanism of infectious diarrheal disease; and (3) the incidence, severity, and sequelae of diarrhea in children under age five. Overall, rotavirus was the most common cause of diarrhea. The incidence and severity of diarrhea was greater in infants than in older children. Mechanisms of infection included crypt cell proliferation, cellular invasion, elaboration of enterotoxins or cytotoxins, and enteroadhesion.

- 5182 Corcoran, G.D.; O'Connell, B.; Gilleece, A.; et al. *ENTAMOEBAS COLI* AS POSSIBLE CAUSE OF DIARRHOEA. *The Lancet*, vol.338 no.8761, July 27, 1991, p.254, letter.

The authors of this letter to the editor report on two cases of gastroenteritis in children that appeared to be associated with *Entamoeba coli*. Both patients were treated with metronidazole.

- 5228 Cousens, S.N. A SOURCE OF BIAS IN STUDIES OF BI-DIRECTIONAL ASSOCIATIONS: HYPOTHETICAL EXAMPLE OF MALNUTRITION AND DIARRHOEA. Geneva, World Health Organization, 1991, 13p.

A potential source of bias in studies of the association between two variables A and B, which may be linked by causal pathways in both directions (A may increase the risk of B and B may increase the risk of A), is investigated. A simple probability model is developed with particular reference to the association between malnutrition and diarrhea in young children in developing countries...The model demonstrates that, in the presence of heterogeneous diarrhea

rates, such analyses may produce biased results, leading to an overestimation of the magnitude of any causal link from malnutrition (B) to diarrhea (A). The results of a computer simulation to assess the potential magnitude of such bias are presented. [published abstract]

- 5297 De Giacomo, C.; Maggiore, G.; Fiocca, R. SCREENING DYSPEPSIA BY SEROLOGY TO *HELICOBACTER PYLORI* IN CHILDREN. *The Lancet*, vol.338 no.8774, October 26, 1991, pp.1087-1088, letter.

In this letter to the editor, the authors report on a study that confirms the importance of a screening policy of dyspeptic children based on age and *Helicobacter pylori* serology. With effective screening, many unnecessary endoscopies could be avoided.

- 5277 de Potter, S. DIARRHEES DES NOURRISSONS. *Gazette Médicale*, vol.98 no.28, 1991, pp.19-24.

The causes, symptoms, and treatment of acute diarrhea in childhood are reviewed in this article. The author also discusses how to assess the condition of a child with diarrhea and describes several types of diarrhea and the etiologic agents associated with them. Treatment methods discussed include oral rehydration therapy and drug therapy in certain cases.

- 5341 de Zoysa, I.; Vesikari, T. COST-EFFECTIVENESS OF ROTAVIRUS IMMUNIZATION IN THE CONTROL OF DIARRHOEAL DISEASES IN DEVELOPING COUNTRIES. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES AGAINST ENTERIC INFECTIONS, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.90-101.

This paper reviews the potential role of rotavirus immunization in national programs to reduce diarrhea morbidity and mortality in children under age five. It is based on analyses of the effectiveness and cost-effectiveness of selected diarrhea control interventions prepared by the WHO CDD Programme.

- 5419 Delouis, C.; Bultingaire, N.; Andremont, A. EXAMENS DE LABORATOIRE ET CONSEQUENCES THERAPEUTIQUES. *Gazette Médicale*, vol.98 no.28, 1991, pp.33-41.

In this article the authors discuss laboratory screening for pathogens associated with acute diarrhea. They describe various types of acute diarrhea, their symptoms, the pathogens responsible for them, and diagnostic methods that can be

used to isolate the pathogens. There is also a discussion of what treatments can be used based on laboratory results.

- 5541 Denchev, V.; Nenkov, P.; Vitanov, T. et al. TECHNOLOGICAL ASPECT OF THE PRODUCTION OF LIVE DYSENTERY VACCINES FOR ORAL ADMINISTRATION. Acta Microbiologica Hungarica, vol.38 no.2, 1991, pp.121-126.

An experimental technology for the production of live freeze-dried vaccines prepared from attenuated *Shigella flexneri* 2a and *Shigella sonnei*-1 strains was developed. It is based on the cultivation of bacterial strains in a fermentor under conditions which ensure high yields. The strains grow in S-form, their antigenic structure is preserved, and they remain non-virulent. The attenuating markers are stable. The freeze-dried vaccines retain good immunogenicity when applied intra-intestinally to rats. [published abstract]

- 5771 DePaola, A.; Capers, G.M.; Motes, M.L.; et al. ISOLATION OF LATIN AMERICAN EPIDEMIC STRAIN OF *VIBRIO CHOLERAE* 01 FROM U.S. GULF COAST. The Lancet, vol.339 no.8793, March 7, 1992, p.624, letter.

The isolation of *V.cholerae* 01 serotype Inaba, biotype El Tor, in Mobile Bay on the U.S. Gulf coast is described in this letter to the editor. The strain was isolated from oysters and fish collected in the area, but has not yet been implicated in cases of cholera acquired from consumption of seafood from the Gulf coast.

- 5515 Desenclos, J.C.; Gunn, R.A. ETUDE DU MODE DE TRANSMISSION AU COURS D'UNE EPIDEMIE DE GASTRO-ENTERITE DANS UN SERVICE DE MOYEN SEJOUR, FLORIDE, 1989. Revue d'Epidemiologie et de Santé Publique, vol.39, 1991, pp.447-455.

In January 1989 an outbreak of gastroenteritis occurred among residents and employees of the extended care unit of a Florida hospital. An epidemiological investigation revealed that patients receiving higher levels of nursing and medical care were five times more likely to develop gastroenteritis than other patients. These data suggest that the infection was transmitted from patient to patient by contact with health-care workers who had had some contact with infected individuals.

- 5551 Dru, M. MISE A JOUR SUR *CLOSTRIDIUM DIFFICILE*: PROGRES RECENT EN MATIERE DE DIAGNOSTIC ET DE TRAITEMENT DES COLITES ET DIARRHEES ASSOCIEES A L'ANTIBIOTHERAPIE. Annales de Gastro-entérologie et d'Hépatologie, vol.27 no.7, 1991, pp.343-348.

In this article the author discusses recent advances in the diagnosis and treatment of antibiotic-related colitis and *Clostridium difficile* diarrhea. The pathophysiology and clinical evaluation of these conditions are described and various methods of treatment are discussed.

- 5226 Duncan, A.; Robertson, C.; Russell, R.I. USEFULNESS OF FAECAL WATER POTASSIUM/SODIUM RATIOS IN THE INVESTIGATION OF DIARRHOEA. *Clinica Chimica Acta*, vol.200, 1991, pp.223-226, letter.

A study that examined the value of measuring potassium to sodium ratios in stool water as a means of identifying whether diarrhea is colonic or ileal is reviewed in this letter to the editor. The findings indicated that the ratio is not useful in determining the site of diarrhea between small and large bowel.

- 5706 Ebrahim, G.J. LABORATORY SERVICES IN DEVELOPING COUNTRIES. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.50-51.

This editorial reviews a number of innovative approaches that are now being considered for improving basic clinical chemistry services at low cost in hospitals and health centers in developing countries. These include improved versions of classical methods in clinical chemistry, the development of "stick tests," and advances in microbiology, such as the ELISA technique.

- 5538 Echeverria, P.; Serichantalerg, O.; Changchawalit, S.; et al. TISSUE CULTURE-ADHERENT *ESCHERICHIA COLI* IN INFANTILE DIARRHEA. *Journal of Infectious Diseases*, vol.165, January 1992, pp.141-143.

To determine the association of tissue culture-adherent *E.coli* with diarrhea, serotyped *E.coli* from children in a study of infantile diarrhea [in Bangkok, Thailand] were examined for mannosyl-resistant adherence to HeLa cells and for hybridization with DNA probes previously used to identify LA, DA, and AA *E.coli*...[Results showed that] although LA *E.coli* was highly associated with infantile diarrhea, the role of DA and AA *E.coli* was uncertain in this setting. [published abstract]

- 5519 El Bushra, H.E.; Ash, L.R. HEALTH STATUS OF THE MOTHER: IS IT AN OVERLOOKED RISK FACTOR FOR DIARRHOEAL DISEASE IN CHILDREN? *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.85, 1991, pp.822-823.

In this brief article, the authors report on a study done in a displaced community in Omdurman, Sudan, which sought to identify risk factors for diarrhea. Among the most interesting findings was an apparent correlation between maternal

health and incidence of childhood diarrhea. The data indicated that children whose mothers suffered from gastrointestinal problems were more likely to get diarrhea. The authors suggest further research to investigate maternal health as a risk factor for diarrhea in children.

- 5394 Ferreccio, C.; Prado, V.; Ojeda, A.; et al. EPIDEMIOLOGICAL PATTERNS OF ACUTE DIARRHEA AND ENDEMIC *SHIGELLA* INFECTIONS IN CHILDREN IN A POOR PERIURBAN SETTING IN SANTIAGO, CHILE. *American Journal of Epidemiology*, vol.134 no.6, 1991, pp.614-627.

The objective of the Santa Julia (Chile) field study was to provide a defined population of young children in which to conduct applied epidemiologic research of public-health importance. Specific objectives included a quantification of the incidence of all diarrheal disease and of shigellosis by age and by season and an identification of the different *Shigella* serotypes.

- 5733 Forster, D.; Snow, B. USING MICROCOMPUTERS FOR RAPID DATA COLLECTION IN DEVELOPING COUNTRIES. *Health Policy and Planning*, vol.7 no.1, 1992, pp.67-71.

This paper reviews the use of microcomputer-based management of data collection during health studies. A selection of projects is described, all of which have used microcomputers in a decentralized fashion, closer to the point of data collection. The main advantages of this approach are a significant reduction in error rates and the ability to produce data quickly.

- 5705 Gangarosa, R.E.; Glass, R.I.; Lew, J.R.; et al. HOSPITALIZATIONS INVOLVING GASTROENTERITIS IN THE UNITED STATES, 1985: THE SPECIAL BURDEN OF THE DISEASE AMONG THE ELDERLY. *American Journal of Epidemiology*, vol.135 no.3, 1992, pp.281-290.

While diarrheal disease is a well-recognized problem in children, its impact in the elderly has not been adequately assessed. While children under age five and adults over age 50 each comprise a fourth of hospitalizations involving gastroenteritis, the older group represents 85% of diarrheal deaths. Age was the most important risk factor for death subsequent to a hospitalization involving gastroenteritis.

- 5320 Garenne, M.; Leroy, O.; Beau, J.-P.; et al. CHILD MORTALITY AFTER HIGH-TITRE MEASLES VACCINES: PROSPECTIVE STUDY IN SENEGAL. *The Lancet*, vol.338 no.8772, October 12, 1991, pp.903-907.

The long-term effects of high-titre measles vaccines given early in life on child mortality in developing countries were studied in a randomized trial in Senegal.

Children were assigned to three groups: Edmonston-Zagreb high-titre at five months; Schwarz high-titre at five months; and placebo at five months followed by low-titre Schwarz at 10 months. Findings showed significantly higher mortality after immunization in the groups receiving high-titre vaccines. This suggests a need to reconsider the use of high-titre measles vaccines early in life in developing countries.

- 5521 Ghash, A.R.; Nair, G.B.; Pal, S.C.; et al. ACUTE DIARRHOEAL DISEASES IN INFANTS AGED BELOW SIX MONTHS IN HOSPITAL IN CALCUTTA, INDIA: AN AETIOLOGICAL STUDY. Transactions of the Royal Society of Tropical Medicine and Hygiene, vol.85, 1991, pp.796-798.

In Calcutta, India, a prospective two-year study was carried out among 218 infants with acute diarrhea and 102 controls to investigate the etiology of diarrheal disease in this area. Diarrhea pathogens were isolated from 72% of the diarrheagenic infants. The most frequently isolated pathogens were *E.coli* strains, indicating that *E.coli* plays a major role in causing diarrhea among infants in Calcutta.

- 5202 Ginevskaya, V.A.; Eremeeva, T.P.; Zangaladze, E.D.; et al. ANALYSIS OF ROTAVIRAL GASTROENTERITIS IN TBILISI. Acta Virologica, vol.35, 1991, pp.232-237.

Electrophoretotypes of 107 rotaviral isolates collected in Tbilisi [Georgia] for 18 months revealed seven patterns from which four were "long" and three "short." The long electrophoretotypes represented 74.8% of total number of the isolates analyzed. One of the long electrophoretotypes dominated for the whole investigation period. Differences in the seasonal distribution of the isolates with various electrophoretotypes were demonstrated and appearance of rotaviral isolates was registered with a short electrophoretotype, which had never been detected before. [published abstract]

- 5340 Glass, R.I.; Ho, M.-S.; Lew, J.; et al. COST-BENEFIT STUDIES OF ROTAVIRUS VACCINES IN THE UNITED STATES. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES FOR ENTERIC DISEASES, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.102-107.

After reviewing the epidemiology of rotavirus in the United States, the authors estimate the economic costs of treating rotavirus. They conclude that recent estimates of the high rates of hospitalization for rotavirus diarrhea and the high cost of this hospitalization would make a program for national immunization against rotavirus extremely beneficial in terms of cost.

- 5178 Gomes, T.A.T.; Rassi, V.; MacDonald, K.L.; et al. ENTEROPATHOGENS ASSOCIATED WITH ACUTE DIARRHEAL DISEASE IN URBAN INFANTS IN SAO PAULO, BRAZIL. *Journal of Infectious Diseases*, vol.164, 1991, pp.331-337.

A one-year prospective study was conducted to determine the etiology, epidemiology, and clinical features of diarrheal disease in poor urban infants in São Paulo, Brazil. Enteropathogens were isolated from 55% of diarrhea cases and 10% of controls. Results also indicated that EAF+ classic enteropathogenic *Escherichia coli* equaled or exceeded rotavirus throughout the year as a cause of diarrhea among children brought for medical attention.

- 5443 Gorbach, S.L. LACTIC ACID BACTERIA AND HUMAN HEALTH. *Annals of Medicine*, vol.22, 1990, pp.37-41.

There are many studies that indicate that fermentation of food with lactobacilli will increase the quantity, availability, digestibility, and assimilability of nutrients. However, the therapeutic and nutritional value of these organisms remains a controversial issue. This article reviews several studies on the various uses of lactobacilli and discusses the validity of their findings.

- 5269 Graham, D.Y.; Estes, M.K.; Rhoads, J.M.; et al. PATHOGENESIS AND TREATMENT OF ROTAVIRUS DIARRHEA. *Gastroenterology*, vol.101 no.4, 1991, pp.1140-1141, letter.

In this letter to the editor the authors report on their study about the pathogenesis of rotavirus diarrhea and its treatment with ORS containing glutamine. The results support a similar study done by Rhoads et al. A reply by Rhoads et al follows.

- 5001 Gray, R. H. VERBAL AUTOPSY: USING INTERVIEWS TO DETERMINE CAUSES OF DEATH IN CHILDREN. Baltimore, MD, Johns Hopkins University, Institute for International Programs. March 1991, 32p.

The purpose of this paper is to review verbal autopsy methods for data collection on mortality caused by various diseases, such as tetanus, measles, diarrhea, and acute respiratory infections. The author describes how to use verbal autopsies (interviews with the deceased person's close relatives) to determine possible causes of death.

- 4976 Gryboski, J.D.; Pellerano, R.; Young, N.; et al. POSITIVE ROLE OF *CLOSTRIDIUM DIFFICILE* INFECTION IN DIARRHEA IN INFANTS AND CHILDREN. *American Journal of Gastroenterology*, vol.86 no.6, 1991, pp.685-689.

In order to evaluate the role of *Clostridium difficile* as a diarrheal pathogen in infants and children, the authors examined records of patients whose stools contained either *C.difficile* or its toxin and compared them with patients whose stools were negative for the pathogen. Data indicated that immunoglobulin levels are important factors in problematic *C.difficile* diarrhea.

- 5745 Guarino, A.; Tarallo, L.; Greco, L.; et al. REFERENCE VALUES OF THE STEATOCRIT AND ITS MODIFICATIONS IN DIARRHEAL DISEASES. *Journal of Pediatric Gastroenterology and Nutrition*, vol.14, 1992, pp.268-274.

To assess the reliability of the steatocrit to measure fecal fat excretion and its usefulness in the diagnosis of intestinal enteropathies, the authors measured the steatocrit in 747 healthy children and 442 children with diarrhea. They conclude that the steatocrit is a reliable and easy to perform test, which quickly provides valuable information in the diagnostic workup of the child with diarrhea.

- 5168 Han, A.M.; Oo, K.N.; Aye, T.; et al. BACTERIOLOGIC STUDIES OF FOOD AND WATER CONSUMED BY CHILDREN IN MYANMAR: 2. LACK OF ASSOCIATION BETWEEN DIARRHEA AND CONTAMINATION OF FOOD AND WATER. *Journal of Diarrhoeal Diseases Research*, vol.9 no.2, June 1991, pp.91-93.

The authors investigated the risk of an association between the contamination of the samples of food and water given in the morning to children in Myanmar and the incidence of diarrhea. Children were grouped into "low," "medium," and "high," depending on the contamination levels of the food and water samples. The findings showed that the risk ratios for children in the low groups were not significantly different from that of those among the medium and high groups.

- 4987 Harries, A.D.; Beeching, N.J.; Rogerson, S.J.; et al. THE PLATELET COUNT AS A SIMPLE MEASURE TO DISTINGUISH INFLAMMATORY BOWEL DISEASE FROM INFECTIVE DIARRHOEA. *Journal of Infection*, vol.22, 1991, pp.247-250.

In order to investigate whether clinical features and simple laboratory tests upon hospital admission could identify inflammatory bowel disease (IBD), 212 adult patients with infective diarrhea and 27 with IBD were studied. The findings showed that a raised platelet count in patients admitted with acute gastroenteritis could suggest IBD.

- 5553 Hascelik, G.; Akan, O.A.; Diker, S.; et al. *CAMPYLOBACTER* AND ENTEROHAEMORRHAGIC *ESCHERICHIA COLI* (EHEC) ASSOCIATED WITH

GASTROENTERITIS IN TURKISH CHILDREN. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.315-317.

A study was conducted at Hacettepe University in Turkey to investigate diarrhea incidence due to four common enteric pathogens: *Salmonella*, *Shigella*, *Campylobacter*, and enterohemorrhagic *E.coli* (EHEC). Stool samples from 677 children with enteritis under 15 years of age were studied. At least one of the three bacteria was detected in 15.8% of the patients, but EHEC was not isolated from any of the stool samples. *Campylobacter* was the most frequently isolated pathogen and therefore should be considered an important etiologic agent in Turkey.

- 5294 Heap, B.J.; McCulloch, M.C.B. GIARDIASIS AND OCCUPATIONAL RISK IN SEWAGE WORKERS. *The Lancet*, vol.338 no.8775, November 2, 1991, p.1152, letter.

In this letter to the editor the authors report on sewage workers in Norwich, England, who contracted giardiasis while working. Because such infections are an occupational risk, workers' use of personal protective equipment should be monitored and, when necessary, enforced.

- 5369 Henry, F.J. COMBATING CHILDHOOD DIARRHOEA THROUGH INTERNATIONAL COLLABORATIVE RESEARCH. *Journal of Diarrhoeal Diseases Research*, vol.9 no.3, September 1991, pp.165-167.

In this editorial review, Fitzroy Henry introduces the studies in the September 1991 issue of *Journal of Diarrhoeal Diseases Research*. The studies were supported by the Applied Diarrheal Disease Research Project and fall into three categories: home management of childhood diarrhea, clinical management, and prevention.

- 5134 Herman, E.; Cutts, F.; Soares, A. ASSESSING DIARRHOEA-INDUCED DEHYDRATION AT THE COMMUNITY LEVEL. *Journal of Tropical Medicine and Hygiene*, vol.94, 1991, pp.224-230.

A community based study of children under age five in Mozambique was conducted to assess children with diarrhea for the 12 signs and symptoms of dehydration listed in the WHO treatment chart. The authors compared symptoms reported by caretakers with signs detected by physical examination at the time of interview. The symptoms with the highest sensitivities were presence of four or more stools per day, drinking more or less than usual, and fever. Individual symptoms with the highest specificity were decreased urine output, vomiting, and passing 10 or more stools per day. These results are compared with the findings of similar studies conducted in different cultural and clinical settings.

- 4943 Herrmann, J.E.; Taylor, D.N.; Echeverria, P.; et al. ASTROVIRUSES AS A CAUSE OF GASTROENTERITIS IN CHILDREN. *New England Journal of Medicine*, vol.324 no.25, June 20, 1991, pp.1757-1760.

In Bangkok, Thailand, stool samples from 3,150 children attending an outpatient clinic were examined to determine the prevalence of astrovirus-associated gastroenteritis. In the two studies conducted, astrovirus was detected in 2.0% and 2.1% of children with gastroenteritis. These results suggest that astroviruses are a common cause of gastroenteritis.

- 4955 Holmgren, J.; Svennerholm, A.-M. DEVELOPMENT OF ORAL VACCINES AGAINST CHOLERA AND ENTEROTOXIGENIC *ESCHERICHIA COLI* DIARRHEA. *Scandinavian Journal of Infectious Diseases*, suppl.76, 1990, pp.47-53.

The authors of this article review the progress made in developing oral vaccines for cholera and enterotoxigenic *E.coli* (ETEC) diarrhea. An oral cholera vaccine consisting of immunogenic but completely nontoxic B subunit of cholera toxin combined with health- and formalin-killed cholera vibrios has been developed and tested. The vaccine has also induced protection against ETEC. Research is also underway to develop an ETEC vaccine combining a B subunit toxoid with inactivated ETEC expressing the most important colonization fimbrial antigens.

- 5381 Huilan, S.; Zhen, L. G.; Mathan, M. M.; et al. ETIOLOGY OF ACUTE DIARRHOEA AMONG CHILDREN IN DEVELOPING COUNTRIES: A MULTI-CENTRE STUDY IN FIVE COUNTRIES. *Bulletin of the World Health Organization*, vol.69 no.5, 1991, pp.549-555.

To define and compare the etiology of acute diarrhea in young children in different areas of the world, a two-year survey was undertaken in five hospitals in China, India, Mexico, Myanmar, and Pakistan. In all the study centers, the pathogens most strongly associated with disease were rotavirus, *Shigella* spp., and enterotoxigenic *Escherichia coli*.

- 5445 Huq, A.; Alam, M.; Parveen, S.; et al. OCCURRENCE OF RESISTANCE TO VIBRIOSTATIC COMPOUND 0/129 IN *VIBRIO CHOLERAE* 01 ISOLATED FROM CLINICAL AND ENVIRONMENTAL SAMPLES IN BANGLADESH. *Journal of Clinical Microbiology*, vol.30 no.1, January 1992, pp.219-221.

A study was undertaken in Bangladesh to evaluate the effectiveness of vibriostatic compound 0/129 as a screening test for the isolation and identification of *V.cholerae* from clinical and environmental samples. A comparative study was also done to determine antibiotic resistance patterns of both 0/129-resistant and

O/129-sensitive strains isolated from clinical and environmental sources. The results are reported in this article.

- 5428 Hyams, K.C.; Bourgeois, A.L.; Merrell, B.R.; et al. DIARRHEAL DISEASE DURING OPERATION DESERT SHIELD. *New England Journal of Medicine*, vol.325 no.20, November 14, 1991, pp.1423-1428.

To evaluate the causes of and risk factors for diarrheal diseases among U.S. troops stationed in Saudi Arabia, the authors collected clinical and epidemiologic data from 432 military personnel presenting with diarrhea and related symptoms. Results showed that gastroenteritis caused by enterotoxigenic *E.coli* and *Shigella sonnei*, both of which were resistant to a number of drugs, was a significant problem that often interfered with the duties of U.S. troops during Operation Desert Shield.

- 5499 James, S.C. RECOMBINANT CHOLERA VACCINE TO BE TESTED IN LATIN AMERICA. *Genetic Engineering News*, November-December 1991, np.

A live, oral cholera vaccine, which just completed trials in Indonesia, will soon be tested in Latin America. This article describes the composition of the vaccine and the plans for the field trials in Latin America.

- 5624 Jertborn, M.; Svennerholm, A.-M.; Holmgren, J. SAFETY AND IMMUNOGENICITY OF AN ORAL RECOMBINANT CHOLERA B SUBUNIT-WHOLE CELL VACCINE IN SWEDISH VOLUNTEERS. *Vaccine*, vol.10 issue 2, 1992, pp.130-132.

The safety and immunogenicity of a 'new' oral B subunit-whole cell (B-WC) cholera vaccine based on recombinantly produced B subunit was evaluated in Swedish volunteers. The recombinant B-WC vaccine was comparable to the 'old' type of B-WC vaccine in inducing IgA and IgG antitoxin antibody responses as well as vibriocidal antibody responses in serum...The results indicate that the more easily and cheaply produced recombinant B subunit can replace the old type of B subunit isolated from cholera toxin for use in the oral B-WC cholera vaccine. [published abstract]

- 5533 Jinadu, M.K.; Olusi, S.O.; Agun, J.I.; et al. CHILDHOOD DIARRHOEA IN RURAL NIGERIA: I. STUDIES ON PREVALENCE, MORTALITY AND SOCIO-ENVIRONMENTAL FACTORS. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.323-327.

A population-based study was carried out in a rural area of Akoko North in Ondo State, Nigeria, to determine the prevalence, mortality, and socioeconomic determinants of diarrheal diseases in children under age five. The two-week

prevalence rate was 8.1% with the highest rates among infants under 11 months old. The under-five mortality rate was 62 per 1,000. Social and environmental factors that were significantly related to disease incidence included dirty feeding bottles and utensils, inadequate waste disposal, and poor storage of drinking water.

- 5752 Kalter, H. THE VALIDATION OF INTERVIEWS FOR ESTIMATING MORBIDITY. *Health Policy and Planning*, vol.7 no.1, 1992, pp.30-39.

Health interview surveys have been widely used to measure morbidity in developing countries. Structured questionnaires using algorithms that derive sign- and symptom-based diagnoses seem to be the most reliable. This article explores the problem of validation of such algorithms, including the issues of selection bias, differences in populations, and the pattern of diseases in study populations compared with the community.

- 5045 Kangchuan, C.; Chenshui, L.; Qingxin, Q.; et al. THE EPIDEMIOLOGY OF DIARRHOEAL DISEASES IN CHINA. *Journal of Diarrhoeal Diseases Research*, vol.9 no.2, June 1991, pp.94-99.

A 12-month survey of 19,410 people in southeastern China was conducted to investigate the epidemiology of diarrhea. Incidence varied with age groups with children under five having the highest rate (2.25 episodes per child per year). *Escherichia coli* and *Shigella* species were the most commonly isolated pathogens. Results also showed that incidence was related to economic status, education level, health, hygiene, and water quality.

- 5651 Kappus, K.K.; Juranek, D.D.; Roberts, J.M. RESULTS FOR TESTING FOR INTESTINAL PARASITES BY STATE DIAGNOSTIC LABORATORIES, UNITED STATES, 1987. *Morbidity and Mortality Weekly Report*, vol.40 no.SS-4, December 1991, pp.25-45.

The authors analyzed results of 216,275 stool samples examined by state diagnostic laboratories in 1987 for intestinal parasites. The highest percentage of parasites isolated were protozoans (such as *Giardia lamblia* and *Entameba coli*) and the most identified helminths were nematodes (hookworm and *Trichuris trichiura*, for example). The data showed increased rates of identification of *G.lamblia* as compared to data collected a decade earlier (1976-78).

- 5029 Karnell, A.; Stocker, B.A.D.; Katakura, S.; et al. AN AUXOTROPHIC LIVE ORAL *SHIGELLA FLEXNERI* VACCINE: DEVELOPMENT AND TESTING. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S357-S361.

Through transduction, a wild-type strain of *Shigella flexneri* serotype Y (SFL1) was rendered auxotrophic and dependent on aromatic metabolites that are not available in mammalian tissue. The safety and immunogenicity of SFL114 were studied in monkeys and in human volunteers. The results suggest that the aroD transductant SFL114 possesses properties that are desirable in an oral live candidate vaccine.

- 5013 Kennedy, E.; Burke, V.; Pearman, J.; et al. CYTOTOXIC EFFECTS OF CHILDREN'S FAECES: RELATION TO DIARRHOEA DUE TO *CLOSTRIDIUM DIFFICILE* AND OTHER ENTERIC PATHOGENS. *Annals of Tropical Paediatrics*, vol.11, 1991, pp.107-112.

A study was carried out to investigate the cytotoxicity of fecal extracts from the stools of 88 children at the Princess Margaret Hospital in Perth, Australia. The data indicated that cytotoxicity in tissue culture may be associated with several enteric pathogens and that these findings could be used to indicate the most appropriate further investigations.

- 5734 Khan, M.; Manderson, L. FOCUS GROUPS IN TROPICAL DISEASE RESEARCH. *Health Policy and Planning*, vol.7 no.1, 1992. pp.56-66.

Focus groups are a method designed to gather information primarily about beliefs, values, and understanding. Group dynamics facilitate the collection of detailed information on prevalent attitudes and ideas. This paper examines the need for flexibility in the conduct of focus groups in developing country settings, and argues for their applicability in tropical disease research.

- 5640 Kitagawa, T.; Tsutida, Y.; Murakami, R.; et al. DETECTION AND QUANTITATIVE ASSESSMENT OF A *VIBRIO CHOLERAE* 01 SPECIES IN SEVERAL FOODS BY A NOVEL ENZYME IMMUNOASSAY. *Microbiology and Immunology*, vol.36 no.1, 1992, pp.13-20.

In this article the authors report on the use of a selected antibody enzyme immunoassay (SAEIA) for the general detection of *Vibrio cholerae* 01. Data showed that the SAEIA was specific for *V.cholerae* 01 species and showed low cross-reaction values to other microorganism species tested. The authors also report on the application of the SAEIA for the measurement of the growth of *V.cholerae* 01 in several foods with or without mix-culturing *E.coli*.

- 4889 Koopmans, M.; Herrewegh, A.; Horzinek, M.C. DIAGNOSIS OF TOROVIRUS INFECTION. *The Lancet*, vol.337 no.8745, April 6, 1991, p.859, letter.

Toroviruses are enveloped, positive-stranded RNA viruses that cause enteric infections in animals. This letter to the editor describes the characteristics of torovirus-like particles isolated from the stools of patients with diarrhea.

- 5512 Kruger, W.; Stockschlader, M.; Zander, A.R. TRANSMISSION OF ROTAVIRUS DIARRHEA IN A BONE MARROW TRANSPLANTATION UNIT BY A HOSPITAL WORKER. *Bone Marrow Transplantation*, vol.8, 1991, pp.507-508, letter.

The authors of this letter to the editor describe a case of rotavirus infection in a bone marrow transplantation patient. The source of the infection was traced to a cleaning woman who had cleaned the patient's room and who tested positive for rotavirus. The authors stress that hospital personnel in bone marrow transplant units should avoid contact with patients at risk of carrying contagious diseases.

- 4998 Kuijper, E.J.; Peeters; M.F. BACTERIOLOGY AND CLINICAL ASPECTS OF *AEROMONAS*-ASSOCIATED DIARRHEA IN THE NETHERLANDS. *Experientia*, vol.47, 1991, pp.432-434.

*Aeromonas* species were isolated from 0.61% of 34,311 fecal samples [submitted to the Public Health Laboratory in The Netherlands] during a five-year period. Most strains belonged to DNA hybridization groups 4 (*A.caviae*), 8 (*A.sobria*), and 1 (*A.hydrophila*)...Multivariate analysis of the clinical data showed that *Aeromonas*-associated diarrhea cannot be attributed solely to cytotoxin production of the strains, but that it is also strongly associated with host factors. [published abstract]

- 4975 Kustner, H.G.V.; Du Plessis, G. THE CHOLERA EPIDEMIC IN SOUTH AFRICA, 1980-1987: EPIDEMIOLOGICAL FEATURES. *South African Medical Journal*, vol.79, May 4, 1991, pp.539-544.

During the cholera epidemic in South Africa during 1980-87, 25,251 cases were recorded and the case fatality rate was 1.4%. Outbreaks occurred in the summer during the rainy season. The majority of patients were rural black South Africans. This article describes the epidemiologic features of the outbreaks as well as the strategies used to contain the epidemic.

- 5463 Lambert-Zechovsky, N. COPROCULTURE: INTERET ET INDICATIONS DANS LA DIARRHEE AIGUE. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.593-597.

The use of stool culture in diagnosing the causes of acute diarrhea is discussed in this article. The advantages and limitations of using this test are discussed, particularly in terms of the pathophysiology of various types of acute diarrhea.

- 5399 Lanata, C.F.; Black, R.E. LOT QUALITY ASSURANCE SAMPLING TECHNIQUES IN HEALTH SURVEYS IN DEVELOPING COUNTRIES: ADVANTAGES AND CURRENT CONSTRAINTS. *World Health Statistics Quarterly*, vol.44 no.3, 1991, pp.133-139.

After a brief description of the lot quality assurance sampling methodology, each aspect of the methodology in its application to health surveys is discussed, addressing current difficulties. Sampling schemes using LQAS such as simple and double-sampling schemes are discussed. Ways of overcoming the methodology's limitations through future research are suggested.

- 5703 Lantz, P.; Partin, M.; Palloni, A. USING RETROSPECTIVE SURVEYS FOR ESTIMATING THE EFFECTS OF BREASTFEEDING AND CHILDSPACING ON INFANT AND CHILD MORTALITY. *Population Studies*, vol.46, 1992, pp.121-139.

This paper attempts to assess the degree to which the estimated effects of breastfeeding and birthspacing are affected by recall errors, choice of model, and unmeasured conditions associated with social and economic factors. A limited set of countries is used to illustrate the robustness of extant findings.

- 5398 Lemeshow, S.; Taber, S. LOT QUALITY ASSURANCE SAMPLING: SINGLE-AND DOUBLE-SAMPLING PLANS. *World Health Statistics Quarterly*, vol.44 no.3, 1991, pp.115-132.

Lot quality assurance sampling was originally developed for industrial applications. This article discusses the extension of its application to a public-health setting. Lot quality assurance sampling is discussed and illustrated by examples, and the theoretical foundations of single and double lot quality assurance sampling are presented. Examples of sample size and critical value tables are also presented.

- 5739 Lengeler, C.; Sala-Diakanda, D.M.; Tanner, M. USING QUESTIONNAIRES THROUGH AN EXISTING ADMINISTRATIVE SYSTEM: A NEW APPROACH TO HEALTH INTERVIEW SURVEYS. *Health Policy and Planning*, vol.7 no.1, 1992, pp.10-21.

This paper reviews recent developments in the field of health interview procedures and their contribution to decentralized health planning. The "indirect" health interview procedure represents an evolution of the traditional interview

approach, because it is distributed through an existing administrative system and self-administered by recipients. The paper describes ongoing research designed to test this approach in seven African countries.

- 5312 Lew, J.F.; Moe, C.L.; Monroe, S.S. ASTROVIRUS AND ADENOVIRUS ASSOCIATED WITH DIARRHEA IN CHILDREN IN DAY CARE SETTINGS. *Journal of Infectious Diseases*, vol.164, 1991, pp.673-678.

This study documents the presence of astrovirus and enteric adenoviruses among children in daycare in the United States, associates astrovirus with diarrhea in this setting, and suggests that viral agents may be the most common enteric pathogens among children with diarrhea in daycare. [published abstract]

- 4981 Lew, J.F.; Glass, R.I.; Gangarosa, R.E.; et al. DIARRHEAL DEATHS IN THE UNITED STATES, 1979 THROUGH 1987: A SPECIAL PROBLEM FOR THE ELDERLY. *Journal of the American Medical Association*, vol.265 no.24, June 26, 1991, pp.3280-3284.

The authors reviewed national mortality data to examine trends in diarrheal deaths among all age groups in the United States. Results showed that 28,538 persons died of diarrhea with the majority of deaths occurring among the elderly. For the elderly, risk factors for diarrheal mortality included being white, female, and living in a long-term care facility. More research needs to be done to determine if ORT or other preventive measures could benefit this population.

- 5338 Lindberg, A.A.; Verma, N.; Karnell, A.; et al. AUXOTROPIC *SHIGELLA* VACCINES: POTENTIAL FOR VACCINATING CHILDREN AND ADULTS IN DEVELOPING COUNTRIES. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES FOR ENTERIC INFECTIONS, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.121-130.

This paper investigates the prospects for immunization against shigellosis and the development of new vaccines. Clinical trials of candidate vaccines in animals and humans are discussed. The paper concludes that prospects for immunization against shigellosis caused by *S.flexneri* and *S.dysenteriae* type 1 appear more promising than ever.

- 5041 Lindberg, A.A.; Dac Cam, P.; Chan, N.; et al. SHIGELLOSIS IN VIETNAM: SERO-EPIDEMIOLOGIC STUDIES WITH USE OF LIPOPOLYSACCHARIDE ANTIGENS IN ENZYME IMMUNOASSAYS. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S331-S237.

The performance of enzyme immunoassays with use of O-antigen-containing lipopolysaccharides extracted with phenol-water from *Shigella dysenteriae* type 1, *Shigella flexneri* serotypes 1a-5b, and *Shigella sonnei* for determination of the serum antibody responses after onset of bacillary dysentery is reviewed, with serum samples from Vietnamese and Swedish patients.

- 5524 Mahalanabis, D.; Alam, A.N.; Rahman, N.; et al. PROGNOSTIC INDICATORS AND RISK FACTORS FOR INCREASED DURATION OF ACUTE DIARRHOEA AND FOR PERSISTENT DIARRHOEA IN CHILDREN. *International Journal of Epidemiology*, vol.20 no.4, 1991, pp.1064-1072.

In order to identify the prognostic indicators and risk factors for increased duration of acute diarrhea and for occurrence of persistent diarrhea in children under three years, a sample of 3,690 children attending a large treatment center in Bangladesh was analyzed. Significant indicators or risk factors identified included bloody or mucoid diarrhea, concomitant signs of chest infection, signs of vitamin A deficiency, decreased weight for age, routine use of contaminated water, lack of breastfeeding, and increasing age. The authors also discuss the policy implications of these findings for programs aimed at reducing morbidity and mortality from persistent diarrhea.

- 5427 Malone, J.D.; Paparello, S.; Thornton, S.; et al. PARASITIC INFECTIONS IN TROOPS RETURNING FROM OPERATION DESERT STORM. *New England Journal of Medicine*, vol.325 no.20, November 14, 1991, pp.1448, letter.

The authors of this letter to the editor investigated the risk of enteric parasitic disease in troops returning from duty in Operation Desert Storm. Their findings indicated that, except for isolated cases of giardiasis, parasitic diseases may not be a common problem for these military personnel.

- 5749 Manderson, L.; Aaby, P. CAN RAPID ANTHROPOLOGICAL PROCEDURES BE APPLIED TO TROPICAL DISEASES? *Health Policy and Planning*, vol.7 no.1, 1992, pp.46-55.

Anthropological methods have been introduced into rapid assessment procedures for a number of diseases. This paper examines the suitability of this approach for health research in countries where tropical diseases are endemic. The paper argues that a mix of research methods, use of multidisciplinary teams, and attention to contradictions within the study population will provide valuable data in a relatively short time period.

- 5644 Manjarrez-Hernandez, H.A.; Baldwin, T.J.; Aitken, A.; et al. INTESTINAL EPITHELIAL CELL PROTEIN PHOSPHORYLATION IN ENTEROPATHOGENIC

*ESCHERICHIA COLI* DIARRHOEA. The Lancet, vol.339 no.8792, February 29, 1992, pp.521-523.

In this study the authors investigated whether phosphorylation of specific target cell proteins, especially proteins in the epithelial cell cytoskeleton, might mediate enterocyte AE lesion formation and EPEC diarrhea. The findings indicate that enterocyte cytoskeletal changes in response to EPEC may be directly triggered by bacterial adherence through signal transduction pathways that stimulate protein kinase activity.

- 5132 Mathew, M.; Mathan, M.M.; Mani, K.; et al. THE RELATIONSHIP OF MICROBIAL PATHOGENS TO ACUTE INFECTIOUS DIARRHOEA OF CHILDHOOD. Journal of Tropical Medicine and Hygiene, vol.94, 1991, pp.253-260.

A study was carried out in southern India to identify as many diarrhea agents as possible among 916 children with acute diarrhea and 587 matched controls. The study was also designed to determine if any identified pathogens were specifically associated with more severe forms of diarrhea and to identify clinical profiles of significance. The pathogens isolated included rotavirus, *Shigella*, *Salmonella typhimurium*, and enterotoxigenic *E.coli*, all of which were significantly more prevalent in the diarrhea patients. The prevalence of all other pathogens was similar in patients and controls. Only shigellosis had a characteristic clinical profile.

- 5687 Mattila, L.; Siitonen, A.; Kyronseppa, H.; et al. SEASONAL VARIATION IN ETIOLOGY OF TRAVELERS' DIARRHEA. Journal of Infectious Diseases, vol.165, 1992, pp.385-388.

The etiology of travelers' diarrhea was studied in 579 Finnish tourists participating in two packaged tours to Morocco in fall and winter 1989. At least one pathogen was found in 62% of the 60 diarrhea cases in winter and in 58% of the 111 diarrhea cases in the fall. *Campylobacter* strains were the leading cause of diarrhea in winter, whereas enterotoxigenic *E.coli* was the most common pathogen in the fall. The results of this study indicated that the etiology of travelers' diarrhea varied seasonally in the same tourist destination. These findings have relevance to both antimicrobial treatment and prophylaxis.

- 5345 Ming, Z.F.; Xi, Z.D.; Dong, C.S.; et al. DIARRHOEAL DISEASE IN CHILDREN LESS THAN ONE YEAR OF AGE AT A CHILDREN'S HOSPITAL IN GUANGZHOU, PEOPLE'S REPUBLIC OF CHINA. Transactions of the Royal Society of Tropical Medicine and Hygiene, vol.85, 1991, pp.667-669.

The authors performed a case-control study of diarrhea to determine its causes in children less than one year old in Guangzhou, People's Republic of China.

Rotavirus and *C.jejuni* were found to be the most common causes of diarrhea in the study population. No child was greater than 3% dehydrated, none were malnourished, and none died.

- 5249 MORTALITY DUE TO INTESTINAL INFECTIOUS DISEASES IN LATIN AMERICA AND THE CARIBBEAN, 1965-1990. *Epidemiological Bulletin*, vol.12 no.3, 1991, pp.1-6.

Mortality due to diarrheal diseases has declined in Latin American and Caribbean countries in recent years. This article presents statistics on mortality due to intestinal infectious diseases in these countries during 1965-90, examines various trends in mortality during that period, and discusses reasons for the reductions in mortality rates.

- 5530 Moy, R.J.D.; Booth, I.W.; McNeish, A.S.; et al. DEFINITIONS FOR DIARRHOEA. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, p.335, letter.

In this letter to the editor the authors discuss the wide variety of definitions for diarrhea used in field surveys, which makes comparisons among studies difficult. They suggest that definitions should take local cultural perceptions into account and that diarrhea should be described by an unambiguous word in the local language when doing surveys.

- 5520 Moy, R.J.D.; Booth, I.W.; Choto, R.-G.A.B.; et al. RISK FACTORS FOR HIGH DIARRHOEA FREQUENCY: A STUDY IN RURAL ZIMBABWE. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.85, 1991, pp.814-818.

A cohort of young children living in a deprived community in rural Zimbabwe were studied to determine risk factors for diarrhea. A questionnaire was administered on feeding, environmental conditions, education, and socioeconomic factors to investigate the relationship of these factors to diarrhea morbidity. The data indicated that despite high diarrhea morbidity rates, incidence was not significantly associated with any of the studied factors. These results suggest that other factors, such as individual hygiene behavior or individual susceptibility to diarrhea, may play a role in diarrhea incidence in this community.

- 5552 Na'was, T.E.; Abo-Shehada, M.N. A STUDY OF THE BACTERIAL AND PARASITIC CAUSES OF ACUTE DIARRHOEA IN NORTHERN JORDAN. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.305-309.

The prevalence of bacterial and parasitic diarrhea agents in Jordan was studied in 200 patients with acute diarrhea and in controls. One or more agents was

isolated from 39.5% of the patients. The most commonly isolated pathogens were *E.coli*, followed by *Salmonella* and *Campylobacter*. These data will serve as baseline information for future investigations.

- 5732 O'Brien, P.D. DIARRHOEAL DISEASE IN URBAN BANGLADESH. Urban Examples, vol.17, December 1991, pp.12-13.

In Bangladesh, the lack of primary and outreach health services in cities and towns places the urban poor at a disadvantage *vis-à-vis* the rural poor. This brief paper presents some available data on diarrheal disease in urban areas, including a 1988 knowledge, attitude, and practices survey; morbidity data; and figures on ORS distribution.

- 5285 Olukoya, D.K.; Bakare, S.B.; Abayomi, O. MICROBIOLOGICAL EVALUATION OF FOOD SAMPLES SOLD TO PRIMARY SCHOOL CHILDREN IN LAGOS, NIGERIA. Journal of Tropical Pediatrics, vol.37 no.5, October 1991, p.266, letter.

An investigation done to assess the safety of snack foods sold to school children in Lagos is described in this letter to the editor. Several diarrhea pathogens were isolated from food samples, thus indicating a need to carefully monitor foods sold to children.

- 5350 Oni, G.A.; Schumann, D.A.; Oke, E.A. DIARRHOEAL DISEASE MORBIDITY, RISK FACTORS AND TREATMENTS IN A LOW SOCIOECONOMIC AREA OF ILORIN, KWARA STATE, NIGERIA. Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.250-257.

This study examined the relationship between sociodemographic characteristics and the incidence of diarrhea in a low-income area of Ilorin, Nigeria. It also examined the different types of treatment that mothers use to treat their children's diarrhea and the determinants of such treatment. The most common treatments used by mothers were ORS (15%), antibiotics (54%), and local herbs (28%).

- 5518 Onyemelukwe, G.C.; Lawande, R.V. SEROTYPE VARIATION IN *VIBRIO CHOLERAE* EL TOR DIARRHOEA IN NORTHERN NIGERIA. Central African Journal of Medicine, vol.37 no.6, June 1991, pp.186-189.

Cholera outbreaks during 1976-86 in Nigeria were followed to determine the prevalent serotypes in Zaria and surrounding areas. The findings show that the Hikojima serotype was prevalent during 1976-78, but the Ogawa serotype became more common during 1984-86. The reasons for these changes are undetermined.

- 4953 Ostroff, S.M.; Hopkins, D.P.; Tauxe, R.V.; et al. SURVEILLANCE OF *ESCHERICHIA COLI* 0157 ISOLATION AND CONFIRMATION, UNITED STATES, 1988. Morbidity and Mortality Weekly Report, vol.40 no.SS-1, 1991, pp.1-6.

In 1989, to examine patterns of testing for *Escherichia coli* 0157:H7 in state public-health laboratories, the CDC conducted a survey to determine the availability and type of *E.coli* 0157:H7 testing in the laboratories if such testing was available...A total of 489 *E.coli* 0157:H7 or *E.coli*:NM isolates were identified, with the largest numbers being reported from Washington (156), Oregon (64), Minnesota (63), and Massachusetts (36). These results show that *E.coli* 0157 has been detected in most areas of the United States. Infections are apparently concentrated in northern states; however, improved surveillance data are needed to determine regional incidence and trends. [published abstract]

- 5314 Panigrahi, D.; Roy, P.; Chakrabarti, A. ENTEROTOXIGENIC *KLEBSIELLA PNEUMONIAE* IN ACUTE CHILDHOOD DIARRHOEA. Indian Journal of Medical Research, vol.93, September 1991, pp.293-296.

Fifty strains of *Klebsiella pneumoniae*, isolated from stools of 50 Indian children with gastroenteritis, were studied for heat-labile enterotoxin production. Results showed that *Klebsiella*-induced enterotoxigenic diarrhea and produced a heat-labile toxin that seemed to be biologically, antigenically, and possibly genetically related to the heat-labile toxin of the cholera-coli family.

- 5128 Pazzaglia, G.; Podgore, J.; Mercado, W.; et al. THE ETIOLOGY OF CHILDHOOD DIARRHEA IN NORTHERN COASTAL PERU: THE 1989 FUERZAS UNIDAS HUMANITARIAN CIVIC ACTION -- A MODEL FOR INTERNATIONAL AND INTERSERVICE COOPERATION, COMMUNITY SERVICE, AND SCIENTIFIC OPPORTUNITY. Military Medicine, vol.156, August 1991, pp.402-405.

As a humanitarian civic action project, American and Peruvian military medical personnel established a temporary clinic in Dos Palos, Peru. Fecal specimens from 20 diarrheic children and 10 non-diarrheic controls were tested for common agents of diarrhea. Enteropathogens detected in diarrheic stools were enterotoxigenic *Escherichia coli* (ETEC; 30%), *Aeromonas* (20%), enteropathogenic *E.coli* (15%), and *Campylobacter* (15%)...ETEC-associated diarrhea was more common in this study (30%) than in three similar populations studied in Lima (2-26%). The results suggest that the northern coastal area of Peru is a relatively high-risk area for diarrhea caused by ETEC. [published abstract]

- 5281 Pazzaglia, G.; Escamilla, J. THE ETIOLOGY OF DIARRHEA AMONG AMERICAN ADULTS LIVING IN PERU. Military Medicine, vol.156 no.9, September 1991, pp.484-487.

During 1984-89, 655 diarrheic and 287 non-diarrheic stool specimens from adult U.S. citizens living in Lima, Peru, were tested for presence of bacterial enteropathogens. *Aeromonas*, an unproven cause of diarrhea, was isolated from 9.2% of cases and 3.5% of controls. Disease occurrence was strongly associated with isolation of *Shigella*, ETEC, *Campylobacter*, or *Aeromonas*. During the six-year period of study, shifts in the dominant phenotypes of *Shigella* and *Campylobacter* occurred, which may have important implications for vaccine development and intervention strategies. [published abstract]

- 5388 Pinfold, J.V.; Horan, N.J.; Mara, D. SEASONAL EFFECTS ON THE REPORTED INCIDENCE OF ACUTE DIARRHOEAL DISEASE IN NORTHEAST THAILAND. *International Journal of Epidemiology*, vol.20 no.3, 1991, pp.777-786.

This paper examines the seasonal variation in the reported incidence of acute diarrhea for selected areas in northeast Thailand. Incidence of diarrhea appears to be inversely related to a sharp decrease in temperature around January each year. Rain water collection is an important water source in this region and the effect this has on water use is discussed in relation to fecal-oral disease transmission.

- 5351 Punyaratabandhu, P.; Vathanophas, K.; Varavithya, W.; et al. CHILDHOOD DIARRHOEA IN A LOW-INCOME URBAN COMMUNITY IN BANGKOK: INCIDENCE, CLINICAL FEATURES, AND CHILD CARETAKER'S BEHAVIOURS. *Journal of Diarrhoeal Diseases Research*, vol.9 no.3, September 1991, pp.244-249.

A one-year surveillance study of childhood diarrhea in a low-income Bangkok community revealed an annual incidence of 2.2 episodes per child among infants, and 0.9 episodes among children under age five. Clinical characteristics and pathogens were reported. Caretakers treated childhood diarrhea with ORS (53%), antibiotics (10%), or with a combination (15%).

- 5389 Qadri, S.M.H.; Al-Qatary, K.; Tufenkeji, H.T.; et al. ETIOLOGY OF BACTERIAL DIARRHEA IN A MAJOR REFERRAL CENTER IN SAUDI ARABIA. *Annals of Saudi Medicine*, vol.11 no.6, 1991, pp.633-636.

This paper describes a five-year study at a major referral tertiary care center in Saudi Arabia concerning the etiology of bacterial diarrhea in approximately 1,400 patients. Bacterial pathogens were isolated from 7% of patients, with *Salmonella* being the most frequent. Incidence of rotaviruses was found to be 31.6%.

- 5019 Quiding, M.; Nordstrom, I.; Kilander, A.; et al. **INTESTINAL IMMUNE RESPONSES IN HUMANS.** *Journal of Clinical Investigation*, vol.88, July 1991, pp.143-148.

A study was conducted to examine the secretory antibody and cell-mediated immune responses to oral cholera vaccine in the human gastrointestinal mucosa. Based on the findings, the authors conclude that it is feasible to study intestinal immune reactivity in humans at the single-cell level.

- 5325 Rabbani, G.H.; Lu, R.-B.; Horvath, K.; et al. **SHORT-CHAIN GLUCOSE POLYMER AND ANTHRACENE-9-CARBOXYLIC ACID INHIBIT WATER AND ELECTROLYTE SECRETION INDUCED BY DIBUTYRYL CYCLIC AMP IN THE SMALL INTESTINE.** *Gastroenterology*, vol.101, 1991, pp.1046-1053.

Glucose-stimulated sodium absorption is the rationale for treatment with glucose-based ORS in diarrhea. Concurrent treatment with pharmacological inhibitors, which specifically block chloride secretion, may be a useful adjunct to oral fluid therapy. The authors studied whether a short-chain glucose polymer (hydrolyzed rice polymer) or a Cl-channel blocker (A-9-C) alone or in combination inhibits intestinal ion and water secretion induced by N6-2'-O-dibutryl adenosine 3':5'-cyclic monophosphate in the small intestine of rats.

- 5279 Rademaker, C.M.A.; Krul, M.R.L.; Jansen, W.H.; et al. **ANALYSIS OF *ESCHERICHIA COLI* ISOLATES FROM SUBJECTS WITH TRAVELLERS' DIARRHOEA USING DNA PROBES AND SEROTYPING.** *European Journal of Clinical Microbiology and Infectious Diseases*, August 1991, pp.625-629.

*E.coli* isolates from feces of 54 persons with travelers diarrhea who visited Tunisia were analyzed for diarrheagenic properties. A randomized double-blind, placebo-controlled study was also done to determine whether ciprofloxacin could prevent travelers diarrhea. Persons receiving ciprofloxacin prophylactically were asymptomatic and no *E.coli* could be cultured after their return home, while 64% of subjects not receiving antibiotic prophylaxis contracted travelers diarrhea.

- 5133 **RECOMMENDATIONS FOR COLLECTION OF LABORATORY SPECIMENS ASSOCIATED WITH OUTBREAKS OF GASTROENTERITIS.** *Laboratory Medicine*, vol.22 no.9, September 1991, pp.623-629.

Recent discoveries have implicated a number of "new" (that is, previously unrecognized) infectious agents as important causes of outbreaks of gastroenteritis...[This] report provides an update on guidelines and recommendations for the proper collection of specimens to be sent to the CDC, gives general background information concerning some recently discovered pathogens, lists some of the tests available at the CDC, and provides a list of CDC contacts. [published abstract]

- 5760 Reddaiah, V.P.; Kapoor, S.K. EPIDEMIOLOGY OF DIARRHEA AND ITS IMPLICATIONS FOR PROVIDING SERVICES. Indian Journal of Pediatrics, vol.58, 1991, pp.205-208.

This study was conducted to investigate some of the epidemiological features of diarrhea in India and their implications for providing services. Children under age four were studied for one year. The attack rate was 2.6 episodes per child per year. Mean duration was 5.7 days and 11% lasted more than seven days. Only 5% had blood, mucus, or fever associated. Case fatality was 0.6%. Attack rates were higher in June-August and in December-February than in other seasons. More than two-thirds of the families administered homemade ORS.

- 5646 RESEARCH PRIORITIES FOR DIARRHOEAL DISEASE VACCINES: MEMORANDUM FROM A WHO MEETING. Bulletin of the World Health Organization, vol.69 no.6, 1991, pp.667-676.

Diarrhea caused by rotaviruses, *Shigella*, *V.cholerae*, and enterotoxigenic *E.coli* represent a major health burden in developing countries. Because new approaches were needed for developing vaccines against these diseases, a joint meeting was organized March 6-8, 1991, by WHO's CDD and Vaccine Development programs to define new research priorities toward vaccine development. This article presents the proceedings of this meeting and discusses future research in diarrhea vaccine development.

- 5483 Riveron Corteguera, R.; Rodriguez, A.; Zarragoitia, O.L.; et al. ETIOLOGIA BACTERIANA Y PARASITARIA DE LAS ENFERMEDADES DIARREICAS AGUDAS: ESTUDIO DE 192 PACIENTES. Revista Cubana de Pediatría, vol.62 no.5, September-October 1990, pp.718-727.

A cohort of 192 Cuban children under age three with diarrhea was studied to determine the etiology of diarrhea in Havana. Results indicated that bacteria and parasites accounted for 73.4% of all cases. *Entameba histolytica* was the most frequently isolated parasite. Bacterial pathogens isolated included *E.coli*, *Salmonella*, *Shigella*, and *Campylobacter*.

- 5033 Robbins, J.B.; Chu, C.; Watson, D.C.; et al. O-SPECIFIC SIDE-CHAIN TOXIN-PROTEIN CONJUGATES AS PARENTERAL VACCINES FOR THE PREVENTION OF SHIGELLOSIS AND RELATED DISEASES. Reviews of Infectious Diseases, vol.13 suppl.4, 1991, pp.S362-S365.

Only indirect evidence has been cited to document that lipopolysaccharide-mediated virulence at the bacterial level and serum antibodies to the O-specific side chain of the lipopolysaccharide molecule may prevent shigellosis. The authors' proposed use of the B subunit of Shiga toxin as a carrier protein is

based upon evidence that serum antitoxin may reduce the severity of dysentery and diarrhea. The authors suggest that clinical trials in the population at risk be started after successful completion of the safety and immunogenicity phases of vaccine development in animals and in the target population.

- 5544 Rodman, D.M.; Zamudio, S. THE CYSTIC FIBROSIS HETEROZYGOTE: ADVANTAGE IN SURVIVING CHOLERA? *Medical Hypotheses*, vol.36, 1991, pp.253-258.

The recent advances in knowledge about the mutation of cystic-fibrosis heterozygotes are presented in this article. The authors discuss this information in terms of the hypothesis that there is a cystic-fibrosis heterozygote advantage which allowed the gene to achieve such high prevalence. They then review evidence which suggests that resistance to cholera may have been the environmental factor which selected cystic-fibrosis heterozygotes over their "normal" homozygote cohort. The authors also discuss future research and possible clinical applicability to therapy of secretory diarrhea:

- 5477 Rutkowska, M.; Pozzetto, B.; Lavocat, M.P.; et al. GASTROENTERITES NOSOCOMIALES A ROTAVIRUS DU GROUPE A EN PEDIATRIE HOSPITALIERE. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.620-623.

The authors investigated the incidence of nosocomial rotavirus infections using stool samples from 725 hospitalized children. The genomic profile of the isolated strains was also examined. Rotavirus was isolated from 159 patients and 13 electropherotypes were identified. Of the total number of rotavirus gastroenteritis cases, 18% were attributed to nosocomial infection. Isolating patients in single-bed rooms or having a parent present did not prevent nosocomial infections.

- 4989 Ruuska, T.; Vesikari, T. A PROSPECTIVE STUDY OF ACUTE DIARRHOEA IN FINNISH CHILDREN FROM BIRTH TO 2 1/2 YEARS OF AGE. *Acta Paediatrica Scandinavica*, vol.80, 1991, pp.500-507.

To determine the incidence, clinical significance, and etiology of acute diarrhea in Finnish children, a cohort of 336 children was studied from birth to the age of 24 to 32 months. Less than half of the children had any diarrhea and only 19% had two or more episodes. Rotavirus was the most commonly isolated pathogen and 75% of the most severe cases were associated with rotavirus. Infants seven to 12 months of age who were breastfed over six months had fewer episodes of rotavirus diarrhea. Also, those who were cared for at home had fewer episodes than did those who attended daycare centers.

- 5342 Sack, D.A. COST-EFFECTIVENESS MODEL FOR CHOLERA VACCINATION WITH ORAL VACCINES. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES AGAINST ENTERIC INFECTIONS, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.82-89.

With the development of new oral cholera vaccines, the assumptions regarding cholera vaccination have changed. This paper reassesses their potential cost-effectiveness and the determinants that might make these vaccines useful in public health programs.

- 5177 Sack, D.A.; Clemens, J.D.; Huda, S.; et al. ANTIBODY RESPONSES AFTER IMMUNIZATION WITH KILLED ORAL CHOLERA VACCINES DURING THE 1985 VACCINE FIELD TRIAL IN BANGLADESH. *Journal of Infectious Diseases*, vol.164, 1991, pp.407-411.

Sera collected during the 1985 oral cholera vaccine trial in Matlab, Bangladesh, which demonstrated efficacy of a whole cell combined with cholera B subunit vaccine (WC/BC) and a whole cell only vaccine (WC), were analyzed for antitoxin and vibriocidal antibodies...[Results indicated that] the oral vaccines induced a serum response in this large field trial that was similar to that seen in earlier pilot studies, but the duration of the serum responses was much shorter than the duration of the protection. [published abstract]

- 5209 Sack, D.A.; Freij, L. PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES AGAINST ENTERIC INFECTIONS. Gothenburg, Sweden, SAREC Documentation, 1990, 227p.

In May 1990, during a symposium in Gothenburg, Sweden, scientists from developing and industrial nations met to consider the public-health benefits of vaccination against enteric infections. Several vaccines currently undergoing testing were discussed, including those for cholera, rotavirus, typhoid, and enterotoxigenic *E.coli*. Issues reviewed included effectiveness of specific vaccines, cost effectiveness of vaccine programs, specific considerations for developing countries, and vaccine production. The participants concluded that the decision to initiate a vaccine program must be based on estimates of public-health effectiveness rather than protective efficacy. They recommended that pilot programs should begin in areas with high disease burdens, that these interventions be monitored, and that developing countries should consider vaccine research among their priorities for national health research.

- 5218 Salles, C.A.; Momen, H. IDENTIFICATION OF *VIBRIO CHOLERAE* BY ENZYME ELECTROPHORESIS. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.85, 1991, pp.544-547.

In this article the authors describe a study that examined the possibility of using zymovar analysis to identify *Vibrio cholerae* strains and tested its ability to differentiate between closely related bacteria. Data indicated that the test could be a potentially good tool to identify *V.cholerae* isolates.

- 5163 Sazawal, S.; Bhan, M.K.; Bhandari, N.; et al. EVIDENCE FOR RECENT DIARRHOEAL MORBIDITY AS A RISK FACTOR FOR PERSISTENT DIARRHOEA: A CASE-CONTROL STUDY. *International Journal of Epidemiology*, vol.20 no.2, 1991, pp.540-545.

The association between persistent diarrhea and 'recent morbidity,' defined as that occurring within the two-month period immediately preceding the onset of persistent diarrhea, was investigated in a population-based case-control study in rural North India...Comparing children with persistent diarrhea to matched acute diarrheal controls, presence of recent diarrheal illness was associated with an [odds ratio] of 5.1 in favor of the episode becoming persistent; in infants this [odds ratio] was 10.4. [published abstract]

- 5332 Shamebo, D.; Muhe, L.; Sandstrom, A.; et al. THE BUTAJIRA RURAL HEALTH PROJECT IN ETHIOPIA: MORTALITY PATTERN OF THE UNDER FIVES. *Journal of Tropical Pediatrics*, vol.37 no.5, October 1991, pp.254-261.

This paper discusses the experience of using verbal autopsy in a population-based study on mortality in rural Ethiopia along with the reporting of its under-five mortality pattern. Major probable causes of death were acute respiratory infections, measles, and diarrhea. Even in rural areas of a developing country, it is possible to collect valid fertility and mortality data from mothers through epidemiological surveillance by using lay reporters.

- 4977 *SHIGELLA DYSENTERIAE* TYPE 1: GUATEMALA, 1991. Morbidity and Mortality Weekly Report, vol.40 no.25, June 28, 1991, pp.421+.

In 1991 several areas in Guatemala, including Guatemala City and Rabinal, recorded cases of dysentery that were traced to *Shigella dysenteriae*. In Rabinal alone over 100 cases were reported to the Ministry of Health. This report summarizes the investigation of these outbreaks.

- 5473 Shinozaki, T.; Araki, K.; Fujita, Y.; et al. EPIDEMIOLOGY OF ENTERIC ADENOVIRUSES 40 AND 41 IN ACUTE GASTROENTERITIS IN INFANTS AND YOUNG CHILDREN IN THE TOKYO AREA. *Scandinavian Journal of Infectious Diseases*, vol.23, 1991, pp.543-547.

Stool samples from children with acute gastroenteritis in the Tokyo area were examined for the presence of enteric and nonenteric adenoviruses. Eighty-two of

the 2,223 samples contained adenoviruses and most strains had the same DNA profiles. Adenovirus 40 and adenovirus 41 infections were found throughout the year and were most common in children six to 11 months of age. The prevalence of adenovirus 41 infection gradually decreased from 1985 and adenovirus 41 became more prominent.

- 5442 Siitonen, S.; Vapaatalo, H.; Salminen, S.; et al. EFFECT OF *LACTOBACILLUS* GG YOGHURT IN PREVENTION OF ANTIBIOTIC ASSOCIATED DIARRHOEA. *Annals of Medicine*, vol.22, 1990, pp.57-59.

A randomized, placebo-controlled study in 16 healthy volunteers was conducted to examine the efficacy of *Lactobacillus* GG yogurt in preventing erythromycin-associated diarrhea. In addition to erythromycin, the volunteers received either *Lactobacillus* GG yogurt or regular pasteurized yogurt. Results showed that the subjects receiving the *Lactobacillus* GG yogurt had less diarrhea than those taking pasteurized yogurt. Other side effects of erythromycin, such as abdominal distress and stomach pain, were less common in the *Lactobacillus* group as well.

- 5738 Snow, B.; Marsh, K. HOW USEFUL ARE VERBAL AUTOPSIES TO ESTIMATE CHILDHOOD CAUSES OF DEATH? *Health Policy and Planning*, vol.7 no.1, 1992, pp.22-29.

Verbal autopsies are widely used to describe causes of death in individuals who die outside hospital or clinic settings. This paper describes the potential problems of symptom definition and the likely biases introduced through poor recognition and recall by bereaved relatives; how these may be tested; and what can be done where the verbal autopsy proves unable to identify cause of death.

- 4884 Staat, M.A.; Morrow, A.L.; Reves, R.R.; et al. DIARRHEA IN CHILDREN NEWLY ENROLLED IN DAY-CARE CENTERS IN HOUSTON. *Pediatric Infectious Disease Journal*, vol.10 no.4, 1991, pp.282-286.

Acute diarrheal disease is an important and frequent problem in child daycare centers. The authors conducted a study of 442 children under age two in various centers in Houston to determine if the risk of diarrhea was greater among children in daycare in their first two months after enrollment than in any subsequent period in daycare. The data showed that diarrhea is common in daycare centers and occurs significantly more frequently in children during their first four weeks in daycare.

- 5765 Stewien, K.E.; daCunha, L.C.F.; Alvim, A.C.; et al. ROTAVIRUS ASSOCIATED DIARRHOEA DURING INFANCY IN THE CITY OF S. LUIS (MA), BRAZIL: A TWO-YEAR LONGITUDINAL STUDY. *Revista do Instituto de*

Medicina Tropical de São Paulo, vol.33 no.6, November/December 1991, pp.459-464.

A study was conducted in São Luis, Brazil, to determine the incidence, age distribution, seasonality, and the severity of acute diarrhea caused by rotavirus. The results indicate that rotaviruses were significant pathogens in children under 18 months. A typical seasonal pattern of rotavirus diarrhea was not noted in the two-year study period. Patients with rotavirus diarrhea had more loose stools per day and higher frequencies of vomiting and fever than other diarrhea patients.

- 5339 Svennerholm, A.-M.; Ahren, C.; Wenneras, C.; et al. ENTEROTOXIGENIC *E.COLI*: POTENTIAL FOR VACCINATING CHILDREN AND ADULTS IN DEVELOPING COUNTRIES AS WELL AS INTERNATIONAL TRAVELERS. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES FOR ENTERIC INFECTIONS, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.115-120.

Studies on the etiology of traveler's diarrhea have shown that ETEC is the cause of a third to a half of all episodes of diarrhea occurring in travelers to Latin America and Africa. The authors discuss three different possibilities of constructing an ETEC vaccine. Clinical trials of an oral prototype ETEC vaccine in human volunteers are also discussed.

- 5444 Tankanow, R.M.; Ross, M.B.; Ertel, I.J.; et al. A DOUBLE-BLIND, PLACEBO-CONTROLLED STUDY OF THE EFFICACY OF LACTINEX IN THE PROPHYLAXIS OF AMOXICILLIN-INDUCED DIARRHEA. *Annals of Pharmacotherapy*, vol.24, April 1990, pp.382-384.

The disruption of the natural flora of the gastrointestinal tract (especially *Lactobacillus acidophilus*) may occur during antibiotic therapy. This may lead to diarrhea, dehydration, and electrolyte imbalances. It has been suggested that replacement of the lactobacilli with a commercially available product may prevent the diarrhea. The efficacy and safety of prophylactically administered Lactinex (culture of *L.acidophilus* and *L.bulgaricus*) was compared with placebo for the prevention of amoxicillin-induced diarrhea in pediatric patients. Lactinex or placebo was administered four times a day for 10 days to coincide with the antibiotic therapy. The *Lactobacillus* preparation did not appear to consistently prevent diarrhea in this patient population. Patients' age, diet, and parental definition of diarrhea were factors that may have influenced the results. [published abstract]

- 5020 Thibault, A.; Milier, M.A.; Gaese, C. RISK FACTORS FOR THE DEVELOPMENT OF *CLOSTRIDIUM DIFFICILE*-ASSOCIATED DIARRHEA DURING A HOSPITAL OUTBREAK. *Infection Control and Hospital Epidemiology*, vol.12 no.6, June 1991, pp.345-348.

In this study the authors evaluated the risk factors associated with a nosocomial outbreak of *Clostridium difficile*-associated diarrhea in an urban hospital. Significant risk factors identified were: gastrointestinal surgery; use of neomycin, clindamycin, and metronidazole; and excessive antibiotic use.

- 5183 Tompkins, D.S.; Rotawa, N.A. ISOLATION OF *HELICOBACTER PYLORI* FROM FROZEN GASTRIC BIOPSY SPECIMENS. *The Lancet*, vol.338 no.8761, July 27, 1991, p.253, letter.

In this letter to the editor, the authors discuss the culture of *Helicobacter pylori* from gastric biopsy specimens and the factors that can affect isolation of the pathogen.

- 5317 Troedsson, H. EPIDEMIOLOGY OF CHOLERA. *Zambia Epidemiological Bulletin*, issue 1, July 1991, pp.4-6.

In this article the author discusses the epidemiology of cholera epidemics. He reviews the classification of the vibrio, modes of transmission, carriers of the infection, and occurrence of outbreaks. He also presents several methods of cholera control, including health education, excreta disposal, and creating safe water supplies.

- 5641 Uesaka, Y.; Otsuka, Y.; Kashida, M.; et al. DETECTION OF CHOLERA TOXIN BY A HIGHLY SENSITIVE BEAD-ENZYME LINKED IMMUNOSORBENT ASSAY. *Microbiology and Immunology*, vol.36 no.1, 1992, pp.43-53.

A bead-enzyme linked immunosorbent assay (bead-ELISA) has been developed to detect and quantify cholera toxin in broth cultures of *Vibrio cholerae* 01. This study sought to determine optimal conditions to perform the bead-ELISA for cholera-toxin detection in broth cultures and also to evaluate the sensitivity and specificity of the bead-ELISA in comparison to the more commonly used reversed passive latex agglutination test for cholera-toxin detection. Results showed that the bead-ELISA is a simple, specific, and highly sensitive assay for routine detection of cholera toxin.

- 5763 Utsalo, S.J.; Eko, F.O.; Antia-Obong, O.E. CHOLERA AND *VIBRIO PARAHAEMOLYTICUS* DIARRHOEA ENDEMICITY IN CALABAR, NIGERIA. *West Africa Journal of Medicine*, vol.10 no.2, April/June 1991, pp.175-180.

The etiology of acute diarrhea was studied in 881 patients of all ages in Calabar, Nigeria, during a one-year period. Of a total of 108 culturally confirmed bacterial diarrheas, 43.5% were due to *E.coli*, 30.6% to vibrios, and 17.7% to *Shigella*

spp. Bimodal peaks of cholera episodes occurred during the dry season and appeared to coincide with acute water shortages in the municipality.

- 5295 Vaira, D.; Miglioli, M.; Holton, J.; et al. SCREENING FOR *HELICOBACTER PYLORI*. The Lancet, vol.338 no.8775, November 2, 1991, p.1149, letter.

The authors of this letter to the editor state that serum IgG, not serum IgM, is the only reliable test for gastroenteritis associated with *H.pylori* infection.

- 5772 Vajdy, M.; Lycke, N.Y. CHOLERA TOXIN ADJUVANT PROMOTES LONG-TERM IMMUNOLOGICAL MEMORY IN THE GUT MUCOSA TO UNRELATED IMMUNOGENS AFTER ORAL IMMUNIZATION. Immunology, vol.75, 1992, pp.488-492.

This study was conducted to investigate whether cholera toxin, used as a mucosal adjuvant, would promote the development in mice of immunological memory to unrelated antigens administered by oral route...The results support the view that mucosal adjuvants, incorporated into oral vaccines, might be an effective means to achieve long-term immunological memory and protection against pathogenic microorganisms at mucosal surfaces. [published abstract]

- 4972 van Loon, F.P.L.; Clemens, J.D.; Sack, D.A.; et al. ABO BLOOD GROUPS AND THE RISK OF DIARRHEA DUE TO ENTEROTOXIGENIC *ESCHERICHIA COLI*. Journal of Infectious Diseases, vol.163, 1991. pp.1243-1246.

To determine whether blood group O persons are at higher risk for enterotoxigenic *Escherichia coli* (ETEC) diarrhea, a case-control study was done for 17 months among rural Bangladeshis who were under systematic surveillance for diarrhea...No association between blood group O and ETEC diarrhea was found for the 510 cases and 641 controls, nor was an association evident for cases of each toxin phenotype. [published abstract]

- 5377 van Tran, D.; van Thuan, C.; Tuan, T.; et al. SURVEY ON IMMUNIZATION, DIARRHOEAL DISEASE AND MORTALITY IN QUANG BINH PROVINCE, VIETNAM. Journal of Tropical Pediatrics, vol.37, December 1991, pp.280-285.

A survey on EPI, CDD, child morbidity, and child mortality was conducted in one province of northeastern Vietnam. The survey found that 23% of the children were fully vaccinated, while 54% had partial coverage. The annual diarrheal rate was 1.6 per child under age five. Infant mortality and under-five mortality rates were 28 per 1,000 live births and 44 per 1,000, respectively.

- 5364 Verschoor, J.; Christensen, C.R. FLUID THERAPY WITH SPECIFIC MUCOPOLYSACCHARIDES: A NEW APPROACH TO CONTROL DIARRHEA. *Veterinary Clinics of North America: Food Animal Practice*, vol.6 no.1, March 1990, pp.69-75.

Neonatal diarrheal diseases are still a major economic problem to the agricultural industry, causing the majority of calf deaths. This article discusses the shortcomings and possible solutions to oral fluid therapy. It suggests that the inclusion of specific mucopolysaccharides in electrolyte-glucose oral fluids results in the reduction of diarrhea days and better weight and growth gains.

- 5337 Vesikari, T.; Ruuska, T. COST-BENEFIT ESTIMATION OF ROTAVIRUS VACCINATION IN FINLAND. In: PROSPECTS FOR PUBLIC HEALTH BENEFITS IN DEVELOPING COUNTRIES FROM NEW VACCINES FOR ENTERIC INFECTIONS, D.A. Sack and L. Freij, eds., Stockholm, Sweden, SAREC, 1990, pp.108-113.

The authors present a cost-benefit analysis of rotavirus vaccination program for Finland. Such a calculation appears to be justified because experience from completed efficacy trials of rotavirus vaccines is sufficiently encouraging for consideration of a vaccination program.

- 5426 Villafan, H.; Ordonez, R.; Tello, A.; et al. INFECCION POR *CAMPYLOBACTER JEJUNI* EN NIÑOS DE UNA COMUNIDAD RURAL. *Boletín Médico del Hospital Infantil de México*, vol.48 no.7, July 1991, pp.458-462.

A cohort of 75 rural Mexican children was followed longitudinally from birth to examine colonization of the intestine with *Campylobacter jejuni*. Results showed that the age at which a child was initially infected was not a risk factor for developing *C.jejuni* diarrhea. A higher illness-to-infection ratio was found during subsequent *C.jejuni* colonization and when initial infection was associated with diarrhea.

- 4887 Vincent, P.; Gottrand, F.; Pernes, P.; et al. *HELICOBACTER PYLORI* INFECTION IN COHABITING CHILDREN. *The Lancet*, vol.337 no.8745, April 6, 1991, p.848, letter.

The authors of this letter to the editor discuss a study that showed that living conditions can affect the person-to-person transmission of *Helicobacter pylori* and that two individuals with infectious gastritis can be infected by the same strain.

- 5740 Vlassoff, C.; Tanner, M. THE RELEVANCE OF RAPID ASSESSMENT TO HEALTH RESEARCH AND INTERVENTIONS. *Health Policy and Planning*, vol.7 no.1, 1992, pp.1-9.

This paper discusses the relevance of rapid assessment methods for tropical disease research. Traditional methods are often too time-consuming to address the urgent needs of disease control programs. The development and validation of rapid assessment methods are discussed.

- 5075 White, L.; Garcia, D.; Boher, Y.; et al. TEMPORAL DISTRIBUTION OF HUMAN ROTAVIRUS SEROTYPES 1,2,3, AND 4 IN VENEZUELAN CHILDREN WITH GASTROENTERITIS DURING 1979-1989. *Journal of Medical Virology*, vol.34, 1991, pp.79-84.

The temporal distribution and clinical severity of rotavirus VP7 serotypes 1, 2, 3, and 4 recovered from 427 Venezuelan children with acute gastroenteritis over a period of 11 years were studied...In this study, serotype 1 appears to induce a less severe illness in comparison with serotypes 2, 3, and 4. No apparent association between the proportion of each serotype and the children's age was found. [published abstract]

- 5018 Yankauer, A. EPIDEMIC DIARRHEA OF THE NEWBORN, A NOSOCOMIAL PROBLEM IN DEVELOPING COUNTRIES. *American Journal of Public Health*, vol.81 no.4, April 1991, pp.415-417.

In this article the author comments on nosocomial diarrhea in newborns in developing countries. He cites examples of such outbreaks in New York State during the 1940s and 1950s, which resulted in regulations about hospital care of newborns. He points out that certain Western technologies, such as bottle feeding and cesarean deliveries, when used in inadequate facilities in the developing world, could contribute to nosocomial outbreaks of diarrhea.

- 5021 Zaidi, M.; Ponce de Leon, S.; Ortiz, R.A.; et al. HOSPITAL-BASED DIARRHEA IN ADULTS: A PROSPECTIVE CASE-CONTROLLED STUDY IN MEXICO. *Infection Control and Hospital Epidemiology*, vol.12 no.6, June 1991, pp.349-355.

The purpose of this study was to determine the incidence, etiology, risk factors, morbidity, and mortality of nosocomial diarrhea in adults at a third level referral center in Mexico City. Findings showed that overall risk of acquiring nosocomial diarrhea was 5.5% and that mortality in cases was 18%. Enteral feeding, enemas, presence of *Candida* species, use of antacids, and use of nasogastric tubes were significant risk factors. The authors conclude that nosocomial diarrhea occurs more frequently than originally suspected and, therefore, should receive more attention in general hospitals.

5017 Zimmerman, R.K. RISK FACTORS FOR *CLOSTRIDIUM-DIFFICILE* CYTOTOXIN-POSITIVE DIARRHEA AFTER CONTROL FOR HORIZONTAL TRANSMISSION. *Infection Control and Hospital Epidemiology*, vol.12 no.2, February 1991, pp.96-100.

The objective of this study was to identify risk factors that predispose hospitalized patients to *Clostridium difficile* diarrhea. After controlling for horizontal transmission, the study found that use of clindamycin and third-generation cephalosporins were risk factors for *C.difficile*-associated diarrhea.

## DIARRHEA AGENTS

- 5131 Binsztein, N.; Jouve, M.B.; Viboud, G.I.; et al. COLONIZATION FACTORS OF ENTEROTOXIGENIC *ESCHERICHIA COLI* ISOLATED FROM CHILDREN WITH DIARRHEA IN ARGENTINA. *Journal of Clinical Microbiology*, vol.29 no.9, September 1991, pp.1893-1898.

A prospective study was performed to evaluate the presence of colonization factor antigens (CFAs) in enterotoxigenic *Escherichia coli* (ETEC) strains isolated from 1,211 children with diarrhea in Argentina...The CFAs searched for were found in 52% of the ETEC strains...As many as 24 of the 109 CFA-negative ETEC strains gave mannose-resistant hemagglutination with erythrocytes from different species; four strains had high surface hydrophobicity, suggesting the presence of additional, as yet undefined, colonization factors in up to 25% of the ETEC isolates. [published abstract]

- 5581 Boswell, T.C.J.; Kudesia, G. SEROPOSITIVITY FOR LEGIONELLA IN *CAMPYLOBACTER* INFECTION. *The Lancet*, vol.339 no.8786, January 18, 1992, p.191, letter.

This letter to the editor reports on a study that examined 50 serum samples for legionella antibodies with IFAT in 45 patients with culture-proven *Campylobacter* gastroenteritis. The results indicate that a substantial proportion of patients with *Campylobacter* gastroenteritis have antibodies that crossreact serologically with legionella by IFAT.

- 5035 Brown, J.E.; Echeverria, P.; Lindberg, A.A. DIGALACTOSYL-CONTAINING GLYCOLIPIDS AS CELL SURFACE RECEPTORS FOR SHIGA TOXIN OF *SHIGELLA DYSENTERIAE* 1 AND RELATED CYTOTOXINS OF *ESCHERICHIA COLI*. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S298-S303.

Cell surface binding and internalization are essential steps in the cytotoxicity of Shiga and Shiga-like toxins. Therefore, knowledge of the uptake process may provide insights useful in the diagnosis and treatment of infections due to *S.dysenteriae* 1 and enterohemorrhagic *E.coli*. This report summarizes the authors' work and that of other investigators on elucidation of the toxin receptor.

- 5079 Chart, H.; Said, B.; Rowe, B. LINOLEIC ACID INHIBITION OF ADHESION OF ENTEROPATHOGENIC *ESCHERICHIA COLI* TO HEP-2 CELLS. *The Lancet*, vol.338 no.8759, July 13, 1991, pp.126-127, letter.

The authors of this letter to the editor discuss the effect of linoleic acid deficiency on susceptibility to diarrhea caused by enteropathogenic *Escherichia coli*.

- 5119 Chen, F.; Evins, G.M.; Cook, W.L.; et al. GENETIC DIVERSITY AMONG TOXIGENIC AND NONTOXIGENIC *VIBRIO CHOLERAE* 01 IS ISOLATED FROM THE WESTERN HEMISPHERE. *Epidemiology and Infection*, vol.107, 1991, pp.225-233.

Multilocus enzyme electrophoresis was used to examine genetic relationships among and between toxigenic and non-toxigenic isolates of *Vibrio cholerae* 01 obtained from patients and the environment in the U.S. Gulf Coast and surrounding areas...This study suggests that all of the toxigenic strains belong to a single clone, and that while some of the non-toxigenic isolates were related, most were of diverse origin. [published abstract]

- 5697 Cruz, J.R.; Bartlett, A.V.; Herrmann, J.E.; et al. ASTROVIRUS-ASSOCIATED DIARRHEA AMONG GUATEMALAN AMBULATORY RURAL CHILDREN. *Journal of Clinical Microbiology*, vol.30 no.5, May 1992, pp.1140-1144.

Fecal excretion of astroviruses was monitored in 321 children under age three, living in the rural highlands of Guatemala. Of the children, 38.6% excreted astroviruses during the study. Diarrhea associated with astroviruses alone had a median duration of five days and was associated with vomiting in 8.6%, with fever in 17.1%, with dehydration in 5.7%, and with loss of appetite in 34.4% of the episodes. It was also accompanied by weight loss.

- 5036 Donahue-Rolfe, A.; Acheson, D. W. K.; Keusch, G. T. SHIGA TOXIN: PURIFICATION, STRUCTURE, AND FUNCTION. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S293-S297.

Shiga toxin is a potent toxin produced by *Shigella dysenteriae* type 1 strains. The toxin has three biologic activities — cytotoxicity, enterotoxicity, and neurotoxicity — and one known biochemical effect — inhibition of protein synthesis. The functions of the two polypeptide chains are discussed. Shiga toxin's basic structure and the functional role of its subunits should be considered a model for the other members of the family.

- 5129 Echeverria, P.; Orskov, F.; Orskov, I.; et al. ATTACHING AND EFFACING ENTEROPATHOGENIC *ESCHERICHIA COLI* AS A CAUSE OF INFANTILE DIARRHEA IN BANGKOK. *Journal of Infectious Diseases*, vol.164, 1991, pp.550-554.

To identify *Escherichia coli* that caused infantile diarrhea in Bangkok, Thailand, *E.coli* isolated from children in a year-long study were examined for O and H serotypes and *E.coli*-virulence determinants. The results indicate that to cause diarrheal disease most enteropathogenic *E.coli* require an adhesin and cause diarrhea by producing an AE lesion.

- 5725 Faruque, S.M.; Albert, J. GENETIC RELATION BETWEEN *VIBRIO CHOLERAE* 01 STRAINS IN ECUADOR AND BANGLADESH. *The Lancet*, vol.339, March 21 1992, pp.740-741, letter.

This letter to the editor presents data suggesting that the South American cholera epidemic is attributable to the strain of *V.cholerae* 01 that is causing the seventh pandemic and that is continuing to invade new territories.

- 5355 Hossain, A.; Albert, M.J. EFFECT OF DURATION OF DIARRHOEA AND PREDICTIVE VALUES OF STOOL LEUCOCYTES AND RED BLOOD CELLS IN THE ISOLATION OF DIFFERENT SEROGROUPS OR SEROTYPES OF *SHIGELLA*. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.85, 1991, pp.664- 666.

Diarrheal stools from 11,358 patients were examined for the presence of white and red blood cells and cultured for enteric pathogens. Of the 3,895 patients who had *Shigella* as the sole pathogen, 72% showed the presence of both white and red blood cells and the remainder had only white blood cells. The best predictor of shigellosis was the presence of less than 25 white blood cells/hpf and the presence of red blood cells regardless of their number.

- 5478 Jallat, C.; Aubel, D.; Darfeuille-Michaud, A.; et al. TOXINE ET ADHERENCE DU COLIBACILLE DANS LES DIARRHEES. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.556-561.

The characteristics, virulence factors, and adhesion factors of various strains of diarrheagenic *E.coli* are discussed in this article. The authors contend that the knowledge of these virulence factors is important in identifying each category of diarrheagenic *E.coli* and in preventing diarrhea due to these strains.

- 5661 Jones, M.V.; Wood, M.A.; Herd, T.M. COMPARATIVE SENSITIVITY OF *VIBRIO CHOLERAE* 01 EL TOR AND *ESCHERICHIA COLI* TO DISINFECTANTS. *Letters in Applied Microbiology*, vol.14, 1992, pp.51-53.

The sensitivity of two strains of *Vibrio cholerae* to disinfectant compounds used in food processing, kitchen and personal hygiene has been compared with the sensitivity of a "disinfectant-test" strain of *Escherichia coli*. In a suspension test, both strains of *V.cholerae* were slightly more sensitive than *E.coli* to all the compounds...Disinfectant products which are effective to control the risks from pathogenic enterobacteriaceae should also be appropriate for *V.cholerae*. [published abstract]

- 5582 Kataralis, P.; Glupczynski, Y.; Burette, A.; et al. ERADICATING *HELICOBACTER PYLORI*. The Lancet, vol.339 no.8784, January 4, 1992, pp.54-55, letter.

These four letters to the editor report on the use of different short-term drug regimens to eradicate *Helicobacter pylori*. Among the drugs tested were tetracycline, amoxicillin, bismuth, metronidazole, and TDB.

- 5028 Keusch, G.T.; Jacewicz, M.; Mobassaleh, M.; et al. SHIGA TOXIN: INTESTINAL CELL RECEPTORS AND PATHOPHYSIOLOGY OF ENTEROTOXIC EFFECTS. Reviews of Infectious Diseases, vol.13 suppl.4, 1991, pp.S304-S310.

In the 18 years since *Shigella* enterotoxin was reported, a cell surface receptor in rabbit small-bowel microvillus membrane has been found and chemically characterized. This paper reviews the nature of the intestinal microvillus membrane toxin receptor and the pathobiology of the toxin-receptor interaction leading to enterotoxicity.

- 5659 Leite, J.P.G.; Barth, O.M.; Schatzmayr, H.G. ASTROVIRUS IN FAECES OF CHILDREN WITH ACUTE GASTROENTERITIS IN RIO DE JANEIRO, BRAZIL. Memorias Do Instituto Oswaldo Cruz, vol.86 no.4, October/December 1991, pp.489- 490.

This brief article reports on a study in Rio de Janeiro of 118 diarrheal disease cases between March and September. Examination by EM revealed astroviruses in 4.2%, rotaviruses in 11.9%, and adenoviruses in 7.6% of the cases. Astrovirus-positive samples were clustered in March and April. The authors hope to use the new EIA test for astrovirus detection.

- 5038 Lindberg, A.A.; Karnell, A.; Weintraub, A. THE LIPOPOLYSACCHARIDE OF *SHIGELLA* BACTERIA AS A VIRULENCE FACTOR. Reviews of Infectious Diseases, vol.13 suppl.4, 1991, pp.S279-S284.

The virulence factors of the lipopolysaccharide of *Shigella* species bacteria include the endotoxic activities of the lipid A component of the molecule and the ability of the polysaccharide chain to provide the bacterium with resistance to host defense mechanisms such as opsonization, phagocytosis, and intracellular killing. Structural features of the lipopolysaccharides of *S.dysenteriae*, *S.flexneri*, *S.boydi*, and *S.sonnei* are described.

- 5181 Lyagoubi, M.; Datry, A. RECHERCHE DE PROTOZOAIRES DANS LES SELLES. Développement et Santé, no.93, 1991, pp.14-17.

Laboratory techniques for isolating diarrheal pathogens such as *E.coli* and *Entameba histolytica* are described in this article. The authors also describe the characteristics of various pathogens as well as provide illustrations.

- 5472 Magalhaes, M.; Magalhaes, V.; Antas, M.G.; et al. ISOLATION OF UREASE-POSITIVE *VIBRIO PARAHAEMOLYTICUS* FROM DIARRHEAL PATIENTS IN NORTHEAST BRAZIL. *Revista do Instituto de Medicina Tropical de São Paulo*, vol.33 no.4, July-August 1991, pp.263-265.

*Vibrio parahaemolyticus* is an important cause of human gastroenteritis associated with the consumption of seafood. The authors studied the urease-positive strains of this vibrio isolated in Recife, Brazil. They report on the serological characteristics of these strains as well as their capacity to produce thermostable direct hemolysin, the hemolysin responsible for the Kanagawa phenomenon. Results indicated that the urease-positive strains, in contrast to the negative ones, did not produce the hemolysin associated with the Kanagawa phenomenon.

- 5479 Peigue-Lafeuille, H. VIRUS ASSOCIES AUX DIARRHEES AIGUES: ACTUALITES EN 1991. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.571-577.

The characteristics and diagnosis of several viruses associated with acute diarrhea are described in this article. Several diagnostic methods are discussed, among them electron microscopy, the most commonly used when the virus is recognizable and present in sufficient quantity. The viruses described include rotavirus, adenovirus, astrovirus, Norwalk virus, calicivirus, and small round viruses.

- 5743 Pratt, D.; Smith, D.; Barker, J.; et al. ROTAVIRUS DIARRHOEA IN CHILDREN IN THE HIGHLANDS OF PAPUA NEW GUINEA. *PNG Medical Journal*, vol.35, 1992, pp.23-25.

Children from the highlands of Papua New Guinea, hospitalized for severe diarrhea, were examined for clinical signs and the presence of rotavirus. Rotavirus was detected in fecal samples from 68% of patients examined. The infection rate was relatively high in children under six months of age.

- 5721 Ramamurthy, T.; Pal, A.; Pal, S.C.; et al. TAXONOMICAL IMPLICATIONS OF THE EMERGENCE OF HIGH FREQUENCY OF OCCURRENCE OF 2,4-DIAMINO-6,7-DIISO-PROPYLPTERIDINE-RESISTANT STRAINS OF *VIBRIO CHOLERAE* FROM CLINICAL CASES OF CHOLERA IN CALCUTTA, INDIA. *Journal of Clinical Microbiology*, vol.30 no.3, March 1992, pp.742-743.

Of the 110 consecutive isolates of *V.cholerae* recovered from cholera patients in a Calcutta hospital between July 1989 and October 1990, 90% and 83% were resistant to 10 and 150 $\mu$ g of 2,4-diamino-6,7-diisopropylpteridine (0/129), respec-

tively. In addition, all O/129-resistant strains of *V.cholerae* were multiple resistant to antimicrobial agents...Although O/129 susceptibility is still a useful test for *Vibrio* identification, resistance of *V.cholerae* to this compound in local areas might occasionally pose a problem. [published abstract]

- 5458 Ratnam, S. ETIOLOGIC ROLE OF *HAFNIA ALVEI* IN HUMAN DIARRHEAL ILLNESS. *Infection and Immunity*, vol.59 no.12, 1991, p.4744, letter.

In this letter to the editor, the author comments on the possible role of *Hafnia alvei* in causing diarrhea in humans and responds to a study by Albert et al, which showed that, to date, *H.alvei* has never been implicated as a diarrhea pathogen. Here he reports on two outbreaks of gastroenteritis that may have been caused by *H.alvei*. A response by Dr. Albert follows.

- 5481 Riveron Corteguera, R.L. ETIOLOGIA DE LAS ENFERMEDADES DIARREICAS AGUDAS. I. AGENTES VIRALES. *Rivista Cubana de Pediatría*, vol.62 no.3, May-June 1990, pp.449-460.

This article describes the characteristics of various viral agents that cause diarrhea. The agents reviewed include rotavirus, Norwalk virus, adenovirus, astrovirus, and coronavirus. The pathophysiology of viral diarrhea is discussed as well as different methods for its diagnosis.

- 5482 Riveron Corteguera, R. ETIOLOGIAS DE LAS ENFERMEDADES DIARREICAS AGUDAS II. AGENTES BACTERIANOS. *Rivista Cubana de Pediatría*, vol.62 no.4, July-August 1990, pp.613-638.

This article describes the bacterial agents that can cause acute diarrhea. Among those reviewed are *E.coli*, *Salmonella*, *Shigella*, *C.jejuni*, *Y.enterocolitica*, *V.cholerae*, *V.parahaemolyticus*, and *C.difficile*. The author describes the characteristics of these pathogens and the pathophysiology of diarrhea associated with them.

- 5372 Sanderson, P.J.; Bukhari, S.S. *CANDIDA* SPP. AND *CLOSTRIDIUM DIFFICILE* TOXIN-NEGATIVE ANTIBIOTIC-ASSOCIATED DIARRHOEA. *Journal of Hospital Infection*, 1991, p.142, letter.

This letter to the editor discusses the causes of antibiotic-associated diarrhea in patients who are negative for *Clostridium difficile*. The authors suggest that patients who are positive for *Candida* spp. may be successfully treated with nystatin.

- 5037 Sansonetti, P.J. GENETIC AND MOLECULAR BASIS OF EPITHELIAL CELL INVASION BY *SHIGELLA* SPECIES. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S285-S292.

This paper reviews the molecular mechanisms of entry of *Shigella flexneri* into cells, the molecular mechanisms of intracellular multiplication of *Shigella*, the genetic and molecular basis of intracellular spread and infection of adjacent cells, and the early killing of host cells by *Shigella*. This information is of importance for the design of oral vaccine strains that would protect against shigellosis.

- 5709 Shetty, N.; Narasimha, M.; Elliott, E.; et al. AGE-SPECIFIC SERO-PREVALENCE OF AMOEBIASIS AND GIARDIASIS IN SOUTHERN INDIAN INFANTS AND CHILDREN. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.57-63.

The age-specific sero-prevalence of amebiasis and giardiasis was estimated in 91 pediatric diarrheal and in 70 non-diarrheal cases from southern India. There was a significant correlation between acquisition of seropositivity and age. A rise in IgG response to both organisms was evident for the 38-47 and 13-24 month age groups, respectively, in diarrheal and non-diarrheal cases.

- 5392 Shlim, D.R.; Cohen, M.T. AN ALGA-LIKE ORGANISM ASSOCIATED WITH AN OUTBREAK OF PROLONGED DIARRHEA AMONG FOREIGNERS IN NEPAL. *American Journal of Tropical Medicine and Hygiene*, vol.45 no.3, 1991, pp.383-389.

An unidentified organism was found in the stools of 55 immunocompetent patients who presented to a clinic in Kathmandu, Nepal, between June and November 1989. The organism shared features of both coccidia and cyanobacteria species. The illness was characterized by prolonged watery diarrhea, anorexia, fatigue, and weight loss. The authors suggest that the organism was associated with a prolonged, self-limited, and characteristic clinical illness in an immunocompetent population of foreigners.

- 5362 Tswana, S.A.; Jorgensen, P.H.; Halliwell, R.W.; et al. THE INCIDENCE OF ROTAVIRUS INFECTION IN CHILDREN FROM TWO SELECTED STUDY AREAS IN ZIMBABWE. *Central African Journal of Medicine*, vol.36 no.10, October 1990, pp.241-246.

This study investigated the incidence of rotavirus shedding in diarrheic and control groups from two populations of different socioeconomic status in Zimbabwe. Twenty-three percent of 225 diarrheic samples and 8.5% of control samples were positive for rotavirus. The highest incidence was found during the dry cool season in diarrhea patients between four and 24 months of age.

- 5130 Ward, R.L.; Clemens, J.D.; Sack, D.A.; et al. CULTURE ADAPTATION AND CHARACTERIZATION OF A GROUP A ROTAVIRUS CAUSING DIARRHEAL ILLNESSES IN BANGLADESH FROM 1985 TO 1986. *Journal of Clinical Microbiology*, vol.29 no.9, September 1991, pp.1915-1923.

Group-A rotaviruses collected between 1985 and 1986 from diarrheal patients in rural Bangladesh were adapted to grow in cell culture so that they could be fully characterized and available for future studies. The article discusses the serotypic, electrophoretic, and subgroup analyses of these culture-adapted isolates.

## DIARRHEAL DISEASES AND RELATED CONDITIONS

- 5454 Aaby, P.; Samb, B.; Simondon, F.; et al. CHILD MORTALITY AFTER HIGH-TITRE MEASLES VACCINES IN SENEGAL: THE COMPLETE DATA SET. *The Lancet*, vol.338 no.8781, December 14, 1991, pp.1518-1519, letter.

The authors of this letter to the editor comment on Garenne et al's article on child mortality after high-titre measles vaccines in Senegal. They state that the conclusions drawn were premature since data from eight cohorts of children were not available at the time this analysis was done. A reply by Garenne et al follows.

- 5004 ACUTE RESPIRATORY INFECTIONS IN CHILDREN: CASE MANAGEMENT IN SMALL HOSPITALS IN DEVELOPING COUNTRIES. Geneva, World Health Organization, 1990, 69p.

This manual provides clinical guidelines for physicians and other senior health workers who treat cases of acute respiratory infections in health facilities at the first referral level. The guidelines include assessment and classification, management of acute upper and lower respiratory infections, and general treatment procedures.

- 5586 Aina, J.B. IS IT TRICHURIASIS? *Africa Health*, vol.14 no.2, January 1992, p.40, letter.

In this letter to the editor the author notes that trichuriasis, a disease caused by the parasite *Trichuris trichiura*, can often have symptoms similar to appendicitis. He suggests that in tropical areas, stool examinations for trichuriasis should be done for patients complaining of appendicitis-like symptoms to avoid unnecessary appendectomies.

- 5633 Akinci, A.; Tezic, T.; Gur, I.; et al. ROTAVIRUS DIARRHEA IN NEWBORN INFANTS. *The Turkish Journal of Pediatrics*, vol.33, 1991, pp.153-157.

In this study the authors examined the frequency of rotavirus infection and the relation of rotavirus pathogens to necrotizing enterocolitis in newborns with diarrhea at a Turkish hospital. The study results suggest that rotavirus is an important factor in nosocomial infection and that it also has a role in the development of necrotizing enterocolitis.

- 5303 Alam, A.N.; Goff, P.A.; Abdal, N.M.; et al. SERUM FERRITIN AND CHOLERA: A PROSPECTIVE STUDY. *Tropical and Geographical Medicine*, 1991, pp.12- 16.

A prospective study was done at the International Centre for Diarrhoeal Diseases Research, Bangladesh, to determine whether iron deficiency, by causing low gastric acidity, is a risk factor for contracting cholera. Results suggested that cholera patients tended to have lower serum ferritin concentrations than did controls. The authors recommend further research to clearly define the association between iron deficiency and cholera.

- 5692 Allen, A.W.; Wei, J.P. GASTROENTERITIS DUE TO *SALMONELLA* SP.: CLINICAL AND RADIOLOGIC SIGNS MIMICKING SURGICAL PERITONITIS. Southern Medical Journal, vol.85 no.1, January 1992, pp.45-46.

This article presents a case study of a 46-year-old woman suffering from *Salmonella* gastroenteritis, mimicking surgical peritonitis. The authors conclude that careful attention to evaluation and treatment is necessary to avoid unnecessary surgery for what may initially appear to be a surgical condition.

- 5500 ARI TECHNICAL ORIENTATION MEETING PROCEEDINGS. Arlington, VA, REACH Project, July 31, 1991, 92p.

In July 1991 a meeting on acute respiratory infections was sponsored by the A.I.D. Resources for Child Health (REACH) Project to meet the following objectives: 1) provide a technical overview of key issues in ARI control; 2) explore what cooperating and donor agencies are currently doing in ARI control; 3) exchange experiences and learn what the current needs are; and 4) create a forum for continued dialogue and to strengthen agencies' partnerships in ARI. Participants included representatives from A.I.D., WHO, UNICEF, REACH, HealthCom, PRITECH, Quality Assurance Project, MotherCare Project, Demographic and Health Survey Project, Johns Hopkins University, and the U.S. Centers for Disease Control. This report outlines the ARI strategies and activities of various projects and presents the discussions following each session.

- 5598 Arthur, P.; Kirkwood, B.; Ross, D.; et al. IMPACT OF VITAMIN A SUPPLEMENTATION ON CHILDHOOD MORBIDITY IN NORTHERN GHANA. The Lancet, vol.339 no.8789, February 8, 1992, pp.361-362, letter.

A study conducted in Ghana to evaluate the impact of vitamin A supplementation on morbidity is presented in this letter to the editor. The results indicated that although supplementation did not seem to affect the prevalence of disease, it did appear to decrease the severity of illness. This in turn seemed to result in a decreased disease burden on health facilities, that is, fewer clinic visits were made and there were fewer hospital admissions.

- 5638 Aurora Gavin, M. COLERA: ANALISIS CLINICO EPIDEMIOLOGICO DE 7 CASOS. Revista Medica de Chile, vol.119, 1991, pp.1387-1395.

An outbreak of cholera occurred in Chile in April 1991, during the epidemic in Latin America. This article summarizes the clinical and epidemiological characteristics of the first seven cholera patients seen at the Dr. Lucio Cordova Hospital in Santiago. The patients were treated with rehydration fluids and antibiotics. There were no fatalities.

- 4888 Badrinath, P.; Chakladar, B. K.; Rao, T.S.K. EFFECT OF MASSIVE DOSE OF VITAMIN A ON MORBIDITY AND MORTALITY IN INDIAN CHILDREN. *The Lancet*, vol.337 no.8745, April 6, 1991, pp.849-850, letter.

In this letter to the editor the authors discuss Vijayaraghavan et al's study of the effect of vitamin A supplementation on morbidity and mortality. They suggest that factors other than supplementation, such as the children's contacts with health workers, could also have contributed to reduced mortality.

- 5756 Baldassano, R.N.; Licouras, C.A. CHRONIC DIARRHEA: A PRACTICAL APPROACH FOR THE PEDIATRICIAN. *Difficult Diagnoses in Pediatrics*, vol.38 no.3, June 1991, pp.667-686.

The article reviews the mechanisms of persistent diarrhea, how to take a complete history and physical examination, differential diagnosis of persistent diarrhea, and the approach. An illustrative case report is included.

- 5511 Bardhan, P.K.; Salam, M.A.; Molla, A.M. GASTRIC EMPTYING OF LIQUID IN CHILDREN SUFFERING FROM ACUTE ROTAVIRAL GASTROENTERITIS. *Gut*, vol.33, 1992, pp.26-29.

Nausea and vomiting are common in children with rotavirus diarrhea. The authors studied gastric emptying in 10 children with rotavirus diarrhea using a liquid meal of 5% dextrose in water. A marked delay of gastric emptying occurred in children with acute enteritis, thus suggesting that rotaviral gastroenteritis is accompanied by abnormal gastric motor function.

- 5576 Barrett, B.; Khurana, K.; Afanador, J.E.; et al. IGUANA-ASSOCIATED SALMONELLOSIS: INDIANA, 1990. *Morbidity and Mortality Weekly Report*, vol.41 no.3, January 24, 1992, pp.38-39.

This report summarizes the epidemiological and clinical features about two cases involving isolates of a rare *Salmonella* serotype, *S.marina*, from two infants residing in Indiana. Both infants appeared to have contracted salmonellosis from pet iguanas. Persons in contact with iguanas should practice strict hand washing after handling the animals.

- 5716 Barricklow, D. PERU'S CHOLERA CONQUISTADORS: DOCTORS SEE POVERTY AS THE MAIN CAUSE OF A DEADLY EPIDEMIC. *Choices*, vol.1 no.1, April 1992, pp.30-33.

This article describes the heroic efforts of Peru's health professionals to control cholera in the 1991 epidemic. However, despite a low case-fatality rate, the battle is far from over. Water and sanitation problems are severe, which can lead to contamination. Stamping out cholera will be impossible unless health and economic issues are resolved.

- 5406 Bartlett, A.V. CHOLERA LESSONS. *The Lancet*, vol.338 no.8776, November 9, 1991, p.1216, letter.

In this letter to the editor the author compares the recent cholera mortality rates in Latin America and Africa, noting that although Latin America has many more reported cases, the death rate is significantly lower than in Africa. He attributes this lower rate to the fact that Latin American countries used existing CDD programs and donor assistance to prepare for the epidemic. He suggests that this method needs to be better applied in Africa to handle the spread of cholera.

- 4997 Beer, T. MAGNESIUM INDUCED DIARRHOEA. *British Medical Journal*, vol.302, June 1, 1991, p.1339, letter.

In this letter to the editor the author comments on Fine et al's study about magnesium excretion in diarrheal diseases. He states that patients should be closely questioned about ingestion of magnesium-containing drugs, as opposed to doing routine magnesium assays.

- 5046 Behrens, R. PERSISTENT DIARRHOEA SYNDROME. *Africa Health*, vol.13 no.5, July 1991, pp.10-11.

In this article the author briefly describes the etiology, presentation, and treatment of persistent diarrhea.

- 4925 Behrens, R.H. CHOLERA: FORGET VACCINES THIS TIME AROUND. *British Medical Journal*, vol.302, May 4, 1991, pp.1033-1034.

In this article the author discusses the usefulness of cholera vaccines as a way to prevent the spread of the disease. Because an effective vaccine does not currently exist, he states that mass immunization or even vaccines for travelers are relatively useless. It would be more effective to provide adequate sanitation facilities and clean drinking water in order to limit transmission.

- 5032 Bennish, M. L. POTENTIALLY LETHAL COMPLICATIONS OF SHIGELLOSIS. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S319-S324.

This paper discusses the complications associated with fatal shigellosis and the possible mechanisms whereby these complications cause death. The appropriate therapies for these complications are also briefly outlined. Sepsis — either with *Shigella* or with other *Enterobacteriaceae* — and hypoglycemia are the most common causes of death.

- 5386 Bertomeu, A.; Ros, E.; Barragan, V.; et al. CHRONIC DIARRHEA WITH NORMAL STOOL AND COLONIC EXAMINATIONS: ORGANIC OR FUNCTIONAL? *Journal of Clinical Gastroenterology*, vol.13 no.5, 1991, pp.531-536.

To investigate whether the clinical history and basic laboratory tests can differentiate between an organic or functional cause of persistent diarrhea, the authors reviewed the charts of 58 adult patients admitted to a hospital who had normal stool and colonic examinations. The study confirmed that a detailed history and a few simple laboratory data can help distinguish between functional and organic diarrhea and so avoid extensive investigation.

- 5513 Bhadra, R.K.; Dutta, P.; Bhattacharya, S.K.; et al. *CAMPYLOBACTER* SPECIES AS A CAUSE OF DIARRHOEA IN CHILDREN IN CALCUTTA. *Journal of Infection*, vol.24, 1992, pp.55-62.

The epidemiology of diarrhea associated with *Campylobacter* in Calcutta, India, was investigated in 857 children with diarrhea and 241 controls during 1985-88. Mixed infections were very common. The numbers of cases in which *Campylobacter* was the sole pathogen isolated were not significant. Strains of *C.jejuni* and *C.coli* were isolated throughout the year with higher rates in the summer and during monsoon season. The findings also suggest that *Campylobacter* infections are common among children in this area but are often asymptomatic.

- 5012 Bhatnagar, R.; West, K.P.; Vitale, S.; et al. RISK OF CATARACT AND HISTORY OF SEVERE DIARRHEAL DISEASE IN SOUTHERN INDIA. *Archives of Ophthalmology*, vol.109, May 1991, pp.696-699.

A case-control study was carried out in the state of Tamil Nadu, southern India, to examine the association between the risk of visually disabling cataract and a lifetime history of severe diarrhea (including cholera)...An odds ratio of 0.8 was obtained from matched pairs analysis, and an odds ratio of 1.3 was obtained from all [392] subjects from a logistic analysis that adjusted for age, sex, occupation, area of residence, and caste. Findings of this study do not support the hypothesis of an increased risk of visually disabling cataract in persons with a positive history of severe diarrhea. [published abstract]

- 4982 Blacklow, N.R.; Greenberg, H.B. VIRAL GASTROENTERITIS. *New England Journal of Medicine*, vol.325 no.4, July 25, 1991, pp.252-263.

In this review article, the authors describe the characteristics, epidemiology, pathophysiology, diagnosis, and treatment of various types of viral gastroenteritis. Among the types reviewed are those caused by rotavirus, adenovirus, Norwalk virus, calicivirus, and astrovirus.

- 5495 Blanco-Guerra, C.; Cazana, J.L.; Villas, F.; et al. ILEAL PERFORATION DUE TO EOSINOPHILIC GASTROENTERITIS. *American Journal of Gastroenterology*, vol.86 no.11, November 1991, pp.1689-1690, letter.

Eosinophilic gastroenteritis is a rare idiopathic disorder characterized by eosinophilic infiltration of the gastrointestinal tract. In this letter to the editor the authors describe a case of eosinophilic gastroenteritis presenting with intestinal perforation.

- 5527 Booth, C. PLAGUE AND CHOLERA. *International Journal of STD and AIDS*, vol.2 suppl.1, 1991, pp.3-7.

In this article the author reviews the history of plague and cholera and examines the major epidemics that have occurred due to these diseases. The characteristics of the epidemics, the major routes of transmission, and the impact on various societies are also discussed.

- 5174 Booth, W. CHOLERA'S MYSTERIOUS JOURNEY NORTH. *Washington Post*, August 26, 1991, p.A3.

In this article the author reports on the appearance of cholera vibrios in the Gulf of Mexico, near Mobile, Alabama. The strain is the same as that responsible for the recent South American epidemic. One possible danger is that the organism may infiltrate oyster beds in the Gulf. However, since the beds are currently closed for harvest, any contaminated oysters could flush the bacteria out of their bodies in several weeks, providing no new bacteria enter the environment.

- 5460 Borderon, J. C.; Astruc, J.; Begue, P. et al. ENQUETE PROSPECTIVE MULTICENTRIQUE SUR LES SALMONELLOSES DIGESTIVE EN PEDIATRIE. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.578-584.

During a multicenter study in France, from September to November 1990, cases of acute diarrhea due to *Salmonella* species in 197 children were diagnosed and reviewed. This article describes the various *Salmonella* strains that were isolated as well as the symptoms of the infections. The antibiotic resistance of various strains is also discussed.

- 5685 Bricout, F. DIARRHEES VIRALES. La Presse Médicale, vol.21 no.7, February 22 1992, pp.309-314.

[S]everal viruses are responsible for acute diarrhea or gastroenteritis in children and adults. These viruses are difficult to identify because most of them cannot be isolated by stool cultures on cells. The reality of proven reinfection by some of these organisms is not always clearly understood, even though the existence of several serotypes in the same group (notably rotavirus) can be blamed, and this explains why vaccines are difficult to develop. [published abstract]

- 5531 Brouard, J.; Deschrevel, G.; Duhamel, J.-F. LA COLITE SPASMODIQUE DE L'ENFANT. Gazette Médicale, vol.98 no.39, 1991, pp.9-14.

In this article the authors discuss the physiology of colitis in young children, as well as various diagnostic procedures. They then discuss possible options for treating this condition in children.

- 4921 Brown, P. LATIN AMERICA STRUGGLES AS CHOLERA SPREADS. New Scientist, May 4, 1991, p.12.

In this brief article the author comments on the cholera epidemic in Latin America. Inadequate sanitation and contaminated water supplies have contributed to the spread of the disease. In addition to the impact on Latin America's health situation, the epidemic has severely affected the economy by losses in food exports.

- 5457 Bukenya, G.B.; Barnes, T.; Nwokolo, N. LOW BIRTHWEIGHT AND ACUTE CHILDHOOD DIARRHOEA: EVIDENCE OF THEIR ASSOCIATION IN AN URBAN SETTLEMENT OF PAPUA NEW GUINEA. Annals of Tropical Paediatrics, vol.11, 1991, pp.357-362.

A study was conducted among children under age five in an urban settlement of Papua New Guinea to investigate the relationship, if any, between low birthweight and diarrhea morbidity. Data indicated that low birthweight was strongly associated with diarrhea and that the effect was noticeable up to three years of age. The authors conclude that greater attention should be paid to reducing low birthweight in strategies to control diarrheal diseases.

- 5319 Bung'ias, A.A. LES ASPECTS GEOGRAPHIQUES DE L'EPIDEMIE DE CHOLERA DANS LA VILLE DE KINDU (MANIEMA, ZAIRE). Développement et Santé, no.94, 1991, pp.25-28.

The geographic aspects of the cholera epidemic in the Kindu village of Zaire are discussed in this article. The origin of the outbreak, the areas most affected, and

the reasons for its quick expansion are explored. The author concludes that the primary reason for the outbreak was the consumption of contaminated water, a situation that can be remedied with low-cost, simple technologies for water purification.

- 5516 Callender, J.E.M.; Grantham-McGregor, S.; Walker, S.; et al. TRICHURIS INFECTION AND MENTAL DEVELOPMENT IN CHILDREN. *The Lancet*, vol.339 no.8786, January 18, 1992, p.181, letter.

In this letter to the editor the authors report on a study among 19 children with trichuris dysentery syndrome to examine the relationship between the syndrome and mental development. Their findings showed that mental development and nutritional status of children with the syndrome were considerably impaired. Because these results may have implications for children with moderate parasite loads, these children should be investigated.

- 5588 Campbell, H. ACUTE RESPIRATORY INFECTIONS ARE THE MAIN KILLER OF UNDER 5S. *British Medical Journal*, vol.304, February 8, 1992, p.335.

A conference on acute respiratory infections was held in Washington, D.C., in 1991, which was organized jointly by WHO, UNICEF, and the U.N. Development Programme. This brief article presents the highlights of the meeting, which focused primarily on ARI vaccine development and case-management strategies.

- 5161 Capitano, M.A.; Greenberg, S.B. PNEUMATOSIS INTESTINALIS IN TWO INFANTS WITH ROTAVIRUS GASTROENTERITIS. *Pediatric Radiology*, vol.21, 1991, pp.361-362.

The authors report on two cases of pneumatosis intestinalis in children with rotavirus gastroenteritis. Pneumatosis intestinalis is uncommon in children other than premature infants with necrotizing enterocolitis, and thus has not been reported before in children with rotavirus infections.

- 5573 CATASTROPHIC RISE OF CHOLERA IN AFRICA. *World Health Forum*, vol.12, 1991, pp.363-364.

This news note from WHO reports on the latest outbreak of cholera in certain African countries, which is killing people at a much higher rate than a similar outbreak in Latin America in 1991. Emergency efforts are needed to educate the public, train health workers in the use of ORT, and to design solutions for water and sanitation problems.

- 5741 Cerf, M. STRATEGIE DIAGNOSTIQUE DEVANT UNE DIARRHEE CHRONIQUE DE L'ADULTE. *Gastroenterologie Clinique et Biologique*, vol.16, 1992, pp.T12-T21.

This article discusses diagnostic approaches to persistent diarrhea. It describes various diagnostic and laboratory tests that can be undertaken to determine the cause of such diarrhea, including colonoscopy, ultrasonography, and stool analysis. It offers approaches for both steatorrhea and watery diarrhea.

- 4897 Cerqueiro, M.C.; Murtagh, P.; Halac, A.; et al. EPIDEMIOLOGIC RISK FACTORS FOR CHILDREN WITH ACUTE LOWER RESPIRATORY TRACT INFECTION IN BUENOS AIRES, ARGENTINA: A MATCHED CASE-CONTROL STUDY. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp.S1021-S1028.

The risk factors that predisposed 516 hospitalized and 154 ambulatory patients to acute lower respiratory tract infections were examined in a matched case-control study in Buenos Aires, Argentina. The variables that predisposed children to acute lower respiratory tract infections were host's condition (bronchial hyper-reactivity, presence of persistent symptoms of the upper respiratory tract), family (presence of acute respiratory tract disease in household members), and environment (indoor pollutants).

- 5710 Chattopadhyaya, D.; Chatterjee, R.; Anand, V.K.; et al. LOWER RESPIRATORY TRACT INFECTION IN HOSPITALIZED CHILDREN DUE TO RESPIRATORY SYNCYTIAL (RS) VIRUS DURING A SUSPECTED EPIDEMIC OF RS VIRUS IN DELHI. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.68-73.

A study of 131 children under age five seeking hospitalization due to lower respiratory tract infections showed significant occurrence of bronchiolitis in younger age groups. Respiratory syncytial virus could be detected in a higher percentage of bronchiolitis cases compared with bronchopneumonia. Higher detection rates of respiratory syncytial virus in this study compared with earlier ones from India is attributed to application of immunofluorescent antibody technique as well as selection of lower respiratory tract infections cases during a suspected epidemic of respiratory syncytial virus.

- 5514 Chen, Y.-G.; Yao, F.-B.; Li, H.-S.; et al. *CRYPTOSPORIDIUM* INFECTION AND DIARRHEA IN RURAL AND URBAN AREAS OF JIANGSU, PEOPLE'S REPUBLIC OF CHINA. *Journal of Clinical Microbiology*, vol.30 no.2, February 1992, pp.492-494.

*Cryptosporidium* spp. are widely recognized as pathogens of diarrheal diseases. However, illness associated with these pathogens were not identified in China

until 1987. In order to investigate the epidemiology of *Cryptosporidium* infection in Jiangsu Province, a survey among children under 15 years of age was carried out during 1989-90 by testing for *Cryptosporidium* oocysts in stool samples. The results of this survey are presented in this article.

- 5171 CHOLERA: NEW YORK, 1991. Morbidity and Mortality Weekly Report, vol.40 no.30, August 2, 1991, pp.516-518.

A total of 14 confirmed cases of epidemic-associated cholera have been reported in the United States, four of which were in New York. This article summarizes the information about these four cases and describes a new laboratory procedure used to confirm the vehicle of transmission.

- 5244 CHOLERA ALERT IN BOLIVIA. Grassroots, vol.10 no.2, September 1991, p.2.

This news note reports on the appearance of cholera in Bolivia. As of September 9, 1991, 11 cases have been reported with two deaths.

- 5715 CHOLERA AND INTERNATIONAL AIR TRAVEL. Weekly Epidemiological Record, no.14, April 3, 1992, pp.103-104.

In February 1992 an outbreak of 76 cases of cholera occurred in Los Angeles. The victims had all been passengers on a flight from Buenos Aires to Lima to Los Angeles. Preliminary analysis shows that the only menu item from the flight significantly associated with illness was a seafood salad supplied by a caterer in Lima.

- 5451 CHOLERA ASSOCIATED WITH IMPORTED FROZEN COCONUT MILK: MARYLAND, 1991. Morbidity and Mortality Weekly Report, vol.40 no.49, December 13, 1991, pp.844-845.

Three cases of cholera were reported in Maryland in 1991 that were linked to frozen coconut milk imported from Asia. The product was recalled after an investigation and no other cases have been reported. This report provides a brief overview of this outbreak and its investigation.

- 5645 CHOLERA ASSOCIATED WITH AN INTERNATIONAL AIRLINE FLIGHT, 1992. Morbidity and Mortality Weekly Report, vol.41 no.8, February 28, 1992, pp.134-135.

This brief article reports on an outbreak of cholera among persons who traveled on a flight from Argentina and Peru to the United States. One passenger died and many others have reported diarrheal illness. Studies are underway to

determine the mode of transmission and to characterize the strains of *Vibrio cholerae* isolated from these people.

- 4947 CHOLERA EPIDEMIC GROWS. *Africa Health*, vol.13 no.4, May 1991, p.5.

This news note briefly describes the status of cholera epidemics in Zambia and Mozambique. Poor sanitation, which allowed waterborne transmission of the virus, contributed to the spread of the disease.

- 4923 CHOLERA EPIDEMIC. *British Medical Journal*, vol.302, May 4, 1991, pp.1039- 1040.

This brief article reports on the current cholera epidemic in Latin America. The disease has spread due to poor sanitation systems and consumption of contaminated foods. WHO has launched a global cholera control task force in response to the epidemic and has appealed to the international community for urgent financial aid.

- 5397 CHOLERA IN 1990. *Bulletin of the World Health Organization*, vol.69 no.5, 1991, pp.631-632.

This brief article reports on the number of cholera cases worldwide in 1990. The specific number of cases reported by each country and region is also presented.

- 5275 CHOLERA IN AFRICA. *Weekly Epidemiological Record*, no.42, October 18, 1991, pp.305-311.

This article traces the recent epidemiology of cholera in Africa, beginning with the initial epidemic in 1970-71 through 1990. Methods of transmission are discussed. The article concludes that the threat of cholera cannot be expected to subside until the environment in Africa is rehabilitated in step with the development of urban settlements and population movements.

- 4918 CHOLERA IN PERU: UPDATE, MAY 1991. *Weekly Epidemiological Record*, no.20, May 17, 1991, pp.141-146.

This article provides an update on the status of the cholera epidemic in Peru, which began in January 1991. Municipal water supplies have been implicated in the transmission of the disease, as has the consumption of contaminated foods, particularly seafood. Inadequate sanitation facilities have also contributed to the spread of cholera in this area. Without major improvements in water supply and sanitation it is likely that cholera will become endemic in Latin America.

- 5407 CHOLERA IN THE AMERICAS: UPDATE. CAREC Surveillance Report, vol.17 no.9, September 1991, pp.6-8.

The status of the cholera epidemic in Latin America is reviewed in this article. Current morbidity and mortality statistics for affected countries are presented. The article also briefly describes the pathogenesis, diagnosis, treatment, and epidemiologic surveillance of cholera.

- 5648 CHOLERA IN THE AMERICAS. Weekly Epidemiological Record, no.6, February 7, 1992, pp.33-39.

The epidemiology of cholera outbreaks in various American countries is presented in this article. Countries for which data are presented include Peru, Colombia, Brazil, Chile, Panama, Guatemala, and the United States. The article reviews modes of transmission, morbidity and mortality rates, and other characteristics of the epidemic in these countries.

- 5418 CHOLERA PREVENTION. Atlanta, GA, Centers for Disease Control, October 1991, np.

This brochure from the U.S. Centers for Disease Control briefly outlines what cholera is, how it is transmitted, the risk for cholera in the United States, and what travelers can do to avoid contracting the disease. It also reviews cholera treatment as well as the measures taken by the U.S. government to combat cholera.

- 5074 CHOLERA SITUATION IN THE AMERICAS: AN UPDATE. Epidemiological Bulletin, vol.12 no.2, 1991, pp.1-4.

This article provides recent information on the cholera outbreaks in Latin America. Information on morbidity, mortality, and epidemiology is provided for Peru, Ecuador, Colombia, Brazil, Chile, and Mexico. There is also a brief report on the 14 cases that occurred in the United States.

- 5649 CHOLERA SITUATION IN THE AMERICAS: AN UPDATE. Epidemiological Bulletin, vol.12 no.4, December 1991, pp.11-13.

This article provides updated information and statistics on the spread of the cholera epidemic in the Americas. Information is presented for the following countries: Peru, Ecuador, Colombia, the United States, Chile, Brazil, Mexico, Guatemala, Bolivia, Panama, Honduras, Nicaragua, and Venezuela. Data indicate that the overall case fatality rate from cholera in Latin America remains around 1%.

5070 CHOLERA UPDATE. CAREC Surveillance Report, vol.17 no.6, June 1991, pp.5-6.

A brief summary of the morbidity and mortality due to the recent cholera outbreaks is presented in this article. A listing of countries presently reporting cholera is also provided.

5064 CHOLERA. In Point of Fact, no.73, April 1991, np.

This WHO press release describes the history of the global spread of cholera, the pathophysiology of the disease, and basic treatment guidelines.

5335 CHOLERA. World Health Forum, vol.12 no.2, 1991, pp.236-240.

This article discusses the transmission, treatment, and prevention of cholera. It includes a map showing epidemiology of cholera in 1990 and 1991, as well as a one-page version of the WHO Guidelines for Cholera Control.

5066 CHOLERA: ANCIENT SCOURGE ON THE RISE. WHO Features, no.154, April 1991, np.

Due to the numerous outbreaks of cholera worldwide, the WHO has formed a global cholera task force. This press release briefly reviews the current situation, describes the physiology of cholera, and outlines the task force's objectives.

4996 COLERA. Prensa Medica Argentina, 1991, pp.54-55.

This brief article describes the bacteriology, epidemiology, and pathology of cholera. It also discusses modes of transmission as well as diagnosis and treatment of the disease.

5594 THE CONTINUING THREAT OF CHOLERA. Africa Health, vol.14 no.2, January 1992, p.18.

This news note comments on the very serious threat that cholera still presents in Africa. Mass migrations and refugee settlements have contributed to the spread of the disease. Early diagnosis and prompt treatment with oral rehydration solutions still remain the best weapons to control the disease.

5421 Contou, J.-F. DIARRHEES ASSOCIEES AUX ANTIBIOTIQUES. Gazette Médicale, vol.98 no.28, 1991, pp.27-31.

Diarrhea associated with antibiotic therapy is discussed in this article. Three types of diarrhea are reviewed: "simple" diarrhea, colitis with bloody stools, and pseudo-membranous colitis. The author discusses the etiology, risk factors, and pathogenesis of these conditions as well as various modes of treatment.

- 5296 Cooper, E.S.; Spencer, J.; Whyte-Alleng, C.A.M.; et al. IMMEDIATE HYPERSENSITIVITY IN COLON OF CHILDREN WITH CHRONIC *TRICHURIS TRICHIURA* DYSENTERY. *The Lancet*, vol.338 no.8775, November 2, 1991, pp.1104-1107.

Because there are few data on mucosal immune responses to intestinal helminths in human beings, the authors studied 28 children in Jamaica with *Trichuris* dysentery syndrome and 16 controls. Their results suggest that the *T.trichiuria* parasite elicits a local immediate hypersensitivity reaction in the colonic mucosa and that this response could be important in the pathogenesis of the syndrome.

- 5311 Cooper, T.W. SECRETORY DIARRHEA AND CANDIDAL OVERGROWTH: CAUSE AND EFFECT. *Journal of Infectious Diseases*, vol.164, October 1991, pp.823-824, letter.

In this letter to the editor, the author discusses candidal overgrowth as a cause of secretory diarrhea. Several examples of cases and methods of treatment are presented.

- 5510 Crowley, P. NICARAGUA NOW THREATENED WITH CHOLERA. *British Medical Journal*, vol.304, January 18, 1992, p.141.

This news note reports on the appearance of cholera in Nicaragua. The author notes that this is a particularly inopportune time because of the recent drastic cuts in public-health expenditures by the government. The only force that can limit the spread of cholera is the *brigadista* movement, a group of health volunteers who are setting up ORT units in rural areas and attempting to educate the public about cholera prevention.

- 4898 Cruz, J.R.; Pareja, G.; Fernandez, A. EPIDEMIOLOGY OF ACUTE RESPIRATORY TRACT INFECTIONS AMONG GUATEMALAN AMBULATORY PRE-SCHOOL CHILDREN. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp.S1029-S1034.

ARIs were studied during a two-year period in 521 preschool children living in a marginal area of Guatemala City. The incidence of ARIs was 14 per 100 child-weeks, or 7.2 episodes per child per year. Median duration of episodes was 11 days. Highest incidence was observed in children six to 23 months old. Presence of a cigarette smoker in the household was associated with higher morbidity.

- 5543 Dallabetta, G.A.; Miotti, P.G. CHRONIC DIARRHOEA IN AIDS PATIENTS IN THE TROPICS: A REVIEW. *Tropical Doctor*, vol.22, January 1992, pp.3-9.

In this paper [the authors] summarize the data from studies of diarrhea in HIV-1 positive individuals in industrial countries and review in detail studies of diarrhea in HIV-1 positive patients in developing countries. [They] discuss the clinical manifestations and diagnosis of those diarrheal pathogens that have been newly recognized by the medical community since the advent of acquired immunodeficiency syndrome (AIDS), namely *Cryptosporidium*, *Isospora belli*, and *Microsporidium*, and suggest an approach to the management of chronic diarrhea in HIV-1 positive individuals in Africa. [published abstract]

- 5147 de L. Costello, A.M. VITAMIN A SUPPLEMENTATION. *The Lancet*, vol.338 no. 8766, August 31, 1991, p.568, letter.

In this letter to the editor the author comments on West et al's study on child mortality reduction due to vitamin A supplementation in Nepal. Although the study results indicated a 30% decrease in mortality, it did not address how such a supplementation program could be replicated and sustained by the Nepalese health system.

- 5393 Dhur, A.; Galan, P.; Hereberg, S. VITAMIN A DEFICIENCY AND IMMUNITY. *Journal of Clinical and Biochemical Nutrition*, vol.11 no.1, 1991, pp.1-19.

This review article reviews studies on vitamin A metabolism and function, vitamin A and immunity, and on the association between vitamin A deficiency, PEM and infections. It concludes that vitamin A plays a crucial role in several immunological mechanisms. Some immunological functions have been poorly investigated in relation to vitamin A deficiency, including polymorphonuclear cell capacities and lymphokine production.

- 5308 DIARRHOEA AND MALNUTRITION. *The Lancet*, vol.338 no.8772, October 12, 1991, pp.921-922.

This article briefly examines the relationship between diarrhea and malnutrition in terms of causality. Recent studies from Nigeria, Bangladesh, and Colombia indicated that diarrhea has less of an adverse effect on growth than originally assumed. Although these results do not detract from the importance of reducing diarrheal mortality or from improving hygiene and sanitation, they do suggest that the impact of diarrhea on malnutrition may be less than was once thought.

- 5067 DIARRHOEAL AND ACUTE RESPIRATORY DISEASE: THE CURRENT SITUATION. *In Point of Fact*, no.76, June 1991, np.

This WHO press release provides a brief overview of the status of diarrheal diseases and acute respiratory infections worldwide. It also briefly reviews WHO's programs to combat these diseases.

- 5417 DiPrete, L. ACUTE LOWER RESPIRATORY INFECTION: A REVIEW OF EXPERIENCE IN FOUR COUNTRIES. Bethesda, MD, PRICOR, September 1991, 34p.+app.

This report focuses on the identification and appropriate antibiotic treatment of pneumonia by health workers and caretakers in four countries: the Philippines, Pakistan, Indonesia, and Colombia. Systems analyses and operations research were used to evaluate acute-lower-respiratory-tract-infection service delivery in first line health facilities, at the community level, and in the home. The report outlines the deficiencies found in acute-lower-respiratory-tract-infection services as well as successful solutions implemented to improve the situation. The common problems found in these studies should be taken into account by donor agencies in planning ARI strategies. In addition, the assessment studies used here can be employed by managers and researchers in efforts to improve ARI case management.

- 5166 DIRECTIVES POUR LA LUTTE CONTRE LE CHOLERA. Diarrhée Dialogue, no.40, March 1991, pp.1-2.

This brief article provides general information on cholera as well as guidelines for treatment with ORS and antibiotic therapy when necessary. It outlines some prevention activities such as proper excreta disposal, hand washing, and correct food preparation techniques. The article also notes that although vaccines do exist, none have proven very effective.

- 5599 Dunn, D.; Newell, M.-L.; Casabona, J.; et al. VERTICAL TRANSMISSION OF HIV. The Lancet, vol.339 no.8789, February 8, 1992, pp.364-365, letter.

In this letter to the letter the authors question some of the methodological aspects of Casabona et al's study on vertical transmission of the HIV virus from mothers to their infants. A response by Casabona et al follows.

- 5042 Echeverria, P.; Sethabutr, O.; Pitarangsi, C. MICROBIOLOGY AND DIAGNOSIS OF INFECTIONS WITH *SHIGELLA* AND ENTEROINVASIVE *ESCHERICHIA COLI*. Reviews of Infectious Diseases, vol.13 suppl.4, 1991, pp.S220-S225.

The purpose of this article is to review the etiology of dysentery in Thailand and the existing methods of diagnosing infections with *Shigella* and EIEC. Standard bacteriologic methods and testing of *E.coli* isolated for hybridization with the

*Shigella*/EIEC probe are currently the most sensitive means of diagnosing infections caused by these enteric pathogens.

- 5517 Echeverria, P.; Sethabutr, O.; Serichantalergs, O.; et al. *SHIGELLA AND ENTEROINVASIVE ESCHERICHIA COLI INFECTIONS IN HOUSEHOLDS OF CHILDREN WITH DYSENTERY IN BANGKOK*. *Journal of Infectious Diseases*, vol.165, 1992, pp.144-147.

A study was done to identify *Shigella* and enteroinvasive *E.coli* (EIEC) in children with dysentery and their household contacts in Bangkok, Thailand. *Shigellae* were isolated from 49% of the 306 children with dysentery who were studied; EIEC was isolated from 6%. The same serotype infecting the index child was isolated from 21 (4%) of 522 household contacts of the 151 index children with *Shigella* infections and from none of 60 household contacts of 19 index children with EIEC infections. The authors discuss these findings in terms of the epidemiology of dysentery in Thailand.

- 5167 EFFECT OF ACUTE DIARRHEAL DISEASE ON INFANTS' DIETARY INTAKE. *Nutrition Reviews*, vol.49 no.7, July 1991, pp.211-213.

This brief article reports on a study conducted in Nigeria that observed the dietary intake of children with gastroenteritis. The results are discussed in terms of how diarrhea can lead to malnutrition through decreased nutrient intake, impaired intestinal absorption, and metabolic wastage of nutrients.

- 5246 EFFECT OF ZINC SUPPLEMENTATION IN PATIENTS WITH ACUTE AND PERSISTENT DIARRHOEA. *Glimpse*, vol.13 no.3, May-June 1991, p.2.

Zinc deficiency can retard children's growth and in severe cases lead to diarrhea and frequent infections. A study was carried out in Bangladesh from 1987 to 1989 to examine the effect of zinc supplementation on intestinal function, morbidity, and growth among young children with acute and persistent diarrhea. This article provides a brief overview of the study, which indicated that zinc supplementation may provide significant clinical, nutritional and immunological benefits to children during and after episodes of acute or persistent diarrhea.

- 5061 EMERGENCY MEETING ON CHOLERA PREPAREDNESS IN THE CARIBBEAN, MAY 16TH-17TH, 1991. *CAREC Surveillance Report*, vol.17 no.5, May 1991, pp.1-6.

Due to the spread of the cholera epidemic in Latin America, CAREC/PAHO hosted an emergency meeting to discuss cholera preparedness in the Caribbean. Meeting participants reviewed the current situation, assessed the risk to Caribbean countries, developed recommendations for prevention, and discussed early detection and control of cholera.

5050 EPIDEMIC CONTROL. Dialogue on Diarrhoea, issue 45, June 1991, pp.2-3.

This article briefly describes efforts that can be made to prepare for a cholera outbreak as well as measures to control the spread of the disease if an outbreak does occur. In addition to improving water supply and sanitation, public education is suggested as a way to control outbreaks.

5088 Esahli, H.; Breback, K.; Rutger, B.; et al. ASTROVIRUSES AS A CAUSE OF NOSOCOMIAL OUTBREAKS IN INFANT DIARRHEA. *Pediatric Infectious Diseases Journal*, vol.10, 1991, pp.511-515.

During a 16-month study period at a children's hospital in Sweden, 32 children developed astrovirus-associated gastroenteritis. The most common clinical manifestations were diarrhea and vomiting. The authors conclude that hospital infection with astroviruses is common and usually affects children under two years of age. They suggest that the most probable mode of transmission was contaminated hands.

4922 Escoute, A.J.; Chirambo, M.C.; Luzeau, R.; et al. ASSESSMENT OF VITAMIN A DEFICIENCY IN REPUBLIC OF MALAWI BY IMPRESSION CYTOLOGY METHOD. *International Journal of Vitamin and Nutrition Research*, vol.61, 1991, pp.10-16.

During a countrywide survey [the authors] assessed the prevalence of vitamin A deficiency by impression cytology method with transfer in a randomized sample of 650 representatives of the children's population of the Republic of Malawi. A vitamin A deficiency was indicated by the results of the ophthalmic examination...and the ICT test...Results of ICT were related to age. Vitamin A deficiency seems to be a public-health problem in the Republic of Malawi. [published abstract]

5585 Faisal, A.; Shafi, S.; Mian, U.K. STUDY OF IMPLEMENTATION AND UTILIZATION OF STANDARD TREATMENT GUIDELINES FOR ACUTE RESPIRATORY INFECTIONS AND BLOOD IN STOOLS IN SINDH, PAKISTAN. Islamabad, Pakistan, USAID Primary Health Care Project and Pakistan Ministry of Health, February-May 1990, 102p.

In Pakistan, standard guidelines were developed for the management of diarrheal diseases, acute respiratory infections, malaria, tuberculosis, immunizations, and nutrition. A trial monitoring system was also established to improve health-services management. A study was then done in Sindh to assess the use of the guidelines by health facility personnel with respect to how they managed cases of "blood in stool" and ARI. The extent to which the health workers used the guidelines and their reasons for non-compliance were studied and the results are presented in this report. Based on the data the authors make recommendations

for the modification of the guidelines, for improving their use, and for overall management of the monitoring system.

- 5712 Farthing, M.J.G. HYPERNATRAEMIA, ACUTE DIARRHOEA, AND ORAL REHYDRATION THERAPY. *The Lancet*, vol.339, April 1992, p.936, letter.

This letter commends Dr. Fayad et.al. for reporting on the unacceptably high frequency of hypernatremia that occurred at the beginning of Egypt's ORT program. It also suggests that the development of a hypotonic ORS is the way forward for European children.

- 5717 Fauveau, V.; Stewart, M.K.; Chakroborty, J.; et al. IMPACT ON MORTALITY OF A COMMUNITY-BASED PROGRAMME TO CONTROL ACUTE LOWER RESPIRATORY TRACT INFECTIONS. *Bulletin of the World Health Organization*, vol.70 no.1, 1992, pp.109-116.

A targeted program designed to treat children with acute lower respiratory tract infections was implemented in 1988 in rural Bangladesh. The program was based on systematic ARI detection and management by community health workers, who were linked to a referral system. Findings suggest that such a program can reduce ARI mortality by 50% and ARI mortality among children under age five by 30%.

- 5631 Fayad, I.M.; Hirschhorn, N.; Abu-Zikry, M.; et al. HYPERNATRAEMIA SURVEILLANCE DURING A NATIONAL DIARRHOEAL DISEASES CONTROL PROJECT IN EGYPT. *The Lancet*, vol.339 no.8790, February 15, 1992, pp.389-393.

With the wider use of ORS packets in Egypt, the incidence of hypernatremia in patients with dehydration seen at the Abu El-Reeche Hospital in Cairo increased between 1980 and 1984. The authors report on trends of hypernatremia incidence and analyze key variables affecting its occurrence in dehydrated children. Hypernatremia incidence was positively related to the quantity of ORS taken, severity of dehydration, nutritional status, and the cooler season. It was negatively related to age and duration of diarrhea. The rise and decline of hypernatremia incidence coincided with the increasing use of ORS and then the increasing ability of mothers to mix the solution correctly.

- 4951 Feldmeier, H.; Krantz, I. COCA CHEWING AND CHOLERA. *The Lancet*, vol.337 no.8753, June 1, 1991, p.1342, letter.

In this letter to the editor the authors consider whether or not coca chewing by Latin Americans can predispose them to cholera infection. Coca plus the added lime or ash base could render the stomach pH alkaline for many days, thus

creating a suitable environment for the cholera bacteria to proliferate. Further research is needed to clarify the link between coca chewing and cholera.

- 5491 Felix, H. LA PANDEMIE CHOLERIQUE EN 1991 APRES 20 ANS D'IMMOBILISME. Cahiers Santé, vol.1 no.3, August-September 1991, pp.241-251.

In this article the author provides a short history of cholera epidemics over the last two centuries, particularly focusing on the spread of the disease in African countries. He also analyzes the recent epidemic in Peru in terms of that country's efforts to control and prevent cholera. Finally, he reviews the pathophysiology of cholera and presents some basic methods for its treatment and prevention.

- 5276 Fisch, A.; Tran, D.-H. DIARRHEES AU RETOUR D'UN VOYAGE EN PAYS TROPICAL. Gazette Médicale, vol.98 no.28, 1991, pp.13-16.

The diagnosis and management of diarrhea in travelers visiting tropical countries are reviewed in this article. The authors discuss diagnostic criteria and ways to manage mild as well as severe cases. Advice to travelers about preventing diarrhea is also presented.

- 4934 FISH BOTULISM: HAWAII, 1990. Morbidity and Mortality Weekly Report, vol.40 no.24, June 21, 1991, pp.412-414.

This article reports on three cases of botulism in Hawaii, which were attributed to consumption of fish contaminated with *Clostridium botulinum*.

- 5289 FISH BOTULISM: HAWAII. Weekly Epidemiological Record, no.40, October 4, 1991, pp.294-295.

Three cases of botulism in Hawaii are described in this short article. The patients contracted the illness from fish contaminated with *Clostridium botulinum*.

- 5489 FOODBORNE NOSOCOMIAL OUTBREAK OF *SALMONELLA* READING: CONNECTICUT. Morbidity and Mortality Weekly Report, vol.40 no.46, November 22, 1991, pp.804-806.

This report describes an outbreak of nosocomial salmonellosis associated with consumption of improperly thawed and cooked turkey [in Connecticut]. Although the outbreak occurred a year ago, this report is a timely reminder of the importance of proper cooking and handling of turkey — especially during the holiday season. [published abstract]

- 4880 **FOODBORNE OUTBREAK OF GASTROENTERITIS CAUSED BY *ESCHERICHIA COLI* 0157:H7: NORTH DAKOTA, 1990.** Morbidity and Mortality Weekly Report, vol.40 no.16, April 26, 1991, pp.265-267.

An outbreak of *Escherichia coli* gastroenteritis, which occurred in North Dakota, is reported in this article. The outbreak occurred among persons who had eaten a meal while attending an agricultural threshing show. An epidemiological investigation implicated the roast beef served at the meal. This is the second gastroenteritis outbreak in North Dakota that implicated contaminated roast beef.

- 4908 **Ghafoor, A.; Nomani, N.K.; Ishaq, Z., et al. DIAGNOSES OF ACUTE LOWER RESPIRATORY TRACT INFECTIONS IN CHILDREN IN RAWALPINDI AND ISLAMABAD, PAKISTAN.** Reviews of Infectious Diseases, vol.12 suppl.8, November-December 1990, pp.S907-S914.

A hospital-based inpatient and outpatient study of 1,492 cases of lower respiratory tract infection was conducted during 1986-88 in two hospitals in Rawalpindi and Islamabad, Pakistan. This paper presents the viral and bacterial etiologic findings and examines the potential usefulness of certain clinical characteristics for identification of bacterial and viral infections in patients seen in the hospital ward and clinic.

- 5264 **Glass, R.I.; Claeson, M.; Blake, P.A.; et al. CHOLERA IN AFRICA: LESSONS ON TRANSMISSION AND CONTROL FOR LATIN AMERICA.** The Lancet, vol.338 no.8770, September 28, 1991, pp.791-795.

In this article the authors review lessons learned from cholera outbreaks in Africa in terms of controlling the current epidemic in Latin America. They discuss modes of transmission, such as mass migration and contaminated foods, as well as strategies for cholera control. It is concluded that future control measures must emphasize sanitary and behavioral interventions as well as the development of effective vaccines.

- 5387 **GLOBAL ACTIONS AGAINST CHOLERA.** Canadian Medical Association Journal, vol.145 no.8, October 15, 1991, pp.973-974.

This brief article discusses the establishment of the WHO Global Cholera Control Task Force and reviews food imports at low risk for cholera transmission.

- 5259 **Gokeay, G.; Emre, S.; Tanman, F.; et al. AN EPIDEMIOLOGICAL APPROACH TO ACUTE RENAL FAILURE IN CHILDREN.** Journal of Tropical Pediatrics, vol.37 no.4, August 1991, pp.191-193.

The records of 630 pediatric patients [in Istanbul] with acute renal failure were analyzed. Of all the patients admitted to the hospital during the same period, 5 percent had acute renal failure...Acute gastroenteritis and septicemia were the leading causes of acute renal failure up to eight years of age. [published abstract]

- 4940 Goossens, H.; Vlaes, L.; Butzler, J.-P.; et al. *CAMPYLOBACTER UPSALIENSIS* ENTERITIS ASSOCIATED WITH CANINE INFECTIONS. *The Lancet*, vol.337 no.8755, June 15, 1991, pp.1486-1487, letter.

The authors of this letter to the editor report on a case of diarrhea in which *Campylobacter upsaliensis* was isolated. Laboratory tests cited stools from the patient's dog as the source of the infection. Studies show that many healthy dogs as well as those with diarrhea can carry the pathogen. The authors suggest that careful hygienic practices with domestic dogs should be emphasized.

- 5461 Gouyon, J. B.; Pothier, P. DIARRHÉES NEONATALES A ROTAVIRUS: RESULTATS D'UNE ENQUETE CONDUITE DANS DES UNITES DE NEONATOLOGIE. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.585-588.

A retrospective study was carried out in 24 neonatal care units to study outbreaks of rotavirus infections. Latex agglutination test or ELISA was usually used to diagnose infections. Six units presented with three or more outbreaks during the study period. Recommendations are made to limit rotavirus transmission, including isolation of infected babies, systematic stool examinations, and use of gloves when handling contaminated stools.

- 5380 Gove, S.; Pio, A.; Campbell, H.; et al. WHO GUIDELINES ON DETECTING PNEUMONIA IN CHILDREN. *The Lancet*, vol.338 no.8780, December 7, 1991, pp.1453-1454, letters.

These four letters to the editor were written in response to a *Lancet* article by Harari et al on the need for age-specific respiratory rate thresholds in guidelines for the detection of children with pneumonia in developing countries.

- 5642 Gradon, J.D.; Lutwick, L.I.; Chavda, R.; et al. THE FORTUITOUS DIAGNOSIS OF CHOLERA IN A TWO-YEAR-OLD GIRL. *Diagnostic Microbiology and Infectious Disease*, vol.15, 1992, pp.161-164.

Cholera was diagnosed in a two-year-old child from New York following a trip to Karachi, Pakistan, despite the fact that the stool was not plated onto specific media for *Vibrio cholerae* isolation. This case demonstrates the need for communication between medical staff and lab personnel when an uncommon disease, such as cholera, is suspected. The case also alerts clinicians to the possibility of infections due to multiple enteric pathogens in travelers.

- 5073 Guerrant, R.L.; Bobak, D.A. BACTERIAL AND PROTOZOAL GASTROENTERITIS. *New England Journal of Medicine*, vol.325 no.5, August 1, 1991, pp.327-340.

This review article provides updated information on and practical approaches to the understanding, diagnosis, and management of bacterial and protozoal gastroenteritis. The authors examine the epidemiology and pathophysiology of such infections as well as the most effective means of treatment.

- 5562 A GUIDE ON SAFE FOOD FOR TRAVELERS. Geneva, World Health Organization, June 1991, 4p.

This leaflet provides some basic suggestions for eating safely while traveling as well as some practical guidelines for managing travelers diarrhea.

- 5198 GUIDELINES FOR CHOLERA CONTROL. *Bulletin of the World Health Organization*, vol.69 no.4, 1991, pp.490-491.

The basic WHO guidelines for treating and controlling the spread of cholera are outlined in this brief article. Information on drug therapy, waste disposal, assuring safe water supplies, food safety, vaccination, food imports, and travel and trade restrictions is provided.

- 5305 Harari, M.; Shann, F.; Spooner, V.; et al. CLINICAL SIGNS OF PNEUMONIA IN CHILDREN. *The Lancet*, vol.338 no.8772, October 12, 1991, pp.928-930.

In Papua New Guinea, 185 children with cough were studied to determine which clinical signs predicted radiographic evidence of pneumonia. Findings indicated that either chest indrawing or a respiratory rate greater than or equal to 50 per minute (or both) was a good indication of pneumonia, with a predictive power of 46% for a positive test and 83% for a negative test.

- 5063 Hodge, M. CHOLERA. *Medical Journal of Australia*, vol.155, July 1, 1991, pp.4-5.

In this brief article the author reviews the history of the global spread of cholera and discusses the development of cholera vaccines.

- 4979 Hoffman, N.B. DEHYDRATION IN THE ELDERLY: INSIDIOUS AND MANAGEABLE. *Geriatrics*, vol.46 no.6, June 1991, pp.35-38.

Elderly patients, whether healthy or ill, are at increased risk of developing dehydration than younger people. Risk factors for dehydration include diminished thirst perception, mild intrinsic nephrogenic diabetes insipidus, and limited

access to water. Physicians or nurses should be aware of these situations and take appropriate precautions such as monitoring fluid intakes and providing between meal liquids.

- 5736 Homewood, B. LATIN AMERICA CALLS FOR CASH TO COMBAT CHOLERA. *New Scientist*, March 28, 1992, p.15.

This brief news note reports on a conference on cholera in Rio de Janeiro, where PAHO outlined a 12-year program to combat cholera. The program would cost \$200 billion and calls for building sewage treatment plants and providing safe drinking water, as well as health education.

- 5199 HUMAN LISTERIOSIS IN 1989. *Bulletin of the World Health Organization*, vol.69 no.4, 1991, pp.488-489.

This article briefly discusses the progress in epidemiological investigations of listeriosis outbreaks and describes several small outbreaks in Europe and North America.

- 5153 HUMAN LISTERIOSIS. *Weekly Epidemiological Record*, no.32, August 9, 1991, pp.236-238.

The etiology and epidemiology of human listeriosis cases in Canada are described in this article. The surveillance system used to monitor listeriosis cases is also discussed.

- 5002 Hunt, L. TOLL FROM AFRICAN CHOLERA EPIDEMIC SURPASSES SOUTH AMERICAN OUTBREAK. *Washington Post*, July 24, 1991, np.

In this article the author reports on the recent outbreaks of cholera in Africa. Compared to the recent South American epidemic's case fatality rate of 1%, the African estimate goes as high as 30% in some areas. The WHO cites poverty, mass migration, and inadequate sanitation systems for the high mortality.

- 4904 Huq, F.; Rahman, M.; Nahar, N.; et al. ACUTE LOWER RESPIRATORY TRACT INFECTION DUE TO VIRUS AMONG HOSPITALIZED CHILDREN IN DHAKA, BANGLADESH. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp.S982-987.

The nature of acute lower respiratory tract infection in hospitalized children and of the associated viral agents was assessed in a study of 601 children under age five in Dhaka, Bangladesh. Of these children, 80% were under age two, and the ratio of boys to girls was 1.7 to one. Pneumonia was the most frequently ob-

served clinical manifestation. The case fatality rate was 6.8% overall and 4.8% in virus-associated cases.

- 5714 Irving, E. C. ACUTE RESPIRATORY INFECTIONS TARGETED. *FrontLines*, April 1992, pp.6-7.

This brief article describes A.I.D.'s manual of Guidelines for Acute Respiratory Infection Control, which was introduced at the International Consultation on Control of ARI conference in December 1991. A.I.D.'s strategy for controlling ARI includes case management and prevention.

- 5229 Javaid, N.; Haschke, F.; Pietschnig, B.; et al. INTERACTIONS BETWEEN INFECTIONS, MALNUTRITION AND IRON NUTRITIONAL STATUS IN PAKISTANI INFANTS. *Acta Paediatrica Scandinavica*, suppl.374, 1991, pp.141-150.

Four groups of infants from an area with a high incidence of malnutrition in Lahore, Pakistan, were examined in a prospective, randomized nutritional intervention study to determine the interactions between infections, malnutrition, and iron deficiency in infants at weaning ages. Three groups received various forms of nutritional supplementation and one group served as the controls. Supplementation resulted in significantly lower incidence of malnutrition, increased weight gain, and lower incidence of diarrhea. The authors conclude that poor nutritional intake between 122 and 365 days of age contributed substantially to the high incidence of diarrhea and malnutrition in Pakistani infants.

- 5204 Jertborn, M.; Svennerholm, A.-M. ENTEROTOXIN-PRODUCING BACTERIA ISOLATED FROM SWEDISH TRAVELLERS WITH DIARRHOEA. *Scandinavian Journal of Infectious Diseases*, vol.23, 1991, pp.473-479.

The isolation rate of bacterial enteropathogens of different species, particularly enterotoxin-producing Gram-negative bacteria, was determined in stool specimens from Swedish travelers with diarrhea. Overall, bacterial enteropathogens were identified in 101 (47%) of the 217 travellers...The isolation rate of enterotoxin-producing bacteria was somewhat higher in travellers visiting Africa, Asia, and Latin America (24%) than in those traveling to southern Europe (14%).  
[published abstract]

- 5195 Johnstone, F.D.; Mok, J.; Peutherey, J.F.; et al. VERTICAL HIV TRANSMISSION IN PREGNANCY. *The Lancet*, vol.338 no.8770, September 28, 1991, pp. 829-830, letter.

In these letters to the editor, the authors discuss the vertical transmission of the HIV virus from mothers to infants during pregnancy and delivery.

- 5759 Khan, M.U. SURVIVAL OF *VIBRIO CHOLERAE* IN SOIL AND ITS POSSIBLE RELEVANCE TO CHOLERA OUTBREAK. Bangladesh Journal of Microbiology, vol.7 no.1, 1990, pp.1-4.

In a study in rural Matlab, Bangladesh, 12 out of 22 members of four families were found to have cholera infection. The adjoining pond water yielded *V.cholerae* for two days and latrine swabs for six days. However, a spot of soil where a patient defecated yielded *V.cholerae* for 11 days, suggesting that *V.cholerae* survives well in soil. The possibility that contaminated soil may be a source of outbreaks is discussed.

- 5059 Knight, P. ORT HELPS FIGHT AGAINST CHOLERA. First Call for Children, 1991, p.13.

The author of this article describes the current cholera epidemic in Peru and explains how ORT has been used to prevent many deaths. The article also highlights UNICEF's efforts in assisting Peru to combat the epidemic.

- 5239 Kobayashi, S.; Morishita, T.; Yamashita, T.; et al. A LARGE OUTBREAK OF GASTROENTERITIS ASSOCIATED WITH A SMALL ROUND STRUCTURED VIRUS AMONG SCHOOLCHILDREN AND TEACHERS IN JAPAN. Epidemiology and Infection, vol.117, 1991, pp.81-86.

A large outbreak of gastroenteritis occurred simultaneously among schoolchildren and teachers at nine elementary schools in Toyota City, Japan, in March 1989. Illness was significantly associated with consumption of a school lunch served by one preparation center where one food handler suffered from gastroenteritis. Small round structured viruses were detected in four of eight stool specimens from sick persons. It is concluded that the lunches contaminated by the infected food handler were the most probable source of this outbreak.

- 4936 Kothari, G. THE VITAMIN A PROPHYLAXIS ON MORBIDITY AND MORTALITY AMONG CHILDREN IN URBAN SLUMS IN BOMBAY. Journal of Tropical Pediatrics, vol.37 no.3, June 1991, p.141, letter.

The author of this letter to the editor reports on a study conducted in Bombay, India, to measure the effect of vitamin A prophylaxis on morbidity and mortality among children in urban slums. Results indicated that vitamin A supplementation did reduce morbidity and mortality from illnesses such as diarrhea and respiratory infections in children under five years of age.

- 5497 Krainik, F. L'EXPLORATION D'UNE DIARRHÉE CHRONIQUE EN VILLE. Semaine des Hospitaux Paris, vol.67, 1991, pp.1858-1861.

The author of this article reviews the procedures for the clinical evaluation of persistent diarrhea. Various laboratory and diagnostic tests are discussed in terms of determining the etiology of the diarrheal episodes.

- 5657 Kulkarni, A.G. MASSIVE LOWER INTESTINAL BLEEDING IN CHOLERA. East African Medical Journal, September 1991, pp.746-747, letter.

This letter to the editor reports the case of a 65-year-old male who developed massive lower intestinal bleeding as a result of cholera. After receiving a blood transfusion, the man recovered and was discharged after a total stay of six days in the hospital.

- 5253 LACTOSE INTOLERANCE. The Lancet, vol.338 no.8768, September 14, 1991, pp.663-664.

This brief article describes the physiology of lactose intolerance and suggests ways to treat the condition.

- 5462 Lagardere, B. DIARRHEES PARASITAIRES. Médecine et Maladies Infectieuses, vol.21, 1991, pp.589-592.

In this article the author discusses parasitic diarrhea in terms of three categories: non-travelers diarrhea in Europe, travelers diarrhea in Europe, and diarrhea in developing countries. The etiology and characteristics of parasitic diarrhea in these categories are reviewed and common parasitic agents, such as *Giardia lamblia*, *Cryptosporidium*, and helminths, are described.

- 5360 Lahood, N.N.; Herschfield, M.S.; Leiva, L.E.; et al. RECURRENT INFECTION, CHRONIC DIARRHEA, AND FAILURE TO THRIVE IN A SEVEN-MONTH-OLD INFANT. Annals of Allergy, vol.67, October 1991, pp.389-393.

This article presents the case of a seven-month-old black female referred to a Louisiana medical center for evaluation of persistent diarrhea and failure to thrive. The diagnosis was severe combined immune deficiency syndrome due to ADA deficiency.

- 5699 Levin, R.J. THE DIARRHOEA OF FAMINE AND SEVERE MALNUTRITION: IS GLUCAGON THE MAJOR CULPRIT? Gut, vol.33, 1992, pp.432-434.

Despite many studies on the effects of starvation and malnutrition on the absorptive functions of the small intestine in animals and a few in man, no satisfactory explanation exists for intractable diarrhea. This article considers the

effects of starvation and undernutrition on the secretory function of the small and large intestine as found in the rat.

- 4968 Levine, M.M. SOUTH AMERICA: THE RETURN OF CHOLERA. *The Lancet*, vol.338 no.8758, July 6, 1991, pp.45-46.

In this brief article, the author comments on the current cholera outbreaks in South America. He notes that although cases are presently declining due to cooler weather, the return of hotter temperatures could herald further outbreaks. Assistance from international agencies can help to curb outbreaks in the short term, but long term solutions must include massive improvements in water quality and sanitation.

- 5684 Lindfors, A.; Lundberg, B.; Stenhammar, L. GLUCOSE POLYMERS IN DIARRHOEA: RISK OF HYPERTRAEMIA. *Acta Paediatrica*, vol.81, 1992, pp.73-74.

An infant girl with congenital heart disease was fed glucose polymers as dietary supplements. During an attack of gastroenteritis with severe diarrhea, she developed hypernatremic dehydration, probably due to the high osmotic load of the glucose polymers. This case illustrates the importance of giving adequate amounts of free water to a child on glucose polymers, especially during excessive fluid loss. [published abstract]

- 4912 Lindtjorn, B. FAMINE IN SOUTHERN ETHIOPIA 1985-1986. *Tropical and Geographical Medicine*, vol.42, 1990, pp.365-369.

During the 1985-86 famine children from two areas in southern Ethiopia were studied to assess a possible association between malnutrition and diarrheal disease. Malnutrition did not increase the incidence of diarrheal disease. However, malnourished children were more severely affected by the infection. Nutritional rehabilitation reduced the demand for treatment of diarrhoea and probably contributed to a decrease in crude childhood mortality. [published abstract]

- 4970 LINKING VITAMIN A ACTIVITIES TO PRIMARY HEALTH CARE PROGRAMS. *Vital News*, vol.2 no.1, May 1991, pp.1+.

Efforts to decrease vitamin A deficiency can be linked to primary health-care projects focusing on child survival. This article describes an intervention currently under discussion that involves linking vitamin A supplementation with the Expanded Programme on Immunization activities.

- 5256 Loevinsohn, B.P.; Solter, S.L. VITAMIN A SUPPLEMENTATION. *The Lancet*, vol.338 no.8768, September 14, 1991, p.701, letter.

In this letter to the editor the authors compare the results of four studies that examined the benefits of vitamin A supplementation. Only one study, done by Vijayaraghaven et al, did not find benefits to supplementation. The authors point out various factors about Vijayaraghaven et al's study methodology that may account for the negative results.

- 5309 Lunn, P.G.; Northrup-Clewes, C.A.; Downes, R.M. INTESTINAL PERMEABILITY, MUCOSAL INJURY, AND GROWTH FALTERING IN GAMBIAN INFANTS. *The Lancet*, vol.338 no.8772, October 12, 1991, pp.907-910.

A study was conducted in The Gambia to examine the relationship between intestinal disease and growth retardation. The lactulose:mannitol permeability test was done on infants ages two to 15 months, whose growth was monitored over a mean of 7.5 months. Results revealed persistent abnormalities in the infants' small bowel mucosa and indicated a negative correlation between these abnormalities and growth. The authors conclude that up to 43% of observed growth faltering may be explained on the basis of these long-term intestinal lesions.

- 4986 Maber, D. *STREPTOCOCCUS SUI*S SEPTICAEMIA PRESENTING AS SEVERE ACUTE GASTRO-ENTERITIS. *Journal of Infection*, 1991, pp.303-304, letter.

In this letter to the editor the author reports on a case of a British woman with severe gastroenteritis from whom *Streptococcus suis* was isolated. The origin of the infection seemed to be the pigs that the patient handled prior to the onset of the illness.

- 5023 Marcenac, F.M.L.; Gherardi, C.; Mattera, J.; et al. SEPSIS POR *VIBRIO CHOLERA*E NO 01. *Medicina-Buenos Aires*, vol.51, 1991, pp.148-150.

Two fatal cases of sepsis in two male patients due to *Vibrio cholerae* non-01 are described in this article. The patients were originally diagnosed with hepatic cirrhosis and acute lymphoblastic leukemia. Since sepsis evolves so quickly in such cases, management is very difficult and mortality rates are high.

- 4890 Martinez, E.; Marcos, A. ANTIBIOTIC-ASSOCIATED DIARRHOEA. *The Lancet*, vol.337 no.8746, April 13, 1991, p 911, letter.

The authors of this letter to the editor comment on diarrhea associated with antibiotic use. They suggest that a decrease in the number of enteric anaerobes could play a major role in antibiotic-associated diarrhea without colitis.

- 5700 Marwick, C. LIKE ATTACKER PROBING DEFENSES, CHOLERA THREATENS US POPULATION FROM ELSEWHERE IN THIS HEMISPHERE. *Journal of the American Medical Association*, vol.267 no.10, March 11, 1992, pp.1314-1315.

This brief article discusses the recent cholera epidemic in the Americas and outlines control measures. Contaminated water and untreated sewage appear to be the major routes of disease transmission.

- 5034 Mathan, M.M.; Mathan, V.I. MORPHOLOGY OF RECTAL MUCOSA OF PATIENTS WITH SHIGELLOSIS. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991. pp.S314-S318.

Biopsy specimens of rectal mucosa from 46 consecutive patients with dysentery, from whom *Shigella* were isolated, were examined. Thirty-seven of the patients were symptomatic for less than one week; nine had symptoms for longer periods. Among the latter group, cell damage of the crypts was associated with cell-mediated cytotoxicity, a release of cytotoxic substances from eosinophils and mast cells, and relative vascular insufficiency, all of which may contribute to persistence of dysentery.

- 4960 Mavalankar, D.V.; Clemens, J.; Vijayaraghavan, K.; et al. VITAMIN A AND CHILDHOOD MORTALITY. *The Lancet*, vol.337 no.8754, June 8, 1991, pp.1409-1410, letter.

In this letter to the editor the authors discuss the results of Vijayaraghavan et al.'s study that indicated no substantial decreases in mortality due to vitamin A supplementation. They review possible reasons for these results, including the possibility that the most deficient populations, where effects of supplementation would be most evident, may not have been part of the study population. A letter by Vijayaraghavan et al. follows.

- 5636 McAuley, J.B.; Michelson, M.K. TRICHINOSIS SURVEILLANCE, UNITED STATES, 1987-1990. *Morbidity and Mortality Weekly Report*, vol.40 no.SS-3, 1992, pp.35-42.

Human trichinosis, an infection found throughout the world, is caused by tissue-dwelling roundworms of the species *Trichinella spiralis*. The organism is transmitted through raw or inadequately cooked meat products containing encysted larvae. The first symptoms of trichinosis are abdominal pain and diarrhea. This article reviews the results of the surveillance of trichinosis cases in the United States during 1987-90. Two large outbreaks occurred in 1990, which emphasized the need for further education and control measures.

- 5591 McGregor, A. TRINIDAD AND TOBAGO: CARNIVAL AND CHOLERA. *The Lancet*, vol.339 no.8792, February 29, 1992, p.545.

This news note reports on the preparations taken by the government of Trinidad and Tobago for the occurrence of cholera. Because cases have been reported in Venezuela, only seven miles away, it is inevitable that cholera will occur in this country. An intensive public education campaign has been initiated to instruct the population on prevention and management of cholera.

- 5404 McLaren, D.S. VITAMIN A SUPPLEMENTATION AND MORTALITY. *The Lancet*, vol.338 no.8776, November 9, 1991, pp.1208-1209, letter.

In this letter to the editor the author discusses several vitamin A supplementation trials and points out the need for standardization so that results can be more accurately analyzed and compared.

- 5475 Michel, P.; Tuil, S. DIARRHÉE SANGLANTE: UN PREMIER ACCES DE RCH. *Gazette Médicale*, vol.98 no.36, 1991, pp.9-12.

In this article the authors describe hemorrhagic rectocolitis, a chronic inflammatory bowel disease of unknown cause and often characterized by bloody diarrhea. The manifestations of this condition are discussed as well as methods of diagnosis. Medical and surgical treatments are also discussed.

- 5176 Mishu, B.; Griffin, P.M.; Tauxe, R.V.; et al. *SALMONELLA ENTERITIDIS* GASTRO-ENTERITIS TRANSMITTED BY INTACT CHICKEN EGGS. *Annals of Internal Medicine*, vol.115 no.3, August 1, 1991, pp.190-194.

A case-control study was conducted to determine the source and to describe the clinical importance of a large outbreak of *Salmonella enteritidis* gastroenteritis in Tennessee. The origin of the infection was traced to eggs from an Indiana farm. This study shows that *Salmonella enteritidis* infection is a growing public health concern in the United States that is spreading beyond the northeastern part of the country.

- 5720 Miyagi, K.; Matsumoto, Y.; Hayashi, K.; et al. CHOLERA DIAGNOSED IN CLINICAL LABORATORY BY DNA HYBRIDISATION. *The Lancet*, vol.339, April 18, 1992, pp.988-989, letter.

This letter to the editor reports on the measures taken by the Japanese public health system to control cholera. A case is described where cholera was diagnosed using DNA hybridization.

- 5203 Molteni, K.H.; Rachmel, A.; Israeli, S. RENAL ACIDIFICATION DURING INFANTILE DIARRHEA WITH ACIDOSIS. *Journal of Pediatrics*, September 1991, pp. 501-502, letter.

In this letter to the editor the author comments on a study by Israeli et al that focused on children with dehydration who were found to be acidotic. He questions some of the data analysis in the study. A reply by Israeli et al follows.

- 5615 Moss, N.; Stone, M.C.; Smith, J.B. CHILD HEALTH OUTCOMES AMONG CENTRAL AMERICAN REFUGEES AND IMMIGRANTS IN BELIZE. *Social Science and Medicine*, vol.34 no.2, 1992, pp.161-167.

This report focuses on the health status of immigrant and refugee children in Belize in relation to aspects of the migration experience — nationality of mother and child, length of time in country, and residency status of mother. A major finding was the poor health status of this population of children. Thirty percent of the children experienced diarrheal episodes, and 47% experienced frequent respiratory illnesses. The analysis showed that child health in Belize appears to be determined more by socioeconomic and proximate features than by features of migration.

- 5376 Moy, R.J.D.; Booth, I.W.; Choto, R.-G.A.B. et al. RECURRENT AND PERSISTENT DIARRHOEA IN A RURAL ZIMBABWEAN COMMUNITY: A PROSPECTIVE STUDY. *Journal of Tropical Pediatrics*, vol.37, December 1991, pp.293-299.

This prospective study followed a cohort of infants in rural Zimbabwe to determine patterns of diarrhea morbidity and the occurrence of persistent diarrhea. It found that while only 6% of the recorded diarrhea episodes were persistent, 26% of subjects had at least one attack of persistent diarrhea during follow-up. Children who had frequent attacks of acute diarrhea also tended to have persistent diarrhea.

- 5062 MULTISTATE OUTBREAK OF SALMONELLA POONA INFECTIONS -- UNITED STATES AND CANADA, 1991. *Morbidity and Mortality Weekly Report*, vol.40 no.32, August 16, 1991, pp.549-552.

During June and July 1991, more than 400 laboratory-confirmed infections with *Salmonella poona* occurred in 23 [U.S.] states and in Canada. This report describes several investigations that indicated this was a large nationwide outbreak, related to consumption of cantaloupes. [published abstract]

- 5148 Murphy, S.; Beeching, N.J.; Rogerson, S.J.; et al. PANCREATITIS ASSOCIATED WITH *SALMONELLA ENTERITIS*. *The Lancet*, vol.338 no.8766, August 31, 1991, p.571, letter.

The authors of this letter to the editor report on their investigation of patients with non-typhoidal *Salmonella* gastroenteritis for pancreatitis. Contrary to the results of Renner et al, none of the 343 patients examined had clinically apparent pancreatitis.

- 5560 Mydans, S. CHOLERA KILLS ONE AND FELS MANY ON FLIGHT. *New York Times*, February 21, 1992, np.

This brief article reports on an outbreak of cholera that resulted in six cases, including one death, among passengers arriving in the United States on a flight from Argentina and Peru. U.S. health officials believe that contaminated shrimp served to the passengers was the cause of the outbreak.

- 5596 Nachamkin, I.; Edelstein, P.H.; Tarr, P.I.; et al. BACTERIAL AND PROTOZOAL GASTROENTERITIS. *New England Journal of Medicine*, vol.326 no.7, February 13, 1992, p.489, letters.

The authors of these letters to the editor comment on Guerrant and Bobak's article (*NEJM*, August 1, 1992) on the high costs and relatively low yields of bacterial stool cultures. They also discuss which cases warrant cultures as well as other diagnostic procedures. The third letter proposes a change to Guerrant and Bobak's formula for ORS.

- 4974 NATIONAL ARI PROGRAMMES: MOVING FORWARD IN THE 1990S. *ARI News*, issue 19, April 1991, pp.4-6.

Successful strategies used in ARI program development in Pakistan, India, and Zimbabwe are described in this article. In Pakistan, program development on the national level has contributed to the progress being made. Training for health workers of all levels plays a key role in India's ARI program, while Zimbabwe's program places emphasis on case management monitoring as a tool for planning.

- 4902 Navarro, E.E.; Gonzaga, N.C.; Lucero, M.G.; et al. CLINICOPATHOLOGIC STUDIES OF CHILDREN WHO DIE OF ACUTE LOWER RESPIRATORY TRACT INFECTIONS: MECHANISMS OF DEATH. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp.S1065-S1073.

Clinicopathologic correlations for 71 cases of fatal pneumonia in Filipino children were determined. Pneumonia without complication was noted in 11 patients who

died; also noted were pneumonia in sepsis in 42, pneumonia with heart failure in six, and pneumonia with hypovolemia in three. The children studied had multiple infections and underlying aggravating conditions, particularly malnutrition, measles, and diarrhea.

- 5324 Nazer, H. HYPERNATRAEMIC DEHYDRATION OF INFANCY. Transactions of the Royal Society of Tropical Medicine and Hygiene, vol.85, 1991, pp.690-691.

This report highlights the clinical spectrum of hypernatremic dehydration among Jordanian infants with gastroenteritis in comparison with that of non-hypernatremic dehydration and to establish whether or not the WHO ORS predisposes to the increased incidence of hypernatremic dehydration in infantile gastroenteritis.

- 5769 Nelson, M.; Wright, T. L.; Case, M. A.; et.al. A PROTRACTED OUTBREAK OF FOODBORNE VIRAL GASTROENTERITIS CAUSED BY NORWALK OR NORWALK-LIKE AGENT. Journal of Environmental Health, vol.54 no.5, March/April 1992, pp.50-55.

In April 1987, 533 cases of gastroenteritis were reported among guests who attended two banquets at a local hotel. Salad and other uncooked foods were implicated as the vehicles of infection. Two food handlers who had been ill with diarrhea (one on the night of the banquets and the other a week earlier) may have been the initial source of the infection. Laboratory investigations suggested that the etiologic agent of this outbreak was Norwalk or a Norwalk-like virus.

- 5373 Nettleman, M.D. CHOLERA, TRAVEL AND INFECTION CONTROL. Infection Control and Hospital Epidemiology, vol.12 no.9, September 1991, pp.558-562

This article discusses the epidemiology, clinical presentation, treatment and prevention of cholera, with emphasis on precautions that travelers to cholera-endemic countries should take. American travelers should follow sensible food and water precautions, but need not curtail their travel to countries that have cholera.

- 5698 Ngoma, M.P.S.; Mubita, M.; Malowa, H.; et al. CASE REPORT: CHOLERA IN A PRETERM NEONATE. Journal of Tropical Medicine and Hygiene, vol.95, 1992, p.152.

This article reports the case of a premature baby who died at age five days with signs of septicemia, acidosis, and severe dehydration. The preterm delivery may have been precipitated by cholera in the mother, contamination to the child occurring during vaginal delivery.

- 5622 Nokes, C.; Bundy, D.A.P. *TRICHURIS TRICHIURA* INFECTION AND MENTAL DEVELOPMENT IN CHILDREN. *The Lancet*, vol.339 no.8791, February 22, 1992, p.500, letter.

The authors of this letter to the editor report on a clinical trial conducted in Jamaica among children ages nine to 12 years to determine the impact of *Trichuris trichiura* on cognitive function. The findings showed that *T.trichiura* infections have a detrimental, though reversible, effect on children's cognitive function.

- 5773 O'Ryan, M.L.; Matson, D.O.; Pickering, L.K. PEDIATRIC GASTROENTERITIS. *Current Opinion in Infectious Diseases*, vol.5, 1992, pp.99-105.

This article reviews the epidemiology and etiology of viral, bacterial, and parasitic gastroenteritis. Among the diarrheal agents discussed are rotaviruses, caliciviruses, astroviruses, cholera, *E.coli*, *Shigella*, *Salmonella*, and *Cryptosporidium*. The article also briefly discusses the treatment and prevention of illness caused by these agents.

- 5704 Osterhaus, A.D.M.E.; de Vries, P. VACCINATION AGAINST ACUTE RESPIRATORY VIRUS INFECTIONS AND MEASLES IN MAN. *Immunobiology*, vol.184, 1992, pp.180-192.

Licensed vaccines are currently available only for influenza and measles, of all the acute respiratory viral infections. There is a need for vaccines against some of the other acute respiratory diseases and a number of these are at different stages of development. This paper gives an overview of the current developments in this field.

- 5149 OUTBREAKS OF DIARRHOEAL ILLNESS ASSOCIATED WITH CYANOBACTERIA (BLUE-GREEN ALGAE)-LIKE BODIES. *Weekly Epidemiological Record*, no.33, August 16, 1991, pp.241-243.

Recent reports have described the detection of cyanobacteria (blue-green algae)-like bodies in the stools of persons with a prolonged syndrome of diarrhea, anorexia, and fatigue...This report summarizes investigations of these outbreaks, which occurred in Chicago, United States, in 1990 and in Kathmandu, Nepal, in 1989 and 1990. [published abstract]

- 4900 Oyejide, C.O.; Osinusi, K. ACUTE RESPIRATORY TRACT INFECTION IN CHILDREN IN IDIKAN COMMUNITY, IBADAN, NIGERIA: SEVERITY, RISK FACTORS, AND FREQUENCY OF OCCURRENCE. *Reviews of Infectious Diseases*, vol.12 suppl 8, November-December 1990, pp.S1042-S1046.

A longitudinal, community-based study of the epidemiology of ARI in children under age five was carried out in a low-income area of Ibadan, Nigeria. Annual incidence of ARI ranged from 6.1 to 8.1 episodes per child per year. Incidence was highest in the first two years of life and was higher in boys than in girls.

- 5293 Pandey, M.R.; Daulaire, N.M.P.; Starbuck, E.S.; et al. REDUCTION IN TOTAL UNDER-FIVE MORTALITY IN WESTERN NEPAL THROUGH COMMUNITY-BASED ANTIMICROBIAL TREATMENT OF PNEUMONIA. *The Lancet*, vol.338 no.8773, October 19, 1991, pp.993-997.

[The authors conducted] a controlled intervention trial among 13,404 children under five in Jumla, Nepal, which relied exclusively on indigenous community health workers to detect and treat pneumonia according to the WHO decision strategy, with a five-day home-treatment course of oral cotrimoxazole...The program led to a 28% reduction in the risk of death from all causes by the third year of services...In addition to reduction in deaths due to pneumonia, there was a significant reduction in deaths due to diarrhea and measles, indicating that reduction in pneumonia morbidity had considerable carry-over effect. [These] findings show that indigenous community workers can effectively detect and treat pneumonia, and reduce overall child mortality, even without other primary-care activities. [published abstract]

- 5007 PARALYTIC SHELLFISH POISONING. *Weekly Epidemiological Record*, no.25, June 21, 1991, pp.185-187.

Paralytic shellfish poisoning is a foodborne illness caused by consumption of shellfish or broth from cooked shellfish that contain either concentrated saxitoxin, an alkaloid neurotoxin, or related compounds. This report summarizes outbreaks of paralytic shellfish poisoning that occurred in Massachusetts and Alaska in June 1990. [published abstract]

- 5447 Paredes, M.O.; Garcia, C.B.; Cabezas, H.H. INFORMACION CLINICO-BACTERIOLOGICA RESPECTO AL PRIMER CASE DE COLERA EN CHILE. *Revista Medica de Chile*, vol.119, 1991, p.1209, letter.

In this letter to the editor the authors describe the first case of cholera identified in Chile. The clinical and bacteriological diagnosis of the case is described.

- 4992 Patil, D.H.; Boye, E.S. INTRACTABLE DIARRHEA DUE TO WHIPPLE'S DISEASE IN A SAUDI: REPORT OF A CASE AND LITERATURE REVIEW. *Annals of Saudi Medicine*, vol.11 no.3, 1991, pp.343-347.

The authors report on a case of Whipple's disease, a rare systemic disorder, in a patient from the Al-Baha area of Saudi Arabia. The disorder, which often

involves the small intestine, causes persistent diarrhea in the patient. The authors also review the physiology of Whipple's disease.

- 5466 Paton, S.; Nicolle, L.; Mwangera, M.; et al. *SALMONELLA AND SHIGELLA GASTROENTERITIS AT A PUBLIC TEACHING HOSPITAL IN NAIROBI, KENYA*. *Infection Control and Hospital Epidemiology*, vol.12, 1991, pp.710-717.

A study was conducted in a hospital in Nairobi, Kenya to examine the contribution of *Salmonella* and *Shigella* species to nosocomial gastroenteritis and to identify risk factors associated with these infections. *Salmonella* was found to be a frequent cause of nosocomial gastroenteritis. Cases occurred equally in adults and children. In adults, nosocomial *Salmonella* infections were associated with sharing a room with a diarrhea patient and previous hospital stays. Risk factors in children were recent antimicrobial therapy, crowding at home, and age between six months and six years.

- 5408 Patton, R. *BOLIVIA BRACES FOR CHOLERA*. *Grassroots*, vol.10 no.3, 1991, np.

Although cholera cases have not yet appeared in Bolivia in large numbers, health-care officials are attempting to prepare the population for a possible epidemic. This article briefly outlines the efforts being made, which include cholera prevention messages for the general public and home visits by health workers in high risk areas.

- 4920 *PEDIATRIE DIARRHEE AIGUE: PENSER D'ABORD A UNE GASTRO-ENTERITE*. *L'Union Médicale du Canada*, March/April 1991, pp.53-59.

In this interview Dr. Michel Weber discusses the characteristics and causes of acute diarrhea and gastroenteritis. He describes diagnostic and treatment options, including fluid replacement, as well as discussing the composition of rehydration and maintenance solutions.

- 5379 Peltola, H.; Siitonen, A.; Kyronseppa, H.; et al. *PREVENTION OF TRAVELLERS' DIARRHOEA BY ORAL B-SUBUNIT/WHOLE CELL CHOLERA VACCINE*. *The Lancet*, vol.338 no.8778, November 23, 1991, pp.1285-1289.

This article describes a prospective randomized study to investigate the effect of oral B-subunit/whole cell (BC-WC) cholera vaccine on travelers diarrhea. The BS-WC induced a 52% protection against diarrhea caused by ETEC and a 65% protection against mixed infections. Partial protection against travelers diarrhea is thus obtainable through active immunization with the BC-WC.

- 5235 Pierard, D.; Huyghens, L.; Lauwers, S.; et al. DIARRHOEA ASSOCIATED WITH *ESCHERICHIA COLI* PRODUCING PORCINE OEDEMA DISEASE VEROTOXIN. The Lancet, vol.338 no.8769, September 21, 1991, p.762, letter.

In this letter to the editor the authors report on a case of diarrhea in a 72-year-old man that was attributed to verotoxin-producing *Escherichia coli*, a pathogen that has been associated with porcine edema disease.

- 4994 Pigot, F. DIARRHEE CHRONIQUE. Gazette Médicale, vol.98 no.18, 1991, pp.25- 28.

In this article the author briefly describes several causes of persistent diarrhea, such as malabsorption and various intestinal disorders.

- 4973 Pio, A. PROGRAMME PLANNING. ARI News, issue 19, April 1991, pp.2-3.

In this article the author provides an overview of the key elements in planning and implementing ARI control programs. Among the elements reviewed are training and supervision of health workers, logistics, communications, monitoring, evaluation, and drug resistance surveillance.

- 5329 Pitzinger, B.; Steffen, R.; Tschopp, A. INCIDENCE AND CLINICAL FEATURES OF TRAVELER'S DIARRHEA IN INFANTS AND CHILDREN. Pediatric Infectious Disease Journal, vol.10 no.10, October 1991, pp.719-723.

This study investigated the epidemiology of travelers diarrhea in small children under age two, children ages three to 14 years, and adolescents ages 15 to 20 years. Within 14 days in the tropics or subtropics, travelers diarrhea occurred in 40% of small children, 8.5% of children ages three to six years, 22% of children ages seven to 14 years, and in 36% of adolescents. It concludes that adults should be discouraged from taking small children to developing countries unless necessary.

- 5619 Plummer, R.A.S.; Blissett, S.J.; Dodd, C.E.R. *SALMONELLAE* FROM A PET SNAKE AND ITS BEDDING. The Lancet, vol.339 no.8790, February 15, 1992, p.440, letter.

The authors of this letter to the editor report on the occurrence of *Salmonella* infection in a child who had no history of eating contaminated foods. A detailed investigation implicated the family's pet snake and its bedding as the source of the infection. This case demonstrates the potential health hazards of keeping a reptilian pet, since reptiles often carry *Salmonella*.

- 5522 PODEMOS VENCER AL COLERA. Correo de la Salud, no.1, nd, pp.1-11.

This booklet, produced by the Guatemalan Ministry of Health, provides general information about cholera. Among the topics covered are the history of cholera, its transmission, and various prevention strategies. The means of prevention specifically reviewed include hygiene education, ensuring potable water supplies, general waste disposal, excreta disposal, and construction of simple latrines. There are also brief sections on cholera treatment and the role of laboratory testing in cholera control.

- 5603 POSTNATAL HIV TRANSMISSION THROUGH BREASTFEEDING. *Outlook*, vol.9 no.4, January 1992, pp.6-7.

A recent study in Kigali, Rwanda, confirmed that the HIV virus can be transmitted from mothers to infants during the postnatal period, presumably through breast milk. The researchers recommended that HIV seronegative women at risk of seroconversion be counseled about the possibility of transmitting the virus through breastfeeding. They also suggested that where safe alternatives to breast milk are available, it may be advisable for women at risk of seroconversion not to breastfeed.

- 5647 PROGRAMME FOR THE CONTROL OF ACUTE RESPIRATORY INFECTIONS: RECENT DEVELOPMENTS. *Bulletin of the World Health Organization*, vol.69 no.6, 1991, pp.794-796.

In May 1991, the present status of the WHO Programme for the Control of Acute Respiratory Infections was reviewed at the 44th World Health Assembly. A summary of the recent activities and developments of this program are reported in this article.

- 5304 Qamrul Islam, A.B.M.; Siddique, A.K.; Akram, K.A.H.M. A HOSPITAL OUTBREAK OF CHOLERA IN DHAKA, BANGLADESH. *Tropical and Geographical Medicine*, 1991, pp.117-118, letter.

This letter to the editor reports on an outbreak of cholera at a multi-clinic hospital in Dhaka, Bangladesh, in June 1988. Flooding of the sanitation and reservoir systems was cited as the cause of the outbreak.

- 5220 Rahmathullah, L.; Underwood, B.A.; Thulasiraj, R.D.; et al. DIARRHEA, RESPIRATORY INFECTIONS, AND GROWTH ARE NOT AFFECTED BY A WEEKLY LOW-DOSE VITAMIN A SUPPLEMENT: A MASKED CONTROLLED FIELD TRIAL IN CHILDREN IN SOUTHERN INDIA. *American Journal of Clinical Nutrition*, vol.54, 1991, pp.568-577.

In southern India, 15,419 children ages six months to five years were monitored weekly for one year to determine incidence, duration, and severity of diarrhea

and respiratory symptoms. Half the children received weekly doses of vitamin A and the other half (controls) received weekly doses of vitamin E. Weekly supplements of low-dose vitamin A did not influence the incidence, severity, or duration of diarrhea or respiratory infections and did not influence linear or ponderal growth.

- 5534 RECORD OF CLINICOPATHOLOGICAL CONFERENCE OF THE INTERNATIONAL CENTRE FOR DIARRHOEAL DISEASE RESEARCH, BANGLADESH: CLINICAL AND AUTOPSY FINDINGS OF A SIX-YEAR OLD GIRL WITH MALNUTRITION, AMOEBIC COLITIS AND PERITONITIS. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.336-338.

The case of a severely malnourished six-year-old girl who was admitted to a hospital in Dhaka, Bangladesh, is presented in this article. The child died nine days after admission due to complications including amebic colitis and peritonitis. The diagnosis and management of this case are discussed in this article.

- 5230 Reddy, V. CONTROL OF VITAMIN A DEFICIENCY AND BLINDNESS. *Acta Paediatrica Scandinavica*, suppl.374, 1991, pp.30-37.

Vitamin A deficiency is prevalent in many developing countries. This article reviews the global magnitude of the problem, risk factors for deficiency, the physiological effects of deficiency, and prevention strategies. The author concludes that no single strategy can be considered ideal and that choice of interventions depends on factors such as the magnitude of the problem, existing infrastructure, and resources available in a particular country.

- 4963 Renner, F.; Nimeth, C.; Demmelbauer, N. HIGH FREQUENCY OF CONCOMITANT PANCREATITIS IN *SALMONELLA ENTERITIS*. *The Lancet*, vol.337 no.8757, June 29, 1991, pp.1611, letter.

The authors of this letter to the editor report on several cases of salmonellosis with concomitant pancreatitis. They conclude that patients with salmonellosis who have upper abdominal pain should be examined for concomitant pancreatitis.

- 5049 Fife, E.W.; Johnson, C.H. CHOLERA IN PERU. *The Lancet*, vol.338 no.8764, August 17, 1991, p.455, letter.

This letter to the editor describes a study done to determine the minimum boiling time for water needed to ensure inactivation of cholera pathogens. Results showed that heating water to a full boil, even in very turbid conditions with a safety factor of one minute, is sufficient to inactivate pathogenic vibrios.

- 4990 Riley, T.V.; Bowman, R.A.; Carson, C.F. CIPROFLOXACIN AND *CLOSTRIDIUM DIFFICILE*-ASSOCIATED DIARRHOEA. *Journal of Infection*, 1991, pp.304-305, letter.

The authors of this letter to the editor comment on whether or not the drug ciprofloxacin can cause *Clostridium difficile*-associated diarrhea. They report on a study they conducted that showed no relationship between ciprofloxacin use and *C.difficile* diarrhea.

- 5693 Riley, T.V.; Wetherall, F.; Bowman, J.; et al. DIARRHEAL DISEASE DUE TO *CLOSTRIDIUM DIFFICILE* IN GENERAL PRACTICE. *Pathology*, vol.23, 1991, pp.346-349.

A study was done to assess the role of *Clostridium difficile* in a community-acquired diarrheal disease in Perth, Australia. *C.difficile*, or its cytotoxin, was isolated from 5.5% of the 288 stool samples tested; it was the most common enteric pathogen detected. *C.difficile* may be a significant cause of community-acquired diarrhea.

- 5141 Robson, E. CONQUERING CHOLERA. *Source*, September 1991, pp.20-23.

In this article the author describes how cholera is being controlled in Bangladesh with the use of ORT and IV therapy when necessary. She notes that prevention measures must include improvements in water quality and sanitation. A brief overview of cholera vaccine development is also presented.

- 5160 Rosenberg, T. TIME OF CHOLERA. *New Republic*, July 29, 1991, pp.10-12.

In this article the author comments on the cholera epidemic in Peru and how the Peruvian government has managed the situation. Because of the crumbling infrastructure it is likely that cholera will become endemic in Peru despite initial successes in curbing the epidemic.

- 5559 Roy, S.K.; Akramuzzaman, S.M.; Akbar, M.S. PERSISTENT DIARRHEA: TOTAL GUT TRANSIT TIME AND ITS RELATIONSHIP WITH NUTRIENT ABSORPTION AND CLINICAL RESPONSE. *Journal of Pediatric Gastroenterology and Nutrition*, vol.13, 1991, pp.409-414.

[This] study was undertaken to better understand the role of total gut transit time on the absorption of nutrients in patients with persistent diarrhea. Twenty-six boys ages three to 18 months with persistent diarrhea and 25 age-matched healthy controls were studied...[Results showed that] the total gut transit time was negatively associated with the duration of clinical recovery. The results...suggested that intestinal transit time is an important factor for absorption

of nutrients that may influence clinical recovery in patients with persistent diarrhea. [published abstract]

- 5770 Sansonetti, P.J. *ESCHERICHIA COLI, SHIGELLA*, ANTIBIOTIC-ASSOCIATED DIARRHEA, AND PREVENTION AND TREATMENT OF GASTROENTERITIS. *Current Opinion in Infectious Diseases*, vol.5, 1992, pp.66-73.

This article reviews the recent findings on enteric infections caused by *E.coli*, *Shigella* species, and *Clostridium difficile*. The author also discusses the prevention and treatment of these diarrheal diseases.

- 5660 Schultz, C.; Qadri, F.; Hossain, S.A.; et al. *SHIGELLA*-SPECIFIC IGA IN SALIVA OF CHILDREN WITH BACILLARY DYSENTERY. *FEMS Microbiology Immunology*, vol.89, 1992, pp.65-72.

The purpose of this study was to examine anti-*Shigella* secretory antibodies in saliva during shigellosis and to identify antigens stimulating the local immune response. In children living in endemic areas, it appeared that infection with one serotype can give rise in antibody titer to another serotype. The authors conclude that the dynamics of salivary anti-*Shigella* LPS and anti-Shiga-toxin in children with dysentery indicate that it can be applied to studies of immune response in shigellosis for epidemiological and vaccination purposes.

- 5193 Segala, C. LE CHOLERA DANS UN CAMP DE REFUGIES. *Développement et Santé*, no.94, 1991, pp.16-20.

This article describes how to establish an observation and treatment center in a refugee camp to treat and prevent the spread of cholera. The author discusses aspects such as staffing, site organization, disinfection, and basic case management.

- 4910 Selwyn, B.J. THE EPIDEMIOLOGY OF ACUTE RESPIRATORY TRACT INFECTION IN YOUNG CHILDREN: COMPARISON OF FINDINGS FROM SEVERAL DEVELOPING COUNTRIES. *Reviews of Infectious Diseases*, vol.12 suppl.8, November/December 1990, pp.S870-S888.

Investigators from 10 countries worldwide studied the epidemiology of ARI among children under age five. Data on incidence rates, by age, gender, and season; on pathogenic agents; on case fatality rates; and on selected risk factors are presented. The studies took place in Argentina, Colombia, Guatemala, Uruguay, Kenya, Nigeria, Papua New Guinea, Pakistan, Thailand, and the Philippines.

- 5120 SHIGELLOSIS: *SHIGELLA DYSENTERIAE* TYPE I. Weekly Epidemiological Record, no.36, September 6, 1991, pp.270-271.

This report summarizes the investigation of outbreaks of shigellosis in Guatemala in March 1991. Outbreaks were reported in Guatemala City and in Rabinal.

- 5526 Simchen, E.; Jeeraphat, S.; Shihab, S.; et al. AN EPIDEMIC OF WATERBORNE *SHIGELLA* GASTROENTERITIS IN KIBBUTZIM OF WESTERN GALILEE IN ISRAEL. International Journal of Epidemiology, vol.20 no.4, 1991, pp.1081-1087.

In March 1989 a diarrhea outbreak associated with *Shigella sonnei* occurred in Western Galilee in Israel, affecting 1,216 people. More than 300 of the affected people were members of six communal settlements (*kibbutzim*). An epidemiological investigation showed that the highest rates of diarrhea occurred in a *kibbutz* that obtained its drinking water from an allegedly contaminated well. People at high risk within the *kibbutzim* tended to be temporary visitors from the United States or Europe, children under five years, adult women, and children who slept in "children's houses."

- 4913 Singh, S.; Talwar, P.P. FUNGAL DIARRHOEA. Mycopathologia, vol.114, 1991, pp.41-42, letter.

In these letters to the editor, the author comments on a study by Tarwal et al about fungal diarrhea. He states that the study provides insufficient evidence that fungi could be significant causes of diarrhea compared to other etiologic agents. A letter by P. Tarwal follows, which addresses this concern.

- 5138 Smith, H.; Beyrer, C.; Benons, L.; et al. CARIBBEAN: MEASLES ELIMINATION. The Lancet, vol.338 no.8766, August 31, 1991, pp.563-564.

This news note describes a campaign launched by 18 countries in the Caribbean to eliminate indigenous measles in that area by 1995. The governments are coordinating efforts with the Pan American Health Organization, the Caribbean Epidemiology Center, and other donor agencies such as UNICEF.

- 5423 Snowden, F.M. CHOLERA IN BARLETTA 1910. Past and Present, no.132, 1991, pp.67-103.

In this article the author discusses the events surrounding the cholera epidemic in Barletta, Italy, during 1910-12. He reviews how various socioeconomic factors contributed to the epidemic and why the epidemic was a significant event in Italian history in terms of public health.

- 5318 Steenbergen, G.J. CHOLERA OUTBREAK IN CHIKONDANO COMPOUND. *Zambia Epidemiological Bulletin*, issue 1, July 1991, pp.7-10.

In January 1990 an outbreak of cholera occurred in the Chikondano Compound in Zambia. A cholera treatment center was opened, pit latrines were dug, and refuse collection was initiated. This brief article presents information and statistics on the cases handled at the treatment center.

- 5194 Steffen, R.M.; Wyllie, R.; Petras, R.E.; et al. THE SPECTRUM OF EOSINOPHILIC GASTROENTERITIS: REPORT OF SIX PEDIATRIC CASES AND REVIEW OF THE LITERATURE. *Clinical Pediatrics*, vol.30 no.7, July 1991, pp.404-411.

Eosinophilic gastroenteritis is an inflammatory disease of unknown etiology characterized by infiltration of the gastrointestinal tract with eosinophilic leukocytes, accompanied by varying abdominal symptoms and usually by peripheral blood eosinophilia. [The authors] report [their] experience with six pediatric cases presenting to the Cleveland Clinic Foundation over the past eight years...Endoscopic examination and biopsy helped to establish the diagnosis in all patients...Diagnosis is challenging, and eosinophilic gastroenteritis may be more common than is recognized. This series of cases significantly expands the spectrum of the disease in children, and documents the usefulness of diagnostic endoscopy in this condition. [published abstract]

- 5683 Sullivan, S.N.; Wong, C. RUNNER'S DIARRHEA: DIFFERENT PATTERNS AND ASSOCIATED FACTORS. *Journal of Clinical Gastroenterology*, vol.14 no.2, 1992, pp.101-104.

Diarrhea is a common and occasionally troublesome problem for runners. Its cause is not known... In this survey, [the authors] document the different patterns of "runner's diarrhea" and look at some of the factors that might be associated with it: irritable bowel syndrome, food allergies, milk intolerance, dietary fiber, past history of severe intestinal infection or food poisoning, and symptoms suggestive of mild exercise-induced anaphylaxis. [published abstract]

- 5145 Sutrisna, B.; Frerichs, R.R.; Reingold, A.L. RANDOMISED, CONTROLLED TRIAL OF EFFECTIVENESS OF AMPICILLIN IN MILD ACUTE RESPIRATORY INFECTIONS IN INDONESIAN CHILDREN. *The Lancet*, vol.338 no.8765, August 24, 1991, pp.471-474.

A randomized, controlled trial was carried out among 889 Indonesian children with mild ARI to determine whether treatment with ampicillin and supportive care was more beneficial than supportive care alone. The findings did not indicate any statistically significant difference between the two study groups. It was concluded that ampicillin plus supportive care offers no benefit over supportive care alone in mild ARI in this study population.

- 5768 Swerdlow, D.L.; Ries, A.A. CHOLERA IN THE AMERICAS: GUIDELINES FOR THE CLINICIAN. *Journal of the American Medical Association*, vol.267 no.11, March 18 1992, pp.1495-1499.

This article briefly reviews the historical background of the global spread of cholera. It describes the various cholera strains, the clinical presentation of the disease, and methods of diagnosis. The authors also review treatment of cholera with oral rehydration fluids, IV therapy, and antibiotics. Epidemiological considerations, such as case reporting, vaccines, and mass chemoprophylaxis, are also briefly discussed.

- 5286 Tanzer, F.; Caglar, Y.; Sagnak, K.; et al. OCULAR FINDINGS AND VITAMIN A LEVELS IN CASES OF MALNUTRITION IN THE SIVAS REGION OF TURKEY. *Journal of Tropical Pediatrics*, vol.37 no.5, October 1991, pp.269-270, letter.

In this letter to the editor the authors report on a study done in the Sivas region of Turkey, which attempted to determine the relationship of malnutrition, vitamin A deficiency, or carotene levels to xerophthalmia. They conclude that sufficient vitamin A intake combined with an appropriate protein-energy diet would contribute to the treatment and better prognosis of this disease.

- 5701 Tauxe, R.V.; Blake, P.A. EPIDEMIC CHOLERA IN LATIN AMERICA. *Journal of the American Medical Association*, vol.267 no.10, March 11, 1992, pp.1388- 1390.

This article discusses the recent cholera epidemic and modes of transmission in Latin America, focusing on case management and modes of transmission in Peru. It predicts that cholera will soon spread to the Caribbean and will become endemic in the estuarine complexes in Ecuador, Venezuela, and Brazil.

- 5396 Theodore-Gandi, B. SUMMARY REPORT OF EMERGENCY MEETING ON CHOLERA PREPAREDNESS IN THE CARIBBEAN (MAY 16-17, 1991). *West Indian Medical Journal*, vol.40, 1991, pp.149-151.

A May 1991 meeting on Cholera Preparedness in the Caribbean hosted by the Caribbean Epidemiology Centre had the following objectives: (1) to review cholera occurrence in the Americas; (2) to assess the risk to CAREC member countries and measures taken; and (3) to develop recommendations, strategies, and plans for prevention of occurrence, early detection and control of cholera. This article reports the results of the conference.

- 4907 Tupasi, T.E.; Lucero, M.G.; Magdangal, D.M.; et al. ETIOLOGY OF ACUTE LOWER RESPIRATORY TRACT INFECTION IN CHILDREN FROM ALA-

BANG, METRO MANILA. *Reviews of Infectious Diseases*, vol.12 suppl.8, November/December 1990, pp.S929-S939.

This hospital-based study was undertaken to determine the relative importance of bacterial and viral pathogens as causative agents of acute lower respiratory tract infection in Filipino children under age five. The clinical features and outcome associated with specific etiologic agents and risk factors for mortality were analyzed.

- 4906 Tupasi, T.E.; de Leon, L.E.; Lupisan, S.; et al. PATTERNS OF ACUTE RESPIRATORY TRACT INFECTION IN CHILDREN: A LONGITUDINAL STUDY IN A DEPRESSED COMMUNITY IN METRO MANILA. *Reviews of Infectious Diseases*, vol.12 suppl.8, November/December 1990, pp.S940-S949.

This paper describes a prospective cohort study of children under age five from an urban, depressed population in Metro Manila that was undertaken to identify the etiologic agents responsible for acute lower respiratory tract infection and to determine risk factors that predispose these children to ARI morbidity.

- 5068 UPDATE: CHOLERA: WESTERN HEMISPHERE AND RECOMMENDATIONS FOR TREATMENT OF CHOLERA. *Morbidity and Mortality Weekly Report*, vol.40 no.32, August 16, 1991, pp.562-565.

Since few U.S. physicians have experience in identifying and treating cholera, this report provides recommendations on the clinical diagnosis and treatment of the disease in the United States. It also provides an update on cholera in the Western Hemisphere.

- 5236 UPDATE: CHOLERA — WESTERN HEMISPHERE, AND RECOMMENDATIONS FOR TREATMENT OF CHOLERA. *Journal of the American Medical Association*, vol.266 no.9, September 4, 1991, pp.1186-1189.

Cholera can be a severe, life-threatening illness but is highly preventable and easily treated; however, few health-care practitioners in the United States have experience identifying and treating cholera. This report provides an update on the clinical diagnosis and treatment of cholera in the United States. [published abstract]

- 5452 UPDATE: CHOLERA — WESTERN HEMISPHERE, 1991. *Morbidity and Mortality Weekly Report*, vol.40 no.49, December 13, 1991, p.860.

This news note provides a list of countries in the Western Hemisphere that have reported cholera and statistics for individual countries on morbidity, mortality, and number of hospitalized cases.

- 5250 UPDATE: THE CHOLERA SITUATION IN THE AMERICAS. *Epidemiological Bulletin*, vol.12 no.3, 1991, pp.11-12.

This article briefly summarizes the status of the cholera epidemic in Guatemala, El Salvador, Bolivia, Peru, Ecuador, Colombia, Mexico, Brazil, and Chile.

- 5219 Usha, N.; Sankaranarayanan, A.; Walia, B.N.S.; et al. ASSESSMENT OF PRECLINICAL VITAMIN A DEFICIENCY IN CHILDREN WITH PERSISTENT DIARRHEA. *Journal of Pediatric Gastroenterology and Nutrition*, vol.13 no.2, 1991, pp.168-175.

To explore the relationship between vitamin A deficiency and persistent diarrhea among young children, the authors examined the vitamin A status of 23 children under age five with persistent diarrhea in India by using conjunctival impression cytology and the relative dose-response test as a measure of liver reserve of vitamin A. Data indicated that 17 of the 23 children had abnormal cytology results, significantly low serum retinol levels, and significantly high relative dose-response results. These results suggest a relationship between vitamin A deficiency and persistent diarrhea.

- 4905 Vathanophas, K.; Sangahai, R.; Raktham, S.; et al. A COMMUNITY-BASED STUDY OF ACUTE RESPIRATORY TRACT INFECTION IN THAI CHILDREN. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp.S957-S965.

A two-year longitudinal study was conducted among the population of a socio-economically depressed urban community in Bangkok, Thailand, to determine the incidence, etiologic agents, and risk factors associated with ARI in children under five years of age. This paper reports on the findings.

- 5564 VITAL NUTRIENTS. Arlington, VA, Agency for International Development, VITAL Project, nd, 36p.

In recent years there has been an increase in knowledge about micronutrient deficiencies (such as vitamin A and iron) and their role in the health status of mothers and children. This booklet examines why micronutrients have gained importance, how they can improve people's health, and why micronutrient programs are a sound economic investment. It also discusses which populations are at risk for deficiencies, how access to micronutrients can be ensured, and dietary sources of micronutrients. Finally, suggestions for designing a comprehensive program to combat micronutrient deficiencies are also provided.

- 4949 VITAMIN A: PANACEA FOR ALL ILLS? *Africa Health*, vol.13 no.4, May 1991, p.25.

This article briefly reviews three studies, two in India and one in South Africa, that investigated the benefits of vitamin A supplementation. Supplementation did seem to reduce morbidity in treated children, thus indicating that in areas where vitamin A deficiency cannot be improved through dietary education, regular supplementation may be needed.

- 4899 Wafula, E.M.; Onyango, F.E.; Mirza, W.M.; et al. EPIDEMIOLOGY OF ACUTE RESPIRATORY INFECTIONS AMONG YOUNG CHILDREN IN KENYA. *Reviews of Infectious Diseases*, vol.12 suppl.8, November-December 1990, pp. S1035-S1038.

This study describes the incidence and duration of ARI among children under five years of age in a rural community in Maragua, Kenya. The yearly incidence of ARI decreased from 5.2 to 3.4 during the study; less than 5% of these infections involved the lower respiratory tract. Illnesses were generally mild and brief in length. Fifteen children out of 470 died during the study period; ARI may have played a role in most cases.

- 5328 Wanke, C.A.; Schorling, J.B.; Barrett, L.J.; et al. POTENTIAL ROLE OF ADHERENCE TRAITS OF *ESCHERICHIA COLI* IN PERSISTENT DIARRHEA IN AN URBAN BRAZILIAN SLUM. *Pediatric Infectious Disease Journal*, vol.10 no.10, October 1991, pp.746-751.

This study examined stools from children with persistent diarrhea, children with acute diarrhea and from control children to determine infectious etiologies for persistent diarrhea in Fortaleza Ceara, Brazil. The findings suggest that the etiology of persistent diarrhea in children is complex and that the aggregative *E.coli* are associated with prolonged diarrheal illness.

- 5010 West, K.P.; Pokhrel, R.P.; Katz, J.; et al. EFFICACY OF VITAMIN A IN REDUCING PRESCHOOL CHILD MORTALITY IN NEPAL. *The Lancet*, vol.338 no.8759, July 13, 1991, pp.67-71.

A randomized, double-masked, placebo-controlled community trial was carried out in rural Nepal to investigate the effect of vitamin A supplementation on mortality among preschool children. After 12 months, the relative risk of death in the supplemented group was 0.70 compared to the control group. This was equivalent to a 30% reduction in mortality. This reduction was present in both sexes, in all ages, and throughout the year. The authors conclude that periodic vitamin A supplementation can greatly reduce child mortality in developing countries.

- 5485 WHAT YOU OUGHT TO DO. *Africa Health*, vol.14 no.1, November 1991, p.3.

This news note reports on efforts to control cholera in Nigeria, including the promotion of ORT through radio jingles and newspaper articles. With emergency aid from the European Community, a project is being implemented by Médecins Sans Frontières, which includes ORS and drug supplies, emergency sanitation measures, and better surveillance.

- 5374 WHO ANNOUNCES GLOBAL PLAN FOR CHOLERA CONTROL. *Infection Control and Hospital Epidemiology*, vol.12 no.9, September 1991, pp.567-568.

After a review of the status of the recent cholera epidemic in Latin America, this brief article describes the WHO global cholera control task force and its plans.

- 5065 WHO CITES ALARMING RISE IN AFRICAN CHOLERA CASES. Geneva, World Health Organization, July 22, 1991, np.

Cholera outbreaks have been rapidly increasing in Africa. This WHO press release provides information on the current situation, including a list of all African countries reporting cholera and the number of cases and deaths in each.

- 5015 Yolken, R.H.; Li, S.; Perman, J.; et al. PERSISTENT DIARRHEA AND FECAL SHEDDING OF RETROVIRAL NUCLEIC ACIDS IN CHILDREN INFECTED WITH HUMAN IMMUNODEFICIENCY VIRUS. *Journal of Infectious Diseases*, vol.164, 1991, pp.61-66.

Gastrointestinal disorders are a serious problem in many HIV-infected children. In this study the authors examined the correlation between shedding of HIV nucleic acids and gastrointestinal symptoms in HIV-infected infants and children. Many of the patients with AIDS and persistent diarrhea shed HIV nucleic acids in their feces; these acids were not found in feces of non-HIV patients. Intestinal infection with HIV seems to be important in the pathophysiology of gastrointestinal disorders in children with HIV infection. In addition, fecal shedding of HIV may play a role in HIV transmission.

## DIARRHEA TREATMENT

- 4915 Anderson, J.; George, R.J.D.; Weller, I.V.D.; et al. COMPLICATIONS OF TREATMENT FOR CRYPTOSPORIDIAL DIARRHOEA. *Genitourinary Medicine*, vol.67, 1991, pp.156-161.

The authors describe the case of a male HIV-positive patient who contracted cryptosporidial diarrhea. Various forms of drug therapy produced several complications, which are discussed in this paper.

- 5420 Cerf, M. FAUT-IL TRAITER LES DIARRHEES AIGUES? *Gazette Médicale*, vol.98 no.28, 1991, p.9.

In this brief editorial the author discusses when it is necessary to treat acute diarrhea, how to treat it depending on the cause, and which types of cases should receive treatment.

- 5606 Cutting, W. COMMENT: SHOULD HELMINTH INFECTIONS BE CONTROLLED BY MASS MEDICATION? *Dialogue on Diarrhoea*, issue 47, December 1991, p.6.

In this brief article the author discusses the use of mass medication to control helminth infections. He states that mass medication campaigns could divert funds and attention from more crucial primary health-care activities, and thus should not be indiscriminately used.

- 5750 deVargas, I. COMMUNITY ORAL REHYDRATION UNITS IN BARRANQUILLA, COLOMBIA. *Urban Examples*, vol.17, December 1991, p.9.

This brief article describes the establishment of community oral rehydration units (ORUs) throughout Barranquilla, Colombia. The ORU program, run by volunteers, achieved its objectives in terms of reducing morbidity and mortality due to diarrhea.

- 5125 Guarino, A.; Guandalini, S.; Albano, F.; et al. ENTERAL IMMUNOGLOBULINS FOR TREATMENT OF PROTRACTED ROTAVIRAL DIARRHEA. *Pediatric Infectious Diseases Journal*, vol.10 no.8, 1991, pp.612-614.

[The authors] describe two children with diarrhea of long duration and rotavirus shedding, lasting, respectively, seven and four months and requiring prolonged total parenteral nutrition. Neither patient had evidence of immunodeficiency and recovered after duodenal administration of a single dose of human serum immunoglobulins. [published abstract]

- 5262 HOUSEHOLD SURVEY OF DIARRHOEA CASE MANAGEMENT. Weekly Epidemiological Record, no.37, September 13, 1991, pp.273-276.

A household survey was carried out in June 1990 in two regions of Nepal to assess mothers' practices in home management of diarrhea and to measure the effectiveness of the CDD program. Findings indicated that prevalence of breastfeeding was high before and during diarrheal episodes and that the majority of cases receiving food continued to receive the same amount of food or more during episodes. However, very few cases received increased fluids and although many caretakers knew of ORS, very few used it. It is concluded that the CDD program should consider a plan to increase access to and correct use of ORS.

- 4893 Lamerton, R. DEHYDRATION IN DYING PATIENTS. The Lancet, vol.337 no.8747, April 20, 1991, pp.981-982, letter.

The author of this letter to the editor discusses dehydration in terminally ill patients. He states that IV therapy prior to dying is unnecessary, since full hydration just before death can cause incontinence and physical distress.

- 5127 Mackenzie, A.; Barnes, G. RANDOMISED CONTROLLED TRIAL COMPARING ORAL AND INTRAVENOUS REHYDRATION THERAPY IN CHILDREN WITH DIARRHOEA. British Medical Journal, vol.303, August 17, 1991, pp.393-396.

A randomized controlled trial was conducted to determine the effectiveness of oral rehydration in children with moderate dehydration and to compare oral and nasogastric treatment. The findings suggest that oral or nasogastric rehydration is a safe and effective treatment for moderately dehydrated children with gastroenteritis.

- 5356 Mitra, A.K.; Khan, M.R.; Alam, A.N. COMPLICATIONS AND OUTCOME OF DISEASE IN PATIENTS ADMITTED TO THE INTENSIVE CARE UNIT OF A DIARRHOEAL DISEASES HOSPITAL IN BANGLADESH. Transactions of the Royal Society of Tropical Medicine and Hygiene, vol.85, 1991, pp.685-687.

A retrospective analysis of the medical records of 1,970 patients admitted to the intensive care unit of the Clinical Research Centre in Dhaka, Bangladesh, was made to identify various complications and outcome. Principal causes of death were recorded as septicemia and pneumonia. Seventy-five percent of the seriously ill patients recovered; 21% died; 4% were referred to other facilities. None of the deaths could be attributed to dehydration.

- 5152 SURVEY FINDS INFANT DIARRHEA OFTEN TREATED INAPPROPRIATELY. Family Practice News, 1991, p.5.

A questionnaire that was sent to 457 pediatricians and 360 family physicians in the United States about management of childhood diarrhea found that the majority did not follow the American Academy of Pediatrics' recommendations. Many physicians delayed the resumption of a regular diet up to 48 hours. It was suggested that the AAP's recommendations be regularly updated to keep pace with new evidence supporting early refeeding.

## ORAL REHYDRATION THERAPY

- 5609 Abatcha, B. DIFFERENT FORMULATIONS? Dialogue on Diarrhoea, issue 47, December 1991, p.7, letter.

The author of this letter to the editor asks about producing ORS in tablet or syrup form. He notes that some people would be more inclined to use ORS if they perceived it as a medicine. The response points out that ORS tablets are already available in many countries. It also notes that if people think of ORS as a medicine, they may not give enough ORS after the onset of diarrhea to prevent dehydration.

- 5441 Alam, N.H.; Ahmed, T.; Khatun, M.; et al. EFFECTS OF FOOD WITH TWO ORAL REHYDRATION THERAPIES: A RANDOMISED CONTROLLED CLINICAL TRIAL. Gut, vol.33, 1992, pp.560-562.

To evaluate the impact of food on the efficacy of ORS, a randomized, controlled clinical trial was conducted in 182 adults with cholera. After initial rehydration, patients received one of four rehydration therapies: 1) glucose-based ORS and food, 2) glucose-based ORS and no food for the first 24 hours, 3) rice-based ORS and no food for the first 24 hours, and 4) rice-based ORS and food. A substantial reduction in stool output was shown in the group that received rice-based ORS irrespective of feeding.

- 5623 Amadu, A.A.B. A CHILD REFUSING TO DRINK? Dialogue on Diarrhoea, issue 47, December 1991, p.7, letter.

In this letter the author asks what can be done when a dehydrated child refuses to drink ORS. The response states that a child may refuse if he is not really dehydrated or if he is too weak to take the solution. Having someone the child trusts offer the ORS slowly and patiently or adding some fruit juice to the solution are suggested.

- 5422 Beattie, M.; Evans, N. ORAL REHYDRATION IN GASTROENTERITIS. British Medical Journal, vol.303, October 5, 1991, p.855, letter.

In this letter to the editor the authors report on the common use of ORS in their hospital in Great Britain. They refute the claim by Mackenzie et al. that IVs, not ORS, are more common in hospitals in developed countries.

- 5344 Bhattacharya, S.K.; Dutta, P.; Dutta, D.; et al. SUPER ORS. Indian Journal of Public Health, vol.34 no.1, January/March 1990, pp.35-37.

This brief article describes two kinds of ORS that have the potential to reduce stool volume and shorten the duration of diarrhea: amino-acid-fortified ORS and rice-based ORS.

- 5540 Booth, I.; Cunha Ferreira, R.; Desjeux, J.-F.; et al. RECOMMENDATIONS FOR COMPOSITION OF ORAL REHYDRATION SOLUTIONS FOR THE CHILDREN OF EUROPE. *Journal of Pediatric Gastroenterology and Nutrition*, vol.14, 1992, pp.113-115.

Recommendations for the composition and use of ORS for European children are presented in this article by the ESPGAN working group following a workshop in 1988. They discuss ORS composition with respect to carbohydrates, amino acids, sodium, potassium, and base. Other factors reviewed include osmolality, acceptance, delivery and packaging, and clinical indications.

- 5568 CEREAL-BASED ORAL REHYDRATION SOLUTIONS: BRIDGING THE GAP BETWEEN FLUID AND FOOD. *The Lancet*, vol.339 no.8787, January 25, 1992, pp.219-220.

This editorial suggests that both fluid and food are critical elements in the treatment of diarrheal diseases. Homemade formulas based on rice and other locally available cereals should play an increasingly important role in recommendations for undernourished children after bouts of diarrhea.

- 5767 Cunha-Ferreira, R.M.C.; Elliott, E.J.; Watson, A.J.M.; et al. DOMINANT ROLE FOR OSMOLALITY IN THE EFFICACY OF GLUCOSE AND GLYCINE-CONTAINING ORAL REHYDRATION SOLUTIONS: STUDIES IN A RAT MODEL OF SECRETORY DIARRHOEA. *Acta Paediatrica*, vol.81, 1992, pp.42-50.

The effect of osmolality on the efficacy of ORS and the contribution of the amino acid glycine to water absorption from ORS have been studied in an animal model of secretory diarrhea...[The] findings in a perfusion model of rat small intestine suggest that osmolality is a key factor influencing the efficacy of ORS and that addition of a second substrate, such as glycine, has no beneficial effects. [The] results suggest that there is a maximal rate for water absorption from the small intestine, which is inversely related to the osmolality of the perfusate. [published abstract]

- 5159 Dutta, P.; Bhattacharya, S.K.; Dutta, D.; et al. ORAL REHYDRATION SOLUTION CONTAINING 90 MILLIMOL SODIUM IS SAFE AND USEFUL IN TREATING DIARRHOEA IN SEVERELY MALNOURISHED CHILDREN. *Journal of Diarrhoeal Diseases Research*, vol.9 no.2, 1991, pp.118-122.

The safety and efficacy of standard WHO ORS with 90 mmol of sodium per liter were evaluated during the treatment of 81 children with diarrhea in Calcutta, India. Forty of the children were well-nourished and 41 were severely malnourished. The ORS used was successful in rehydrating both groups, thus indicating that standard ORS is effective in treating severely malnourished children with diarrhea.

- 5390 Elliott, E.J.; Watson, A.J.M.; Walker-Smith, J.A.; et al. SEARCH FOR THE IDEAL ORAL REHYDRATION SOLUTION: STUDIES IN A MODEL OF SECRETORY DIARRHOEA. *Gut*, vol.32, 1991, pp.1314-1320.

In situ perfusion of whole rat small intestine was used to compare the efficacy of five oral rehydration solutions in promoting water and sodium absorption in normal intestine and secretory intestine after exposure to cholera toxin. Solutions varied in their sodium and glucose concentrations, molar ratio of glucose: sodium and osmolality, and contained either bicarbonate or citrate.

- 5611 Emmanuel, F. CORRECT RECIPE FOR SSS? *Dialogue on Diarrhoea*, no.47, December 1991, p.7, letter.

In this letter to the editor, a health worker from India asks for the correct formula to make sugar-salt solution. A response follows that includes WHO's recommendations for preparing homemade sugar-salt solution.

- 5014 Fontana, M.; Zuin, G.; Paccagnini, S.; et al. HOME-MADE ORAL REHYDRATION SOLUTIONS: VARIATIONS IN COMPOSITION. *Acta Paediatrica Scandinavica*, vol.80, 1991, pp.720-722.

The purpose of this study, done in Italy, was to assess the reliability of homemade rehydration solutions in developed countries compared with commercial ones, and to investigate whether occupation and the cultural status of the mothers could influence the accuracy of preparation. The findings showed that the women prepared the packaged, commercial solutions more accurately than the homemade ORS. Cultural status did not affect preparation whereas occupation did. The study showed that homemade ORS can often result in some potentially dangerous solutions and, thus these solutions should not be advocated.

- 5757 Gallagher, H.G.; Phelan, D.M. ORAL REHYDRATION THERAPY: A THIRD WORLD SOLUTION APPLIED TO INTENSIVE CARE. *Intensive Care Medicine*, vol.18, 1992, pp.53-55.

This article reports on the use of ORT in intensive-care units. ORT was administered via nasogastric tube to three adult intensive-care patients who developed severe diarrhea and postoperative acute renal impairment. ORT provides a

cheap, effective, and physiological solution to severe gastrointestinal losses in intensive care and may have wider application in both adult and pediatric practice.

- 5561 Gore, S.; Fontaine, O.; Pierce, N.F. IMPACT OF RICE BASED ORAL REHYDRATION SOLUTION ON STOOL OUTPUT AND DURATION OF DIARRHOEA: META-ANALYSIS OF 13 CLINICAL TRIALS. *British Medical Journal*, vol.304, 1992, pp.287- 291.

In order to define the benefits of rice-based ORS solutions as compared to the standard WHO formula, the authors analyzed 13 studies that compared the two formulas. The data indicated that the rice solution significantly reduced stool output rates in cholera patients. The effect was less significant in cases of acute non-cholera diarrhea. The authors conclude that the benefit of rice-based solutions for cholera patients is sufficient to warrant its use in such patients. However, the effectiveness of these solutions in acute non-cholera patients needs to be further defined.

- 5746 Greenough, W.B. RICE BASED ORAL REHYDRATION SOLUTIONS. *British Medical Journal*, vol.304, April 11, 1992, p.982, letter.

In this letter to the editor, the author argues that WHO's conclusion that there is no advantage to rice-based ORS over glucose ORS is premature. Rice-based ORS brings about a more rapid recovery from diarrhea and improved nutritional status.

- 5268 Greenough, W.B.; Khin-Maung-U. CEREAL-BASED ORAL REHYDRATION THERAPY: II. STRATEGIC ISSUES FOR ITS IMPLEMENTATION IN NATIONAL DIARRHEAL DISEASE CONTROL PROGRAMS. *Journal of Pediatrics*, vol.118 no.4 part 2, April 1991, pp.S80-S85.

The authors discuss two field studies of cereal-based ORS carried out in Bangladesh. In addition, they review issues concerning the use of cereal-based ORS in national CDD programs, including case management, safety, effectiveness, effect on food intake, acceptance by caregivers, training of health workers, costs, problems of changing to cereal-based ORS, and packaging by commercial companies.

- 5053 Hirschhorn, N. ORT FOR ANIMALS. *Dialogue on Diarrhoea*, issue 45, June 1991, p.5.

Because animals can suffer dehydration from diarrhea in much the same way as humans, ORT can be used to treat them as well. This brief news note explains how ORT can be used for animals, particularly livestock.

- 5155 IMPROVED FORMULATIONS FOR ORAL REHYDRATION. *Glimpse*, vol.13 no.2, March-April 1991, pp.1-3.

Although the current standard ORS can successfully rehydrate the majority of diarrhea patients, it does not reduce stool output or the duration of an episode. This article briefly describes several ORS formulations currently being researched, including cereal-based solutions, that may affect stool output and duration.

- 5384 International Study Group on Improved ORS. IMPACT OF GLYCINE-CONTAINING ORS SOLUTIONS ON STOOL OUTPUT AND DURATION OF DIARRHOEA: A META-ANALYSIS OF SEVEN CLINICAL TRIALS. *Bulletin of the World Health Organization*, vol.69 no.5, 1991, pp.541-548.

The results are described of a meta-analysis of seven randomized trials that compared the effects of the standard WHO ORS and experimental ORS solutions containing glycine on 643 children with acute noncholera diarrhea. The results of the analysis showed that neither stool output nor duration of diarrhea was reduced by the experimental formulations.

- 5056 Katabira, E. ORT IS USEFUL FOR TREATING ADULTS. *Dialogue on Diarrhoea*, issue 45, June 1991, p.8.

The author of this letter to the editor, who manages an AIDS clinic in Uganda, reports how ORT is routinely used to treat HIV-infected adults with diarrhea.

- 5302 Kepfer, P.D.; Snyder, J.D. USE AND MISUSE OF ORAL THERAPY IN DIARRHEA. *Pediatrics*, vol.88 no.3, September 1991, pp.656-657, letter.

In this letter to the editor, a physician comments on an article by John Snyder about American doctors not prescribing ORT for diarrhea. He states that he does not prescribe it because it is inconvenient and not readily available, not because of lack of knowledge. He suggests that other doctors may do the same. A reply by John Snyder follows.

- 5532 Khin-Maung-U; Myo-Khin; Nyunt-Nyunt-Wai; et al. COMPARISON OF GLUCOSE ELECTROLYTE AND MALTODEXTRIN GLYCINE GLYCYL-GLYCINE ELECTROLYTE ORAL REHYDRATION SOLUTIONS IN ACUTE DIARRHEA IN CHILDREN. *Journal of Pediatric Gastroenterology and Nutrition*, vol.13, 1991, pp.397-401.

A randomized, double-blind clinical trial was conducted in Myanmar to compare the standard WHO formula ORS to a formula containing maltodextrin, glycine,

and glycyl-glycine. Clinical characteristics in both treatment groups were comparable. Children given the improved ORS did show greater weight gain than the ones given the standard formula, but these differences were not statistically significant.

- 5343 Lebenthal, E. RICE AS A CARBOHYDRATE SUBSTRATE IN ORAL REHYDRATION SOLUTIONS (ORS). *Journal of Pediatric Gastroenterology and Nutrition*, vol.11, 1990, pp.293-303.

This editorial reviews the clinical trials and controlled studies involving the use of rice powders as a replacement for glucose in standard ORS.

- 4883 Lebenthal, E.; Lu, R.-B. GLUCOSE POLYMERS AS AN ALTERNATIVE TO GLUCOSE IN ORAL REHYDRATION SOLUTIONS. *Journal of Pediatrics*, vol.118 no.4 part 2, April 1991, pp.S62-S69.

In this article the authors review studies that examine the efficacy of rice-based ORS solutions as compared to the standard glucose formula. They conclude that glucose polymers from rice based solutions are as effective as glucose-based solutions. In addition, rice polymers offer other advantages, such as reduction in the amount and duration of diarrhea and increased sodium absorption without osmotic overload.

- 5165 Mota-Hernandez, F.; Bross-Soriano, D.; Perez-Ricardez, M.L.; et al. RICE SOLUTION AND WORLD HEALTH ORGANIZATION SOLUTION BY GASTRIC INFUSION FOR HIGH STOOL OUTPUT DIARRHEA. *American Journal of Diseases of Children*, vol.145, August 1991, pp.937-940.

A clinical trial was conducted in a Mexico City hospital to compare three different rehydration methods. Sixty-six children were rehydrated using a rice-flour formula orally, the WHO formula orally, or the WHO formula by gastric infusion. All the patients were successfully rehydrated and had decreased stool output. The rice flour formula group had a slightly higher decrease in stool output.

- 5630 Nawazish-Husain, S.; Javaid, N.; Ahmad, B. COMPARISON OF ORS-BICARBONATE AND ORS-CITRATE FORMULATIONS IN AFFECTING THE BLOOD PH AND BLOOD BICARBONATE CONCENTRATION IN DIARRHOEAL AND NORMAL HUMANS. *Pakistan Journal of Pharmacology*, vol.4 no.1 and 2, 1991, pp.9-18.

A study was conducted in Pakistan to compare the effects of ORS with bicarbonate and ORS with citrate on blood pH and blood bicarbonate concentration in persons with and without diarrhea. The authors concluded that both formula-

tions have similar efficacy in treating dehydration, but the citrate solution has a greater shelf-life and is a more stable formula. Also, the citrate formula did not significantly alter the blood pH and bicarbonate levels.

- 5361 O'Banion, L.; Snyder, J.D. USE AND MISUSE OF ORAL THERAPY FOR DIARRHEA. *Pediatrics*, vol.88 no.5, November 1991, pp.1073-1074, letter.

These letters to the editor discuss the difficulty of obtaining rehydration solutions in the United States. Only maintenance solutions are routinely stocked in pharmacies. It is suggested that ORS may take on greater importance if cholera appears in the United States.

- 5572 ORAL REHYDRATION THERAPY: ITS PLACE IN THE DEVELOPED WORLD. *WHO Drug Information*, vol.5 no.3, 1991, pp.120-121.

This brief article describes a randomized controlled trial of ORT recently conducted at the Royal Children's Hospital, Victoria, Australia. The trial showed that 85% of children who would have received IV therapy were treated successfully with the oral solution.

- 5784 Patra, F.C.; Mahalanabis, D.; Jalan, K.N.; et al. A CONTROLLED CLINICAL TRIAL OF RICE AND GLYCINE-CONTAINING ORAL REHYDRATION SOLUTION IN ACUTE DIARRHOEA IN CHILDREN. *Journal of Diarrhoeal Diseases Research*, vol.4 no.1, March 1986, pp.16-18.

In a clinical trial carried out on two groups of Indian children, between the ages of three months and five years, one group received rice and glycine-based ORS, while the control group received the WHO ORS. The study solution was found to diminish ORS intake significantly. Stool output was less in the study group, but not significantly so. Duration of diarrhea was similar in both groups. These results were no better than those obtained previously with rice-based ORS alone.

- 5696 Pizarro, D.; Posada, G.; Sandi, L.; et al. CORRECTION: RICE-BASED ORAL ELECTROLYTE SOLUTIONS FOR INFANTILE DIARRHEA. *New England Journal of Medicine*, vol.326 no.7, February 13, 1992, pp.488-489, letter

This letter concerns an omission of certain data in an article on rice-based ORS that appeared in the February 21, 1991, issue of the NEJM. The omission explained the use of nasogastric feeding for patients with a high stool output.

- 5280 Rahman, A.S.M.M.; Bari, A.; Molla, A.M. RICE-ORS SHORTENS THE DURATION OF WATERY DIARRHOEAS: OBSERVATION FROM RURAL BANGLADESH. *Tropical and Geographical Medicine*, 1991, pp.23-27.

A standard glucose ORS and a rice-based ORS were compared as home-mix treatment for watery diarrhea in rural Bangladesh. One area was provided glucose ORS packets, a second rice ORS packets, and a third area received no ORS and served as the control. Mothers of children under five were trained in the preparation and use of the ORS. During the two-year surveillance period, 10,000 diarrheal episodes were noted in each area, of which one third were watery diarrhea. Rice ORS alone was used to treat 74% of these cases and glucose ORS alone for 65%. The control population mainly used drugs to treat diarrhea. The episodes treated with rice ORS had shorter duration and fewer hospitalizations compared to the episodes treated with glucose ORS. However, diarrheal mortality was not affected by use of either ORS in this study situation.

- 5470 RECENT ADVANCES IN THE DEVELOPMENT OF IMPROVED ORS. Geneva, World Health Organization, 1991, 12p.

Since 1980 the WHO CDD Programme has been promoting research to develop and test "improved" ORS solutions that would not only treat dehydration, but would also decrease stool output and the duration of diarrhea. There are two groups of ORS that are currently being tested for this purpose: solutions based on amino acids and solutions based on D-hexoses. This document presents the accomplishments to date and discusses possibilities for further research.

- 5206 RICE-BASED ORAL ELECTROLYTE SOLUTIONS FOR DIARRHOEA. WHO Drug Information, vol.5 no.2, 1991, pp.50-51.

A clinical trial was conducted in Costa Rica to compare the effectiveness of two rice-based ORS solutions to a standard glucose ORS. This news note briefly reviews the results that indicated that the rice-based solutions decreased stool output by 25 to 45% and increased fluid absorption.

- 5334 Riyad, S.; El Moughi, M.; El Rehim Wahsh, A.A. AFTER REHYDRATION: WHAT HAPPENS TO THE CHILD? Journal of Tropical Pediatrics, vol.37 no.5, October 1991, pp.220-222.

Three hundred infants and toddlers with diarrhea were followed up for five days after initial rehydration with ORS. When an average of 300 to 340 ml per day was given at home, only two children required rehospitalization, one other child died. Fifteen percent of the children still had watery diarrhea and vomiting by the fifth day, perhaps as a result of multiple drug therapy. The amount of time a mother can spend giving ORS ultimately limits the amount the child receives.

- 4961 Rolston, D.D.K.; Guggenbichler, J.P.; Allerberger, F.; et al. ORAL THERAPY FOR ACUTE DIARRHEA. New England Journal of Medicine, vol.324 no.23, June 6, 1991, pp.1672-1673, letter.

In these letter to the editor the authors comment on Avery and Snyder's review of ORT for acute diarrhea. They specifically discuss the use of bases and complex carbohydrates in ORS solutions.

- 4914 Sack, D.A. USE OF ORAL REHYDRATION THERAPY FOR ACUTE WATERY DIARRHOEA: A PRACTICAL GUIDE. *Drugs*, vol.41 no.4, 1991, pp.566-573.

In this paper the author discusses ORT use for treatment of acute watery diarrhea. He reviews several topics including the pathophysiology of acute diarrhea, use of IVs, and recent advances and controversies related to ORT. Use of home fluids, the sodium content of ORS solutions, and the nutritional implications of ORT use are among the issues discussed.

- 4882 Santosham, M. DISCUSSION II. *Journal of Pediatrics*, vol.118 no.4 part 2, April 1991, p.S52.

This brief article presents a discussion among doctors Khin-Maung-U, Lebenthal, Santosham, Lifschitz, and Levine about hypernatremia with ORT and possible reasons for oral rehydration failures.

- 5605 Saroyants, S.; Burkin, V.; Dienko, G.; et al. ORT SUCCESS IN THE SOVIET UNION. *Dialogue on Diarrhoea*, issue 47, December 1991, p.8.

This news note reports on the successful use of ORT in the Soviet Union for treating diarrheal dehydration. Since 1985, many oral rehydration units have been established, health workers have been trained in proper diarrhea management, and home treatment has been promoted.

- 4993 Sazawal, S.; Bhatnagar, S.; Bhan, M.K.; et al. ALANINE-BASED ORAL REHYDRATION SOLUTION: ASSESSMENT OF EFFICACY IN ACUTE NON-CHOLERA DIARRHEA AMONG CHILDREN. *Journal of Pediatric Gastroenterology and Nutrition*, vol.12, 1991, pp.461-468.

The results of a double-blind, randomized controlled clinical trial evaluating the efficacy of alanine-supplemented, glucose-based ORS in children with acute noncholera diarrhea in India are reported in this article. Compared to the WHO ORS formula, the alanine-supplemented formula was slightly more effective. However, the authors conclude that the benefits noted in this study may be too insignificant to have clinical relevance.

- 5727 Scanlon, T.; Scanlon, F. CEREAL-BASED ORAL REHYDRATION SOLUTIONS. *The Lancet*, vol.339 no.8794, March 14, 1992, p.676, letter.

This letter to the editor points out that commercial ORS causes families to waste precious time, fuel, and money. Use of commercial ORS also encourages dependency on pharmaceutical companies and health professionals. Families should be encouraged instead to administer rice water to children with diarrhea.

- 5758 Simpson, A.C.; McIntyre, L.; SteMarie, M. ACUTE DIARRHEA THERAPY: SUB-OPTIMAL? *Pediatrics*, vol.89 no.4, April 1992, p.806, letter.

This letter to the editor confirms Snyder's findings that ORT practices in North American children's hospitals are suboptimal. It describes a study of diarrhea management in the emergency room of a Canadian pediatric hospital. Physicians failed to take adequate histories or give adequate advice in the majority of cases.

- 5179 Smith, J.; Yablin, B.; Meyers, A.; et al. ORAL REHYDRATION FOR CHILDREN WITH DIARRHEA. *Journal of the American Medical Association*, vol.266 no.4, July 24/31, 1991, p.517, letter.

In these letters to the editor the authors discuss the use of homemade ORS to treat childhood diarrhea in the United States. A possible formula for both regular and cereal-based ORS is presented. The dangers of incorrect preparation are also discussed.

- 5610 Smith, S. ALTERNATIVES TO PACKETS? *Dialogue on Diarrhoea*, issue 47, December 1991, p.7, letter.

In this letter to the editor, a nurse practitioner from Ethiopia asks *Dialogue on Diarrhoea* if natural ingredients, such as honey, can be used to make ORS at home. The response that follows gives some guidelines about substitutes for sugar (honey and various cereals) that can be used to make homemade ORS.

- 4995 Snyder, J. ORAL THERAPY FOR DIARRHEA. *Hospital Practice*, May 30, 1991, pp.86-88.

In order to overcome underuse of ORT in the United States, the author discusses four areas of effort that need to be addressed: 1) improving oral therapy, 2) promoting changes in the practice habits of health-care providers, 3) improving public awareness of oral therapy and the magnitude of the problem of diarrhea, and 4) increasing access to ORT for populations at the greatest risk of diarrhea mortality.

- 5077 Tochen, M.L.; Sloan, H.R.; Pizarro, D.; et al. RICE-BASED ORAL ELECTROLYTE SOLUTIONS IN INFANTILE DIARRHEA. *New England Journal of Medicine*, vol.325 no.4, July 25, 1991, pp.283-284, letter.

The authors of these letters to the editor comment on Pizarro et al's study comparing a glucose-based ORS and a rice-based ORS. The first states that the sodium content of the rice-based solution may be too low, while the second questions the validity of the benefits of the rice-based solution that were cited in the study. A reply by Pizarro et al follows.

- 4964 U.S. PROJECT NEWS. International Child Health Foundation Newsletter, issue 8, 1991, p.4.

This news note presents a chart that compares the glucose, sodium, and potassium concentrations of commonly used fluids for diarrhea treatment in the United States. The chart compares Pedialyte, Ricelyte, Rehydralyte, cola, apple juice, and Gatorade.

- 5604 USA LEARNS ORT LESSONS. Dialogue on Diarrhoea, issue 47, December 1991, p.8.

The promotion of ORT in the United States is discussed in this news note. It is noted that reducing the high cost of commercially available ORS in the United States would be beneficial in promoting ORT for diarrhea management.

- 4988 Uzel, N.; Ugur, S.; Neyzi, O. OUTCOME OF REHYDRATION OF DIARRHEA CASES BY ORAL ROUTE. Acta Paediatrica Scandinavica, vol.80, 1991, pp.545-546.

A study of 221 children with moderate dehydration due to diarrhea was carried out at the diarrhea unit of the Children's Hospital in Istanbul, Turkey. The authors attempted to show that oral rehydration would be sufficient to treat the majority of the patients and that IV therapy would not be necessary. Two hundred and two (91.5%) of the cases were successfully orally rehydrated, thus indicating that most cases of moderate dehydration can be treated with ORT.

- 4894 Wapnir, R.A.; Litov, R.E.; Zdanowicz, M.M.; et al. IMPROVED WATER AND SODIUM ABSORPTION FROM ORAL REHYDRATION SOLUTIONS BASED ON RICE SYRUP IN A RAT MODEL OF OSMOTIC DIARRHEA. Journal of Pediatrics, vol.118 no.4 part 2, April 1991, pp.S53-S61.

Rice syrup solids, rice protein, and casein hydrolysate were added to experimental ORS in various combinations and tested in a rat intestinal perfusion system...The experimental solutions were compared with standard oral rehydration solutions containing 20 gm/L or 30 gm/L of glucose and with each other to determine if there were significant differences in net water, sodium, or potassium absorption...The data suggest that substitution of rice syrup solids for glucose in oral rehydration solutions will improve water absorption and that rice syrup

solids in combination with protein hydrolysates may, in addition, promote better sodium and potassium uptake. [published abstract]

- 4891 Wittenberg, D.F.; Ramji, S.; Broughton, M. ORAL REHYDRATION THERAPY REVISITED. *The Lancet*, vol.337 no.8744, March 30, 1991, pp.798-799, letter.

In this letter to the editor the authors comment on the inaccuracy of using the "percent of dehydration" method to calculate fluid volumes for rehydration. Since hydrated weight or exact fluid losses cannot be determined, the percent dehydration is no more than an educated guess. The authors also relate their experience in a South African hospital that abandoned the percent-dehydration calculation when treating excessive fluid loss and instead used a simplified parenteral fluid schedule and ORT.

## DRUG THERAPY AND INTRAVENOUS THERAPY

- 4965 **ANTI-MOTILITY DRUGS CAN KILL.** International Child Health Foundation Newsletter, issue 8, 1991, p.3.

This news note briefly outlines the dangers of using antidiarrheal drugs for treating diarrhea in children.

- 5488 **ANTIBIOTIC RESISTANCE.** ARI News, issue 21, November 1991, p.1.

This brief article discusses the problem of antibiotic resistance in pneumonia-causing bacteria. Overprescribing and misuse of antibiotics contribute to resistance, a growing problem in developing countries where new, equally effective drugs are not always readily available.

- 5225 **ANTIBIOTIC USE AND MISUSE.** HAI News, no.61, October 1991, p.7.

This news note reports on the prescribing practices of Australian, Swedish, English, American, and Canadian doctors with respect to antibiotics. It is noted that doctoring styles and an ability to relate to patients appear to be just as important a determinant of prescribing practice as a knowledge of antibiotics and infectious disease.

- 4948 **ANTIDIARRHOEALS ATTACKED AGAIN.** Africa Health, vol.13 no.4, May 1991, p.5

This news note briefly describes a WHO publication that states that antidiarrheals have no place in proper diarrhea management. It also notes that Kamycin, an antidiarrheal made by Upjohn, is being withdrawn from the market after much criticism from groups promoting rational drug use.

- 5359 **Bhutta, Z.A.; Molla, A.M. SAFETY OF LOPERAMIDE IN INFANTS WITH DIARRHEA.** Journal of Pediatrics, vol.119 no.5, November 1991, pp.842-843, letter.

In this letter to the editor, the authors question the study by Motala et al on the efficacy of loperamide in reducing stool output and duration in infants with acute diarrhea. They point out that in countries such as Pakistan, warnings in drug information inserts are meaningless in the hands of a largely illiterate population. They conclude that loperamide is unsuitable to use in management of diarrhea because of its serious side effects.

- 4903 Catalano, M.; Almiron, M.A.; Romeo, A.M.; et al. COMPARISON BETWEEN PARENTAL REPORT AND RESULTS OF MICROBIOLOGIC AGAR ASSAY FOR PRESENCE OF ANTIBIOTIC IN URINE OF ARGENTINIAN CHILDREN WITH ACUTE LOWER RESPIRATORY TRACT INFECTION. *Reviews of Infectious Diseases*, vol.12 suppl.8, November/December 1990, pp.S998-S1000.

This report describes prior use of antibiotics by children who were enrolled in a study of the diagnosis and epidemiology of ARI. The study compares two sources of information on prior use of antibiotics: parents' recall and an agar diffusion assay. Parental information was found to be relatively reliable only when their answer was affirmative.

- 5009 Cheesbrough, J.S.; Ilunga Mwema, F.; Green, S.D.R.; et al. QUINOLONES IN CHILDREN WITH INVASIVE SALMONELLOSIS. *The Lancet*, vol.338 no.8759, July 13, 1991, p.127, letter.

The authors of this letter to the editor examined the safety and efficacy of using ciprofloxacin in children with *Salmonella* infections. The preliminary data support use of ciprofloxacin for children aged one year or more with serious multiresistant *Salmonella* infection.

- 5080 Christensen, R.F. THE IMPACT OF TRAINING IN RATIONAL DRUG USE: EXPERIENCE FROM UGANDA. *INRUD News*, vol.2 no.1, June 1991, pp.13-14.

As part of the Uganda Essential Drugs Management Program, essential drugs kits were introduced and training in drug use for health workers was initiated. An evaluation of the training showed some modifications in prescribing behavior. In general, however, prescribing remained highly inappropriate. The author concludes that training alone is not sufficient to significantly change behavior.

- 5310 Clezy, K.; Gold, J.; Blaze, J.; et al. PAROMOMYCIN FOR THE TREATMENT OF CRYPTOSPORIDIAL DIARRHOEA IN AIDS PATIENTS. *AIDS*, vol.5 no.9, 1991, pp.1146-1147, letter.

The authors of this letter to the editor report on a clinical trial using paromomycin in AIDS patients with cryptosporidial diarrhea. The drug was well tolerated, controlled the diarrhea, and increased the patients' sense of well-being.

- 5464 Cohen, R.; Varon, W. LES MEDICAMENTS ANTI-INFECTIEUX DANS LES DIARRHEES. *Médecine et Maladies Infectieuses*, vol.21, 1991, pp.598-604.

Antibiotic therapy for diarrhea should only be prescribed in a limited number of cases. In this article the authors discuss in which cases drug therapy is indicated and the specific types of diarrhea for which antibiotics are appropriate. A treatment diagram that can assist physicians in determining the correct treatment is also presented.

- 5047 Cutting, W. ANTIBIOTICS AND DIARRHOEA. Dialogue on Diarrhoea, issue 45, June 1991, p.7.

This article describes how antibiotics can be used appropriately to treat cholera and dysentery. The pharmacology and adverse effects of five antibiotics (tetracycline, cotrimoxazole, ampicillin, nalidixic acid, furazolidone) are described.

- 5629 Cutting, W.A.M.; Elliott, K.M.; Cimolai, N.; et al. ANTIDIARRHOEAL DRUGS FOR ACUTE DIARRHOEA IN CHILDREN. British Medical Journal, vol.304, February 15, 1992, pp.445-446, letter.

In these letters to the editor the authors comment on Costello and Bhutta's editorial on the inappropriate use of antidiarrheals for treating childhood diarrhea. They particularly note the need to change physicians' attitudes toward prescription of drugs.

- 5349 DANGEROUS DRUGS WITHDRAWN. HAI News, no.62, December 1991, p.4.

This brief news note reports that the Sri Lankan Ministry of Health has banned the sale of several drugs, including antidiarrheal preparations such as loperamide and mixtures containing kaolin or pectin.

- 5546 De L Costello, A.M.; Bhutta, T.I. ANTIDIARRHOEAL DRUGS FOR ACUTE DIARRHOEA IN CHILDREN. British Medical Journal, vol.304, January 4, 1992, pp.1-2.

The authors of this brief article discuss the dangers of using antidiarrheal medications for treating childhood diarrhea. They state that ORS is the cornerstone of diarrhea treatment and that steps should be taken to ensure the rational use of drugs.

- 5583 DRUG USE IN DEVELOPING COUNTRIES. The Lancet, vol.339 no.8786, January 18, 1992, pp.174-175.

This brief news note describes a report from Health Action International documenting the high rate of inappropriate drug use in developing countries.

- 5558 DuPont, H.L.; Ericsson, C.D.; Mathewson, J.J.; et al. FIVE VERSUS THREE DAYS OF OFLOXACIN THERAPY FOR TRAVELER'S DIARRHEA: A PLACEBO-CONTROLLED STUDY. *Antimicrobial Agents and Chemotherapy*, vol.36 no.1, January 1992, pp.87-91.

A double-blind study was done in 232 Americans visiting Mexico to study the effectiveness of five versus three days of treatment with ofloxacin for traveler's diarrhea. The study's findings showed that the three-day regimen was as effective as the five-day. The authors also point out that ofloxacin is safe and effective for treating patients with both culture-positive and culture-negative traveler's diarrhea.

- 5735 DuPont, H.L.; Ericsson, C.D.; Mathewson, J.J.; et al. ORAL AZTREONAM, A POORLY ABSORBED YET EFFECTIVE THERAPY FOR BACTERIAL DIARRHEA IN US TRAVELERS TO MEXICO. *Journal of the American Medical Association*, vol.267 no.14, April 8, 1992, pp.1932-1935.

A parallel, comparative, double-blind, placebo-controlled evaluation of the efficacy and safety of aztreonam in the treatment of traveler's diarrhea was carried out in Mexico among a group of U.S. students. Results showed that oral aztreonam, which is poorly absorbed, was well tolerated and was an effective therapy for bacterial diarrhea in U.S. adults in Mexico.

- 5363 Dworzczynski, A.; Sokol, B.; Meisel-Mikolajczyk, F. ANTIBIOTIC RESISTANCE OF *CLOSTRIDIUM DIFFICILE* ISOLATES. *Cytobios*, vol.65, 1991, pp.149-153.

The activity of metronidazole, vancomycin, clindamycin and teicoplanin against *Clostridium difficile* strains isolated from various origins in Poland was investigated. Three out of 38 strains were resistant to vancomycin and, 28 were susceptible to teicoplanin. A widespread MIC was observed for clindamycin and metronidazole.

- 5726 Einterz, E.M. THE POOR NEED NO MORE CHARLATANS. *The Lancet*, vol.339, March 28, 1992, pp.795-796.

This editorial argues that the poor do not need charlatanism, nor does it have any place in the practice of medicine. The practices of offering useless vitamin injections and selling useless drugs with half-a-dozen "active" ingredients are given as examples.

- 5490 Facinelli, B.; Giovanetti, E.; Varaldo, P.E.; et al. ANTIBIOTIC RESISTANCE IN *FOODBORNE LISTERIA*. *The Lancet*, vol.338 no.8777, November 16, 1991, p.1272, letter.

In this letter to the editor the authors report on testing *Listeria* strains for resistance to antibiotics. Their findings indicate that multiresistant strains may already be present in food and that human infection due to these strains may stem from contaminated foods.

- 4933 Froese, E.H. MEETING THE PHARMACEUTICAL NEEDS OF A DEVELOPING COUNTRY. World Health Forum, vol.12 no.1, 1991, pp.25-28.

In this article the authors describe Zimbabwe's advances in the selection, procurement, distribution, storage, management, and use of pharmaceuticals. The country's action program on essential drugs is reviewed as well as their efforts in manufacturing, quality control, and drug information.

- 5367 Gani, L.; Arif, H.; Widjaja, S.K.; et al. PHYSICIANS PRESCRIBING PRACTICE FOR TREATMENT OF ACUTE DIARRHOEA IN YOUNG CHILDREN IN JAKARTA. Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.194-199.

Prescribing practices of physicians who treat acute childhood diarrhea in an urban district of Jakarta were investigated using observations and interviews of physicians. Reported and observed behaviors are compared. Seventy-eight percent of physicians reported prescribing popular ORS, but observation showed that it was prescribed less often than reported. Antibiotics were prescribed for children in 94% of observed cases.

- 5496 Gilbert, B.; Lienhardt, A.; Palomera, S.; et al. ETUDE DE L'EFFICACITE DE LA SMECTITE DANS LES DIARRHEES AIGUES DU NOURRISSON, COMPARATIVEMENT A UN PLACEBO ET AU LOPERAMIDE. Annales de Pediatrie, vol.38, 1991, pp.633-636.

Fifty-six infants (ages two months to two years) with moderate to severe diarrhea were entered in a comparative therapeutic trial of smectite versus placebo or loperamide. Results showed that diarrhea resolved faster under smectite than under placebo and at least as fast as under smectite as under loperamide. Tolerance of smectite is excellent as a result of the lack of any effect on intestinal motility. [published abstract]

- 4945 Harris, S.; Black, R.E. HOW USEFUL ARE PHARMACEUTICALS IN MANAGING DIARRHOEAL DISEASES IN DEVELOPING COUNTRIES? Health Policy and Planning, vol.6 no.2, June 1991, pp.141-147.

In this article the authors investigate the inappropriate use of drugs for diarrhea treatment. They give examples of misused drugs and the reasons why they are inappropriately used. Among the main reasons for misuse are 1) inadequate

knowledge among health personnel, 2) education level and beliefs of users, and 3) inadequate enforcement of drug control legislation. The authors contend that since approximately 40% of diarrhea cases are mistreated with drugs, the economic consequences, particularly to the poor, are significant. The potential cost savings as well as the health benefits of proper diarrhea case management point to the need for governments to limit the promotion and sales of these drugs.

- 5589 Harvey, K. RATIONAL DRUG USE: A CHALLENGE TO MEDICAL SCHOOLS. HAI News, no.63, February 1992, p.1+.

A meeting on rational drug use was held November 28-30, 1991, in Vellore, southern India, which was attended by over 50 health professionals from 26 medical schools. This article describes the meeting's proceedings and outlines the conclusions of the various working groups. The participants discussed many issues including rational prescribing behavior, drug promotion, economic factors, essential drugs selection, and curriculum planning. They also had an opportunity to share their own experience, expertise, and teaching materials.

- 5227 Harvey, K.; Snell, B. RATIONAL PRESCRIBING: THE CHALLENGE FOR MEDICAL EDUCATORS. HAI News, no.61, October 1991, p.1+.

A workshop on rational drug prescribing was convened by the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists and the Consumers' Health Forum of Australia in Sydney, April 18-19, 1991. This article reviews the proceedings, which involved various prescribing issues and innovative methods of teaching rational prescribing.

- 5234 Hogerzeil, H.V.; De Goeje, M.J.; Abu-Reid, I.O. STABILITY OF ESSENTIAL DRUGS IN SUDAN. The Lancet, vol.338 no.8769, September 21, 1991, pp.754-755, letter.

The authors of this letter to the editor present the results of stability tests on essential drugs donated to the Sudan that were exposed to extreme climatic conditions in that country. Three products (adrenaline, ergometrine, and retinol) showed loss of potency.

- 5233 Howard, N.J.; Laing, R.O. CHANGES IN THE WORLD HEALTH ORGANIZATION ESSENTIAL DRUG LIST. The Lancet, vol.338 no.8769, September 21, 1991, pp.743-745.

The WHO Model List of Essential Drugs attempts to provide guidelines for selection of essential pharmaceuticals. In this article the authors assess the additions and deletions made from the list in terms of actual scientific advances as well as perceptions of the usefulness of particular drugs.

- 5184 Khallaf, N.; Wahba, S.; Herman, E.; et al. RECOMMENDATIONS FROM EGYPTIAN PHARMACIES FOR CHILDREN WITH ACUTE RESPIRATORY ILLNESSES. *The Lancet*, vol.338 no.8761, July 27, 1991, p.248, letter.

A study conducted in Egypt to assess pharmacy workers' recommendations for childhood respiratory illnesses is reported in this letter to the editor. Cough and cold remedies were often recommended, although antibiotic prescriptions were somewhat low. Results indicated that pharmacy workers did have some ability to distinguish between mild and serious ARI cases, depending on the history presented.

- 5498 Kucers, A. RECOMMENDED ANTIMICROBIALS FOR TREATING ARI. *ARI News*, issue 21, November 1991, p.3.

In this article the author gives a brief overview of the various antibiotics used to treat pneumonia. The drugs reviewed include cotrimoxazole, procaine penicillin, ampicillin, amoxycillin, sodium benzyl penicillin, benzathine penicillin, chloramphenicol, gentamicin, cloxacillin, oxacillin, and flucloxacillin. The composition, uses and dosages for each drug are presented.

- 5413 Laing, R. ESSENTIAL DRUGS PROGRAMMES IN AFRICA. *Africa Health*, vol.14 no.1, November 1991, pp.32-34.

In this article the author provides a brief overview of the WHO Essential Drugs Programme as it has been implemented in various African countries. He reviews the progress of several aspects of the program in relation to specific countries and identifies areas for improvement.

- 5055 Laing, R. WHAT CHANGES BEHAVIOR? *Dialogue on Diarrhoea*, issue 45, June 1991, p.6.

There are four general approaches to reduce overprescribing of drugs for diarrhea: educational, regulatory, managerial, and financial. In this brief article the author reviews these approaches in terms of their effectiveness in changing prescribing practices.

- 5494 Lamireau, T.; Fayon, M.; Rigot, A.; et al. LOPERAMIDE ET DIARRHÉE AIGUE DU NOURRISSON. *Archives Françaises de Pédiatrie*, vol.48, 1991, pp.665-668.

The authors of this letter to the editor report on the case of a six-month-old infant with acute diarrhea who was treated with loperamide and developed various complications. The authors point out the contraindications of using this drug in children under two years as well as the need to carefully note the precautions provided by the drug's manufacturer.

- 5030 Lolekha, S.; Vibulbandhitkit, S.; Pgonyarit, P. RESPONSE TO ANTIMICROBIAL THERAPY FOR SHIGELLOSIS IN THAILAND. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S342-S346.

The authors conducted a controlled study of norfloxacin that revealed its efficacy for eradication of *Shigella* spp. from the stool of both adults and children. The fluoroquinolones shorten the course of diarrhea, reduce the shedding of the organisms, and prevent the spread of infection. No short-term adverse effects of the quinolones were observed in the study.

- 5713 LOPERAMIDE: DANGERS IN YOUNG CHILDREN. *WHO Drug Information*, vol.5 no.4, 1991, p.176.

This news note reports that the French Ministry of Health has restricted the approved indications for preparations containing the anti-diarrheal drug loperamide, to exclude its use in children under age two.

- 5595 MALAM PRESSURE ON ANTIDIARRHOEALS. *Scrip*, no.1683, January 15, 1992, p.17.

This news note reports on letters written to drug companies by MaLAM, a rational drug use organization, about withdrawing their antidiarrheals. The group wrote to Searle about di-iodohydroxyquinolones, to Wyeth about Polymagma, and to Farmitalia Carlo Erba about iodoquinol. A response from Wyeth follows.

- 5587 MALAYSIA: REGISTRATION OF TRADITIONAL MEDICINES. *HAI News*, no.63, February 1992, p.3.

This news note briefly describes the Malaysian government's decision to formally register traditional medicines starting in January 1992. This decision will make it illegal for any individual to make, import, or sell any pharmaceutical product unless it has been properly registered.

- 4896 MANUAL FOR HEALTH WORKERS ON MANAGEMENT AND USE OF DRUGS IN PRIMARY HEALTH CARE. Zambia, Ministry of Health, 1990. 222p.

This manual presents guidelines for health workers on effective management and use of drugs. The first section provides a reference guide of 34 common medications. The main actions and indications for use of each drug are briefly described. Section two discusses how to obtain and manage supplies with emphasis on record keeping for inventory. The final section reviews proper procedures for clinical diagnosis, treatment, and rational drug use. This section also describes

some common illnesses, such as malaria, diarrhea, and respiratory infections, and offers suggestions on appropriate treatment.

- 5557 Manzione, N.C. A NOTE OF CAUTION ON EMPIRIC USE OF CIPROFLOXACIN FOR DIARRHEA. *Archives of Internal Medicine*, vol.152, January 1992, pp.213+, letter.

In this letter to the editor the author, responding to an article by Goodman et al, reports on the case of a woman who developed complications after taking ciprofloxacin for traveler's diarrhea. She cautions that ciprofloxacin needs further study to prove its efficacy before it is prescribed for traveler's diarrhea. A reply by Goodman et al follows.

- 4931 Mariko, M. DRUGS: TOWARDS SOUND PRESCRIBING AND PRICING. *World Health Forum*, vol.12 no.1, 1991, pp.34-37.

In Mali there are many problems in the drug supply and distribution mechanisms, such as faulty prescription practices, exorbitant prices, and inadequate dissemination. Uninformed self-medication is also widespread. In addition, the majority of the costs of the system are borne by the population. Studies indicate, however, that a new system to purchase essential drugs through the international market could reduce costs by 40%. The government is currently reviewing a contract to initiate the new system.

- 4939 Megraud, F.; Boyanova, L.; Lamouliatte, H. ACTIVITY OF LANSOPRAZOLE AGAINST *HELICOBACTER PYLORI*. *The Lancet*, vol.337 no.8755, June 15, 1991, p.1486, letter.

This letter to the editor describes the effects of the drug lansoprazole on the diarrhea agent *Helicobacter pylori*. Initial studies show that lansoprazole has a significant selectivity for *H.pylori* and that it could be used for *H.pylori* eradication in infected patients.

- 5255 Misago, C.; Fonseca, W. ANTIMICROBIAL DRUGS ADVISED IN PHARMACIES IN BRAZIL FOR CHILDREN WITH ACUTE RESPIRATORY INFECTIONS. *The Lancet*, vol.338 no.8768, September 14, 1991, p.702, letter.

The authors of this letter to the editor report on a study of pharmacists in Fortaleza, Brazil, with respect to recommending medicines for acute respiratory infections in children. Contrary to the findings of a similar study in Egypt, it was noted that pharmacy workers routinely recommended antimicrobials for ARI. The authors suggest training for pharmacy workers to improve their prescribing practices.

- 4983 Mnyika, K.S.; Killewo, J.Z.J. IRRATIONAL DRUG USE IN TANZANIA. *Health Policy and Planning*, vol.6 no.2, June 1991, pp.180-184.

As part of an Essential Drugs Programme evaluation, [the authors] investigated the factors affecting rational use of essential drugs in rural Mbeya region, Tanzania, in June 1989. The study involved interviewing primary health-care workers and observing the activities carried out by the health workers. Health workers with long service were more prone to over-diagnose malaria and 'ill-defined conditions' and prescribe drugs not indicated, than those who had recently qualified. Over 60% of the health workers in the study areas prescribed drugs requested by patients. Traditional local beliefs on drug-use played a role in irrational drug usage. The results of this study suggest that control of irrational use of drugs in Tanzania requires the improvement of drug information at all levels of health care. Recommendations to improve the situation are made. [published abstract]

- 5578 Montagne, M. U.S. PHARMACISTS' ROLE IN ORT. *INRUD News*, vol.2 no.2, 1991, pp.2-3.

This brief news note describes the efforts of Northeastern University's College of Pharmacy in Boston to change the knowledge and behaviors of student and practicing pharmacists to prevent or limit the use of antidiarrheal medications and to encourage ORT in most pediatric cases of diarrhea.

- 5008 PAEDIATRIC ANTIDIARRHOEAL PREPARATIONS WITHDRAWN. *WHO Drug Information*, vol.5 no.1, 1991, pp.6-7.

This news note reports on the Peruvian Ministry of Health's decision to withdraw all pediatric antidiarrheal preparations containing diphenoxylate, streptomycin, hydroxyquinolones, and kaolin or pectin. Similar drugs containing loperamide have already been withdrawn. Other countries announcing similar decisions include Libya and Mexico.

- 5628 Petrucelli, B.P.; Murphy, G.S.; Sanchez, J.L.; et al. TREATMENT OF TRAVELER'S DIARRHEA WITH CIPROFLOXACIN AND LOPERAMIDE. *Journal of Infectious Diseases*, vol.165, 1992, pp.557-560.

The objectives of the present study were to compare single-dose and three-day ciprofloxacin regimens for treating traveler's diarrhea and to determine if loperamide substantially accelerates recovery in the presence of ciprofloxacin in treatment...Total duration of illness did not differ significantly among the three treatment groups, but patients in the three-day ciprofloxacin plus loperamide group reported a lower cumulative number of liquid bowel movements at 48 and 72 hours after enrollment compared with patients in the single-dose ciprofloxacin plus placebo group...While not delivering a remarkable therapeutic advantage,

loperamide appears to be safe for treatment of non-ETEC causes of traveler's diarrhea. [published abstract]

- 5271 Pezzino, G.; Haile, M. THE RIGHT DRUGS IN THE RIGHT AMOUNTS. World Health Forum, vol.12 no.2, 1991, pp.175-180.

The authors report on a study carried out in the Wollo region of Ethiopia to evaluate the drug distribution system. The findings indicated that the drug budget was reasonable but that the procurement and use of supplies were rather inadequate. The authors recommend ways of rationalizing the drug management system to meet this area's needs.

- 5201 Rabbani, G.H.; Butler, T.; Shahrier, M.; et al. EFFICACY OF A SINGLE DOSE OF FURAZOLIDONE FOR TREATMENT OF CHOLERA IN CHILDREN. Antimicrobial Agents and Chemotherapy, vol.35 no.9, September 1991, pp.1864-1867.

To test the efficacy and safety of furazolidone given as a single dose for childhood cholera, a randomized, double-blind, placebo-controlled trial was carried out among 118 culture-positive dehydrated children with diarrhea...It was determined that both groups treated with furazolidone showed significantly higher rates of bacteriologic success (stool cultures negative for *Vibrio cholerae*) on days two to four (after start of therapy) and clinical success (cessation of diarrhea within 72 hours after start of therapy) than corresponding placebo groups. These results indicate that furazolidone, given as either a single dose or divided for three days, is effective treatment for childhood cholera. [published abstract]

- 5459 Raedsch, R.; Walter-Sack, I.; Galle, P.R.; et al. PROPHYLAXIS OF TRAVELER'S DIARRHEA IN EGYPT: RESULTS OF A DOUBLE BLIND CONTROLLED STUDY. Klinische Wochenschrift, vol.69, 1991, pp.863-866.

The prophylaxis of traveler's diarrhea using a combination of tannalbuminate and ethacridin-lactate was investigated in 77 European tourists on a 16-day cruise in Egypt. Study participants were given either a placebo or prophylactic doses of tannalbuminate (500mg) and ethacridin-lactate (50mg). Data showed that more people in the placebo group developed diarrhea and that their symptoms were more severe than in the people receiving prophylaxis. These results suggest that prophylaxis with tannalbuminate and ethacridin-lactate can reduce the incidence and severity of traveler's diarrhea.

- 5136 RATIONAL MANAGEMENT OF DIARRHOEA IN CHILDREN. Essential Drugs Monitor, no.11, 1991, pp.10-11.

Although ORT has been shown to be the best treatment for diarrheal dehydration, antidiarrheal drugs are still widely prescribed in many developing countries. This article briefly reviews the benefits of ORT as well as the disadvantages of using drugs. The impact of national CDD programs is also discussed in terms of reductions in hospital admissions, case fatality, and costs.

- 5247 THE RATIONAL USE OF DRUGS IN THE MANAGEMENT OF ACUTE DIARRHOEA IN CHILDREN: PART I. *Glimpse*, vol.13 no.3, May-June 1991, pp.4-5.

Drugs are only indicated for treatment of diarrhea in very specific cases. This article reviews the uses for antibiotics, antiparasitics, antimotility drugs (diphenoxylate hydrochloride, loperamide), and antimicrobial agents (streptomycin, dihydrostreptomycin, neomycin) in treating diarrhea. It is noted that antidiarrheal drugs should never be used since none have proven to be effective.

- 5292 THE RATIONAL USE OF DRUGS IN THE MANAGEMENT OF ACUTE DIARRHOEA IN CHILDREN: PART II. *Glimpse*, vol.13 no.4, July/August, 1991, p.4.

This brief article describes the proper use of various drugs used to treat diarrhea. The drugs reviewed are hydroxyquinolones, nonabsorbable sulfonamides, adsorbents (kaolin and pectin), activated charcoal, attapulgit, and smectite.

- 5570 THE RATIONAL USE OF DRUGS FOR DIARRHOEA IN CHILDREN. *World Health Forum*, vol.12, 1991, pp.364-365.

Though national CDD programs are active in almost all developing countries, correct management of diarrhea remains the exception, rather than the rule. Surveys show that use of inappropriate drugs is more common than ORS use. This article describes a recent publication of WHO, "Rational Use of Drugs in the Management of Acute Diarrhoea in Children," that shows there is no rationale for the use of any antidiarrheal drugs in the management of acute diarrhea in children.

- 5616 Sachs, L.; Tomson, G. MEDICINES AND CULTURE: A DOUBLE PERSPECTIVE ON DRUG UTILIZATION IN A DEVELOPING COUNTRY. *Social Science and Medicine*, vol.34 no.3, 1992, pp.307-315.

A double perspective, one medical-pharmacological and one social-anthropological, is used to understand the logic of drug use among practitioners and outpatients at a health unit in Sri Lanka. Both negative and positive aspects of local prescribing practices are highlighted...The healing power ascribed to

Western pharmaceuticals is described and their possible risks discussed from both a biomedical and an anthropological point of view. [published abstract]

- 5031 Salam, M.A.; Bennish, M.L. ANTIMICROBIAL THERAPY FOR SHIGELLOSIS. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S332-S341.

This review examines the principles that underlie antimicrobial therapy for shigellosis, discusses unresolved issues in the treatment of disease, and assesses current options for antimicrobial therapy. Resistance to both ampicillin and trimethoprim-sulfamethoxazole, the drugs of choice, is now common. Nalidixic acid, the newer quinolones, and amnidocillin pivoxil are additional agents that have been found to be effective in controlled clinical trials.

- 5071 Saunders, P. PAKISTAN: MISUSE OF DRUGS FOR CHILDHOOD ILLNESSES. *The Lancet*, vol.338 no.8764, August 17, 1991, p.438.

A meeting of Pakistani pediatricians set forth a resolution to the government that made recommendations about rationalizing the use of drugs. Among the drugs cited as being particularly harmful were antidiarrheals and cough syrups.

- 5601 Schwartz, E.; Houston, R. EFFECT OF CO-TRIMOXAZOLE ON STOOL RECOVERY OF *BLASTOCYSTIS HOMINIS*. *The Lancet*, vol.339 no.8790, February 15, 1992, pp.428-429, letter.

In this letter to the editor the authors report on a study done to investigate the effect of medication taken prior to stool analysis on the presence of *Blastocystis hominis* organisms in stool specimens from U.S. Peace Corps volunteers in Nepal. Their findings showed that volunteers who had taken co-trimoxazole had far fewer organisms in their stools than those who had taken other medications.

- 5592 SOUTH KOREA: PATTERN OF DRUG USE. *HAI News*, no.63, February 1992, p.3.

A survey was conducted by the Consumer Protection Board of South Korea to investigate the current status of drug abuse and overuse. Results showed that when survey respondents or their family members became ill, 62.8% went first to drug stores, 33.8% went to hospitals, and 3.1% went to traditional healers. Many people chose their own medicines from stores without consulting professionals.

- 5632 Tahir, K.I. RETURN TO PAKISTAN OF PIPENZOLATE PLUS PHENOBARBITONE. *The Lancet*, vol.339 no.8791, February 22, 1992, p.498, letter.

In this letter to the editor the author reports on the use of "piptal," an anticholinergic drug available in Pakistan that can cause serious, perhaps even fatal,

complications when given to infants. The drug was once banned, but a license was later issued to the producer (Ferozesons) to continue production. Piptal overdoses in infants can cause abdominal distension, drowsiness, and respiratory depression.

- 5658 Thornton, S.A.; Wignall, S.F.; Kilpatrick, M.E.; et al. NORFLOXACIN COMPARED TO TRIMETHOPRIM/SULFAMETHOXAZOLE FOR THE TREATMENT OF TRAVELERS' DIARRHEA AMONG U.S. MILITARY PERSONNEL DEPLOYED TO SOUTH AMERICA AND WEST AFRICA. *Military Medicine*, vol.157, February 1992, pp.55-58.

A randomized treatment trial of traveler's diarrhea was carried out among U.S. military personnel...in South America and West Africa. A five-day, twice daily course of either norfloxacin (400mg) or trimethoprim/ sulfamethoxazole (TMP/SMX, 160/800mg) was give to 142 volunteers...Both [drugs] were clinically effective in the treatment of traveler's diarrhea in this population. [published abstract]

## DIETARY MANAGEMENT OF DIARRHEA

- 5241 Abiodun, P.O. USE OF SOYA-BEANS FOR THE DIETARY PREVENTION AND MANAGEMENT OF MALNUTRITION IN NIGERIA. *Acta Paediatrica Scandinavica*, suppl.374, 1991, pp.175-182.

Protein-energy malnutrition is highly prevalent in developing countries due to the decline in breastfeeding, early weaning, use of inappropriate weaning food and diarrhea. The authors studied the use of *soyogi*, a combination of soya beans with maize pap, in the management of acute diarrhea in children. The children receiving *soyogi*, as compared to those receiving a commercial soy milk product, had shorter duration of diarrhea, decreased number of stools, and increased weight gain.

- 5327 Badruddin, S.H.; Islam, A.; Hendricks, K.M.; et al. DIETARY RISK FACTORS ASSOCIATED WITH ACUTE AND PERSISTENT DIARRHEA IN CHILDREN IN KARACHI, PAKISTAN. *American Journal of Clinical Nutrition*, vol.54, 1991, pp.745-749.

This study was undertaken to determine whether specific infant feeding practices in Karachi, Pakistan, are associated with increased risk of acute or persistent diarrhea. Delayed initiation of breastfeeding was more common in the diarrheal groups. Children with diarrhea were also more likely to receive supplemental milk. Feedings were not withheld during diarrhea but changes were made in the nature of foods given.

- 5105 Bhutta, Z.A.; Molla, A.M.; Badruddin, S.; et al. DIETARY MANAGEMENT OF PERSISTENT DIARRHEA: COMPARISON OF A TRADITIONAL RICE-LENTIL BASED DIET WITH SOY FORMULA. *Pediatrics*, vol.88 no.5, November 1991, pp.1010-1018.

One hundred and two weaned boys with persistent diarrhea were randomly assigned to receive either soy formula or a diet consisting of *khitchri*, a local weaning food in Pakistan composed of rice and lentils. Results indicate that a traditional rice-lentil and yogurt diet can be successfully used for the dietary management of persistent diarrhea in children.

- 5505 Boukar, A. OPTIMISATION DE LA SANTE DE LA MERE ET DU NOURRISSON. Paper presented at The International Forum on Infant Feeding and Child Survival, Lomé, Togo, September 9-13, 1991, 14p.

This general discussion of breastfeeding covers the composition of breastmilk, the physiology of lactation, contraindications to breastfeeding, the relation between breastfeeding and maternal nutritional status, and the risk of transmitting the

AIDS virus through breastfeeding. It concludes that in developing countries, the risk of HIV infection is outweighed by the benefits incurred by breastfeeding and the lack of safe alternatives.

- 5043 BREAST-FEEDING AND THE USE OF WATER AND TEAS. CDD Update, no.9, August 1991, pp.1-4.

Supplementation in the form of water and teas in early infancy is a common practice and one that is associated with significantly increased risks of diarrhea morbidity and mortality. On both theoretical and empirical grounds, it is concluded that these supplementary fluids are not needed to maintain water balance in healthy infants younger than six months who are exclusively breastfed. Their use should therefore be actively discouraged, and exclusive breastfeeding should be promoted as the ideal feeding practice during the first four to six months of life. [published abstract]

- 5569 BREAST-FEEDING IN "BABY-FRIENDLY" HOSPITALS. World Health Forum, vol.12, 1991, pp.367-368.

This brief article describes a joint WHO/UNICEF initiative aimed at promoting breastfeeding through the creation of "baby-friendly" hospitals. The article includes the "Ten Steps to Successful Breastfeeding."

- 5468 Brown, K.H. DIETARY MANAGEMENT OF ACUTE CHILDHOOD DIARRHEA: OPTIMAL TIMING OF FEEDING AND APPROPRIATE USE OF MILKS AND MIXED DIETS. Journal of Pediatrics, vol.118, 1991, pp.S92-S98.

Several recent clinical trials have examined the optimal timing of feeding and the appropriate foods for use in the dietary management of acute childhood diarrhea. Important methodologic issues relevant to these trials, such as the composition and masking of study diets, measurement of outcome variables, and assessment of nutritional status, are discussed. Available data suggest that feeding should be continued during diarrhea, although a small subgroup of patients receiving nonhuman milk exclusively may have an excess rate of complications. These children should be closely supervised or provided with alternative diets. By contrast, children receiving human milk, nonmilk formulas, and mixed diets are generally able to tolerate these foods and to benefit nutritionally from continued feeding. [published abstract]

- 5365 Brown, K.H.; Lake, A. APPROPRIATE USE OF HUMAN AND NON-HUMAN MILK FOR THE DIETARY MANAGEMENT OF CHILDREN WITH DIARRHOEA. Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.168-185.

The nutritional benefit of milk consumption during diarrhea must be balanced against its potential to produce increased severity or duration of illness. This paper discusses some of the specific effects of selected milk constituents on diarrheal severity and duration and reviews the results of published clinical trials that have attempted to resolve these questions.

- 5084 Burkhalter, B.R.; Marin, P.S. A DEMONSTRATION OF INCREASED EXCLUSIVE BREASTFEEDING IN CHILE. *International Journal of Gynecology and Obstetrics*, vol.34, 1991, pp.353-359.

[In Lo Barnechea, Chile] exclusive breastfeeding was promoted through the first six months of life using prenatal lectures, monthly support and education, peer encouragement, home visits, growth monitoring, and assistance in returning to exclusive breastfeeding. Exclusive breastfeeding increased significantly in the service area after the program started, while morbidity decreased significantly and nutritional status remained about the same among clinic attenders. This result shows that, at least in the study conditions, programs to achieve breastfeeding can be both feasible and desirable. [published abstract]

- 5395 Cornu, A.; Delpeuch, F.; Simondon, F.; et al. ENQUETE NUTRITIONNELLE EN REPUBLIQUE DU CONGO: RESULTATS DE L'ENQUETE NATIONALE REALISEE EN 1987. *Bulletin of the World Health Organization*, vol.69 no.5, 1991, pp.561-571.

A nutritional study was undertaken in the Congo to evaluate the nutritional status of preschool children in rural areas. The prevalence of the different types of malnutrition was 27.5% for stunting and 5.5% for wasting. Congo differs from other African countries in having relatively lower rates of stunting but an astonishingly high prevalence of wasting.

- 5577 De Zoysa, I.; Rea, M.; Martines, J. WHY PROMOTE BREASTFEEDING IN DIARRHOEAL DISEASE CONTROL PROGRAMMES? *Health Policy and Planning*, vol.6 no.4, 1991, pp.371-379.

There is now conclusive evidence that breastfeeding confers significant protection against illness and death associated with diarrhea, and minimizes its adverse nutritional effects. Breastfeeding promotion has been demonstrated to efficiently prevent diarrhea and has many other social, economic, and health benefits. This paper summarizes the evidence and describes WHO/ CDR's ongoing and planned activities in support of efforts to promote breastfeeding.

- 5240 Durmin, J.V.G.A. ASPECTS OF ANTHROPOMETRIC EVALUATION OF MALNUTRITION IN CHILDHOOD. *Acta Paediatrica Scandinavica*, suppl.374, 1991, pp.89-94.

The use of anthropometric measurements to assess malnutrition poses several problems. In this article the author discusses four areas to consider when using anthropometry: 1) which measurements to use to assess malnutrition; 2) reference values to which measurements are compared; 3) the relationship of "static" measurements to various "functional" parameters; and 4) the role of genetic influences on stature and other variables.

- 5187 EFFORTS TO PROMOTE BREASTFEEDING. *Action for Children*, vol.6 no.1, 1991, p.2.

Statistics from WHO and UNICEF indicate that up to 4,000 children a day are dying from diseases and malnutrition preventable by breastfeeding. This brief article reports on a newly formed umbrella organization, the World Alliance for Breastfeeding Action, which will coordinate breastfeeding promotion efforts among various organizations and countries.

- 5729 Espanol, T.; Caragol, I.; Bertran, J.M.; et al. POSTNATAL TRANSMISSION OF HIV INFECTION. *The New England Journal of Medicine*, vol.326 no.9, February 27, 1992, p.642-644, letters.

This series of letters to the editors deals with the issue of postnatal transmission of HIV infection during breastfeeding. Many authors raise concerns about alarmist press reports discouraging breastfeeding in developing countries where safe alternatives are not available.

- 5266 Esrey, S.; Guptill, K.S.; Rosales, F. EVALUATION OF PILOT INTERVENTIONS IN PERU AND NIGERIA: REPORT OF THE DIETARY MANAGEMENT OF DIARRHEA (DMD) PROJECT: 1985-1989. ns, nd, 94p.

This document presents the results of an evaluation of the Dietary Management of Diarrhea projects in Nigeria and Peru. The report focuses on the determinants of use of the recommended recipes, rather than biologic impact. Rates of people adopting the recipes exceeded the hypothesized rates in both countries. In Nigeria 85% of people who knew of the recipe tried it, while only 19% of Peruvians who knew about it went on to try it. The authors concluded that differences in communication methods (face-to-face only in Nigeria versus mass-media messages supplemented by face-to-face in Peru) contributed to the differences in trial rates. In both countries, those who adopted the recipe tended to be older, better educated, and better organized mothers with several children.

- 5006 FEEDING BOTTLES BANNED. *IBFAN Africa News*, no.32, March 1991, p.6.

This news note reports on the ban of feeding bottles by the National Children's Hospital in San Jose, Costa Rica. The action is part of the hospital's efforts to promote breastfeeding and prevent diarrhea.

- 5508 Gamatie, Y. PRISE EN CHARGE NUTRITIONELLE DE LA DIARRHEE. Paper presented at The International Forum on Infant Feeding and Child Survival, Lomé, Togo, September 9-13, 1991, 8p.

This presentation outlines the negative relationship between diarrhea and nutrition in children. Reasons for reduced nutritional intake during diarrhea are reviewed. Recommendations for proper dietary management of diarrhea are the focus of the presentation.

- 4969 Grantham-McGregor, S.M.; Powell, C.A.; Walker, S.P.; et al. NUTRITIONAL SUPPLEMENTATION, PSYCHOSOCIAL STIMULATION, AND MENTAL DEVELOPMENT OF STUNTED CHILDREN: THE JAMAICAN STUDY. *The Lancet*, vol.338 no.8758, July 6, 1991, pp.1-5.

The effects of nutritional supplementation, with or without psychosocial stimulation, of 129 growth retarded children ages nine to 24 months were assessed in a study in Kingston, Jamaica. Findings showed that stimulation and supplementation had significant independent beneficial effects on the children's development and that combined interventions were significantly more effective than either alone.

- 5547 Greer, F.R.; Marshall, S.; Cherry, J.; et al. VITAMIN K STATUS OF LACTATING MOTHERS, HUMAN MILK, AND BREAST-FEEDING INFANTS. *Pediatrics*, vol.88 no.4, October 1991, pp.751-756.

In this article the authors discuss the relationship between maternal intake of phyloquinone, maternal plasma phyloquinone concentrations, and human milk phyloquinone concentrations; the variations of phyloquinone concentration of breastmilk during lactation; and the relationship among breastmilk phyloquinone concentration, infant plasma phyloquinone concentration, and infant vitamin K status. Based on their analysis, the authors state that despite very low plasma phyloquinone concentrations, vitamin K supplements (except in the immediate newborn period) cannot be recommended for exclusively breastfed infants.

- 5492 Greiner, T. THE DANGERS OF "FOLLOW-UP" FEEDS. *Dialogue on Diarrhoea*, issue 46, September 1991, p.4.

Many infant formula manufacturers are now promoting "follow-up" formulas as a complement to breastmilk for older infants. In this brief article, the author points out the problem of using these feeds. For example, these formulas can

interfere with proper weaning, can be mistakenly used for infant formula, and can increase the risk of infection from contaminated water or bottles.

- 5455 Harris, C. MAKING FOOD NUTRITIOUS: SOYBEAN IN NIGERIA. IDRC Reports, vol.19 no 3, October 1991, pp.22-23.

The dramatic rise in soybean cultivation and use in Nigeria is described in this brief article. An IDRC-funded project, which has been working to promote soybean use, is also described. Because soybean is rich in protein, inexpensive, and locally acceptable, it is an ideal food to increase the nutritive value of traditional diets.

- 5493 HELP FOR BREASTFEEDING MOTHERS. Dialogue on Diarrhoea, issue 46, September 1991, pp.2-3.

Many breastfeeding mothers need help to feel confident about breastfeeding. One way to do this is for lactating mothers to join breastfeeding support groups with experienced leaders who can provide instruction and counselling for successful breastfeeding. This article describes how such groups operate and reports on the activities of some groups around the world. It also provides the addresses of several support groups in various countries.

- 5331 Hill, I.D.; Bowie, M.D.; Mann, M.D.; et al. DIETARY MANIPULATION FOR TREATING INFANTS WITH PROLONGED DEHYDRATING DIARRHOEA: A COMPARISON OF FOUR DIFFERENT FORMULAE. Annals of Tropical Paediatrics, vol.11, 1991, pp.283-287.

This study assessed the effect on stool weight of a change from cow's milk formula feeds to one of four different formulae in infants with severe diarrhea persisting after three days in hospital. Two feeds were lactose-free soy formulae with sucrose, one was a disaccharide-free soy formula, and one a disaccharide-free protein hydrolysate. Regardless of which feed the infants received, diarrhea resolved in about 50% following the change in diet. Results suggest that elimination of lactose in infants with persistent severe diarrhea will benefit a significant number.

- 5333 Hodges, M.E.H. CLINICAL IMPLICATIONS OF GROWTH MONITORING: EXPERIENCES FROM SIERRA LEONE. Journal of Tropical Pediatrics, vol.37 no.5, October 1991, pp.244-249.

A one-month survey of the growth records of children under age five attending a clinic in urban Sierra Leone was performed. Seventeen percent were less than 80% reference weight for age. Episodes of weight loss greater than 2% of previous recorded weight were analyzed. Overall respiratory and malarial

symptoms were associated with the greatest number of episodes. Dysentery was the most important symptom in the 12 to 23 month-olds, was associated with severe degrees of weight loss, and had the highest incidence of slow progress following treatment.

- 5453 HOW TO HAVE PLENTY OF MILK. IBFAN Africa News, September 1991, pp.4-5.

One of the main reasons that mothers give for stopping breastfeeding is that they think they do not have enough milk. This brief article outlines some possible reasons for this attitude, such as early weaning, incorrect sucking position, and use of some contraceptives, all of which can interfere with proper breastfeeding and lead mothers to draw the wrong conclusion. Some simple suggestions for ensuring an adequate milk supply are also presented.

- 5100 Huffman, S.L. BREASTFEEDING POLICIES IN THE U.S.: WHAT CAN WE LEARN FROM DEVELOPING COUNTRIES. Bethesda, MD, Center to Prevent Childhood Malnutrition, nd, 41p.

In this paper the author illustrates some of the successful approaches used in developing countries to promote breastfeeding, and suggests how similar approaches are needed in the United States. These interventions can be grouped into five categories: 1) enhancing support among policy makers; 2) improving knowledge among health professionals about lactation management and the benefits of breastfeeding; 3) changes in hospital practices; 4) increasing community support for breastfeeding through peer counseling and support groups; and 5) addressing the special needs of working women.

- 5535 Huffman, S.L.; Lopez de Romana, G.; Madrid, S.; et al. DO CHILD FEEDING PRACTICES CHANGE DUE TO DIARRHOEA IN THE CENTRAL PERUVIAN HIGHLANDS? *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.295-300.

The authors conducted a study in Peru to assess the relationship between diarrhea and feeding practices. With few exceptions, the types of food offered to young children were not significantly varied during diarrhea. However, mothers were very concerned about the lack of appetite among their children, thus indicating that they may be particularly amenable to changing feeding practices during and after diarrhea. The authors suggest that promotion of improved complementary foods and feeding practices during and after diarrhea may be an ideal way to improve weaning practices in this area.

- 5098 Huffman, S.L.; Panagides, D. BREASTFEEDING PROMOTION IN CENTRAL AMERICA: HIGH IMPACT AT LOW COST. Bethesda, MD, Center to Prevent Childhood Malnutrition, September 20, 1990, 51p.

Due to declining breastfeeding rates, several countries initiated promotion programs to reverse such declines. This report discusses the results of USAID-supported interventions in Honduras, Panama, and El Salvador. These projects focused on increasing breastfeeding by improving the knowledge, attitudes, and practices of health professionals and changing hospital practices to be more conducive to breastfeeding. Evaluations of the projects indicated that they were successful in increasing breastfeeding rates, increasing rates of rooming-in, and decreasing the routine use of formula in hospitals.

- 5099 Huffman, S.L.; Yeager, B.A.C.; Levine, R.E.; et al. BREASTFEEDING SAVES LIVES: AN ESTIMATE OF THE IMPACT OF BREASTFEEDING ON INFANT MORTALITY IN DEVELOPING COUNTRIES. Bethesda, MD, Center to Prevent Childhood Malnutrition, June 12, 1991, 15p.+app.

This paper presents a methodology for the estimation of cause-specific infant mortality reduction attributable to breastfeeding practices. Applying this methodology, [the authors] estimate that breastfeeding is preventing over 6 million deaths per year in the developing world through the prevention of deaths due to diarrheal disease and acute respiratory infection. Moreover, [they] estimate that worldwide optimal breastfeeding (that is, exclusive for the first four to six months and continued partial breastfeeding through at least the first year of life) could avert an additional 2 million of the estimated 9 million deaths that occur in the developing world annually. [published abstract]

- 4980 Huttly, S.R.A.; Victora, C.G.; Barros, F.C.; et al. THE TIMING OF NUTRITIONAL STATUS DETERMINATION: IMPLICATIONS FOR INTERVENTIONS AND GROWTH MONITORING. European Journal of Clinical Nutrition, vol.45, 1991, pp.85-95.

Anthropometric examinations were carried out on 1,726 urban Brazilian children at the average ages of 11, 23, and 47 months. Birthweight was the most important factor in predicting nutritional status at 11 months, although other social, biological and morbidity factors also played significant roles. The study results indicate that, in this population, childhood nutritional status is mainly determined before the end of the first year of life. These findings can have implications for the timing and nature of nutrition interventions as well as for the mechanisms used to identify children at risk of malnutrition.

- 5414 INDICATORS FOR ASSESSING BREAST-FEEDING PRACTICES. Geneva, World Health Organization, 1991, 14p.

An informal meeting convened by the WHO Division of Diarrhoeal and Acute Respiratory Disease Control...was held on 11-12 June 1991...The purpose of the meeting was to reach a consensus on the definition of key breastfeeding indicators and specific methodologies for their measurement...This report summarizes

the discussion and consensus reached on breastfeeding indicators derived from household survey data. [published abstract]

- 5523 INDICATORS FOR ASSESSING BREAST-FEEDING PRACTICES. CDD Update, no.10, February 1992, pp.1-4.

In order to discuss the development of a commonly agreed set of measures to assess breastfeeding promotional programs, an informal meeting was organized in June 1991 by WHO. The participants discussed the definitions of breastfeeding practice, the selection of age groups for measuring indicators, and the methodology for measurements. The six indicators defined are: exclusive breastfeeding rate, predominant breastfeeding rate, timely complementary feeding rate, continued breastfeeding rate (one year), continued breastfeeding rate (two years), and bottle feeding rate.

- 5076 Isolauri, E.; Juntunen, M.; Rautanen, T.; et al. A HUMAN *LACTOBACILLUS* STRAIN (*LACTOBACILLUS CASEI* SP STRAIN GG) PROMOTES RECOVERY FROM ACUTE DIARRHEA IN CHILDREN. Pediatrics, vol.88 no.1, July 1991, pp.90-97.

To investigate the effect of a human *Lactobacillus* strain on recovery from acute diarrhea, 71 well-nourished children recovering from diarrhea were studied. After oral rehydration, the patients randomly received either a *Lactobacillus* GG-fermented milk product, a *Lactobacillus* GG freeze-dried powder, or a placebo. Findings indicated that the mean duration of diarrhea was significantly shorter in the groups receiving the *Lactobacillus* products. The results also indicated that early nutritional repletion after rehydration causes no mucosal disruption and is beneficial for recovery from diarrhea.

- 5681 Jackson, D.A.; Imong, S.M.; Wongsawasdii, L.; et al. WEANING PRACTICES AND BREASTFEEDING DURATION IN NORTHERN THAILAND. British Journal of Nutrition, vol.67, 1992, pp.149-164.

This paper describes weaning practices, factors associated with early supplementation and the effects of supplementation on duration of breastfeeding in a random sample of 60 northern Thai infants studied from birth to two years of age. Rice-based foods were given from soon after birth; 81% had received supplements by six weeks of age. Breastfeeding was prolonged, however, with median duration of 12 months. Factors associated with early supplementation were described.

- 5196 Jason, J. BREAST-FEEDING IN 1991. New England Journal of Medicine, vol.325 no.14, October 3, 1991, pp.1036-1038.

In this article the author offers some perspectives on current issues about breastfeeding. She briefly discusses such aspects as HIV transmission through breastmilk, the effects of alcohol consumption by mothers on breastfeeding, and breastfeeding promotion by physicians.

- 4952 Jelliffe, D.B.; Jelliffe, E.F.P. DIETARY MANAGEMENT OF YOUNG CHILDREN WITH ACUTE DIARRHOEA: A PRACTICAL MANUAL FOR DISTRICT PROGRAMME MANAGERS. Geneva, World Health Organization, 1989, 28p.

The purpose of this manual, aimed at doctors, nutritionists, nurses, and other health-services managers, is to incorporate modern scientific knowledge about digestion and diarrhea into traditional feeding practices. It provides information about the relationship between diarrhea and malnutrition, selecting foods during and after diarrhea, collecting feeding practices information, and basic principles of dietary management, with emphasis on managing the various stages of diarrhea.

- 5260 Jelliffe, E.F.P.; Jelliffe, D.B. QUERIES CONCERNING BREAST FEEDING AND DIARRHOEA IN PAKISTAN. *Journal of Tropical Pediatrics*, vol.37 no.4, August 1991, pp.205-207.

This article presents a series of commonly asked questions about breastfeeding followed by replies from the authors. Questions focus on issues such as the role of breastfeeding in diarrhea prevention, supplemental feeding, the detrimental effects of bottle feeding, and feeding practices during diarrheal episodes.

- 5755 Kallio, M.J.; Salmenpera, L.; Siimes, M.A.; et al. EXCLUSIVE BREASTFEEDING AND WEANING: EFFECT ON SERUM CHOLESTEROL AND LIPOPROTEIN CONCENTRATIONS IN INFANTS DURING THE FIRST YEAR OF LIFE. *Pediatrics*, vol.89 no.4, April 1992, pp.663-666.

This study followed exclusively breastfed and weaned infants for the first year of life and analyzed serum total cholesterol and lipoprotein concentrations longitudinally from birth to one year. It showed that infants increase serum cholesterol concentration while fed breastmilk exclusively, and decrease concentration when they are weaned to formula.

- 5429 Kanashiro, H.C.; Brown, K.H.; Lopez de Romana, G.; et al. CONSUMPTION OF FOOD AND NUTRIENTS BY INFANTS IN HUASCAR (LIMA), PERU. *American Journal of Clinical Nutrition*, vol.52, 1990, pp.995-1004.

Consumption of breastmilk, liquids, and foods by 131 Peruvian infants was measured on 1,661 child-days of observation during their first year of life...Mean energy intakes increased with age but declined from 95% to 78% of recommend-

ed amounts during the year. Mean protein intakes were generally above recommended amounts, but more than one-third of infants received less than 80% of the suggested safe intakes in the second (six-month) semester. Breastmilk was the major source of energy and protein during the first semester. Breastmilk and cow milk together contributed more than half the energy and protein during the second six months, when cereals were also an important source of energy and protein. [published abstract]

- 4911 Kanashiro, H.C.; Fukumoto, M.; Bentley, M.E.; et al. USE OF RECIPE TRIALS AND ANTHROPOLOGICAL TECHNIQUES FOR THE DEVELOPMENT OF A HOME-PREPARED WEANING FOOD IN THE CENTRAL HIGHLANDS OF PERU. *Journal of Nutrition Education*, vol.23 no.1, January 1991, pp.30-35.

The authors describe research activities undertaken during the development of a new weaning food in the north-central highlands of Peru. Four research areas are discussed: 1) collection of specific cultural information used in choosing candidate foods, 2) formulation of nutritionally adequate combinations of these foods, 3) mothers' participation in developing weaning food recipes using the food combinations, and 4) household trials in which mothers used the weaning foods and gave feedback. Use of these research techniques can provide valuable information about the feasibility of promoting a particular weaning food.

- 5439 Kennedy, K.I.; Visness, C.M. CONTRACEPTIVE EFFICACY OF LACTATIONAL AMENORRHOEA. *The Lancet*, vol.339 no.8787, January 25, 1992, pp.227-230.

The lactational amenorrhea method can provide up to 98% protection from pregnancy for a woman who is still amenorrheic and who exclusively breastfeeds for up to six months. The authors of this article analyzed data from nine studies to assess the effect of the method alone, irrespective of supplemental feeding, as a contraceptive method. They conclude that the effect of the method is similar to other modern methods and that a woman should be able to rely on the method, regardless of whether or not she is exclusively breastfeeding.

- 5300 Krasovec, K. THE IMPLICATIONS OF POOR MATERNAL NUTRITIONAL STATUS DURING PREGNANCY FOR FUTURE LACTATIONAL PERFORMANCE. *Journal of Tropical Pediatrics*, vol.37 suppl.1, October 1991, pp.3-10.

This article describes how the nutritional demands of pregnancy affect lactational performance and shows how women who start breastfeeding in a malnourished state may need higher daily caloric intake or decreased energy expenditures when lactating. The authors use data on pregnant and lactating women in Matlab, Bangladesh, to illustrate this point and make several policy recommendations for assisting undernourished women to breastfeed successfully.

- 5548 Kurinij, N.; Shiono, P.H. EARLY FORMULA SUPPLEMENTATION OF BREASTFEEDING. *Pediatrics*, vol.88 no.4, October 1991, pp.745-750.

Factors influencing early formula supplementation of breastfed infants were studied among 726 mothers and babies in three metropolitan Washington, D.C., hospitals. Thirty-seven percent of the infants were given supplementary formula in the hospital. Mothers giving birth at a university hospital were more likely to exclusively breastfeed. Another strong predictor of formula use was the time between birth and the initiation of breastfeeding, that is, the longer the gap, the more likely that the mother would use formula. These findings suggest that hospital influences can promote formula use and shorten the duration of breastfeeding.

- 5299 Kurz, K.M.; Habicht, J.-P.; Rasmussen, K.M. INFLUENCES OF MATERNAL NUTRITION AND LACTATION ON LENGTH OF POST-PARTUM AMENORRHOEA. *Journal of Tropical Pediatrics*, vol.37 suppl.1, October 1991, pp.15-18.

The purpose of this research was to determine roles of maternal supplementation and maternal nutritional status on post-partum amenorrhea after accounting for breastfeeding. Data for this analysis came from the Guatemalan Four-Village Study, which was done from 1969 to 1977. The data indicated that supplementing women during lactation did not shorten the length of amenorrhea; however, supplementing their breastfeeding children did shorten amenorrhea by reducing the suckling stimulus. Because breastfeeding is the most important influence of the length of post-partum amenorrhea, the authors recommend that a child's supplements be limited to the additional calories required for growth, and not be used to replace calories from breastmilk.

- 5298 Labbok, M.H. BREASTFEEDING AND BORDERLINE MALNUTRITION IN WOMEN. *Journal of Tropical Pediatrics*, vol.37 suppl.1, October 1991, pp.23-24.

This brief article addresses the issue of promoting breastfeeding in areas where lactating women suffer from varying degrees of malnutrition. The author discusses intervention options that would allow for optimal breastfeeding without compromising the mother's health. These options include supplementing mothers' nutritional intake, decreasing mothers' energy expenditure, and intensifying family-planning efforts.

- 5688 Laurent, C. LA SITUATION DE L'ALLAITEMENT MATERNEL DANS LE TIERS-MONDE. *Développement et Santé*, no.96, December 1991, pp.18-20

This article discusses the reasons why breastfeeding is declining among West-African mothers and the dramatic consequences of this decline. It goes on to describe specific measures that can be implemented to reverse this trend, such as

the development of support groups for mothers, national legislation, and adoption of the infant formula code.

- 5637 Lederman, S.A. ESTIMATING INFANT MORTALITY FROM HUMAN IMMUNODEFICIENCY VIRUS AND OTHER CAUSES IN BREAST-FEEDING AND BOTTLE-FEEDING POPULATIONS. *Pediatrics*, vol.89 no.2, February 1992, pp.290-296.

A quantitative model for evaluating the relative benefits or risks of breastfeeding or bottle feeding, based on estimates of several determining variables, has been developed. In this article the author presents this model as well as some background information needed to better understand it. Based on her calculations, she concludes that the benefits of breastfeeding over bottle feeding can substantially outweigh any risk of HIV transmission through breastfeeding, unless the prevalence of HIV infection is very high or the difference in mortality of breast-fed or bottle-fed infants is very low.

- 5097 Levine, R.E.; Huffman, S.; Labbok, M. CHANGING HOSPITAL PRACTICES TO PROMOTE BREASTFEEDING: FINANCIAL CONSIDERATIONS. Bethesda, MD, Center to Prevent Childhood Malnutrition, March 8, 1990, 27p.

This paper...is a summary of existing information on the costs of promoting breastfeeding in developing countries through changes in hospital routines. It is an attempt to estimate the minimum economic resources required to alter a hospital's practices from discouraging to encouraging (and supporting) breastfeeding by new mothers. Based on these estimates, hospital administrators will be able to judge the expenditures needed to comply with current recommendations for hospital practices — and they will be able to predict their immediate savings. [published abstract]

- 4885 Lifschitz, C.H.; Torun, B.; Chew, F.; et al. ABSORPTION OF CARBON 13-LABELLED RICE IN MILK BY INFANTS DURING ACUTE GASTROENTERITIS. *Journal of Pediatrics*, vol.118 no.4 part 1, April 1991, pp.526-530.

A study in Guatemala examined the digestion and absorption of the nutrients in a supplementary rice-milk formula in infants two to four months of age, both during acute diarrhea and two weeks after recovery. The results indicated that the rice formula is well absorbed by young infants with acute diarrhea and that it is an adequate nutrient supplement for this patient population.

- 5723 Livingstone, A.S.; Sandhu, J.S.; Malleshi, N.G. MICROBIOLOGICAL EVALUATION OF MALTED WHEAT, CHICKPEA, AND WEANING FOOD BASED ON THEM. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.74-77.

Changes in the microbial load during steeping, germination, drying, kilning, and debranning of wheat and chickpea were studied, as well as the microflora of a weaning food formulation based on 48-hour germinated wheat and 24-hour germinated chickpea. It was found that the microbial load of both foods decreased drastically with drying and kilning of the sprouts, and that cooking the foods for five minutes at 95°C reduced the spoilage microflora to safe limits.

- 5267 **LOSING THE ABILITY TO DISTINGUISH WHAT IS BEST FOR PAKISTAN'S CHILDREN: BREASTFEEDING — A TRADITION AT THE CROSS-ROADS.** Pakistan, National Breastfeeding Steering Committee, July 1991, 36p.+app.

A qualitative study was carried out to determine the reasons behind the decline of breastfeeding in Pakistan. This report provides an overview of the study methodology, key findings, and implications of the findings on program strategies. Summaries of interviews with mothers, other family members, and health-care providers are also presented. One of the key findings was the incorrect assumption made by many health workers and mothers that infants need water in addition to breastmilk, particularly in hot climates.

- 5554 Lucas, A.; Morley, R.; Cole, T.J.; et al. **BREAST MILK AND SUBSEQUENT INTELLIGENCE IN CHILDREN BORN PRETERM.** *The Lancet*, vol.339 no.8788, February 1, 1992, pp.261-264.

Previous studies have shown that breastfeeding in preterm infants was associated with higher developmental scores at 18 months. In this article the authors report on intelligence quotient (IQ) data in the same children at seven-and-a-half and eight years of age. The analysis indicated that the breastfed children had a significantly higher IQ at seven to eight years than did those who received no breastmilk. Even after adjusting for differences between groups in mother's education and social class, an 8.3 point advantage remained. Although the results could be due to differences in parenting skills or genetic potential, the data do seem to indicate a beneficial effect of human milk on neurodevelopment.

- 5580 Mackerras, D. **FASHIONS IN BREASTFEEDING.** *The Lancet*, vol.339 no.8787, January 25, 1992, p.257, letter.

The author of this letter to the editor criticizes the advice being given to Australian mothers to feed from only one breast at each feed. This new fashion will probably have little effect on the infant's fat intake at any particular feed, while it may lead to discomfort in the mother.

- 5060 Mackie, E.J. **WATER SUPPLEMENTATION OF BREAST-FED INFANTS IN GHANA.** *The Lancet*, vol.338 no.8761, July 27, 1991, p.251, letter.

A study in Kumasi, Ghana, about water supplementation of breastfed infants is reported in this letter to the editor. The study showed that 71% of midwives surveyed favored giving either glucose or water before the first breastfeed. Because the water often is not sterilized properly, diarrheal disease is common.

- 5221 Mahalanabis, D. I REAST FEEDING AND VITAMIN A DEFICIENCY AMONG CHILDREN ATTENDING A DIARRHOEA TREATMENT CENTRE IN BANGLADESH: A CASE-CONTROL STUDY. *British Medical Journal*, vol.303, August 31, 1991, pp.493-496.

A case-control study was conducted in a large diarrhea treatment center in Dhaka, Bangladesh, to determine the effect of breastfeeding on the risk of xerophthalmia in 2,687 children ages six months to three years. The results showed that breastfeeding was associated with a substantial reduction of the risk of vitamin A deficiency extending to the third year of life.

- 5354 Malik, I.A.; Azim, S.; Good, M.J.; et al. FEEDING PRACTICES FOR YOUNG PAKISTANI CHILDREN: USUAL DIET AND DIET DURING DIARRHOEA. *Journal of Diarrhoeal Diseases Research*, vol.9 no.3, September 1991, pp.213-218.

In this study, 600 households were randomly selected for assessing the feeding practices of children under age three during diarrhea. During diarrheal episodes, 70% of mothers continued breastfeeding. 46% of breastfed, and 78% of non-breastfed children were given *khitchri* as a solid diet. Foods considered as harmful during diarrhea were withdrawn or stopped temporarily, but overall maintenance of normal dietary patterns persisted.

- 5764 Marchini, G.; Redham, I.; Uvnas-Moberg, K. PLASMA GASTRIN-34 INCREASES DURING AND IMMEDIATELY AFTER BREASTFEEDING IN 3-DAY-OLD INFANTS. *Journal of Pediatric Gastroenterology and Nutrition*, vol.14, 1992, pp.140-145.

The aim of the present study was...to assess plasma concentration of gastrin before, during, and after feeding. Because somatostatin is a modulator of gastrin secretion, this peptide was also measured. In addition, the molecular forms of the two peptides were characterized... [The authors] conclude, that in contrast to earlier studies, plasma gastrin concentration increases during and immediately after breastfeeding infants. [published abstract]

- 4935 Mathur, G.P.; Mathur, S.; Agarwal, P.K. IS FOLLOW-UP FORMULA FROM 6 MONTHS ONWARDS NECESSARY? *Journal of Tropical Pediatrics*, vol.37 no.3, June 1991, pp.142-143, letter.

In this letter to the editor the authors comment on the unnecessary use of follow-up milk formulas for infants after six months of age. Despite manufacturers' claims, the vitamins and minerals in these formulas can be provided by adding appropriate cereals, fruits, and vegetables to infants' diets. The authors urge a ban on the production and promotion of these formulas.

- 5301 Merchant, K.M.; Martorell, R.; Haas, J.D. NUTRITIONAL ADJUSTMENTS IN RESPONSE TO REPRODUCTIVE STRESSES WITHIN GUATEMALAN WOMEN. *Journal of Tropical Pediatrics*, vol.37 suppl.1, October 1991, pp.11-14.

The authors examined the phenomenon of lactation overlapping with pregnancy among Guatemalan women and discuss the impact this situation may have on maternal and child health. The study showed a high prevalence of overlap in four rural communities, indicating that many women breastfeed during at least some portion of their subsequent pregnancy. Because this situation demands higher energy intakes, the risk of depleting maternal nutrient stores may increase. In addition, child growth and development could be affected since pregnancy is often a reason for early weaning.

- 5283 MOTHER'S MILK. *World Health*, July-August 1991, p.21.

This brief article stresses the importance of exclusive breastfeeding and explains why breastmilk is the best food for infants. It also discusses why artificial feeding with infant formulas can be detrimental to babies.

- 5509 Muderhwa, R. SOUTIEN DE LA FEMME PENDANT LA GROSSESSE, ORGANISATION DE LA SANTE DE LA MERE ET L'ENFANT PENDANT LA PERIODE POSTPARTUM. Paper presented at The International Forum on Infant Feeding and Child Survival, Lomé, Togo, September 9-13, 1991, 18p.

This presentation reviews the nutritional needs of pregnant women, including the recommended weight gain, and goes on to review the nutritional needs of infants. Appropriate infant feeding practices are discussed. The author makes recommendations for actions to support post-partum and nursing women, which include changes in legislation and training of health workers. A separate section of the presentation focuses on the special needs of low-birthweight infants.

- 5711 Muhudhia, S.O.; Musoke, R.N. POSTNATAL WEIGHT GAIN OF EXCLUSIVELY BREAST FED PRETERM AFRICAN INFANTS. *Journal of Tropical Pediatrics*, vol.35, October 1989, pp.241-244.

The weight, appropriate for gestational age, of 64 preterm infants was followed during the period of stay in the newborn unit. They were subdivided into three groups: A (1001-1250g), B (1250-1500g), and C (1501-1750g). All were fed their

mother's breastmilk with no supplements. During the first week, there was significant weight loss in all groups. Birth weights were regained at 23, 16, and 15 days, respectively. Group A had the fastest growth rate.

- 5724 Mukasa, G.K. A 12-MONTH LACTATION CLINIC EXPERIENCE IN UGANDA. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.78-82.

A review of case histories of mothers who attended a lactation clinic in Kampala, Uganda, is presented. Results show that factors contributing to early lactation failure include delayed initiation of breastfeeding, use of prelacteal feeds, infrequent breastfeeds, and early supplementation. The need is stressed for research into breastfeeding failures; revitalizing community-based breastfeeding support; and assessing the knowledge, attitudes, and practices of health workers concerning breastfeeding.

- 5223 Musgrove, P. DO NUTRITION PROGRAMS MAKE A DIFFERENCE: THE CASE OF BRAZIL. *International Journal of Health Services*, vol.20 no.4, 1990, pp.691-715.

In this article the author evaluates four Brazilian food and nutrition programs operating during 1974-86 for their effectiveness in curing or preventing infant and child malnutrition. Two programs distributed free food while the other two subsidized four or more basic foodstuffs. Overall, the programs were more effective at curing than at preventing malnutrition and more effective at increasing weight than height. Donation programs including medical and educational components were more effective than subsidies alone. This indicates that while poverty may be the chief cause of malnutrition, the problem should also be viewed as poor health rather than simply low food consumption.

- 4966 Oski, F.A.; McMillan, J.A. DON'T DISCOUNT BREAST-FEEDING. *New England Journal of Medicine*, vol.325 no.1, July 4, 1991, pp.60-61, letter.

In this letter to the editor, the authors comment on the Gerber Products Company's decision to market infant formula directly to consumers. They state that this practice is unethical since it discourages mothers from breastfeeding. A response from a Gerber representative follows.

- 5529 Perez, A.; Valdes, V. SANTIAGO BREASTFEEDING PROMOTION PROGRAM: PRELIMINARY RESULTS OF AN INTERVENTION STUDY. *American Journal of Obstetrics and Gynecology*, vol.165 no.6 part 2, 1991, pp.2039-2044.

A prospective intervention study was undertaken in Santiago, Chile, to assess the impact of a breastfeeding promotion program and the acceptance and use of the lactational amenorrhea method for natural child spacing. The intervention study

significantly increased the duration of exclusive breastfeeding and amenorrhea. In addition, the use of the lactational amenorrhea method proved highly efficacious, with an unplanned pregnancy rate of less than 0.5% by six-month cumulative life table. Total family-planning coverage at six months was increased in the intervention group. [published abstract]

- 5737 Rao, S.; Kanade, A.N. PROLONGED BREAST-FEEDING AND MALNUTRITION AMONG RURAL INDIAN CHILDREN BELOW 3 YEARS OF AGE. *European Journal of Clinical Nutrition*, vol.46, 1992, pp.187-195.

This study examines the effects of exclusive breastfeeding beyond six months or partial breastfeeding up to 2.3 years in terms of prevalent malnutrition and morbidity among rural Indian children. Exclusive breastfeeding beyond six months and up to 12 months appeared beneficial in terms of reduced morbidity. Beyond infancy, there was no evidence of any protective effect of partial breastfeeding.

- 5143 REPORT OF THE REGIONAL ADVISORY GROUP ON THE PROMOTION OF BREAST-FEEDING: WASHINGTON, D.C., 19-21 JUNE 1991. Washington, D.C., Pan American Health Organization, Program on Maternal and Child Health and Program on Food and Nutrition, June 19-21, 1991, 32p.

A Regional Advisory Group on the Promotion of Breast-feeding, composed of experts and officials from international agencies and countries in the Americas, met in order to analyze the current breastfeeding practices, analyze activities in progress, and make recommendations for future activities in breastfeeding promotion. The country programs that were reviewed were Brazil, Guatemala, Argentina and Mexico. This report outlines the findings and conclusions of the advisory group.

- 5456 Riveron Corteguera, R.L.; Zarragoitia Rodriguez, O.L.; Blaco Aranguren, F. LACTANCIA MATERNA Y DIARREA. *Revista Cubana de Pediatría*, vol.62 no.2, March-April 1990, pp.250-261.

In Havana, Cuba 824 infants were studied to determine the incidence and duration of breastfeeding. Data indicated that 90.5% of the infants received breastmilk alone or in combination with some other form of milk at some point in their lives. In the majority of the cases breastfeeding was discontinued after the first two months. The main reason given by mothers for discontinuation was the lack of sufficient breastmilk. Commonly used breastmilk substitutes included cow's milk and evaporated milk.

- 5626 Robertson, L. BREASTFEEDING PRACTICES IN MATERNITY WARDS IN SWAZILAND. *Journal of Nutrition Education*, vol.23 no.6, December 1991, pp.284-287.

In May 1988, the Swaziland Infant Nutrition Action Network (SINAN) carried out a survey in maternity wards to assess the effect of health personnel's practices on mothers' decision to breastfeed. The survey's results are reported in this article. Following the completion of the survey, SINAN made recommendations to the Ministry of Health about legislating a policy on breastfeeding in maternity wards. SINAN also began working with nursing colleges to incorporate lactation-management instruction into the nursing curriculum.

- 5048 Romer, H.; Guerra, M.; Pina, J.M.; et al. REALIMENTATION OF DEHYDRATED CHILDREN WITH ACUTE DIARRHEA: COMPARISON OF COW'S MILK TO A CHICKEN-BASED FORMULA. *Journal of Pediatric Gastroenterology and Nutrition*, vol.13, 1991, pp.46-51.

A randomized, prospective study was performed on 73 male children between three and 14 months of age with mild to moderate dehydration caused by acute diarrhea, and who were rehydrated with WHO-formula ORS, and that at 4 hours after admission were fed either cow's milk or an experimental diet based on chicken, plantain, and coconut oil...The group of children fed cow's milk had a higher total volume of diarrheic evacuations. The average duration of diarrhea was 20 hours shorter in the group of infants on the milk-free formula. [published abstract]

- 5621 Ruel, M.T.; Habicht, J.-P.; Olson, C. IMPACT OF A CLINIC-BASED GROWTH MONITORING PROGRAMME ON MATERNAL NUTRITION KNOWLEDGE IN LESOTHO. *International Journal of Epidemiology*, vol.21 no.1, 1992, pp.59-65.

An evaluation on the impact of a nationwide clinic-based growth monitoring program was done in Lesotho to determine if clinic attendance was associated with improved maternal knowledge of weaning practices and diarrhoea. A total of 907 mothers from eight clinics were included in the study. [The] results showed that mothers who had attended the clinics knew more about the appropriate timing for introducing animal protein-rich foods in the child's diet and about use of ORS for diarrhoea, than those who had not...From observation in the clinics, [the authors] believe that group nutrition education, although it was not integrated with growth monitoring, was probably responsible for the positive association between clinic attendance and maternal knowledge. [published abstract]

- 5539 Ruuska, T. OCCURRENCE OF ACUTE DIARRHEA IN ATOPIC AND NON-ATOPIC INFANTS: THE ROLE OF PROLONGED BREAST-FEEDING. *Journal of Pediatric Gastroenterology and Nutrition*, vol.14, 1992, pp.27-33.

A study was conducted to investigate the relationship between acute diarrhea and atopic disease (allergies) in 336 infants followed from birth to two years of age. The study sought to determine whether acute diarrhea may predispose for atopy; whether atopic infants might experience more acute diarrhea than nonatopic infants; and if exclusive breastfeeding could prevent or postpone development of atopy. Results indicated that infants with food allergy had significantly more episodes of acute diarrhea than infants with no atopy; however, there was no apparent temporal correlation between the occurrence of acute diarrhea and appearance of gastrointestinal allergy or atopic eczema. Breastfeeding over six months of age reduced the incidence of diarrhea in the first year in both atopic and nonatopic infants, but had no significant effect on the total incidence of diarrhea during the two-year follow-up.

- 5224 Ryder, R.W.; Manzila, T.; Baende, E.; et al. EVIDENCE FROM ZAIRE THAT BREASTFEEDING BY HIV-1-SEROPOSITIVE MOTHERS IS NOT A MAJOR ROUTE FOR PERINATAL HIV-1 TRANSMISSION BUT DOES DECREASE MORBIDITY. *AIDS*, vol.5, 1991, pp.709-714.

The authors studied the rates of perinatally acquired HIV-1 infection and subsequent morbidity in a group of children born to either HIV-1 seropositive or seronegative mothers in Kinshasa, Zaire, who breastfed or bottle fed their infants during the first 12 months of life. In 106 children born to HIV-1 seropositive women, the HIV transmission rate was 21% in 28 infants exclusively breastfed, 19% in 68 infants both breast- and bottle fed, and 0% in 10 infants who were bottle fed only. However, exclusively breastfed, non-HIV infected children of seropositive and seronegative mothers had significantly lower incidence rates of acute diarrhea, fever, and respiratory infection. Because of this protective effect of breastfeeding, the authors conclude that breastfeeding should continue to be promoted in all developing countries.

- 5378 Sachdev, H.P.S.; Kumar, S.; Singh, K.K.; et al. DOES BREASTFEEDING INFLUENCE MORTALITY IN CHILDREN HOSPITALIZED WITH DIARRHOEA? *Journal of Tropical Pediatrics*, vol.37, December 1991, pp.275-279.

The association between breastfeeding and mortality in children hospitalized for diarrhea was investigated prospectively in 309 children below 18 months of age in a New Delhi hospital. The study found that breastfeeding had a strong protective effect against mortality. Further analysis suggested a greater benefit in children with severe wasting, severe stunting, protracted illness, and diarrhea as the sole illness.

- 4954 Santosham, S.; Goepf, J.; Burns, B.; et al. ROLE OF A SOY-BASED LACTOSE-FREE FORMULA IN THE OUTPATIENT MANAGEMENT OF DIARRHEA. *Pediatrics*, vol.87 no.5, May 1991, pp.619-622.

In the present study, infants with diarrhea who were treated as outpatients [in the United States] were randomly assigned to receive either a soy-based, lactose-free formula alternating with oral rehydration solution from the beginning of therapy ("early feeding") or oral rehydration solution alone for the first 24 hours of therapy, followed by a soy-based lactose-free formula alternating with oral rehydration solution (control group)...Twenty one (72%) of 29 in the early-feeding group resolved their diarrhea at the end of 48 hours of therapy compared with 12 (44%) of 27 in the group fed oral rehydration solution only. It is concluded that the introduction of a soy-based, lactose-free formula from the beginning of therapy for acute diarrhea in children treated as outpatients is safe and may shorten duration of diarrhea while maintaining adequate caloric intake. [published abstract]

- 5257 Schellinski-Magazzeni, K. IT'S TIME NOW TO BE BABY-FRIENDLY...AND NEVER TOO EARLY TO FIGHT TO BE BREASTFED. *First Call for Children*, no.2, 1991, p.7.

A meeting of pediatricians, obstetricians, community health workers, and nongovernmental organization members in Ankara, Turkey, in June 1991 developed an initiative to create "baby-friendly" hospitals that would promote breastfeeding. Twelve countries were chosen to lead the initiative (Bolivia, Brazil, Cote d'Ivoire, Egypt, Gabon, Kenya, Mexico, Nigeria, Pakistan, the Philippines, Thailand, and Turkey). It is hoped that these countries will establish flagship hospitals that will serve as models for other countries.

- 5346 Shaikh, S.; Molla, A.M.; Islam, A. A TRADITIONAL DIET AS PART OF ORAL REHYDRATION THERAPY IN SEVERE ACUTE DIARRHOEA IN YOUNG CHILDREN. *Journal of Diarrhoea Diseases Research*, vol.9 no.3, September 1991, pp.258-263.

To assess the efficacy of early feeding in acute diarrhea, the authors conducted a randomized clinical trial of a traditional legume-based weaning diet called *khitchri* in boys ages nine to 48 months with moderate to severe dehydration. The data showed that early feeding of *khitchri* and WHO-formula ORS may be as well tolerated as WHO-formula ORS alone in the first 24 hours treatment of severe acute diarrhea in young children.

- 5401 Sharief, M.K. MALNUTRITION IN IRAQ. *The Lancet*, vol.338 no.8782/8783, December 21/28, 1991, p.1599, letter.

The declining nutritional status of Iraqi children, particularly in light of international economic sanctions, is reported in this letter to the editor. The author states that sanctions should be relaxed to allow adequate food and medicine importation to alleviate the problem.

- 5157 SOLVING THE WEANLING'S DILEMMA: POWER-FLOUR TO FUEL THE GRUEL? *The Lancet*, vol.338 no.8767, September 7, 1991, pp.604-605.

Finding appropriate weaning foods for children in developing countries is a constant challenge, especially since many traditional foods are nutritionally inadequate. Some possibilities for making nutritive weaning foods that are culturally appropriate and easily digestible included germinating or fermenting cereal gruels. These foods need to be evaluated for their safety and efficacy before they are widely recommended.

- 5742 Sserunjogi, L.; Tomkins, A. THE USE OF FERMENTED AND GERMINATED CEREALS AND TUBERS FOR IMPROVED FEEDING OF INFANTS AND CHILDREN IN UGANDA. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.84, 1990, pp.443-446.

Interviews with mothers in four regions of Uganda revealed considerable differences in patterns of infant and child feeding during diarrhea. In Arua and Kabale, there was enthusiasm for the use of fermentation and germination of cereals and tubers. However, these techniques were not used in Mukono or Mbarara. The advantages of these procedures and possible reasons for differences in their popularity are discussed.

- 5101 Steel, A. BREASTFEEDING PROMOTION: OBSERVATIONS FROM A COMMUNITY-BASED MOTHER-TO-MOTHER SUPPORT PROJECT FOR LOW-INCOME WOMEN IN RURAL TENNESSEE. Bethesda, MD, Center to Prevent Childhood Malnutrition, May 1990, 7p.

In the United States, studies have shown that fewer low-income women breast-feed than women who are more affluent. This paper describes the organization and implementation of a community-based mother-to-mother support project aimed at increasing breastfeeding rates in two rural counties in Tennessee.

- 5095 Steel, A.; Bershon, B.; Huffman, S.; et al. MOTHER-TO-MOTHER ACTIVITIES TO PROMOTE BREASTFEEDING IN DEVELOPING COUNTRIES: AN ANALYTICAL FRAMEWORK. Bethesda, MD, Center to Prevent Childhood Malnutrition, April 1991, 32p.+app.

This paper reviews a few examples...of reported mother-to-mother support groups worldwide...to examine the following aspects of mother-to-mother support

programs to promote breastfeeding: organizational structure, staffing, program activities, training, recruitment of participants, affiliation with health care and other institutions, funding, and evaluation. The lessons learned from these activities are discussed and further areas for study are suggested. [published abstract]

- 5265 Stinson, W.; Sayer, P. GROWTH MONITORING AND PROMOTION: A REVIEW OF EXPERIENCE IN SEVEN COUNTRIES. Bethesda, MD, PRICOR Project, August 1991, 40p.+app.

This report presents the results of a review of growth monitoring/promotion activities in seven countries: Colombia, Costa Rica, Haiti, the Philippines, Thailand, Togo, and Zaire. Analyses focused on systematic observations of health workers as they weighed children, recorded and interpreted results, counseled mothers, and conducted educational outreach through home visits and group sessions. Support activities such as logistics, training, and supervision were also reviewed. The authors identify common areas of strengths and weaknesses in these growth monitoring programs and suggest ways in which the quality of some of the components might be improved. The PRICOR thesaurus on growth monitoring is attached.

- 5536 Sullivan, P.B.; Mascie-Taylor, C.G.N.; Lunn, P.G.; et al. THE TREATMENT OF PERSISTENT DIARRHOEA AND MALNUTRITION: LONG-TERM EFFECTS OF IN-PATIENT REHABILITATION. *Acta Paediatrica Scandinavica*, vol.30, 1991, pp.1025-1030.

The objectives of this study were to characterize the clinical condition of children in The Gambia presenting with persistent diarrhea and malnutrition and to evaluate the effects of short-term in-patient treatment and nutritional rehabilitation in terms of long-term outcome. The findings showed steady improvement in growth during in-patient treatment. Weight-for-height improved up to six months but fell back by 12 months. This study demonstrated that while in-patient treatments can resolve diarrheal symptoms and improve weight gain in the short-term, these treatments do not lead to complete recovery since persistent diarrhea and malnutrition are likely to recur when the child returns home. The authors suggest further research to determine the minimum period of supervised feeding required to ensure the "critical level" of weight gain necessary for linear growth to return to normal.

- 5057 Susser, M. NUTRITIONAL SUPPLEMENTATION AND MENTAL DEVELOPMENT. *The Lancet*, vol.338 no.8763, August 10, 1991, p.382, letter.

In this letter to the editor the author comments on Grantham-McGregor et al's study that showed a correlation between nutritional supplementation and cogni-

tive performance. He reports on a study done earlier in Bogota, which recorded similar findings.

- 5507 Tetanye, E.; Eyong-Efobi, J.B.T. SUPPLEMENTATION EN EAU ET ALLAITEMENT MATERNEL EXCLUSIF DANS LES REGIONS CHAUDES ET ARIDES DE L'EXTREME-NORD DU CAMEROUN: BENEFICES ET RISQUES POUR LES NOURRISSONS. Paper presented at The International Forum on Infant Feeding and Child Survival, Lomé, Togo, September 9-13, 1991, 2p.

A study in the extreme-north province of Cameroon, an area with high temperatures and low humidity, compared the benefits and risks associated with the widespread practice of supplementing breastfeeding with water. The study confirmed previous investigations showing that water supplementation provides no advantage to infants and suggested that the bacterial contamination found in the water puts them at considerable risk of diarrhea.

- 5506 Traore, B. LA SURVIE DE L'ENFANT EN AFRIQUE: BILAN DES DIX DERNIERES ANNEES ET PERSPECTIVES EN MATIERE DE NUTRITION. Paper presented at The International Forum on Infant Feeding and Child Survival, Lomé, Togo, September 9-13, 1991, 10p.

Mortality in children under age five in developing countries has decreased considerably over the last 20 years. However, in sub-Saharan Africa, progress has slowed during the last decade. Today, under-five mortality in the sub-Saharan region is the highest in the world. Diarrheal disease is one of the principal causes of child morbidity and mortality. Breastfeeding is one of the most important preventive measures against diarrhea. Other actions to improve child nutrition and survival are also suggested.

- 5748 URBANIZATION, BREASTFEEDING, AND DIARRHOEAL DISEASES: THE EXAMPLE OF SAO PAULO. *Urban Examples*, vol.17, December 1992, p.10.

Urbanization has been identified as a common determinant of early weaning throughout the world. This brief article describes the multisectoral breastfeeding promotion program launched in São Paulo in 1981 to overcome the obstacles mothers were facing with breastfeeding.

- 4895 Valdivia, D.R. SOLUCIONES CASERAS DURANTE LA DIARREA. La Paz, Bolivia, Hospital del Niño, 1989, 9p.+app.

In this study 50 Bolivian children were examined to determine the uses of home fluids during diarrhea. None of the fluids used met WHO standards, nor was any relation found between any particular fluid and hydration status. Also, home

solutions were very hyperosmolar since they contained large amounts of sugar. Results also showed that breastfeeding and other feeding was suspended during diarrhea.

- 4946 WEANING FOODS: FERMENTATION AND GERMINATION. *Africa Health*, vol.13 no.4, May 1991, p.26.

This news note briefly describes how fermented or germinated weaning foods are made. Further research is needed to fully determine the safety and efficacy of using these foods during weaning.

- 5766 Victora, C.G.; Huttly, S.R.; Barros, F.C.; et al. BREASTFEEDING DURATION IN CONSECUTIVE OFFSPRING: A PROSPECTIVE STUDY FROM SOUTHERN BRAZIL. *Acta Paediatrica*, vol.18, 1992, pp.12-14.

The association between breastfeeding in two consecutive pregnancies was studied in a prospective study in southern Brazil...The duration of breastfeeding of the second child increased directly according to the duration the previous child had been breastfed: when the previous child had been breastfed for six months or more, the subsequent child was clearly more likely to be breastfed. However, when the previous child had been breastfed for less than six months, the differences among subsequent children disappeared after three to six months. Mothers with a previous unsuccessful or problematic breastfeeding experience should receive special priority in promotion campaigns. [published abstract]

- 5643 Wright, P.; Deary, I.J.; MacArthur, C.; et al. BREASTFEEDING AND INTELLIGENCE. *The Lancet*, vol.339 no.8793, March 7, 1992, pp.612-614, letter.

In these letters to the editor, the authors comment on Lucas et al's article on the link between breastfeeding and intelligence. They point out several factors that this study did not take into account, such as the mothers' IQs, smoking by mothers, and mothers' social class. A response by Lucas et al follows.

## HEALTH ASPECTS OF CONTROL AND PREVENTION

- 5274 44TH WORLD HEALTH ASSEMBLY. World Health Forum, vol.12 no.2, 1991, pp.232-236.

From May 6-16, 1991, the World Health Assembly, composed of delegates from all of WHO's member states, met in Geneva. The participants discussed many health issues as well as budgetary concerns. This article briefly outlines the discussions on the following topics: primary health care; leprosy; dracunculiasis; tuberculosis; cholera; acute respiratory infections; smoking; nuclear accidents; organ transplantation; water and sanitation; and women, health, and development.

- 5270 Afo, G.V.; Thomason, J.A.; Karel, S.G. BETTER MANAGEMENT FOR BETTER HEALTH SERVICES. World Health Forum, vol.12 no.2, 1991, pp.161-167.

Poor management has been a significant limiting factor in the development of Papua New Guinea's health services, particularly since their decentralization increased the responsibilities of provincial staff. A program designed to strengthen management at this level has been proceeding since 1986...So far the program has focused on the improvement of management functions with a view to improving health-care delivery. In the long term the focus will need to change to service outcomes if meaningful evaluation is to be performed. [published abstract]

- 5584 Aguilar Liendo, A.A. INFORME DE VISITA A GUATEMALA PARA REALIZAR UNA EVALUACION RAPIDA DE LAS ACTIVIDADES REALIZADAS EN LA PROGRAMA DE CONTROL ENFERMEDADES DIARREICAS QUE LLEVAN A CABO 4 ORGANIZACIONES NO GUBERNAMENTALES. Arlington, VA, Management Sciences for Health, PRITECH, HSS 097-GU, August 2, 1991, 25p.

The author reviewed four nongovernmental organizations in Guatemala that provide maternal and child health services. The organizations reviewed were APROFAM, which promotes responsible parenthood; AGES, which provides human sexuality education; PAMI, which focuses on maternal health; and IPROFASA, a pharmaceutical importer. Based on the review the author makes recommendations about how public-private partnerships can fill gaps in health services provided by the Ministry of Health. Immunization was noted as an area in particular need.

- 5625 Al-Othaimen, A.I.; Prabhakar, K. BREASTFEEDING PRACTICES IN TATH-LEETH AREA. Annals of Saudi Medicine, vol.12 no.1, 1992, pp.109-110, letter.

In this letter to the editor the author comments on an article by Prabhakar et al on breastfeeding practices in rural areas of Saudi Arabia. He states that the article did not indicate the use of a representative population sample and that only a limited number of references were used. A response by Dr. Prabhakar follows.

- 5169 Alam, N.; Wai, L. IMPORTANCE OF AGE IN EVALUATING EFFECTS OF MATERNAL AND DOMESTIC HYGIENE PRACTICES ON DIARRHOEA IN RURAL BANGLADESHI CHILDREN. *Journal of Diarrhoeal Diseases Research*, vol.9 no.2, June 1991, pp.104-110.

To understand the roles of specific maternal and domestic hygiene practices in preventing diarrhoea, 611 rural children under age five in southeastern Bangladesh were studied...Infants (ages three to 11 months) in households where mothers washed their hands (before handling food and after toilet use) and removed the child's feces from the premises soon after defecation had 0.82 and 0.98 annual episodes respectively, fewer than those of their counterparts with 4.1 episodes. Diarrhea was less frequent by more than 0.5 episodes in children with 4.3 and 2.5 annual episodes respectively for the removal of feces only. [published abstract]

- 5415 Alden, J.S.; Salole, G.M.; Williamson, J. MANAGING UGANDA'S ORPHANS CRISIS. Arlington, VA, Management Sciences for Health, PRITECH, HSS 122-UG, December 3, 1991, 57p.+app.

During a three-week period from July 17 to August 2, 1991, an assessment team visited Uganda to review the current crisis regarding the country's orphan population and the prospects for managing the situation in the future. The current number of orphans ranges from 400,000 to 1,100,000, the majority of whom were orphaned due to civil strife and the spread of AIDS. Despite such large numbers of orphans, the team did find that the majority of these children were being cared for by extended families and, therefore, were not institutionalized. They also found that many national and international NGOs provided aid to orphans, although their efforts were not always well coordinated. In this report the authors discuss these and other findings and make recommendations to manage the crisis in the future.

- 5635 Altigani, M. THE ROLE OF THE VILLAGE MIDWIVES IN ANTENATAL CARE SERVICES IN THE SUDAN. *Journal of Tropical Pediatrics*, vol.38 no.1, February 1992, pp.43-48.

A study was conducted to assess the effectiveness of obstetric-care coverage provided by village midwives in rural Sudan. The village midwives attended 76% of the 130 deliveries studied. Traditional birth attendants attended 11%, and the remainder delivered in hospital. The study indicated that the midwives demon-

strated reasonable knowledge and competence in various aspects of antenatal care, history taking, examination, and selection of referral cases. However, they lacked adequate support and supervision as well as supplies of drugs, such as iron, folic acid, and chloroquine tablets.

- 5232 Armijo-Hussein, N.A.; Benjamin, E.; Moodie, R.; et al. THE EFFECT OF THE GULF CRISIS ON THE CHILDREN OF IRAQ. *New England Journal of Medicine*, vol.325 no.13, September 26, 1991, pp.977-980.

A 10-member study team from Harvard University conducted a rapid assessment of the status of children's health and health services in postwar Iraq. The team found that destruction of the Iraqi infrastructure has resulted in devastating long-term consequences for health. For example, high rates of water-borne diseases have been reported due to the destruction of electrical power plants that ran water purification systems. Many hospitals and health centers are inoperable, thus placing a tremendous burden on the remaining few. The team concludes that unless the Iraqi government and the international community take action, the situation will continue to deteriorate.

- 5205 Barros, F.C.; Victora, C.G.; Vaughan, J.P. THE PELOTAS (BRAZIL) BIRTH COHORT STUDY 1982-1987: STRATEGIES FOR FOLLOWING UP 6000 CHILDREN IN A DEVELOPING COUNTRY. *Paediatric and Perinatal Epidemiology*, vol.4, 1990, pp.205-220.

The authors conducted a longitudinal study of 6,000 children from birth in Pelotas, Brazil, to determine the causes of child morbidity and mortality. This paper discusses the methodological issues involved in the study and presents the major findings as an illustration of the advantages of this kind of longitudinal research.

- 5288 Barzgar, M.A. A SOLID BASE FOR HEALTH. *World Health Forum*, vol.12 no.2, 1991, pp.156-160.

In Somalia, a minimum-needs program for health was introduced in 1987, modeled after a similar system in Thailand. This article describes the program, which is contributing to the implementation of the national health-for-all strategy through community participation, intersectoral collaboration, and appropriate technology.

- 4991 Becker, S.; Black, R.E.; Brown, K.H. RELATIVE EFFECTS OF DIARRHEA, FEVER, AND DIETARY ENERGY INTAKE ON WEIGHT GAIN IN RURAL BANGLADESHI CHILDREN. *American Journal of Clinical Nutrition*, vol.53, 1991, pp.1499-1503.

In two Bangladeshi villages, quantitative studies of morbidity, food intake, and somatic growth were done prospectively during 14 months for 70 children ages five to 18 months. Data indicated that monthly weight changes were inversely related to proportions of days in the month with fever and diarrhea and positively related to energy intake per kilogram body weight. The authors estimate that increasing energy intakes to those recommended by WHO would have a significantly greater effect on weight gain than would the elimination of diarrhea and fever. Therefore, interventions focusing on improving dietary intake may be as important as infection-control programs for improving growth of children in developing countries.

- 5467 Bezanson, K.A. MATERNAL HEALTH AND CHILD SURVIVAL ISSUES: LESSONS LEARNED. Paper presented at the 119th Annual Meeting of the American Association of Public Health Associations, Atlanta, GA, November 13, 1991, 12p.

The author reviews the International Development Research Centre's lessons learned concerning maternal health and child survival issues. These lessons are discussed in the context of international and national politics, the increasing competition for financial resources, and the world economy. Bezanson concludes by stating that any development strategy must be a participatory process in order to be effective and sustainable. Also available in French.

- 5191 Black, R.E. WOULD CONTROL OF CHILDHOOD INFECTIOUS DISEASES REDUCE MALNUTRITION? *Acta Paediatrica Scandinavica*, suppl.374, 1991, pp.133-140.

Infectious diseases, particularly diarrheal diseases, have been noted to have an adverse effect on the growth of children in developing countries. Diarrheal diseases have been estimated to account for 10 to 80% of growth retardation in the first few years of life. Other factors that could affect growth faltering include adequacy of dietary intake and treatment and feeding practices during and after illness. The only study to date that simultaneously evaluated infectious diseases and dietary intake indicated that inadequate dietary intake rather than infectious diseases had the predominant role in growth retardation. The author suggests further research to assess the feasibility of infectious disease control versus direct nutrition interventions to improve nutritional status.

- 5403 Brown, G.W. COMMUNITY HEALTH CARE IN KENYA. *The Lancet*, vol.338 no.8776, November 9, 1991, pp.1212-1213, letter.

The author of this letter to the editor responds to Malcolm Dean's article on the difficulties in providing health services to people living in semi-arid and arid areas of Kenya, particularly to the Massai and Turkana tribes. He discusses the costs of providing care to such populations and suggests that increasing health-

education activities could be a way to combat the high health-care costs in these areas.

- 5258 Campbell, F.A. WORLDWIDE ACTION FOLLOWS SUMMIT. First Call for Children, no.2, 1991, p.1+.

This brief article reports on the efforts of several national governments to implement the goals of the World Summit for Children.

- 5137 Chelala, C.A. MOZAMBIQUE: THE RAVAGES OF WAR. The Lancet, vol.338 no.8766, August 31, 1991, p.563.

Following independence from Portugal in 1975, Mozambique underwent a difficult recovery period that was severely hindered by attacks from a resistance movement. This news note reports how this civil unrest and violence have crippled the health system and contributed to the high levels of morbidity and mortality.

- 5290 CHILD SURVIVAL: THE BANGLADESH EXPERIENCE. Glimpse, vol.13 no.4, July-August 1991, p.1+.

Bangladesh's experience with various child-survival interventions are discussed in this brief article. Interventions reviewed include growth monitoring, ORT, disease-prevention efforts, and immunization.

- 5400 CHILDREN IN A NEW WORLD ORDER. The Lancet, vol.338 no.8782/ 8783, December 21/28, 1991, p.1586.

This news note briefly describes UNICEF's views on securing a place for children in a new world order. UNICEF states that child-survival issues need to be given as much priority as issues focusing on the environment and on preserving the peace.

- 5480 Cordova Vargas, L.; Riveron Corteguera, R. SITUACION DE LA MORTALIDAD EN MENORES DE 5 ANOS EN EL CARIBE LATINO. Revista Cubana de Pediatría, vol.62 no.2, March-April 1990, pp.234-249.

In this paper the authors present various demographic and health statistics, particularly regarding children under five years of age, in Cuba, Puerto Rico, Dominican Republic, and Haiti. Data presented include population growth, birth rate, mortality, and life expectancy. The statistics from each country are compared and the major causes of mortality are analyzed. The reasons for the decrease in child mortality in Cuba are also examined.

- 5728 Cox, P.S.V. PREVENTION VS CURE IN DEVELOPING COUNTRIES: THE PENDULUM SYNDROME. *The Lancet*, vol.339 no.8794, March 14, 1992, pp. 664-665.

The author argues that outreach activities by village health workers should not be funded at the expense of first class curative services at the appropriate level. He presents the example of a village-based health project in the Nepali Himalayas as a proof of this thesis.

- 5448 Cunningham, A.S.; Jelliffe, D.B.; Jelliffe, E.F.P. BREAST-FEEDING AND HEALTH IN THE 1980S: A GLOBAL EPIDEMIOLOGIC REVIEW. *Journal of Pediatrics*, vol.18 no.5, May 1991, pp.659-666.

In this review article the authors present published data from around the world that show the health benefits of breastfeeding. The preventive effects of breastfeeding against respiratory infections, otitis media (middle-ear disease), bacteremia, meningitis, and diarrheal diseases are described. The authors also discuss the role of breastfeeding in reducing mortality and its effects on children's long-term health. Finally, the methodological problems encountered in assessing the effects of breastfeeding are reviewed as well as what is currently known about exactly how breastfeeding protects babies.

- 5222 Cutts, F.T. STRATEGIES TO IMPROVE IMMUNIZATION SERVICES IN URBAN AREAS. *Bulletin of the World Health Organization*, vol.69 no.4, 1991, pp.407-414.

The urban poor constitute a rapidly increasing proportion of the population in developing countries. Focusing attention on underserved urban slums and squatter settlements will contribute greatly to immunization program goals, because these areas account for 30 to 50% of urban populations, usually provide low access to health services, carry a large burden in disease mortality, and act as sources of infection for the city and surrounding rural areas...This article outlines the major problems documented by operational research studies in Africa, and discusses potential strategies to improve urban immunization services. [published abstract]

- 5118 Cutts, F.T.; Zell, E.R.; Diallo, S. OBSTACLES TO ACHIEVING IMMUNIZATION FOR ALL 2000: MISSED IMMUNIZATION OPPORTUNITIES AND INAPPROPRIATELY TIMED IMMUNIZATION. *Journal of Tropical Pediatrics*, vol.37 no.4, August 1991, pp.153-158.

Community surveys were carried out in Mozambique and Guinea to evaluate the reduction of vaccine coverage caused by missed opportunities and "inappropriately timed" vaccination. Results showed that although many children had records of curative visits to health facilities, vaccination was not a routine part of such

visits. Other children received inappropriately timed vaccinations, meaning they were given vaccines too early or without four weeks' interval between doses. The authors recommend that home-based records be used to document all health-center visits, including those for curative care, and that missed opportunities and vaccination timing be routinely evaluated during vaccine coverage surveys.

- 5180 Dean, M. HEALTH FOR HOW MANY BY 2000? *The Lancet*, vol.338 no.8761, July 27, 1991, pp.239-240.

In this article the author provides a brief overview of the health situation in Kenya, particularly in terms of achieving "health for all" by the year 2000. Although considerable progress has been made, much work remains to be done before the entire population has access to health services, safe water, and sanitation facilities. The progress to date is reviewed as well as future directions.

- 5083 Dean, M. NAIROBI PERSPECTIVE. *The Lancet*, vol.338 no.8759, July 13, 1991, pp.106-107.

In this article the author describes the efforts of the African Medical and Research Foundation (AMREF) to deliver primary health care services to two nomadic tribes (the Turkana and the Maasai) in Kenya. Activities have focused on controlling hydatid disease in the Turkana and trachoma in the Maasai.

- 5788 Dipko, L. INTERNATIONAL FORUM FOR FRANCOPHONE AFRICA INFANT FEEDING AND CHILD SURVIVAL: CONFERENCE REPORT. Arlington VA, Management Sciences for Health, PRITECH, March 1992, 90p.

This conference, cosponsored by PRITECH and the Nutrition Communication Project, was held in response to the growing understanding that infant-feeding practices and maternal nutrition are of key importance to child survival. The report includes summaries of the main conclusions and actions of the conference (held in Lomé in September 1991), a copy of the agenda, a list of participants, and a bibliography. The summaries are grouped into five sections: progress in child survival, support of women, breastfeeding promotion, infant feeding and diarrhea prevention and treatment, weaning practices, and integrating nutrition into other health programs. The report is available in English and French.

- 5252 DiPrete, L.; Valadez, J.J. SYSTEMS ANALYSIS OF GROWTH MONITORING SERVICES: ASSESSING GROWTH MONITORING SERVICES IN THE COSTA RICAN PRIMARY HEALTH CARE SYSTEM. Bethesda, MD, PRICOR, August 15, 1991, 12p.

A study was conducted in Costa Rica using lot quality assurance sampling to assess the quality of growth monitoring and nutritional education of mothers by

community health workers. Data analysis revealed that most community health workers were technically competent in identifying malnourished children. However, there were inadequacies such as not showing plotted growth charts to mothers and not routinely informing mothers of the child's nutritional status. Nutrition education and referrals were also deemed inadequate. As a result of participating in the analysis, health-worker supervisors are more aware of problem areas and can begin to address them.

- 5655 Downs, F. NEEDS ASSESSMENT IN PROSTHETICS PRODUCTION AND DISTRIBUTION IN SRI LANKA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 101-SL, February 25, 1992, 30p.

In this paper the author reports on his work to assist USAID/Colombo and a local private voluntary organization to outline a program to expand technical assistance in prosthetic production and distribution to victims of the ongoing civil war in Sri Lanka. The author studied the patients' background, the current provision of prosthetic services, the nature of medical care, and the economic and technical conditions in the country in terms of being able to provide prosthetic services. Based on his findings, he makes recommendations on how USAID and the Friends in Need Society can coordinate efforts to meet the growing need for prosthetics in Sri Lanka.

- 5563 Fabricant, S.; King, J. ASSESSMENT OF THE NIGER HEALTH SECTOR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 121-NG, January 3, 1992, 91p.

From July to August 1991, a four-week examination of the health sector in Niger was conducted to assist USAID/Niger with health sector programming for the next five years. The authors studied documentation of the Ministry of Public Health programs, USAID-funded activities, and other agencies. They also observed various activities and interviewed key health personnel. This report presents their conclusions and recommendations for future programming.

- 5402 Fauveau, V.; Stewart, K. EFFECT ON MORTALITY OF COMMUNITY-BASED MATERNITY-CARE PROGRAMME IN RURAL BANGLADESH. *The Lancet*, vol.338 no.8776, November 9, 1991, pp.1183-1186.

In this study, the efficacy of a maternity-care program to reduce maternal mortality has been evaluated in the context of a primary health-care project in rural Bangladesh. Trained midwives were posted in villages, and asked to attend as many home-deliveries as possible, detect and manage obstetric complaints at onset, and accompany patients requiring referral for higher level-care to the project central maternity clinic. The effect of the program was evaluated by comparison of direct obstetric maternal mortality ratios between the program area and a neighboring control area without midwives...The findings suggest that

maternal survival can be improved by the posting of midwives at village level, if they are given proper training, means, supervision, and back-up. The inputs for such a program to succeed and the constraints of its replication on a large scale should not be underestimated. [published abstract]

- 5078 Fidaner, C.; Pecoul, B.; Malfait, P. CARING FOR KURDISH REFUGEES. *The Lancet*, vol.338 no.8760, July 20, 1991, p.190, letter.

The efforts of several international organizations in assisting refugees of the Gulf War are described in these letters to the editor. A health assessment sponsored by Médecins Sans Frontières indicated high levels of diarrheal disease due to poor sanitation and lack of potable water.

- 5565 Gibb, D.; Heiby, J.; Pielemeier, N.; et al. NIGERIA HEALTH AND POPULATION SECTOR ASSESSMENT. Arlington, VA, Agency for International Development, November 1991, 72p.

In this report the authors review Nigeria's health system, particularly in terms of provision of health services by the public and private sectors. They describe the structure of the government health system, how it is financed, and issues related to its sustainability. The private sector's role in health care is also described as well as approaches to foster public-private partnerships. The report also provides summaries of activities in various health-care areas, including nutrition, maternal and child health, ARI, diarrheal diseases, EPI, family planning, AIDS, water and sanitation, and tropical diseases. The authors identify the strengths and weaknesses of Nigeria's system and make recommendations for improving health services and health-care delivery.

- 5718 HEALTH EFFECTS OF URBANIZATION. *World Health Statistics Quarterly*, vol.44, 1991, pp.204-207.

Reliable information on poor squatters and slum inhabitants in urban areas is scarce. Many vulnerable, at-risk groups are found in the cities, most importantly children and women. The resulting health pattern includes infectious diseases and malnutrition, an increasing prevalence of cardiovascular and neoplastic diseases and accidents, as well as substance abuse and crime.

- 5207 Heiby, J. EXPERTS SEEK IMPROVED CHILD HEALTH. *Frontlines*, October 1991, p.5+.

Child survival programs have expanded rapidly throughout the world. Many health experts are now addressing the issue of the quality of these services and discussing how program performance can be improved. This article briefly

describes AID's Quality Assurance Project, which seeks to evaluate how well health services are being delivered and to recommend methods for improvement.

- 5787 Hogle, J.; Prins, A. PROSPECTS FOR COLLABORATING WITH TRADITIONAL HEALERS IN AFRICA. Arlington, VA, Management Sciences for Health PRITECH Project, April 1991, 71p.

This report reviews past collaborations between biomedical workers and traditional healers to draw conclusions about the feasibility of such collaborations in Africa. The study concludes that traditional healers will incorporate biomedical methods that are perceived as effective and that training can change traditional healing practice. But there are many constraints to effective training, including the difficulty of identifying traditional healers, balancing the priorities of the participants, designing appropriate curricula, and ensuring that healers use the biomedical techniques correctly. The report concludes with a number of recommendations specifically developed for the PRITECH project.

- 5306 Hopkins, F. ANGOLA: MEDECINS SANS FRONTIERES. *The Lancet*, vol.338 no.8772, October 12, 1991, pp.937-938.

The efforts of Médecins Sans Frontières members in Angola are reported in this brief article. Their work included managing malnutrition, treating war injuries, preparing for a possible cholera epidemic, and providing general health care.

- 5566 Hoque, B.A.; Briend, A. A COMPARISON OF LOCAL HANDWASHING AGENTS IN BANGLADESH. *Journal of Tropical Medicine and Hygiene*, vol.94, 1991, pp.61-64.

The efficacy of hand washing using ash, soap, mud, or plain water was tested in a group of women living in a slum of Dhaka. The efficacy of each hand-washing agent was assessed by comparing estimated fecal coliform counts from post-washing hand samples. Mud and ash were found to be as effective as soap. The study also found that slum mothers were unaware of the benefits of hand washing.

- 5278 Huffman, S.L. MATERNAL MALNUTRITION AND BREASTFEEDING: IS THERE REALLY A CHOICE FOR POLICY MAKERS? *Journal of Tropical Pediatrics*, vol.37 suppl.1, October 1991, pp.19-22.

The author addresses the issue of whether or not malnourished women should be encouraged to breastfeed. She concludes that the consequence of reducing breastfeeding, for both mother and child, would be disastrous and, thus, breastfeeding should not be discouraged. She also comments that improving maternal nutrition, not decreasing breastfeeding, is the real issue.

- 5096 Huffman, S.L. SHOULD INFANT FORMULA BE MARKETED TO THE PUBLIC? Bethesda, MD, Center to Prevent Childhood Malnutrition, May 7, 1990, 23p.

Recently, two infant formula companies in the United States began marketing infant formula directly to the public, as opposed to restricting marketing to health professionals. In this paper, the author discusses the Gerber Company's marketing campaign and explains why direct marketing can be harmful. She stresses that the advertisements can contribute to declines in breastfeeding by implying that formula is a close, acceptable alternative to breastmilk.

- 5486 Jensen, L. INSIDE IRAQ: THE WAR GOES ON. World Development, November 1991, pp.5-9.

In the aftermath of the recent Gulf War, the health situation in Iraq has seriously deteriorated. Diarrhea and malnutrition are now rampant and child mortality has doubled. The destruction of much of Iraq's infrastructure coupled with economic sanctions has resulted in lack of proper health care, food and drug shortages, and inadequate water supplies. The particularly difficult situation of refugee populations is also highlighted.

- 5273 Joshi, P.L.; Bhattacharya, M. PERFORMANCE OF COMMUNITY HEALTH GUIDES. World Health Forum, vol.12 no.2, 1991, pp.207-208, letter.

A study conducted in Allahabad, India, to assess the impact of a community health worker scheme in terms of the socioeconomic characteristics of the community health workers, their knowledge and performance, and the villagers' attitude towards them is described in this letter to the editor. Results revealed that although most community health workers had a broad knowledge of health care and related activities, they did not always put this knowledge to use. The authors make recommendations on how to solve this problem.

- 4929 Kabala, P.K. THE IMPACT OF ARMED CONFLICT IN UGANDA: THE CURRENT SITUATION AND UGANDA'S DEVELOPMENT NEEDS. Voices from Africa, issue 3, 1991, pp.45-58.

The roots and causes of armed conflicts in Uganda are explored in this paper as well as the impact of these conflicts on people's lives. In light of this political situation the author examines Uganda's development needs, which include rehabilitation of displaced persons, reconstruction of social and economic infrastructures, improved education, increased industrialization, and creation of an adequate health system. Finally, he explores the role of nongovernmental organizations in meeting these needs.

- 5571 Kartikeyan, S.; Chaturvedi, R.M. COMMUNITY HEALTH VOLUNTEERS: A WASTE OF HUMAN RESOURCES? World Health Forum, vol.12, 1991, pp.341-342, letter.

This letter to the editor describes the results of a survey undertaken to determine the expectations of community health volunteers in India. The vast majority of volunteers were not satisfied with their duties. The authors offer several suggestions for strengthening the community health volunteer scheme.

- 5186 KEEPING THE PROMISES MADE: THE WORLD SUMMIT FOR CHILDREN. Action for Children, vol.6 no.1, 1991, p.1+.

This article briefly outlines some of the steps taken by nongovernmental organizations, U.N. agencies, and national governments to implement the goals of the World Summit for Children.

- 5323 Khanna, R.; Mehta, N.R.; Bhatt, A. VOLUNTARY EFFORT IN COMMUNITY HEALTH: A REVIEW OF THE COMMUNITY HEALTH PROJECT OF SEWA-RURAL. Gujarat, India, SEWA-Rural, May 1991, 77p.

This report provides an evaluation of the Society for Education Welfare and Action-Rural (SEWA) community health project in Gujarat, India. The history and organizational structure of SEWA-Rural are reviewed as well as the performance of various health services such as tuberculosis and malaria control, family planning, sanitation, child nutrition, and maternal health. Recommendations are made in terms of continuing services and using SEWA-Rural as a model for other primary health-care programs.

- 5307 Kumar, P.D. TOO MANY DOCTORS IN INDIA. The Lancet, vol.338 no.8772, October 12, 1991, p.952, letter.

In this letter to the editor the author comments on the lack of adequate primary health care for many people in India despite a glut of doctors. He cites poor health-care management as a primary cause of this situation.

- 5600 Lithell, U.-B.; Rosling, H.; Hofvander, Y. CHILDREN'S DEATHS AND POPULATION GROWTH. The Lancet, vol.339 no.8789, February 8, 1992, pp.377-378, letter.

In this letter to the editor the authors comment on child mortality and population growth in developing countries. They dispute Maurice King's suggestion that child survival initiatives can increase fertility rates and state that the effect of child mortality on decreased population growth rates has been greatly exaggerated. Sustainable reductions in population growth in developing countries requires

a rapid reduction of high fertility rates. This must be achieved through economic progress, improvements in women's health, family planning, and child-survival activities.

- 5005 Marlow, M. REPORT HIGHLIGHTS CHILD SURVIVAL GAINS. *Frontlines*, July 1991, p.6.

The child survival gains made by USAID are highlighted in this brief article. The report, as stated in USAID's Report to Congress, cited immunization and ORS use as areas that made significant advances. The report also made recommendations for the future including collaborating with other donor agencies and the private sector as well as planning for sustainability of interventions.

- 5200 Martin, J. GOALS FOR PHC. *Health Action*, June 1991, pp.4-5.

Primary health-care initiatives face serious challenges in the future. In this brief article the author discusses six key areas in primary health care that need attention: community participation, district health systems, finance, management, balance in the health system, and human resources development.

- 5214 McCarthy, D. REPORT ON TECHNICAL ASSISTANCE PROVIDED TO THE EXPERIMENT IN INTERNATIONAL LIVING: PROYECTO DE APOYO A LA SALUD MATERNO INFANTIL (EIL-PAMI) COMPONENT — EXPANSION OF FAMILY PLANNING SERVICES, GUATEMALA. Arlington, VA, Management Sciences for Health, PRITECH, HSS 108-GU, August 2, 1991, 11p.+app.

In this report the author discusses an assessment of the supervisory program of the Experiment in International Living -Proyecto de Apoyo a la Salud Materno Infantil (EIL-PAMI) component of the AID Expansion of Family Planning Services program in Guatemala. He reports that there is a functioning supervisory system in place although some problems have been experienced. However, he also notes that there is a commitment to address these problems and that this technical assistance visit was useful in stimulating actions. Recommendations for improvements include task prioritization, increasing supervisory visits, and strengthening the supervisory plan.

- 5579 Murray, R.H.; Rubel, A.J. PHYSICIANS AND HEALERS: UNWITTING PARTNERS IN HEALTH CARE. *The New England Journal of Medicine*, vol.326 no.1, January 2, 1992, pp.61-64.

This article provides evidence that a growing number of people in developed countries are receiving care from alternative practitioners. Studies are cited from the United States, France, and Great Britain showing the prevalence of alterna-

tive medicine. Advantages and disadvantages of such medicine are discussed. The authors offer suggestions for physicians whose patients use alternative medicine as well as conventional treatment.

- 5213 Ndonko, F. SUMMARY OF CAMEROON REPORT ON TRADITIONAL HEALERS. Arlington, VA, Management Sciences for Health, PRITECH, RAD 032-EA, August 20, 1991, 36p.+app.

In 1990 a knowledge, attitudes, and practices study was conducted in Cameroon to assess the practices of traditional healers with respect to diarrheal diseases. This report summarizes the study's findings in the following areas: 1) the role of healers in diarrhea case management; 2) types of treatment used by healers; 3) collaborative experiences between healers and biomedical practitioners; and 4) healers' knowledge and acceptance of ORT. A main conclusion drawn was that although the healers had little knowledge about ORT, they could easily accept it and integrate it into their practice with proper instruction. NOTE: Only the executive summary of this report is in English; the text and annexes are in French.

- 5613 Neuwelt, P.M.; Kearns, R.A.; Hunter, D.J.W.; et al. ETHNICITY, MORBIDITY AND HEALTH SERVICE UTILIZATION IN TWO LABRADOR COMMUNITIES. *Social Science and Medicine*, vol.34 no.2, 1992, pp.151-160.

This paper examines total outpatient health-care utilization of residents of a Labrador community. Findings indicate that the native population experiences proportionately more infectious diseases. While residents of the Innu community use health services primarily for curative care, residents of Northwest River sought services for preventive care as well. It is concluded that inequalities in material wellbeing may underlie the morbidity in the Innu community.

- 5243 Ogunbekun, I.-O.O. WHICH DIRECTION FOR HEALTH CARE IN NIGERIA? *Health Policy and Planning*, vol.6 no.3, September 1991, pp.254-261.

Excessive bureaucracy, lack of skilled management, and over dependence on tax-based funding have crippled health services in Nigeria during the past 10 to 15 years. This paper reviews the organization and management of the Nigerian public health-care sector and explores possibilities for effective financing options that would involve equitable participation of health-care consumers, employers and the government.

- 4937 Olenja, J. FACTORS WHICH INFLUENCE CHILD HEALTH WITH SPECIFIC REFERENCE TO NUTRITION IN SIAYA DISTRICT WESTERN KENYA. *Journal of Tropical Pediatrics*, vol.37 no.3, June 1991, pp.136-139.

The factors that affect child nutrition in the Siaya district of western Kenya are examined in this article. The author reviews breastfeeding duration, supplementary feeding, weaning foods, and the quality of household diets. Malnutrition is a major problem in Siaya and accounts for a high child morbidity and mortality rate. Cultural beliefs about feeding do affect perception of malnutrition and its management, although health education has increased awareness of the relationship between malnutrition and diet. Lack of resources, rather than ignorance, accounts for discrepancies between knowledge and practice.

- 5058 Palmer, H. TURKEY, IRAQ, IRAN: REFUGEE HEALTH CARE. *The Lancet*, vol.338 no.8762, August 3, 1991, pp.303-304.

In this news note the author describes the efforts of a Save the Children team sent to Turkey to assist Kurdish refugees. The team's responsibilities included organizing preventive health care, assessing the water and sanitation situation, and advising the special forces about public health and curative work. The obstacles faced by the team, particularly those due to lack of interagency coordination, are also discussed.

- 5085 PRACTICE THAT NEEDS PURGING. *The Lancet*, vol.338 no.8760, July 20, 1991, p.179.

This news note reports on the use of purgative enemas by traditional healers in South Africa and the potentially harmful effects of this practice.

- 5487 PROJECT HOPE IN SWAZILAND. *HOPE News*, vol.29 no.4, 1991, p.5.

This brief article provides photographs and descriptions of Project HOPE's activities in Swaziland. These activities include working with traditional healers, promotion of ORT, AIDS prevention, and addressing general health problems.

- 4967 PUBLIC HEALTH CONSEQUENCES OF ACUTE DISPLACEMENT OF IRAQI CITIZENS: MARCH-MAY 1991. *Morbidity and Mortality Weekly Report*, vol.40 no.26, July 5, 1991, pp.443-446.

As a result of recent military and civil strife in Iraq, approximately 400,000 ethnic Kurds and other Iraqi minority groups sought refuge in the mountains on the Iraqi-Turkish border. An additional estimated 1.3 million Iraqi refugees fled to Iran. In contrast to other refugee populations, this group is mainly comprised of educated urban dwellers. This report describes the major public health consequences of this population displacement and the international relief efforts directed toward these problems.

- 5052 REFUGEES AND DISPLACED COMMUNITIES. Dialogue on Diarrhoea, issue 45, June 1991, pp.1-6.

Diarrheal disease is one of the major causes of morbidity and mortality among refugees. This article assesses the special health needs of displaced communities and provides practical guidelines for protecting water sources, improving sanitation, and promoting good hygiene to prevent disease outbreaks. Measures to control cholera outbreaks are also described.

- 4962 Rene, P. UN PROGRAMME DE SANTE INTEGRE A MADAGASCAR. Développement et Santé, no.92, 1991, pp.25-29.

On the island of Sainte-Marie, Madagascar, the Aide Internationale Contre la Faim (AICF), a nongovernmental organization, began an integrated primary health program. The program's objectives included reorganizing the existing health infrastructure, training health workers, organizing public-health campaigns, and sanitation and nutrition education. This article specifically describes the efforts to reorganize the infrastructure and the progress made in nutrition activities.

- 5185 RESEARCH FOR ACTION: PARTICIPATORY RURAL APPRAISAL IN NUTRITION. Mothers and Children, vol.10 no.2, 1991, pp.1-3.

Participatory rural appraisal, an approach that has been used to analyze the nutrition situation in various communities, is described in this article. This methodology uses rapid assessment approaches, qualitative analysis, and quantitative surveys to assess various health situations. The article also reports on a conference held in November 1990, which focused on applications for this methodology.

- 5409 Richardson, R.J. YEMEN: THE QUEEN OF SHEBA'S LEGACY. The Lancet, vol.338 no.8779, November 30, 1991, p.1385.

The health situation in the recently created Republic of Yemen is briefly reviewed in this article. The author notes that there is rapid urbanization as well as high illiteracy and mortality rates. Lack of resources and management skills has led to a poor primary health-care system. The author encourages donor agencies who are considering activities in Yemen to focus on strengthening the primary health-care system.

- 5150 Robson, E. THE LIFE-SAVING MISSION OF BANGLADESH'S DIARRHOEA DOCTORS. Source, September 1991, pp.4-7.

This article describes how women in urban areas of Bangladesh are being trained to provide basic health services for their communities. Because women health workers tend to relate better to women in the community, they can more easily discuss health issues such as diarrhea, immunization, and family-planning options.

- 5412 Rotibi, A. MUST AFRICANS WESTERNIZE HEALTH CARE? *Africa Health*, vol.14 no.1, November 1991, p.47.

The author of this editorial addresses the issue of integrating traditional and Western medicine for providing health care in Africa. A system to formally organize and register traditional healers is suggested as a way to facilitate accountability as well as to legitimize traditional practices.

- 5024 Schuftan, C. THE CHILD SURVIVAL REVOLUTION: A CRITIQUE. *Family Practice*, vol.7 no.4, 1990, pp.329-332.

In this article the author examines the UNICEF/GOBI plan for child survival. He explores two hypotheses here: first, that child survival programs must be linked to political and economic reforms in order to succeed; and second, that the success of these programs depends on their acceptance and implementation at the grassroots level. The author emphasizes the need for integrated health-care programs as well as economic empowerment of the poor in order to make real progress in child survival.

- 5782 Schulpen, T.W.J.; Swinkels, W.J.A.M. AGENTS AFFECTING HEALTH OF MOTHER AND CHILD IN A RURAL AREA OF KENYA. *Tropical and Geographical Medicine*, vol.32, 1980, pp.340-349.

The health-services-utilization behavior of 20,000 inhabitants of rural Kenya was studied over a four-month period. One fourth of the population reported to have been unwell during this period. Of those, 21% went to a traditional or modern health professional, 35% self-medicated, and 37% took no action. Data were collected regarding cost of seeking health, time lost in travelling, and about improvement as perceived by the patient.

- 4892 Sebai, Z.A.; Bella, H. LAYING THE FOUNDATION OF GOOD HEALTH CARE. *World Health Forum*, vol.11 no.4, 1990, pp.385-387.

In Saudi Arabia, increased attention is being given to the prevention of illness; communities are being encouraged to take part in the planning, implementation, and evaluation of health measures; and the training of health workers is being suitably modified. The progress achieved in primary care, and suggestions for further advance, are outlined [in this article] with particular reference to a health center in the Al-Baha region. [published abstract]

- 5000 Smith, B. THE NICARAGUAN HEALTH SECTOR: A PRELIMINARY ANALYSIS. Arlington, VA, Management Sciences for Health, PRITECH, HSS 091-NC, June 27, 1991, 45p.+app.

In this report the author presents an analysis of the health services and health situation in Nicaragua. He reviews morbidity and mortality data as well as describing the health system's, donors' and private sector's response to managing the country's vast health needs. Overall, the system has made considerable gains despite economic and political constraints. Based on the data analysis, the author makes recommendations for improving the health system.

- 4999 Sommerfelt, A.E.; Boerma, J.T.; Ochoa, L.H.; et al. MATERNAL AND CHILD HEALTH IN BOLIVIA: REPORT ON THE IN-DEPTH DHS SURVEY IN BOLIVIA, 1989. Columbia, MD, Institute for Resource Development/Macro Systems, Inc., April 1991, 141p.

This report presents the results of an analysis of health data from the Bolivia In-Depth Survey, Encuesta Nacional de Demografía y Salud 1989, which was carried out in 1989 by the Instituto Nacional de Estadística. The report outlines the methodology and findings of research conducted in the following areas: childhood mortality; causes of death in childhood; diarrhea morbidity and treatment; respiratory infection morbidity and treatment; nutritional status; infant feeding; childhood immunizations; prenatal care and delivery assistance; and maternal mortality. The questionnaires used during the survey are also included.

- 5263 Srilatha, V.; Aitken, I.W. A HEALTH RISK INDEX FOR ASSESSING PHC COVERAGE IN URBAN INDIA. Health Policy and Planning, vol.6 no.3, September 1991, pp.234-243.

In a study of 606 families in two urban squatter settlements in Madras, India, a family level health risk index was constructed combining seven socio-economic variables: caste, number of children under five years, number of literate adults, number of adult family members employed, source of drinking water, house quality, and use of tobacco and alcohol. The index was found to be a good predictor of illness in the family in the preceding three months, and of 60-year mortality in the preceding five years. The applications of the index have been demonstrated in the identification of high-risk families for targeting health and social services, in the assessment of differentials in health-care coverage, and in the identification of appropriate intersectoral interventions aimed at improving the health status of disadvantaged families and communities. [published abstract]

- 5612 Steele, I. AFRICA'S CHILDREN: A SPECIAL DAY TO CELEBRATE. First Call for Children, no.1, 1992, p.3.

This brief article reports on plans for the Day of the African Child, which will be on June 16, 1992. Planned activities include performances, ceremonies, seminars, and other celebrations. The author also briefly reviews the progress made by African countries in child health.

- 5217 Trott, M. ASSIST USAID/GUATEMALA WITH CHILD SURVIVAL/FAMILY HEALTH PROJECT PAPER AMENDMENT (PROJECT 520-0288). Arlington, VA, Management Sciences for Health, PRITECH, HSS 105-GU, August 2, 1991, np.

This report presents the draft of a project paper amendment and budgets written for the Expansion of Family Planning Services project of USAID/Guatemala. This amendment would extend the project from December 31, 1991 to August 31, 1992 and provide a "bridge" between this project and a new USAID/Guatemala Population and Family Health Services Project. The extension will ensure the continued availability of family planning services by the project as well as develop a major component of the new project that is designed to reach the Mayan population.

- 5484 UGANDA'S HERBALISTS COME TOGETHER. *Africa Health*, vol.14 no.1, November 1991, p.6.

This news note reports on the Traditional Medicine and Cultural Association of Uganda, which will now monitor the activities of the country's traditional healers. The association is recognized by the government as the only organization representing healers. It will now be illegal for any healer to treat patients unless he or she is registered with the association.

- 5719 THE URBAN CRISIS. *World Health Statistics Quarterly*, vol.44, 1991, pp.189-197.

The causes of rapid urbanization, including immigration from rural areas and urban growth, are reviewed. By 2000, half of the urban population will be poor and will not have access to the essential services and amenities currently associated with life in the city. Attempts to stem migration and urban growth have generally met with failure.

- 5597 USE OF MATERNITY SERVICES IN DEVELOPING COUNTRIES. *The Lancet*, vol.339 no.8791, February 22, 1992, p.487.

This news note reports on the use of maternity services by women in developing countries. In many areas services are available but women do not use them. Reasons for this include the costs of traveling to a health facility, which many find prohibitive, and the desire for support systems, consisting of relatives or traditional birth attendants, during prenatal care and delivery.

- 5089 Van de Perre, P.; Simonon, A.; Mselatti, P. et al. POSTNATAL TRANSMISSION OF HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 FROM MOTHER TO INFANT. *New England Journal of Medicine*, vol.325 no.9, August 29, 1991, pp.593-598.

The authors conducted a prospective study in Kigali, Rwanda, of 212 mother-infant pairs to investigate the possible transmission of HIV-1 during the postnatal period. All the participants were seronegative at the time of delivery and all the infants were breastfed. In the follow-up period 16 of the 212 mothers became HIV-1 seropositive. Of their 16 infants, nine became seropositive. In all cases, the infant seroconverted during the same three-month period as the mother. These findings suggest that HIV-1 can be transmitted from mother to child in the postnatal period and that breastmilk may be a route of transmission.

- 5416 Waldman, R.J.; Cutts, F.T.; Steketee, R.W.; et al. CHILD SURVIVAL PROGRAMS IN AFRICA: SUGGESTIONS FOR AN INTEGRATED APPROACH. Atlanta, GA, Centers for Disease Control, nd, 26p.

In this paper the authors examine how integration of health services at the peripheral levels of the health-care system can be used to achieve greater gains in child survival. They review three basic child survival strategies — vaccination, case management, and health promotion — and suggest ways in which a common set of “support strategies” can be used to integrate selective programs. These support strategies include health-information systems, health-worker training and supervision, community mobilization, and operations research. The authors contend that an integrated strategy is compatible with national management capacity and would allow for a more efficient use of increasingly scarce national and donor financial resources.

- 5634 Wallace, H.M. MATERNAL HEALTH ANTECEDENTS OF INFANT AND EARLY CHILDHOOD MORTALITY AND MORBIDITY. *Journal of Tropical Pediatrics*, vol.38 no.1, February 1992, pp.4-6.

It is evident that mothers' health, education, and status in the family and in society are important factors in child survival. This article briefly reviews the specific maternal health antecedents (such as mothers' socioeconomic background and access to health care) in infant and early childhood mortality and morbidity. It then summarizes the major recommended approaches to improving child survival, such as breastfeeding, family planning, and training of traditional birth attendants.

- 5254 Warren, K.S. HELMINTHS AND THE HEALTH OF SCHOOL AGE CHILDREN. *The Lancet*, vol.338 no.8768, September 14, 1991, pp.686-687.

A conference was held in Bellagio, Italy, in August 1991 on Health of School-Age Children. The conference focused on controlling disease caused by major human helminth parasites. Participants discussed recent advances in treatment and prevention of helminth diseases, implementation of control programs, and costs of program implementation.

- 5549 Wilson, J.M.; Chandler, G.N.; Muslihatun; et al. HAND-WASHING REDUCES DIARRHOEA EPISODES: A STUDY IN LOMBOK, INDONESIA. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, vol.85, 1991, pp.819-821.

Sixty-five mothers from Balai Lua, Central Lombok, Indonesia were given soap and an explanation of the fecal-oral route of diarrhea transmission. This very simple health message was repeated and reinforced fortnightly when mothers were also asked whether any members of their families had suffered from diarrhea over the previous two weeks. Children of these mothers experienced an 89% reduction in diarrhea episodes compared to a control period before the intervention. [published abstract]

- 5287 Yang, P.; Lawson, J.S. HEALTH CARE OF A THOUSAND MILLION. *World Health Forum*, vol.12 no.2, 1991, pp.151-155.

In spite of many difficulties and setbacks, China has made considerable progress in health care during the past four decades. The authors describe the Chinese strategy, which includes prevention measures and integrated health care, incorporating traditional medicine into health services, and community participation. With continued government commitment and determination, success can be sustained.

- 5189 ZAMBIA: MANY PROBLEMS. *Africa Health*, vol.13 no.5, July 1991, p.6.

This news note cites childhood malnutrition, food production, and cholera outbreaks as among the most serious problems currently faced by Zambia. Lack of enforcement of public health regulations was also noted as a major factor in the cholera outbreaks.

- 5708 Zeitlin, M.F.; Grange, A.O.; Armstrong, H.; et al. THE AGESCALE. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.52-56.

The Agescale is an age-dial weighing scale designed to permit community-based workers without graph-plotting skills to conduct growth monitoring and nutritional surveillance. This article discusses the advantages of using the Agescale, as well as its application in Nigeria.

- 5574 Zeitlyn, S.; Islam, F. UNDERSTANDING CLEANLINESS: ITS PHYSICAL AND SPIRITUAL IMPLICATIONS. *Glimpse*, vol.13 no.5, September-October 1991, pp.1-2.

Using interviews with mothers and participant observation, the authors investigated attitudes toward hygiene and hand washing among Hindus and Muslims in Bangladesh. They found that soap is not routinely used among either group, nor do the groups understand how diseases are transmitted. Health education efforts need to emphasize the relationship between fecal contamination and transmission of diarrheal diseases.

- 4938 Zumrawi, F.Y. EFFECTS OF THE RELATIVE IMPORTANCE OF DIFFERENT FACTORS AND THEIR DEGREE OF INTERACTIONS ON CHILD GROWTH. *Journal of Tropical Pediatrics*, vol.37 no.3, June 1991, pp.131-135.

The purpose of this paper was to determine the effects of various factors on child growth (weight gain) of infants attending maternal and child health centers in Khartoum Province, Sudan. Factors affecting growth from birth to three months included hygiene level, maternal health during pregnancy, sex of infant, housing, and place of residence. From three to six months, other factors such as family income, supplementary feeding, maternal occupation, water supply and infections affected growth.

## ENVIRONMENTAL ASPECTS OF CONTROL AND PREVENTION

- 5208 Abdussalam, M.; Grossklaus, D. **FOODBORNE ILLNESS: A GROWING PROBLEM.** *World Health*, July/August 1991, pp.18-19.

In this article the authors discuss the worldwide problem of foodborne illness. They review how various microbiological and chemical contaminants can produce foodborne disease and discuss strategies for food safety.

- 5054 **CHICKENS AND CHILDHOOD DIARRHOEA.** *Dialogue on Diarrhoea*, issue 45, June 1991, p.5.

A study was conducted in shanty towns in Lima, Peru, to investigate the transmission of *Campylobacter jejuni* from infected chickens to children. The results showed that the majority of households kept free-roaming chickens despite general knowledge about the health risks. Also, children's hands were rarely washed after contamination with chicken feces, a practice that greatly increased risk of infection.

- 5251 **CHOLERA PREVENTION AND CONTROL: ENVIRONMENTAL HEALTH MEASURES.** *Epidemiological Bulletin*, vol.12 no.3, 1991, pp.13-14.

A summary of the most important interventions in cholera prevention is presented in this article. Interventions discussed include providing safe water supplies, disposing of wastes properly, and communicating prevention measures to the general public through the mass media. Directives for hospitals, airports, and other public institutions are also presented.

- 5375 Craun, G.; Swerdlow, D.; Tauxe, R.; et al. **PREVENTION OF WATERBORNE CHOLERA IN THE UNITED STATES.** *Journal of the American Water Works Association*, November 1991, pp.40-45.

In order to assess the risk of transmission of cholera by water in the United States, a report (on which this article is based) was prepared on the etiology of cholera, the history of outbreaks, symptoms and treatment, transmission and survival, analysis of clinical and water specimens, and prevention of epidemics through water treatment and monitoring. The report also describes the steps that have been taken by the CDC and the Environmental Protection Agency in South America and recommends future action. [published abstract]

- 5051 **A DANGER TO HUMAN HEALTH?** *Dialogue on Diarrhoea*, issue 45, June 1991, p.4.

Many domestic animals often carry the microorganisms that cause diarrhea. This brief article reviews the ways these microorganisms can be transmitted to humans as well as suggestions for reducing the health risks of living with animals.

- 5747 David, M.; Ilunga, K.; Tatagan-Agbi, K.; et al. ETUDE DES FACTEURS DE RISQUE DIARRHOEGE CHEZ L'ENFANT DE 6-36 MOIS PORTEUR DE GERMES ENTEROPATHOGENES. Bulletin de la Societé de Pathologie Exotique et de ses Filiales, vol.84, 1991, pp.563-571.

This study examined the role of serious environmental factors in causing diarrhea in children ages six to 36 months in Lomé, Togo. The children were divided into two groups: well nourished and malnourished. The study found that food hygiene and environmental hygiene played the largest role in onset of diarrhea, whatever the nutritional status of the child.

- 4944 Dev, V.J.; Main, M.; Gould, I. WATERBORNE OUTBREAK OF ESCHERICHIA COLI 0157. The Lancet, vol.337 no.8754, June 8, 1991, p.1412, letter.

In this letter to the editor the authors describe several cases of *E.coli* infection in the village of Tarves, Scotland. Although laboratory tests did not fully confirm the source of infection, the village reservoirs, which may have been contaminated with cattle waste, were implicated.

- 5353 Ekanem, E.E.; Akitoye, C.O.; Adedeji, O.T. FOOD HYGIENE BEHAVIOUR AND CHILDHOOD DIARRHOEA IN LAGOS, NIGERIA: A CASE-CONTROL STUDY. Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.219-226.

The authors investigated food hygiene-related behavior as well as other risk factors for diarrhea in children ages six to 36 months in Lagos, Nigeria. Detailed observations on food hygiene, water sanitation, and sanitary conditions of the home were made. There was no significant association between any of the food handling behaviors and diarrheal incidence. Defecation habits, disposal of waste, and source of domestic water were the main factors significantly associated with occurrence of diarrhea.

- 5173 ENVIRONMENTAL HEALTH CONDITIONS AND CHOLERA VULNERABILITY IN LATIN AMERICA AND THE CARIBBEAN. Epidemiological Bulletin of PAHO, vol.12 no.2, 1991, pp.5-10.

Although considerable efforts have been made to increase water supply and sanitation in Latin America and the Caribbean, large numbers of people, particularly the poor, remain without adequate service. This article comments on the current environmental situation in these countries, especially in terms of their

vulnerability to cholera outbreaks. It concludes that the countries must implement major water supply and sanitation improvements in order to prevent cholera from becoming endemic.

- 5695 Epstein, P.R. CHOLERA AND THE ENVIRONMENT. *The Lancet*, vol.339, May 9, 1992, pp.1167-1168, letter.

This letter to the editor points out that the unexpected intensity of the cholera outbreak in South America is consistent with multiple entry points from marine life blooms, with fish, molluscs, and crustacea as vectors. The internal dissemination through the continent reflects the vulnerability of lost defenses. Alterations in the environment may have shown themselves first in the pattern of cholera.

- 5086 Esrey, S. INTERVENTIONS FOR THE CONTROL OF DIARRHOEAL DISEASES AMONG YOUNG CHILDREN: FLY CONTROL. Geneva, World Health Organization, 1991, 19p.

Flies have often been implicated in disease transmission. The author of this report analyzes the effect of fly-control measures on diarrhea morbidity and mortality and reviews interventions to reduce the fly population. He concludes that, according to available evidence, fly control is not feasible in many settings, and that even if control measures can be successfully implemented, it is not a cost-effective intervention for national CDD programs.

- 5382 Esrey, S.A.; Potash, J.B.; Roberts, L.; et al. EFFECTS OF IMPROVED WATER SUPPLY AND SANITATION ON ASCARIASIS, DIARRHOEA, DRACUNCULIASIS, HOOKWORM INFECTION, SCHISTOSOMIASIS, AND TRACHOMA. *Bulletin of the World Health Organization*, vol.69 no.5, 1991, pp.609-621.

A total of 144 studies were analyzed to examine the impact of improved water supply and sanitation facilities on ascariasis, diarrhea, dracunculiasis, hookworm infection, schistosomiasis, and trachoma. Median reduction in morbidity for diarrhea, trachoma, and ascariasis induced by water supplies and sanitation was 26%, 27%, and 29%, respectively. Water for personal and domestic hygiene was important in reducing the rates of ascariasis, diarrhea, schistosomiasis, and trachoma. Sanitation facilities decreased diarrhea morbidity and mortality.

- 5162 Gorter, A.C.; Sandiford, P.; Smith, G.D.; et al. WATER SUPPLY, SANITATION AND DIARRHOEAL DISEASE IN NICARAGUA: RESULTS FROM A CASE-CONTROL STUDY. *International Journal of Epidemiology*, vol.20 no.2, 1991, pp.527-533.

A case-control study was undertaken in a rural area of Nicaragua to determine risk factors for childhood diarrhea that are associated with water and sanitation. Results showed that water quality did not significantly affect diarrhea morbidity, but that water availability did. Owning a latrine was not significantly associated with diarrhea, although a significant correlation was found between the number of children under age five living in the same house and diarrhea incidence.

- 5653 Gratama, J.A.W.; Rahe, T.M. ASSESSMENT OF NEEDS AND OPPORTUNITIES FOR CHOLERA CONTROL IN SURINAME. Washington, D.C., Academy for International Development HealthCom Project and Arlington, VA, Water and Sanitation for Health Project, January 8-23, 1992, 21p.

The authors investigated the needs and opportunities for appropriate technical and educational interventions to prevent and control cholera in Suriname. Assessments were made regarding the present state of the water system, water use and storage practices, food handling, existing channels for health communication and education, and the present capability to design, prepare, and produce health messages. Based on these assessments the team makes recommendations for technical assistance for cholera prevention and control measures.

- 5091 Haratani, J.; Hernandez, D.J. CHOLERA IN PERU: A RAPID ASSESSMENT OF THE COUNTRY'S WATER AND SANITATION INFRASTRUCTURE AND ITS ROLE IN THE EPIDEMIC. Arlington, VA, Water and Sanitation for Health Project, May 1991, 85p.

Due to the severity and rapid spread of the cholera epidemic in Peru, the government requested that the Water and Sanitation for Health Project send a team to evaluate the water and sanitation situation. A two person team made field visits to Chimbote, Lima/Callao, and Piura to assess the situation. This report presents their findings and their recommendations to USAID/Peru and the Peruvian government.

- 5175 Harpham, T.; Stephens, C. URBANIZATION AND HEALTH IN DEVELOPING COUNTRIES. World Health Statistics Quarterly, vol.44 no.2, 1991, pp.62-69.

The proportion of the world's population living in urban areas of developing countries is rapidly increasing, with the number expected to double between 1975 and the year 2000. This article focuses on the urban poor in developing countries in terms of their lifestyle and their health situation. The authors also discuss several studies which examine patterns of morbidity and mortality among urban populations that might be associated with hazardous environmental conditions.

- 5142 Hart, C. A TALE OF TWO LATRINES. Source, September 1991, pp.24-26.

In El Salado, Panama, two latrine systems were tested that would not only dispose of human waste but also provide fertilizer for use by families. The dry family fertilizer latrine was found to be the most effective system for the El Salado area.

- 5650 Herwaldt, B.L.; Craun, G.F.; Stokes, S.L.; et al. WATERBORNE-DISEASE OUTBREAKS, 1989-1990. Morbidity and Mortality Weekly Report, vol.40 no.SS-3, 1992, pp.1-13.

For the period 1989-90, 16 states reported 26 [disease] outbreaks due to water intended for drinking; an estimated total of 4,288 persons became ill in these outbreaks. *Giardia lamblia* was implicated as the etiologic agent for seven of the 12 outbreaks in which an agent was identified...Eighteen states reported a total of 30 outbreaks due to the use of recreational water, which resulted in illness for an estimated total of 1,062 persons...The national surveillance of outbreaks of waterborne diseases, which has proceeded for two decades, continues to be a useful means for characterizing the epidemiology of waterborne diseases. [published abstract]

- 5686 Islam, M.S.; Alam, M.J.; Neogi, P.K.B. SEASONALITY AND TOXIGENICITY OF *VIBRIO CHOLERAE* NON-01 ISOLATED FROM DIFFERENT COMPONENTS OF POND ECOSYSTEMS OF DHAKA CITY, BANGLADESH. World Journal of Microbiology and Biotechnology, vol.8, 1992, pp.160-163.

Diarrhea due to *Vibrio cholerae* non-01 is common in Bangladesh. Samples of plants, water, phytoplankton, and sediment were collected from five ponds in Dhaka every 15 days for one year. *V.cholerae* non-01 was isolated from 181 (38%) of the 480 samples. Two peaks were evident: one in April and the other in August/ September. Forty-three (23%) of the 181 isolates were examined for toxigenicity and 19% were cytotoxic to y1 adrenal cells. This study provides evidence of the likely infectious nature of some ponds and may have relevance to the epidemiology of diarrhea caused by *V.cholerae* non-01 in Bangladesh. [published abstract]

- 5092 Joseph, E.; Fry, S.; Brahmam, S.; et al. STRATEGIES FOR LINKING WATER AND SANITATION PROGRAMS TO CHILD SURVIVAL. Arlington, VA, Water and Sanitation for Health Project, September 1990, 65p.

This report provides an overview of the major issues involved in establishing linkages between child survival and water supply and sanitation programs. It identifies factors that enhance linkage and obstacles to linkage, and recommends strategies that facilitate the process of combining activities of these two sectors. [published abstract]

- 5139 Kinley, D. LESOTHO'S WOMEN TAKE CHARGE OF SANITATION AND WATER. Source, September 1991, pp.15-17.

This article describes water and sanitation programs in Lesotho in which women are the primary implementers. Women are involved in building pit latrines and drilling boreholes for water, both for private needs as well as for the needs of their communities.

- 4978 Kinley, D. ZAMBIA: WOMEN ORGANIZE FOR SAFE WATER. Source, June 1991, pp.6-9.

This article reports on a water supply project designed to serve Mukuni, a poor settlement in Zambia. The project involves digging over 60 boreholes and equipping them with the India Mark II handpumps. A key element of project success has been the involvement of the Mukuni women, who formed a water committee that met weekly and conducted health classes.

- 4985 Klein, P.D.; Graham, D.Y.; Gaillour, A.; et al. WATER SOURCE AS RISK FACTOR FOR *HELICOBACTER PYLORI* INFECTION IN PERUVIAN CHILDREN. The Lancet, vol.337 no.8756, June 22, 1991, pp.1503-1506.

A study was carried out in Lima, Peru of 407 children to examine the prevalence of *Helicobacter pylori* infection. Data indicated that overall prevalence was 48% and that infection was highly correlated with socioeconomic status. Children from high-income families had lower incidence rates than those from low-income families. Also, children whose homes were supplied with municipal water were 12 times more likely to be infected than those whose homes' water supply came from community wells. These results suggest that *H.pylori* infection is high among Peruvian children and that, in Lima, the municipal water supply is an important source of infection.

- 5322 Mendez, M. PLANNING FOR WATER AND SANITATION PROGRAMS IN CENTRAL AMERICA. Arlington, VA, Water and Sanitation for Health Project, August 1991, 140p.

This report is the third annual update of a Water and Sanitation for Health (WASH) study of the water and sanitation sector in Central America...It covers Belize, Guatemala, Honduras, El Salvador, Costa Rica, Nicaragua, and Panama. This study assesses the current (through the end of 1990) availability of water supply and sanitation services in Central America and Panama, and measures progress toward goals established by WASH...[The report also] analyzes ongoing and proposed investments to estimate the additional funding needed to meet the specified WASH targets. [published abstract]

- 5126 Misch, A. SANITATION IN THE TIME OF CHOLERA. *World Watch*, July/August 1991, pp.37-38.

In this article the author discusses the spread of cholera in terms of water supply and sanitation systems in urban areas of developing countries. The poor in these countries often have limited access to safe water and virtually no waste disposal systems. She also discusses the efforts made during the International Drinking Water Supply and Sanitation Decade to improve these conditions.

- 5072 Moe, C.L.; Sobsey, M.D.; Samsa, G.P.; et al. BACTERIAL INDICATORS OF RISK OF DIARRHOEAL DISEASE FROM DRINKING-WATER IN THE PHILIPPINES. *Bulletin of the World Health Organization*, vol.69 no.3, 1991, pp.305-317.

A one-year study in Cebu, the Philippines, examined the effect of four types of bacteria on the prevalence of diarrheal disease in a population of 690 children under age two. Results showed that there was little difference in illness rates among children drinking good quality water and moderately contaminated water. However, children drinking extremely contaminated water had significantly higher incidence of diarrhea than those drinking less contaminated water. This threshold effect suggests that in areas where the water quality is good or moderate, other transmission routes of diarrheal diseases may be more important.

- 5450 Narayan, S.K. DUMMIES AND DIARRHOEA. *Dialogue on Diarrhoea*, issue 46, September 1991, p.5, letter.

In this letter, Dr. Satya Narayan of Iran asks if baby pacifiers can contribute to the spread of diarrhea. Dr. Katherine Elliott responds that pacifiers can contribute to diarrhea incidence in the same way as bottle feeding. Pacifiers, like bottle nipples, can carry diarrhea causing germs to babies and thereby cause illness.

- 4919 RISKS OF TRANSMISSION OF CHOLERA BY FOOD. Washington, D.C., Pan American Health Organization, March 1991, 42p.

The purpose of this report is to provide basic information about the risk of cholera transmission by foods and to provide policy guidelines to improve safety in various foods. The transmission risks of imported fruits, vegetables, and seafood are discussed as well as risks associated with the purchase of food from street vendors. If government authorities, the food industry, and consumers take appropriate precautions, the risks can be greatly minimized.

- 4957 Robson, E. FROM PROVIDER TO PROMOTER: GAMBIA'S ROCKY TRANSITION. *Source*, June 1991, pp.10-13.

In The Gambia, the government has begun to change its role in provision of water and sanitation by managing and promoting services as opposed to actually providing them. Private entrepreneurs are handling the construction of water-supply mechanisms, while the government remains responsible for maintenance. Eventually the government hopes to transfer maintenance responsibilities to the people who will actually be using the facilities.

- 5140 Robson, E. LEARNING THE ABCS OF PIT LATRINES IN COTE D'IVOIRE. Source, September 1991, pp.18-19.

A program funded by UNICEF that promotes building of latrines at schools in Côte d'Ivoire is described in this article. School latrines are built by the students' parents. Teachers at the schools then instruct students about good sanitation and hygiene practices to reinforce latrine use.

- 4928 SALMONELLOSIS CONTROL IN AGRICULTURE. Bulletin of the World Health Organization, vol.69 no.2, 1991, pp.241-245.

This news note reports on the WHO Consultation on Salmonellosis Control in Agriculture held in Orvieto, Italy, in April 1990. Participants discussed practical measures that could be applied in agriculture to prevent the spread of *Salmonella* infection to humans.

- 4917 Shank, F. INTERNATIONAL FOOD TRADE AND THE CHOLERA SITUATION IN LATIN AMERICA. Washington, D.C., Pan American Health Organization, May 2, 1991, 7p.

This statement from the U.S. Food and Drug Administration (FDA) describes their efforts to prevent the spread of cholera via imported foods from Latin America. These efforts have included testing all imported food shipments for *V.cholerae* 01 as well as an inspection visit to Peru. The FDA's food trade policies in situations such as an epidemic are also outlined.

- 5607 Smith, C. WATER AND SANITATION ARE NOT ENOUGH. Dialogue on Diarrhoea, issue 47, December 1991, pp.5-6.

Despite widespread access to piped water and sanitation facilities, intestinal helminth infestations are still a major problem for children living in Palestinian refugee camps. Investigations of this problem lead to the conclusion that the persistence of worm infestations is due to a combination of inadequate sanitation, seasonal flooding, and poor disposal of feces. Prevention and treatment of worm infections are also briefly reviewed.

- 5405 Tamplin, M.L.; Carrillo Parodi, C. ENVIRONMENTAL SPREAD OF *VIBRIO CHOLERAE* IN PERU. The Lancet, vol.338 no.8776, November 9, 1991, pp.1216-1217, letter.

The authors of this letter report on the widespread dissemination of *V.cholerae* 01 in Peruvian waterways since the first cholera outbreak was reported.

- 5090 VanSant, J.; Sonnemann, J.; Klees, R. IMPACTS AND LESSONS LEARNED FROM THE RURAL WATER BORNE DISEASE CONTROL PROJECT, SWAZILAND: A TEN-YEAR RETROSPECTIVE. Arlington, VA, Water and Sanitation for Health Project, April 1991, 67p.

The purpose of this evaluation was to review the impact of the 1979-89 Swaziland Rural Water Borne Disease Control Project. Although priority was given to disease control early in the project, provision of piped water and related sanitation improvements in rural areas were more emphasized in the later years. The authors discuss the project's impact on health, the environment, the community, and the government's institutional capability. They also review the lessons learned, particularly for the benefit of planners and implementers of other similar projects.

- 4916 Von Schirnding, Y.E.R.; Yach, D.; Blignault, R.; et al. ENVIRONMENTAL DETERMINANTS OF ACUTE RESPIRATORY SYMPTOMS AND DIARRHOEA IN YOUNG COLOURED CHILDREN LIVING IN URBAN AND PERI-URBAN AREAS OF SOUTH AFRICA. South African Medical Journal, vol.79, April 20, 1991, pp.457-461.

This study determined the impact of environmental risk factors associated with housing on diarrheal disease and acute respiratory infections in non-Caucasian children in South Africa. Risk factors for diarrhea included not having inside taps or flush toilets, not owning a refuse receptacle, and not having an electricity supply. Lack of a refuse receptacle and an electricity supply for heating were also risk factors for respiratory infections.

- 5652 Wall, D.; Prins, A. CARE WORKSHOP ON LINKING DIARRHEAL DISEASE CONTROL AND WATER SUPPLY AND SANITATION PROGRAMS (SEGOU, MALI). Arlington, VA, Water and Sanitation for Health Project and Arlington, VA, Management Sciences for Health PRITECH Project, February 1992, 64p.

This report describes the preparation for and proceedings of a five-day workshop in 1991 in Ségou, Mali, with programming staff from CARE and other private voluntary organizations working in West Africa. The goals of the workshop were: 1) to initiate a comprehensive approach to diarrheal disease control in water supply and sanitation and child survival projects through appropriate educational

measures; and 2) to promote exchanges between water supply and sanitation and child-survival projects based on experiences in hygiene education and ORT promotion. A final evaluation of the workshop by the participants is also provided.

- 5371 Wright, C.E.; El Alamy, M.; DuPont, H.L.; et al. THE ROLE OF HOME ENVIRONMENT IN INFANT DIARRHEA IN RURAL EGYPT. *American Journal of Epidemiology*, vol.134 no.8, 1991, pp.887-894.

The purpose of this study, carried out in rural Egypt, was to determine a means of identifying household environmental characteristics associated with an increased incidence of infant diarrhea and to rank environmental factors that influenced diarrhea occurrence. The study found that the most important environmental factor affecting the incidence of diarrhea was the physical structure or layout of the home.

- 5368 Yeager, B.A.C.; Lanata, C.F.; Lazo, F.; et al. TRANSMISSION FACTORS AND SOCIOECONOMIC STATUS AS DETERMINANTS OF DIARRHOEAL INCIDENCE IN LIMA, PERU. *Journal of Diarrhoeal Diseases Research*, vol.9 no.3, September 1991, pp.186-193.

This analysis of a prospective community-based study in a peri-urban community of low socioeconomic status in Lima, Peru, attempts to determine the relationship of socioeconomic status and selected diarrheal transmission factors with diarrheal morbidity in children under three years of age.

## SOCIAL ASPECTS OF CONTROL AND PREVENTION

- 5545 Al-Mazrou, Y.Y.; Aziz, K.M.S.; Khalil, M. ASSOCIATION OF PARENTS' EDUCATION AND FATHERS' OCCUPATION WITH PREVALENCE OF DIARRHOEA AMONG CHILDREN LESS THAN FIVE YEARS OF AGE IN SAUDI ARABIA. *Journal of Diarrhoeal Diseases Research*, vol.9 no.4, December 1991, pp.301-304.

A nationwide survey was conducted in Saudi Arabia in 1987 among 1,656 mothers with children under age five to determine the effect of parents' education and fathers' occupation on diarrhea prevalence. The fathers' literacy rate was 70% and the mothers' was 26%. Diarrhea incidence was significantly associated with fathers' occupation; there was no significant association between incidence and parents' education.

- 5680 Aubel, J.; Rabei, H.; Mukhtar, M. HEALTH WORKER'S ATTITUDES CAN CREATE COMMUNICATION BARRIERS. *World Health Forum*, vol.12, 1991, pp.466-471.

In Sudan's White Nile Province, the development of a communication strategy for the CDD program was preceded by the collection of data from community members and health personnel. A majority of health workers had only a limited knowledge of the community's methods of dealing with diarrhea. Most of these workers had very negative attitudes toward mothers and home interventions. This information was vital for planning a comprehensive educational scheme for both health workers and communities. [published abstract]

- 5440 Bapna, J.S.; Tekur, U.; Pradhan, S.C.; et al. WHY PATIENTS PREFER REFERRAL HOSPITALS. *World Health Forum*, vol.12, 1991, pp.344-345, letter.

The authors of this letter to the editor report on a study in India that investigated why patients prefer referral hospitals as opposed to primary health-care centers. The main reason seemed to be the patients' perception that the quality of care was better in the hospitals. The majority of patients were not willing to pay a fee for better services because they felt that services at government centers should be free.

- 4932 Chavunduka, D.; Dzimwasha, M.; Madondo, F.; et al. DRUG INFORMATION FOR PATIENTS IN THE COMMUNITY. *World Health Forum*, vol.12 no.1, 1991, pp.29-33.

The authors examined the health-seeking behavior, knowledge of common illnesses, and compliance with health worker recommendations about medication of people from 910 households in Zimbabwe. Their results showed that people's

beliefs about the causes of illness governed their health-seeking behavior. The majority of rural people felt they needed more information about the causes of diseases and treatments from health workers, but were reluctant to ask. The authors conclude that health workers should thoroughly inform patients about their conditions and about appropriate medications. Individual, well-structured counselling sessions can increase patients' knowledge, and thereby increase compliance with health workers' recommendations.

- 5347 Choprapawon, C.; Chunsutiwat, S.; Kachondham, Y.; et al. CULTURAL STUDY OF DIARRHOEAL ILLNESSES IN CENTRAL THAILAND AND ITS PRACTICAL IMPLICATIONS. *Journal of Diarrhoeal Diseases Research*, vol.9 no.3, September 1991, pp.204-212.

A cultural study of diarrheal illness was conducted, using the Explanatory Model Interview for Cultural Assessment, to compare two distinct subdistricts of central Thailand and to determine perceptions, beliefs, and practices. Information was collected on perceived causes of diarrheal illness, help-seeking preferences, and treatment preferences.

- 4927 Chowdhury, A.M.R.; Karim, F.; Rohde, J.E.; et al. ORAL REHYDRATION THERAPY: A COMMUNITY TRIAL COMPARING THE ACCEPTABILITY OF HOMEMADE SUCROSE AND CEREAL-BASED SOLUTIONS. *Bulletin of the World Health Organization*, vol.69 no.2, 1991, pp.229-234.

This study compared the acceptability of a homemade rice-based ORS solution to the sugar-based solution used in rural Bangladesh. Results indicated that despite the high availability of rice compared to sugar in rural homes, mothers tended to use the sugar-based solution twice as often as the rice-based one, because it was much faster to prepare. Rice-based solutions, therefore, do not seem to be a viable substitute for the sugar solution.

- 5469 Cogswell, M.E.; Oni, G.A.; Stallings, R.Y.; et al. SOCIODEMOGRAPHIC AND CLINICAL FACTORS AFFECTING RECOGNITION OF CHILDHOOD DIARRHEA BY MOTHERS IN KWARA STATE, NIGERIA. *Social Science and Medicine*, vol.33 no.10, 1991, pp.1209-1216.

Early diagnosis of infant and child diarrhea by family members is the key to timely treatment. Factors that influence the caregiver's recognition of diarrhea have not been systematically studied, but may include characteristics of the caregiver, the child, or the illness itself. This paper examines the relationships between the caregivers' diagnoses of diarrhea during the previous 24 hours and the reported frequency and consistency of their children's bowel movements during the same period of time, using information from a representative sample of 2,655 children less than three years of age in Kwara State, Nigeria. [published abstract]

- 5556 CROYANCES ET COUTUMES TRADITIONNELLES CONCERNANT LA DIARRHÉE DANS DIFFÉRENTES RÉGIONS DU CAMEROUN (FOCUS GROUPS). Cameroon, Ministry of Health and Cameroon, PRITECH Project, 1991, 36p.

From 1989 to 1990, the Cameroon CDD program carried out a series of studies in six regions to investigate people's beliefs about diarrhea and their traditional methods of managing diarrheal episodes. The regions surveyed included La Forêt, Grassfield, Sanaga-Mbam, Fulfulde Islamique, Fulfulde Chrétien et Athée, and Cotière. Methods for data collection involved interviews and focus group discussions. The findings from each region are presented in this document. The results can be used as baseline information by persons who will conduct CDD training or who will implement education and communications campaigns.

- 5449 Danforth, N.; Karefa-Smart, J. WHERE ARE THE MEN IN WOMEN'S HEALTH? A FRAMEWORK FOR ANALYSIS AND ACTION. Paper presented at The Annual Meeting of the National Council for International Health, June 25, 1991, 3p.

This document briefly outlines the authors' presentation at the 1991 meeting of the National Council for International Health. The presentation focused on involving men in maternal and child health programs in a positive way. Because men are often key decisionmakers, their involvement in health interventions is an important element. An outline of related discussion topics is also provided.

- 5744 DeClerque, J.; Bailey, P.; Janowitz, B.; et al. MANAGEMENT AND TREATMENT OF DIARRHEA IN HONDURAN CHILDREN: FACTORS ASSOCIATED WITH MOTHERS' HEALTH CARE BEHAVIORS. *Social Science and Medicine*, vol.64 no.6, 1992, pp.687-695.

The healthcare behaviors of Honduran mothers of children with diarrhea were the focus of this study. Only 23% of the mothers consulted medical personnel, 74% treated their children with some type of medication, while only 17% administered ORT. Mothers whose children's diarrhea had lasted three or more days or whose children were vomiting were twice as likely to consult, give any type of treatment, or give ORT than mothers whose children had diarrhea for fewer days or were not vomiting.

- 5682 Ghaemi-Ahmadi, S. ATTITUDES TOWARD BREAST-FEEDING AND INFANT FEEDING AMONG IRANIAN, AFGHAN, AND SOUTHEAST ASIAN IMMIGRANT WOMEN IN THE UNITED STATES: IMPLICATIONS FOR HEALTH AND NUTRITION EDUCATION. *Journal of the American Dietetic Association*, vol.92 no.3, March 1992, pp.354-355.

A study was conducted to investigate the social, cultural, and economic factors associated with breastfeeding practices of Persian (Iranian and Afghan) and Southeast Asian (Vietnamese, Cambodian, and Laotian) immigrant mothers in the United States. This brief article reports on the results, which indicated that the primary reason immigrant mothers discontinue or decrease breastfeeding is economic. The implications of these findings on health and nutrition education are also briefly discussed.

- 5476 Gopaldas, T.; Gujral, S.; Mujoo, R.; et al. CHILD DIARRHEA: ORAL REHYDRATION THERAPY AND RURAL MOTHER. *Nutrition*, vol.7 no.5, September-October 1991, pp.335-339.

A study was carried out in Gujarat and Maharashtra states in India to assess mothers' and child caretakers' knowledge about diarrhea management and ORT. The effect of mothers' literacy status, working status, and nutrition knowledge on diarrhea management was also investigated. Results suggested that poor literacy status, inadequate knowledge about nutrition, and working outside the home negatively affected mothers' ability to use ORS in diarrhea management.

- 5081 Hart, K. ORAL REHYDRATION THERAPY: PUTTING ORT IN CULTURAL CONTEXT. *IIP Update*, vol.5 no.1, Spring 1991, pp.21-22.

In this article the author reports on a lecture given by Dr. Elizabeth Herman and Dr. Margaret Bentley that focused on the importance of cultural context when implementing ORT programs. She describes a methodology developed by Herman and Bentley that can define a community's beliefs in order to determine the best educational approach.

- 5550 Jacobson, S.W.; Jacobson, J.L.; Frye, K.F. INCIDENCE AND CORRELATES OF BREAST-FEEDING IN SOCIOECONOMICALLY DISADVANTAGED WOMEN. *Pediatrics*, vol.88 no.4, October 1991, pp.728-736.

Although breastfeeding incidence has increased in the United States in recent years, this increase has been less evident among blacks and among lower socioeconomic groups. To investigate this, cognitive and personality correlates of breastfeeding were examined among 137 black inner-city mothers and 50 predominantly white mothers. Only 22% of the black mothers chose to breastfeed, in contrast with 58% of the white mothers. Ego level and cognitive ability was positively associated with breastfeeding in both samples. The analysis also indicated that, in general, ego maturity was more strongly associated with breastfeeding than cognitive ability.

- 5358 Ketsela, T ; Asfaw, M.; Belachew, C. KNOWLEDGE AND PRACTICE OF MOTHERS/CARE-TAKERS TOWARDS DIARRHOEA AND ITS TREATMENT IN

RURAL COMMUNITIES IN ETHIOPIA. *Ethiopian Medical Journal*, vol.29, 1991, pp.213-224.

A study was conducted in rural Ethiopia to assess the knowledge and practices of mothers and other caretakers toward diarrheal disease and the sociodemographic correlates of adequate knowledge and practice on diarrhea and its treatment, respectively. The study showed that health-education messages have not been adequately disseminated in the rural areas.

- 5330 Khan, M.E.; Anker, M.; Patal, B.C.; et al. THE USE OF FOCUS GROUPS IN SOCIAL AND BEHAVIOURAL RESEARCH: SOME METHODOLOGICAL ISSUES. *World Health Statistics Quarterly*, vol.44 no.3, 1991, pp.145-149.

This article outlines the potential use of focus group discussions, their strengths and weaknesses, as well as methodological issues that need to be investigated in order to make use of the full potential of this method. The conclusions warn against using focus groups as a stand-alone, rapid assessment method.

- 5656 Kone, A.; Kane, M. CONNAISSANCES, ATTITUDES ET PRATIQUES DES MERES EN MATIERE DE THERAPIE DE REHYDRATATION PAR VOIE ORALE : SENEGAL. Arlington, VA, Management Sciences for Health, PRITECH, ICP 011-SE, August 11, 1991, 35p.+app.

A survey was conducted between January and July 1989 in 10 regions of Senegal to study the knowledge, attitudes, and practices of mothers regarding diarrhea management. The authors studied the sociodemographic characteristics of the study population, the prevalence of diarrhea, various modes of treatment, and knowledge about and correct use of oral rehydration (including ORS and SSS). They also investigated the sources of information about ORT and their impact on mothers' knowledge, attitudes, and practices. Finally, they studied the mothers' perceptions about the educational materials produced by the national CDD program. This report presents their findings and conclusions.

- 5039 Kunstadter, P. SOCIAL AND BEHAVIORS FACTORS IN TRANSMISSION AND RESPONSE TO SHIGELLOSIS. *Reviews of Infectious Diseases*, vol.13 suppl.4, 1991, pp.S272-S278.

This paper argues that behavioral change to reduce the risk of transmission of shigellosis may be a more effective preventive strategy than vaccine development or infrastructure development. A model of health-seeking behavior suggests that patients' parents will take no action if the symptoms are not recognized or are perceived as normal or not serious. Agreement between potential patients and health-care providers on signs of potentially severe disease may be enough to bring them into effective contact.

- 5608 **LEARNING ABOUT WHAT PEOPLE DO AND WHY.** Dialogue on Diarrhoea, issue 47, December 1991, pp.2-4.

This article discusses why it is important to understand people's hygiene behavior and how this knowledge can help to reduce the spread of diarrheal diseases. The article also reviews how hygiene behavior is studied by doing preliminary studies, conducting surveys, and using direct or indirect observations.

- 5348 **Martinez, H.; Saucedo, G. MOTHERS' PERCEPTIONS ABOUT CHILDHOOD DIARRHOEA IN RURAL MEXICO.** Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.235-243.

This study investigated maternal practices in rural Mexico during childhood diarrhea. It focuses on what mothers do when a child has diarrhea; how they recognize severity of diarrhea; and what prompts them to use one or another of the available facilities for health care. It was found that herbal tea and rice-based beverages were most commonly used, and that mothers were more prone to modify the usual diet during diarrheal episodes than to withhold food.

- 5248 **MOTHERS' KNOWLEDGE OF MAJOR CHILDHOOD DISEASES AND HYGIENE.** Glimpse, vol.13 no.3, May-June 1991, p.5+.

A study was carried out in Matlab, Bangladesh, to examine the level of mothers' knowledge of basic hygiene, behaviors that may have bearing on disease incidence, and knowledge about causes and transmission of major childhood diseases. The relationship of these factors to mothers' education, age, household economic condition, and household location was also examined. The results of the study are briefly summarized in this article.

- 5366 **Munirjaya, A.A.; Widarsa, T.; Soetjningsih. HOME TREATMENT OF ACUTE DIARRHOEA IN BALI, INDONESIA.** Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.200-203.

To determine how acute diarrhea is managed at home, 75 interviews were conducted with mothers of children under age two who were admitted to hospitals or health centers in a district of Bali, Indonesia. Most mothers did not follow the guidelines for home case management established by WHO. Sixty-eight percent of mothers reported giving ORT, but only 12% could properly prepare sugar-salt solution. More than two-thirds reduced or stopped giving milk and solid food during the episode. More than half the mothers gave drugs to their children.

- 4886 **Olenja, J.M. REMUNERATION OF TRADITIONAL BIRTH ATTENDANTS.** World Health Forum, vol.11 no.4, 1990, pp.427-428, letter.

The author of this letter to the editor reports on a study of the remuneration of traditional birth attendants in Kenya. The study showed that traditional birth attendants are decreasingly rewarded by patients despite the fact that their role as health workers is increasing, thus leading to discouragement. The author states that the problem occurs because traditional attendants are not accepted as professionals by the public and other medical officers.

- 5575 Perez-Gil Romo, S.E.; Kueda Arroniz, F.; Ysunza Ogazon, A.; et al. PRINCIPALES ASPECTOS SOCIOCULTURALES RELACIONADOS CON LA LACTANCIA EN MALINALCO, EDO. DE MEXICO. *Archivos Latinoamericano de Nutricion*, vol.41 no.2, June 1991, pp.182-196.

A study was conducted among 225 mothers from a rural community in Mexico to determine attitudes about breastfeeding and weaning. Local beliefs about breastfeeding are discussed, as well as remedies for stimulating breastmilk production and curing breastfeeding problems. Data on weaning age and common weaning foods are also presented.

- 5780 Rifkin, S.B.; Muller, F.; Bichmann, W. PRIMARY HEALTH CARE: ON MEASURING PARTICIPATION. *Social Science and Medicine*, vol. 26 no.9, 1988, pp.931-940.

This paper considers the problem of finding measurements to assess community participation in primary health-care programs. A methodology is presented based on five factors that influence community participation: needs assessment, leadership, organization, resource mobilization, and management. A case study provides an example of how the indicators might be used.

- 5761 Sood, A.K.; Kapil, U. KNOWLEDGE AND PRACTICES AMONG RURAL MOTHERS IN HARYANA ABOUT CHILDHOOD DIARRHEA. *Indian Journal of Pediatrics*, vol.57, 1990, pp.563-566.

The knowledge and practices of 108 rural Indian mothers about childhood diarrhea were determined through pretested interviews. The common causes of diarrhea reported were eruption of teeth, eating of mud, worm infestation, change of climate, and poor personal hygiene. Eighty-three percent of mothers restricted food during episodes; 77% consulted their mothers-in-law first in cases of diarrhea. Various home remedies, such as teas and fruit juices, were commonly used.

- 5783 Tupasi, T.E.; Miguel, C.A.; Tallo, V.L.; et al. CHILD CARE PRACTICES OF MOTHERS: IMPLICATIONS FOR INTERVENTION IN ACUTE RESPIRATORY INFECTIONS. *Annals of Tropical Paediatrics*, vol.9, 1989, pp.82-88.

This study identified determinants of childcare practices of mothers through focus-group interviews and a knowledge, attitude, and practice survey. Results showed that mothers were unable to recognize severe infection. There was a high rate of self-medication and a low rate of health-service utilization. There was also low compliance with childhood immunizations. An education program was developed to upgrade mothers' ability to recognize signs of ARI and to improve management of the illness.

- 4941 Zimmerman, C.W.; King, M. MEDICINE AND CULTURE. *The Lancet*, vol.337 no.8755, June 15, 1991, pp.1484-1485, letters.

In these two letters to the editor the authors comment on a previous *Lancet* article focusing on cultural perception of child illness and death in developing countries. The first letter points out the importance of cultural sensitivity when health workers treat patients. The second questions the effectiveness of vertical health-care interventions, such as ORT and EPI, because they may only prolong misery by aggravating the population crisis.

## EDUCATION AND COMMUNICATIONS

- 5722 Akram, D.S.; Agboatwalla, M. A MODEL FOR HEALTH INTERVENTION. *Journal of Tropical Pediatrics*, vol.38, April 1992, pp.85-87.

A primary health-care program was established in a squatter settlement of Karachi, Pakistan, with the goal of raising awareness about the importance of hygiene, immunization, ORS, and nutrition. A post-intervention study revealed that the program was successful in modifying home management of diarrhea, fever, and ARI.

- 5154 Alvi, J.L.A.; Abbott, E.A. PARTICIPATORY RADIO IN BOLIVIA. *Development Communication Report*, no.73, 1991, p.1+.

A participatory radio project in northern Bolivia was evaluated to determine who participated, at what stage they participated, and the quality of participation. Two general conclusions were reached: 1) levels of participation by the many actors in the project varied over time, and 2) lack of direct participation by radio listeners in decisionmaking does not necessarily mean that a radio station is not participatory in its programming.

- 5326 Aubel, J.; Alzouma, E.H.M.; Djabel, I.; et al. FROM QUALITATIVE COMMUNITY DATA COLLECTION TO PROGRAM DESIGN: HEALTH EDUCATION PLANNING IN NIGER. *International Quarterly of Community Health Education*, vol.11 no.4, 1990-1991, pp.345-369.

This article describes the methodology used to develop a diarrheal disease health-education program in Niger in which particular attention was given to four aspects of the planning process: (1) type of data collection used; (2) who is involved in preliminary data collection and program planning; (3) the degree of contact between program planners and target communities; and (4) whether program planning is viewed as a top-down mechanical process or as a collaborative, problem-solving process.

- 5503 Baidy, K.S.; Moussa, F. ETUDE SUR L'UTILISATION DU MATERIEL EDUCATIF PAR LES PERSONNELS DE SANTE EN MAURITANIE. Arlington, VA, Management Sciences for Health, PRITECH, RAD 024-SA, August 2, 1991, 17p.

The purpose of this qualitative study was to determine why Mauritanian health workers underuse existing health-education materials and to recommend ways to improve the use of these materials. Observations and interviews indicated two main factors behind the underuse of educational materials: 1) an emphasis on curative rather than preventive health services and 2) the lack of health worker

training in the area of health education and communications. Recommendations are made for improving these deficiencies.

- 5122 Bhattacharji, S. SPREADING THE WORD. ARI News, issue 20, August 1991, p.7.

A project in southern India that uses local media and traditional beliefs to make health messages easier to understand is described in this article. The author discusses the development of health messages and the use of audiovisual media, storytelling, and songs to spread the messages.

- 5146 Bollag, U. MORE ON COBES. The Lancet, vol.338 no.8765, August 24, 1991, pp.514-515, letter.

In this letter to the editor the author describes the philosophy behind the community-based education and service program for medical education. The program attempts to provide students with hands-on experience in addition to classroom learning so that students receive a well-rounded education that includes practical knowledge.

- 5102 Brown, L.V.; Zeitlin, M.F. NUTRITION EDUCATION TO IMPROVE THE DIETS OF LACTATING MOTHERS AND WEANING-AGE CHILDREN: EVALUATION OF EFFECTIVENESS AND FOOD COSTS: AN EXPERIENCE FROM BANGLADESH. Washington, D.C., The Academy for Educational Development, Social Sector Analysis Project, May 1991, 184p.

In this report the authors evaluated the successes and barriers to the effectiveness of family-oriented nutrition education for two target groups in rural Bangladesh — breastfeeding mothers and children of weaning age — with emphasis on food costs. The interventions were conducted jointly by the Bangladesh Rural Advancement Committee and Tufts University. The findings indicated that nutrition education aimed at improving the diets of lactating mothers had little impact in this culturally restrictive and economically deprived area. However, education focusing on improving weaning practices did result in behavior change and improved weight gain of children.

- 5212 Casazza, L.; Newman, J.; Graeff, J.; et al. TRIP REPORT: UGANDA. Arlington, VA, Management Sciences for Health, PRITECH, SUP 169-UG, August 20, 1991, 17p.+app.

From February 17 to March 21, 1991, a team from three AID projects (PRITECH, Quality Assurance, and HealthCom) visited Uganda's Makerere University's Mulago Hospital to assist the faculty of the proposed diarrhea training unit in developing a framework for training and support of CDD activities. The team also assisted the CDD program manager in planning for an upcoming WHO/

CDD health-facilities survey and explored strategies for further collaboration of the three projects with WHO in Geneva and in the region. This report documents the team's activities, their conclusions, and their recommendations for future collaborative activities.

- 5123 CASE MANAGEMENT ON TRIAL. ARI News, issue 20, August 1991, p.6.

This article provides brief outlines on four studies that show how pneumonia related deaths in children have been significantly reduced by training community health workers in case management, and by effective health education in the community.

- 5069 CHILD-TO-CHILD: THE ORIGIN AND DEVELOPMENT OF AN IDEA. Contact, no.121, August 1991, pp.11-12.

This article briefly outlines the development of the child-to-child method of health communications, which teaches children to disseminate messages about health.

- 4926 Coper, L. MANAGEMENT OF CHILDHOOD DIARRHOEA BY PHARMACISTS AND PARENTS. British Medical Journal, vol.302, May 4, 1991, p.1082, letter.

This letter to the editor describes an educational program for pharmacists and consumers in Australia that improves health awareness and enables pharmacists to provide proper treatment advice for common illnesses, such as diarrhea. The program provides fact cards on 60 health topics for consumers as well as additional training for pharmacists to update their knowledge.

- 5238 Dettwyler, K.A.; Fishman, C. FIELD RESEARCH IN MACINA FOR VITAMIN A COMMUNICATIONS. Washington, D.C., Nutrition Communication Project, The Academy for Educational Development, 1990, 80p.+app.

In March 1990, a vitamin A communications field research activity was carried out in the Macina circle of Ségou, Mali. The research team conducted two market surveys and 16 focus-group interviews during the time allotted. This report presents background information on the activity, summaries of findings about nutritional status, food availability and food consumption, and recommendations for a multi-audience communications strategy for improving general nutritional status and increasing consumption of vitamin A rich foods.

- 5618 Dure-Samin, A.; Mubina, A. GASTROENTERITIS: A GRASS ROOT APPROACH. Community Development Journal, vol.27 no.1, January 1992, pp.42-49.

A pilot health-education project, which used very few resource personnel, was carried out in a squatter settlement of Karachi, Pakistan. The project aimed to reduce morbidity and mortality from gastroenteritis by educating people about sanitation, breastfeeding, and ORT. A postintervention survey indicated a significant difference in the incidence of gastroenteritis and in the proper use of ORS between the intervention and control groups.

- 5731 Freund, P.; Phiri, B.; White, K. THEATRE DRAMATIZES ORT MESSAGE IN ZAMBIA. *Urban Examples*, vol.17, December 1991, p.14.

This brief paper describes the role of two popular theater groups in Lusaka, Zambia, in promoting ORS and ORT. Both groups developed plays around the theme of diarrhea that included messages on breastfeeding, use of ORT, and continued feeding. The impact on audiences was substantial.

- 5762 Fryer, M.L. HEALTH EDUCATION THROUGH INTERACTIVE RADIO: A CHILD-TO-CHILD PROJECT IN BOLIVIA. *Health Education Quarterly*, vol.18 no.1, 1991, pp.65-77.

As the initial phase in the development of a radio health curriculum in Bolivia, a module on diarrheal disease was field-tested among fourth- and fifth-grade students in Cochabamba. The module consists of 10 interactive radio lessons in which the students respond orally to drill and practice, sing songs, or write key concepts in their notebooks. The module includes lessons on personal hygiene, oral rehydration, home sanitation, and nutrition.

- 5590 Garriott, G. PACKET RADIO: THE "MISSING LINK?" *Development Communication Report*, no.75, 1991, p.1+.

The lack of reliable communications systems for people living and working in remote areas has been a constant obstacle in implementing development programs. Telephone connections to poorer, more remote areas are occurring very slowly. This article describes packet radio, an alternative to telephone systems that combines the technologies of radio and personal computers. Packet radio is easy to use and permits the transmission of messages, letters, spreadsheets, and reports without manual transcription or intervention. The author also discusses how it has been used to date, the installation of the system, the costs, and the potential for future use.

- 5156 GHANA AFFILIATE TRAINS VILLAGE SCHOOL TEACHERS TO PROMOTE PRIMARY HEALTH CARE. *MCI Newsletter*, no.17, September 1991, pp.6-8.

A program in Ghana that focuses on training school teachers to become community health workers is described in this article. The primary idea is that the

school would function as a model home where principles of primary health care are taught and carried out. Specific areas of focus would be nutrition, sanitation, hygiene, and physical education.

- 5192 **GUIA DE COMUNICACION EDUCATIVA APLICADA A TEMAS DE SUPERVIVENCIA INFANTIL — 1 PARTE: LA PRODUCCION DE MATERIALES EDUCATIVOS.** La Paz, Programa de Coordinacion en Supervivencia Infantil Organizaciones Privadas Voluntarias, August 1991, 103p.

This manual provides guidelines for developing child survival educational materials including flip charts, posters, and radio program scripts. General principles about health communications, such as designing messages appropriate for specific target audiences, are discussed as well as guidelines for creating specific educational materials.

- 5121 **Guldan, G.S.; Yongpeng, Z.; Zhaiquan, L.; et al. DESIGNING APPROPRIATE NUTRITION EDUCATION FOR THE CHINESE: THE URBAN AND RURAL NUTRITION SITUATION IN SICHUAN.** *Journal of Tropical Pediatrics*, vol.37 no.4, August 1991, pp.159-165.

In order to assist in the design of nutrition-education projects, two nutrition knowledge, attitudes, and practices surveys were conducted in an urban and rural area of Sichuan, China. Nutrition knowledge levels were low in both sites, although lower in the rural site than in the urban. Dietary practices varied greatly between the two sites as well. Factors associated with knowledge and attitudes included respondent's age, education level, and sex in both sites. Occupation was a factor in the urban area; in the rural site, having a household member working outside the rural area was a factor. The authors recommend extensive pretesting of all educational materials, targeting of rural areas, and emphasis on the relationship between diet and disease.

- 5011 **Hamilton, J.D.; Ogunbode, O. MEDICAL EDUCATION IN THE COMMUNITY: A NIGERIAN EXPERIENCE.** *The Lancet*, vol.338 no.8759, July 13, 1991, pp.99-102.

This article reviews the development and implementation of the Community Based Education and Service program at the Ilorin medical school in Nigeria. The program was designed to prepare students to handle not only standard responsibilities for individual patients but also responsibilities to the community as a whole.

- 5410 **Helitzer-Allen, D. ESSENTIAL BACKGROUND INFORMATION FOR ORT PROGRAMS.** *PVO Child Survival Technical Report*, vol.2 no.3, November 1991, pp.5-8.

In order to develop communication strategies and messages for ORT programs, some initial "formative" research ought to be conducted. This article describes the need and the process for collecting background information about target audience knowledge, attitudes, and behavior related to ORT programs, and how to use the results of the research to develop communication strategies and messages. [published abstract]

- 5245 ICDDR,B EXPERTS ASSIST ECUADOR IN CONTROLLING CHOLERA EPIDEM-  
IC. *Glimpse*, vol.13 no.3, May-June 1991, p.1+.

A team of cholera specialists from the International Center for Diarrhoeal Disease Research, Bangladesh, spent two weeks in Ecuador in April to train local professionals in diagnosis, investigation, treatment, and control of cholera. The team worked with the Ecuadorians on epidemiologic strategies, laboratory techniques, and case management of cholera.

- 5144 Lippman, M. AN AFRICAN INDEX MEDICUS. *The Lancet*, vol.338 no.8767, September 7, 1991, p.637, letter.

This news note describes the creation of an African Index Medicus at the third biennial congress of the Association for Health Information Libraries in Africa in Harare, Zimbabwe. A database was created when bibliographical records from the WHO office of health literature and information services, the Malawi Ministry of Health library, and the University of Nairobi medical library were merged using CSD/ISIS software and the WHO "WHOBIS" format. This Index Medicus will make available much health information that was previously unrecorded.

- 4950 Moren, Y. LE VIEUX ROI ET LA PETITE FIANCEE. *Développement et Santé*, no.92, 1991, pp.15-18.

An educational folk story that illustrates the importance of breastfeeding, proper weaning, and nutrition is presented in this article. The author points out how the storyteller can emphasize the major points and discuss them with listeners. Ideas are also outlined for activities that will reinforce the knowledge.

- 5411 MOTHERS TEACHING MOTHERS ABOUT ORT. *PVC Child Survival Technical Report*, vol.2 no.3, November 1991, pp.9-10.

The Community Oral Rehydration Units initiative in Cali, Colombia, is described in this brief article. The program involves mothers, who have been trained in ORT theory and practice, in caring for children in their communities with diarrhea. In addition, the mothers also teach caretakers about all aspects of proper diarrhea management. The units are monitored and supervised by the

closest health facility. Preliminary data from Colombia have indicated dramatic decreases in the incidence of dehydration as well as in the numbers of referred cases.

- 5242 Myntti, C.; Said, A.-A.; Aqlan, G.; et al. USING POST-MORTEM INTERVIEWS AT THE COMMUNITY LEVEL: AN EXAMPLE FROM YEMEN. *Health Policy and Planning*, vol.6 no.3, September 1991, pp.282-290.

Information on the main causes of death in a community can stimulate that community into action to change the situation. This paper describes a study conducted with and for a rural community in the highlands of the Republic of Yemen. Researchers collected information on the cause of death of the children of each ever-married woman, as part of a birth history interview. Researchers then presented the results to the community through reports and seminars. Many of the main causes of death — diarrhoea, respiratory infections, birth trauma, and accidents — were surprisingly commonplace. The community then organized a program to prevent the major problems. [published abstract]

- 5321 A RAPID ASSESSMENT OF THE IMPACT OF CDD TRAINING. Nairobi, Kenya, Development Solutions for Africa, Ltd., October 1991, 39p.+app.

The purpose of this evaluation was to assess the impact of CDD training in Kenya on health workers at the clinical, supervisory, and management levels. Research methods included interviews, observation, and focus group discussions. Findings indicated that while health workers had good general knowledge of CDD practices, this did not always translate into equally good performance in physical examinations and case management. Based on the findings, recommendations are made to improve the training program in the future.

- 4984 Ruck, N.F.; Darwish, O.A. MOTIVATING HEALTH WORKERS THROUGH NUTRITION TRAINING: AN EXAMPLE FROM EGYPT. *Health Policy and Planning*, vol.6 no.2, June 1991, pp.130-140.

In the governorate of Alexandria in Egypt, collaboration between regional health services, a university nutrition department, and external technical assistance resulted in a successful nutrition training program. The training improved teamwork among health-center staff as well as increased nutrition activities. Among the factors identified in increasing the health workers' motivation and morale were regular supervision, use of field staff as trainers, and constructive feedback. Integrating the project into local health management structures ensured that the lessons learned were well disseminated and incorporated into future planning.

- 5474 Scarlett, M.I.; Williams, K.R.; Cotton, M.F. A PRIVATE ORGANIZATION AND PUBLIC AGENCY PARTNERSHIP IN COMMUNITY HEALTH EDUCATION. Public Health Reports, vol.106 no.6, November-December 1991, pp.667-672.

In this article the authors describe a partnership between a private and a public organization (American Red Cross and U.S. Centers for Disease Control), which provides information and education to local communities about preventing and controlling AIDS. The objective of the partnership is to mobilize community support for AIDS prevention and to increase public awareness of AIDS-related issues. Services are provided by volunteers and staff members and information messages are designed to complement and be consistent with messages from the Public Health Service.

- 5790 Seidel, R. RESULTS AND REALITIES: A DECADE OF EXPERIENCE IN COMMUNICATION FOR CHILD SURVIVAL. Washington DC, Academy for Educational Development, HealthCom Project, January 1992, 29p.

HealthCom (Communication for Child Survival) is a USAID-funded project that coordinates its efforts with other AID-funded projects and with various international agencies to improve consumer education and to promote the appropriate use of child survival technologies (such as ORT, immunizations, and nutrition). This report summarizes HealthCom's experiences in health communications in the past 10 years from the initial experimental phase to the development of a viable communications approach. The document also reports on seven HealthCom project sites that participated in full-scale evaluations. The evaluated interventions include immunization in Ecuador and the Philippines, breastfeeding in Jordan, CDD in Lesotho and Honduras, vitamin A in Indonesia, and ARI in Honduras. Based on these evaluations, the report discusses the nature of health communications, its capabilities, and how it can be used in the future.

- 5504 Sene, M. EVALUATION DE L'UTILISATION DES PERSONNELS NON SOCIO-SANITAIRES DANS LE CERCLE DE BANKASS, REGION DE MALI. Arlington, VA, Management Sciences for Health, PRITECH, SUP 135-MA, August 2, 1991, 15p.

The Mali National CDD Program undertook the training of "non-health personnel" at the community level in order to increase the reach of the program's health-education activities. Those chosen to participate were generally known as "opinion leaders" in their communities. After training, they were expected to hold educational talks on treatment and prevention of diarrhea and to make home visits. An evaluation to determine the effectiveness of these personnel found that they were reaching mothers with correct messages about diarrhea. The study revealed possible difficulties in expanding the role of this group, despite their effectiveness. Recommendations to increase the effectiveness of these community leaders are outlined.

- 5502 Sene, M. UTILISATION DU MATERIEL EDUCATIF DANS LES STRUCTURES DE SANTE AU NIGER. Arlington, VA, Management Sciences for Health, PRITECH, RAD 024-SA, December 10, 1990, 21p.

The objective of this qualitative study was to identify factors explaining the under- or nonuse of health-education materials by health workers in Niger and to identify ways to improve educational activities within the health system. Observations and interviews revealed that most educational activity is taking place in maternal and child health centers. Education is therefore not reaching two important target groups (fathers and grandmothers), nor is it reaching mothers who do not attend these centers. Recommendations for the improvement of health-education efforts focus on five areas: health-worker training, educational techniques, research, reorganization of health-education activities within the health system, and use of other communication channels, such as mass media.

- 4930 Shoo, R. TRAINING PRIMARY HEALTH CARE WORKERS TO FOSTER COMMUNITY PARTICIPATION. World Health Forum, vol.12 no.1, 1991, pp.55-62.

Because a low level of community participation was identified as a deficiency in the Tanzanian health sector, a systematic process of training trainers and students was established with full involvement of village people. This article describes the training program and gives the results of an evaluation conducted in October 1988. The evaluation showed that since many health workers would be stationed in rural areas, encouraging community participation was an important factor in carrying out successful primary health care efforts.

- 5315 Sircar, B.K.; Deb, B.C.; Sengupta, P.G.; et al. AN OPERATIONAL STUDY ON IMPLEMENTATION OF ORAL REHYDRATION THERAPY IN A RURAL COMMUNITY OF WEST BENGAL, INDIA. Indian Journal of Medical Research, vol.93, September 1991, pp.297-302.

A study was conducted in a block of West Bengal, India, to investigate the impact of training health workers to manage diarrhea cases with ORT. After 22 months of observation after training, it was noted that neither home fluids nor ORS were heavily used, and there was no significant decreases in mortality. Lack of motivation and failure to maintain skill levels among the health workers were cited as impediments to program effectiveness.

- 5620 Soudarssanane, M.B.; Rotti, S.B.; Premarajan, K.C. TEACHING ACUTE RESPIRATORY INFECTION USING LOW-COST AIDS. AN EXPERIENCE IN PONDICHERRY, SOUTH INDIA. Medical Teacher, vol.13 no.4, 1991, pp.369-370.

The topic of acute respiratory infection was taught to two groups of medical students in their first clinical year at a south Indian medical school. The instruc-

tion was done using low-cost teaching aids including a slide set, tape recorder, and video cassette. A pretest and post-test were used to assess the students' knowledge about ARI. Post-test results showed a significant improvement in students' knowledge. The authors also noted that the students responded very positively to the teaching aids, a factor that seemed to affect the improvement in knowledge.

5025 TRAINING MANUAL FOR PROPER HOME DIARRHOEAL MANAGEMENT.  
Sudan, CARE International, December 1990, 18p.

This manual offers guidelines for trainers to teach health workers about home management of diarrhea. It gives instructions about preparing for and conducting a five-day workshop that teaches the basics of diarrhea management. The workshop is designed to help health workers to train mothers in home treatment of diarrhea. Among the topics of discussion are assessment of mothers' current treatment practices, preparation and use of ORS, the physiology of diarrhea and dehydration, and appropriate care seeking.

## ECONOMIC ASPECTS OF CONTROL AND PREVENTION

- 5272 Abel-Smith, B. FINANCING HEALTH FOR ALL. World Health Forum, vol.12 no.2, 1991, pp.191-200.

Health financing remains a formidable obstacle to the quality of health-care delivery in many developing countries. This article explores various options for cost recovery in health care, including user fees, community financing, and different types of insurance. It discusses such issues as choosing the right system for individual countries and what has been learned from experiences of countries that attempted to implement cost recovery plans. These questions are discussed in the context of countries in Asia and Africa.

- 5689 Calvani, S. HEALTH CRISIS IN AFRICAN COUNTRIES. The Lancet, vol.339, January 11, 1992, p.126, letter.

The author of this letter speaks out against the trend of neglecting important developments in Africa in favor of investing aid in the countries of Eastern Europe. Donors need to take Africa more seriously.

- 5124 CHOLERA'S MESSAGE. The IDB, July/August 1991, p.3.

In this brief article, the author uses the Latin-American cholera epidemic as an example of the crisis of living conditions in those countries. The efforts of the International Development Bank to fund health and social projects to improve the situation are described.

- 4942 Epstein, P.R.; Coultas, L. KENYA: COST-RECOVERY PROGRAMME. The Lancet, vol.337 no.8755, June 15, 1991, pp.1467-1468.

In 1988 the government of Kenya began a health-services cost-recovery program. However, due to poor planning in finance and implementation, the program only generated about \$3.5 million, which was in turn mismanaged. Eventually, the program was terminated. The overall poor economic conditions were cited as a main reason for program failure. Also, the authors point out the importance of using cost recovery to supplement, not supplant, government commitment to and funding for health care.

- 5654 FOOD AID IN AFRICA: AN AGENDA FOR THE 1990S. Washington, D.C., World Bank and Rome, World Food Programme, August 1991, 36p.

A joint study was carried out by the World Bank and the World Food Programme to investigate the future of food aid to Africa and what can be done to

ensure that it is properly used in the 1990s. The report focuses on the following topics: 1) the importance of food aid for Africa; 2) food aid as a resource for growth and food security; 3) food aid in relation to emergencies, refugees, and displaced people; 4) absorptive capacity and disincentive effects; 5) the efficiency of food aid; 6) food aid and food trade; and 7) priorities for action in the 1990s. The report's overall conclusion is that food aid is an important and undervalued resource for development in Africa that can be more efficiently used to combat hunger and poverty.

- 5197 Gilson, L. PAYING FOR HEALTH CARE. *Health Action*, June 1991, pp.7-8.

Recent economic crises have affected the ability of many developing countries to develop and provide adequate primary health-care services. In this article the author briefly examines how priorities and resources must be reorganized in order to finance health care for the future.

- 5164 Goldberg, J. COST OF TREATING 'TRAVELERS' DIARRHEA. *Annals of Internal Medicine*, vol.115 no.4, August 15, 1991, p.331, letter.

In this letter to the editor the author reports on the costs of different medications used in treating diarrhea in Mexico City, including ciprofloxacin, trimethoprim, loperamide, and diphenoxylate.

- 5614 Korte, R.; Richter, H.; Merkle, F.; et al. FINANCING HEALTH SERVICES IN SUB-SAHARAN AFRICA: OPTIONS FOR DECISION MAKERS DURING ADJUSTMENT. *Social Science and Medicine*, vol.34 no.1, 1992, pp.1-9.

The financing of health services has become an increasingly critical and urgent issue in sub-Saharan Africa. This paper analyzes options available to policymakers. Providing for equity in health care should be an important guiding principle. It appears to be necessary to find a mix of public and private sector interventions with elements of cost-sharing for services and drugs, insurance schemes, and more efficient use of available resources.

- 5093 Levine, R.E. A WORKBOOK FOR POLICYMAKERS: GUIDE TO ASSESSING THE ECONOMIC VALUE OF BREASTFEEDING. Washington, D.C., Center to Prevent Childhood Malnutrition for the Social Sector Analysis Project, February 1991, 18p.

This workbook for policymakers allows them to determine the costs and benefits of increasing breastfeeding rates. It also helps them to evaluate whether or not health, nutrition, and family-planning resources should be allocated toward breastfeeding promotion.

- 5316 Maletnlema, T.N. POLITICS AND NUTRITION IN AFRICA. World Health, July/August 1991, pp.14-15.

Malnutrition is widespread in Africa for a number of reasons. The author of this article examines the political and economic reasons behind this situation, such as lack of national food and nutrition policies, continuous civil strife, and the remnants of the colonial systems of government. He states that foreign aid alone cannot solve the crisis and that Africans must join forces to take decisive action.

- 4956 Melville, B.F. CAN LOW INCOME WOMEN IN DEVELOPING COUNTRIES AFFORD ARTIFICIAL FEEDING? Journal of Tropical Pediatrics, vol.37 no.3, June 1991, pp.142-143, letter.

The author of this letter to the editor reports on a survey done in Jamaica to determine the costs of artificially feeding infants. Results showed that bottle feeding was extremely expensive and that low-income women spend far more than they can really afford on infant formula.

- 5261 MISSION OF THE MONTH: HONDURAS. Frontlines, September 1991, pp.8-11.

USAID's efforts to improve trade and investment, agriculture, the environment, and social programs in Honduras are outlined in this article. The primary focus for these improvements focuses on economic reforms, since most programs and activities are dependent on a sound financial structure.

- 5231 O'Donnell, A.M.; Britos, S. LATIN AMERICA: ACTIONS FOR THE PREVENTION AND TREATMENT OF MALNUTRITION. Acta Paediatrica Scandinavica, suppl.374, 1991, pp.168-174.

Due to enormous external debts and price decreases of main export products, Latin America's social and economic progress has stagnated. More people are malnourished and live under the poverty line in Latin America today than in the 1970s. Several countries have initiated programs to prevent malnutrition and to rehabilitate malnourished children. These programs, which include price subsidies and food distribution, are briefly reviewed in this article.

- 4958 Robson, E. CASH-STRAPPED MADAGASCAR'S ELUSIVE SEARCH FOR HEALTH. Source, June 1991, pp.14-17.

In this article the author outlines the economic and social constraints faced by the health system in Madagascar. The problems of a health post in Kianjavato are featured in order to illustrate the obstacles encountered in health-care delivery. A pilot water and sanitation project is also described.

- 5215 Smith, B. HEALTH SYSTEMS MANAGEMENT PROJECT: FINAL EVALUATION. Arlington, VA, Management Sciences for Health, PRITECH, HSS 106-GU, August 9, 1991, 34p.+app.

This report presents an evaluation of the administrative reform portion of the amended Health Systems Management Project of USAID/Dominican Republic. These reforms focused on finance, budgeting, information management, and personnel. The evaluator concluded that this project was very effective overall despite time constraints and the economic situation in the country. Greatest achievements were noted in the areas of budgeting, accounting, information systems, and personnel. He recommends that short-term technical assistance be continued over the next several months to ensure progress and that a follow-on project be carried out within a longer time frame.

- 5775 Stinson, W. CREATING SUSTAINABLE COMMUNITY HEALTH PROJECTS: THE PRICOR EXPERIENCE. Chevy Chase, MD, The PRICOR Project, 1987, 13p.

During its first five years, the PRICOR project funded 16 studies either to document or develop community and user-financing activities. This paper summarizes and compares the findings from the various countries, ranging from the urban slums of Latin America to traditional rural African communities. It concludes that community decisionmaking and management are critical to the sustainability of community-based projects.

- 5617 Straughan, B. SELF-FINANCING HEALTH PROJECT BRINGS QUALITY CARE TO BOLIVIA'S POOR. *Frontlines*, February 1992, pp.14-15.

This article describes the development and implementation of a self-financing health project (PROSALUD), which delivers health services to Bolivia's rural poor. The project was initiated with funding from USAID but is now self-supporting. PROSALUD clinics provide free preventive services, such as immunizations, and charge affordable fees for curative services and pharmaceuticals. To date there are 16 clinics around the Santa Cruz area and plans are underway to replicate the project in other cities.

## CDD POLICIES AND PROGRAMS

- 5751 Behl-Bishnoi, K.; Fonseca, L. COMMUNITY AND HOME BASED PREVENTION AND MANAGEMENT OF DIARRHOEA: THE DELHI EXPERIENCE. *Urban Examples*, vol.17, December 1991, p.6.

This article describes an intensive diarrhea management campaign launched in New Delhi in 1989 to prevent recurrence of an epidemic of cholera and gastroenteritis. Major components of the program included health education, provision and distribution of ORS and chlorine tablets, and water and sanitation improvements.

- 5188 CHOLERA TASK FORCE. *Africa Health*, vol.13 no.5, July 1991, p.3.

Due to the increasing number of cholera outbreaks around the world, the WHO has formed a cholera task force that will devise a global plan of action. This brief news note reports on the activities of the task force.

- 5170 DIARRHOEAL DISEASES CONTROL PROGRAMME: GLOBAL ACTIVITIES. *Weekly Epidemiological Record*, no.29, July 19, 1991, pp.209-213.

This article summarizes the information from the Interim Programme Report of the WHO/CDD program. The report reviewed progress in areas such as program planning and management, training, access to ORS, rational drug use, communications, and evaluation. The report also discusses WHO's CDD research activities, including case management and vaccine development.

- 5216 Endsley, S. SUSTAINABILITY TASK FORCE MEETING: PRITECH. Arlington, VA, Management Sciences for Health, PRITECH, ECP 005-IR, August 27, 1991, 7p.+app.

On February 8, 1991, the PRITECH project convened a task force to assist in defining sustainability in terms of CDD programs, to identify determinants of CDD program sustainability, and to obtain agreement on the proposed PRITECH approach to assess sustainability. This approach would integrate sustainability indicators into periodic country program reviews rather than conduct a separate study on sustainability. This report presents the proceedings of the meeting and outlines the conclusions and recommendations of the participants. An issues paper prepared by PRITECH, which outlines key issues and presents PRITECH's approach, is also included.

- 5237 **EVALUATING THE PROGRESS OF NATIONAL CDD PROGRAMMES: RESULTS OF SURVEYS OF DIARRHOEAL CASE MANAGEMENT.** Weekly Epidemiological Record, no.36, September 6, 1991, pp.265-270.

Evaluating the progress of national CDD programs can be difficult because key variables, such as morbidity and mortality rates, are often hard to measure. Therefore, many national programs use the 13 key indicators developed by WHO to assess CDD case management in households and health facilities in order to evaluate overall program effectiveness and to identify areas for improvement. This article provides a list of the 13 indicators and describes how data from health facility and household surveys can be useful in evaluating national programs. Results from surveys conducted in 1989-90 in several countries are also presented.

- 5627 Hirschhorn, N. **LETTERS.** Links, vol.9 no.1, Winter 1991/1992, p.3, letter.

The author of this letter to the editor briefly comments on the accomplishments of Egypt's national CDD program, especially with respect to improved feeding practices during illness and increased ORS use.

- 5151 Mosley, W.H.; Becker, S. **DEMOGRAPHIC MODELS FOR CHILD SURVIVAL AND IMPLICATIONS FOR HEALTH INTERVENTION PROGRAMMES.** Health Policy and Planning, vol.6 no.3, September 1991, pp.218-233.

In recent years the child survival strategy for developing countries has focused primarily on selective disease control approaches, such as ORT for diarrheal dehydration. In this paper the authors present an analytical model that demonstrates how multiple disease conditions interact with various risk factors to produce frailty and high mortality levels among developing country children. The model also demonstrates how different combinations of disease control interventions can have an impact on childhood mortality. The authors also discuss the programmatic and policy implications that would arise from a shift in the current approach to child-survival interventions.

- 5391 Pierre-Louis, J.N. **ORAL REHYDRATION PROGRAM EVALUATION BY QUALITY ASSURANCE SAMPLING IN RURAL HAITI.** American Journal of Public Health, vol.81 no.9, September 1991, pp.1205-1207.

To meet the need for a low-cost population-based survey method, quality assurance sampling was used to evaluate a local ORT program in Haiti. The quality assurance sampling method and its application in Haiti are described.

- 5003 PROGRAMME FOR CONTROL OF DIARRHOEAL DISEASES: INTERIM PROGRAMME REPORT 1990. Geneva, World Health Organization, 1991, 38p.

This interim report of the WHO/CDD Programme covers 1990, the first year of the program's 1990-91 budgeting period. It provides a comprehensive summary of program activities at the global, regional, and country levels. The specific areas reviewed are health services, research, and program management and resources.

- 5026 REPORT OF THE 12TH MEETING OF THE TECHNICAL ADVISORY GROUP. Geneva, World Health Organization, March 18-22, 1991, 23p.

The report on the 12th meeting of the WHO/CDD technical advisory group is presented in this document. The advisory group reviewed the status of the WHO/CDD program, both globally and regionally, and made recommendations for the future. The overall progress of the program was deemed satisfactory. Recommendations were made in the following areas: training, increasing access to ORS, promoting rational drug use, communications, evaluation, diarrhea prevention, and research activities.

- 5291 Sack, D.A. CONTROL OF CHOLERA IN BELIZE. Arlington, VA, Management Sciences for Health, PRITECH, STP 042-BE, September 5, 1991, 15p.+app.

Due to the spread of cholera in Latin America, the Ministry of Health of Belize requested a review of the nation's cholera control plan by PRITECH. The author reviewed the plan and made recommendations based on his analysis. Because it is unlikely that cholera can be absolutely prevented from entering Belize, the author suggested a shift to adequate surveillance, control, and treatment efforts in the event of an outbreak. Specific recommendations are made in the following areas: 1) preparing to treat large numbers of patients, 2) careful detection and epidemiologic surveillance, 3) improving water supply and sanitation, 4) strengthening educational activities, 5) limiting cholera's importation, 6) integrating cholera control efforts into the overall CDD strategy, and 7) evaluating effectiveness of control efforts.

- 5352 Salazar-Lindo, E.; Chea-Woo, E.; Kohatsu, J.; et al. EVALUATION OF CLINICAL MANAGEMENT TRAINING PROGRAMME FOR DIARRHOEA. Journal of Diarrhoeal Diseases Research, vol.9 no.3, September 1991, pp.227-234.

This article reports on an evaluation of a training program on clinical management of diarrhea for physicians and nurses in Peru. The outcome of the training was assessed through pre- and post-tests; knowledge, attitude, and practices questionnaires; and observational surveys. Although the observational surveys showed significant improvement in the use of ORT at health facilities, the rate

observed was low compared to the high level of knowledge that was demonstrated by the knowledge, attitude, and practices questionnaires. A reduction of antibiotic prescriptions was also observed.

- 5211 Sene, M. RAPPORT DES VISITES DES UNITES DE REHYDRATATION ORALE (URO) ET DES CENTRES DE RECUPERATION ET D'EDUCATION NUTRITIONNELLE (CREN) DE LA REGION DE DAKAR. Arlington, VA, Management Sciences for Health, PRITECH, HSS 095-SE, August 2, 1991, 7p.

This report briefly outlines the results of visits to ORT units and health centers carrying out nutrition activities in the Dakar region of Senegal. Among the problems identified in ORT units were lack of supervision, inadequate ORS supplies, improper diarrhea case management by health workers, and lack of materials to demonstrate ORS preparation. Problems with nutritional surveillance activities involved lack of proper equipment and lack of an information, education and communication strategy for nutrition activities at the regional level. The author's recommendations to correct these problems are also presented.

- 5730 Silimperi, D. CONTROL OF DIARRHOEAL DISEASE OUTREACH TO THE SILENT SECTOR: THE URBAN POOR DHAKA, BANGLADESH. *Urban Examples*, vol.17, December 1991, pp.15-18.

Effective delivery of CDD services to the urban poor has become one of the main challenges facing CDD programs. This paper describes the Urban Volunteer Program of the ICDDR,B in Dhaka, which trains illiterate poor women to deliver health-education messages to slum-dwellers. The volunteers also distributed ORS packets. The success of the program depended on consistent training; the development of an organized program with defined volunteer functions; and development of trained, paid supervisory staff drawn from the target community.

- 5027 Spain, P. CDD IN KENYA: POLICY AND RESEARCH ON HOME TREATMENT. Arlington, VA, PRITECH Project, PRITECH Occasional Operations Paper, June 1991, 9p.

This paper consists of three separate papers on various aspects of the CDD program in Kenya. The author reviews results from the 1990 WHO/CDD household case-management survey in Kenya and discusses the implications of the findings for the Kenyan communications strategy. In addition, he reviews the findings of the Fluid and Foods Panel, which recommended the use of uji, a locally available porridge, for the home management of diarrhea.

- 5754 Tulloch, J. CONTROL OF DIARRHOEAL DISEASE (CDD) IN URBAN SETTINGS. *Urban Examples*, vol.17, December 1991, p.2.

The author points out that the urban setting may expose children to a high risk of diarrheal disease, but also provides opportunities for diarrheal disease control due to the greater accessibility of preventive and curative services.

- 5158 USAID: ASSISTANCE TO AFRICA ON A MAJOR SCALE. *Africa Health*, vol.13 no.5, July 1991, pp.3-4.

This article reports on USAID's assistance to African countries, especially in terms of improving primary health care. USAID administrator, Ronald Roskens, and Secretary of Health and Human Services, Louis Sullivan, recently visited a number of African countries to review U.S. assistance to child-health programs. A brief overview of their findings and recommendations is presented in this article.

- 5753 Waldman, R. ADJUSTING CDD (CONTROL OF DIARRHOEAL DISEASE) PROGRAMMES TO MEET THE CHALLENGE OF HEALTH PROBLEMS IN CITIES. *Urban Examples*, vol.17, December 1991, pp.4-5.

The mainstay of CDD programs has been the promotion of appropriate case management. This strategy may require adaption to the urban setting. In this brief article, the author discusses aspects of urban life that make appropriate case management of childhood diarrhea both easier and more difficult.

- 5639 WHO GUIDELINES ON FORMULATION OF NATIONAL POLICY ON THE CONTROL OF CHOLERA. Geneva, World Health Organization, 1992, 11p.

This document presents WHO's position on various areas of cholera control. It is intended for use by national health authorities and others in the preparation of policies for cholera control. It can also be used by international, bilateral, and nongovernmental agencies to decide on appropriate assistance to countries with cholera outbreaks. The topics covered include case definitions and surveillance, use of laboratories, vaccination, chemoprophylaxis, water supply and sanitation, cholera and tourism, cholera and food, cholera and food trade, and health education.

## PRODUCTION AND DISTRIBUTION OF ORS

- 5501 Alt, D. IMPROVING ORS SUPPLY AND DISTRIBUTION: A PRITECH-ASSISTED EFFORT IN THE PHILIPPINES. Arlington, VA, Management Sciences for Health, PRITECH Project, 11p.+app.

In the 1980s the Philippine CDD program undertook the development of a system for determining how many ORS packets each health facility should stock, and calculating when to reorder supplies and how much to order. In this paper the author describes the new ORS ordering system, explains how the system was developed and implemented, discusses the system's impact on ORS supply, and presents the lessons learned in implementing the system.

- 5087 Gaffikin, L. A PROPOSED METHODOLOGY FOR PREDICTING ANNUAL ORS NEEDS OF THE CDD PROGRAMME/MINISTRY OF HEALTH: KENYA. Arlington, VA, Management Sciences for Health, PRITECH Project SUP 089-KE, March 1990, 37p.+app.

The purpose of this study was to develop a strategy for determining the number of ORS packets that are required annually by institutions supplied by the Kenyan Ministry of Health's CDD program. In this report the author describes the methodology used to calculate how many ORS packets should be provided to each district annually by the CDD program.

- 5210 SUPPORTING LOCAL PRODUCTION, PROMOTION, AND TECHNOLOGY TRANSFER OF ORAL REHYDRATION SALTS: A PROJECT SUPPORT SIX-YEAR RETROSPECTIVE. Seattle, WA, Program for Appropriate Technologies for Health, September 1991, 52p. +app.

This report provides a six-year retrospective of Project SUPPORT, a project operated by the Program for Appropriate Technology in Health to support technology transfer of ORS production. The report outlines the elements of ORS technology transfer, including the production process, marketing and promotion, finance, training and technical assistance, management, collaboration and coordination, and sustainability. Reviews of country activities, particularly those in Guatemala, Peru, Ghana, and Uganda, are presented as well as lessons learned in project implementation. Overall, the most important lesson learned was that successful technology transfer of pharmaceutical products is complex and requires comprehensive and carefully coordinated technical assistance.