CONTROL OF DIARRHEAL DISEASES: AN ANNOTATED BIBLIOGRAPHY OF PRITECH HOLDINGS, 1991
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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 which assists developing countries in implementing national diarrheal disease control programs.

The PRITECH Information Center has developed a bibliographic data base which covers the topics of diarrheal disease, ORT and related Primary Health Care issues. The annotated bibliography which is presented here was drawn from the data base and reflects the most recent additions to the Center's current collection of 5000 documents.

The bibliographic listings are organized by general subject category. The citations are arranged alphabetically by author within each category. In cases where no author information is available, the citations are listed alphabetically by title.

The PRITECH Information Center will, whenever possible, provide copies of requested materials or refer requests to the document issuing organizations. All of the listings presented in this bibliography are accompanied by an accession number, which should be referred to in all requests for documents from the Information Center.
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In this letter to the editor, the authors comment on the rising incidence of diarrhea in Spain due to public ignorance about diarrheal diseases. They state that there is a need for more public health education in order to alleviate the problem.

The reliability of saliva as an indicator of rotavirus infection was assessed [in India] among 15 infants (3-12 months) with rotaviral and 15 with nonrotaviral diarrhea...It seems that infants with rotaviral diarrhea mount mucosal antibody responses as reflected in their saliva; possibly salivary antibodies could be used to evaluate vaccine "take" in rotavirus vaccine trials. [published abstract]

A cross-sectional study of diarrhoea in the under-fives was carried out in a semiurban community in the Eastern Province of Saudi Arabia...The point and period prevalence of diarrhoea were found to be 5.4% and 12.5% respectively. The presence of diarrhoea was significantly associated with the age of the child and the type of feeding in children below one year. Factors such as parental age and education and the number of children under five in the household were also found to be significantly associated with diarrhoea. [published abstract]
Aeromonas spp. and Plesiomonas shigelloides in patients attending the Lagos University Teaching Hospital in Nigeria from October 1986 to September 1987. Of the 2350 fecal specimens taken from diarrheal patients, Aeromonas spp. was isolated from 53 and P. shigelloides from 16. The authors conclude that both agents may be significant in the etiology of acute diarrheal disease in the Lagos area.


Hafnia alvei, a member of the family Enterobacteriaceae, was the only species of bacteria cultured from the stool of a 9-month-old child admitted to the Clinical Research Centre of the ICDDR,B with a 3-day history of watery diarrhea. It is concluded that at least some strains of H. alvei have the potential to cause diarrhea and that attachment-effacement is a virulence characteristic shared by bacteria other than E. coli.


In the Philippines 180 American children with diarrhea were evaluated to determine if an assessment technique for bacterial diarrhea could be applied to American children living in the tropics. The technique is based on three factors: abrupt onset of diarrhea, more than four stools per day, and no vomiting prior to onset. Results indicated that patients with the three factors and who were positive for fecal leukocytes had an 83% probability of having a positive bacterial stool culture compared to only a 5% probability if any one of the factors was absent.


The past decade has witnessed a proliferation of reports on newly recognized causes of infectious diarrhea. Clinicians are faced with this increasing list of enteropathogens and the associated problems of what agents should be sought in patients with diarrhea and against what agents empiric therapy should be aimed. This report examines these issues and attempts to put into context the importance of the agents and their clinical relevance.

[The authors] describe the isolation and cloning of a 1-kilobase fragment from the plasmid of EAggEC [enteroaggregative E. coli] strain 17-2...This probe is 89% sensitive and 99% specific for EAggEC identification. Thus, this probe should greatly facilitate epidemiologic studies assessing the importance of EAggEC as a diarrheal pathogen.


The author of this letter to the editor comments on classification of test results for eradication of Helicobacter pylori. He states that test results obtained more than 24 hours and less than 4 weeks after treatment is stopped should not be defined as clearance nor as eradication because the pathogen can be suppressed to undetectable levels and then resurface again.

Binder, H.J. PATHOPHYSIOLOGY OF ACUTE DIARRHEA. American Journal of Medicine, vol.88 suppl.6A, June 20, 1990, pp.6A-2S-6A-4S.

This article discusses the pathophysiology of diarrhea, including mechanisms of diarrhea and mechanisms of action of anti-diarrheal agents.


In this letter to the editor, the authors describe false-positive identifications of E. coli 0157 when using commercial latex agglutination tests for diagnosis.


This paper describes the methodology used in modeling child
health in a study of over 3000 children in Cebu, Philippines. The method used was an integrated socioeconomic-biomedical model, which took into account the effects of the underlying social factors and proximate behavioral and biomedical factors on infant morbidity, growth, and mortality. The application of the methodology is illustrated by modeling childhood diarrhea, and by showing how maternal education induces behavioral changes. It also suggests how these changes, in turn, induce changes in the prevalence of childhood diarrhea.

3931 Brownlee, H.J. INTRODUCTION: MANAGEMENT OF ACUTE NONSPECIFIC DIARRHEA. American Journal of Medicine, vol.88 suppl.6A, June 20, 1990, pp.6A-1S.

The author reviews the extent to which adults and children suffer from diarrhea in the U.S., especially in terms of lost productivity. He then introduces the articles appearing in the June 20, 1990 issue of the American Journal of Medicine, which were originally presented at a symposium called Management of Acute Nonspecific Diarrhea.


In Port Moresby, Papua New Guinea, 479 children under 5 years of age were monitored to assess the role of transient risk factors in the etiology of acute diarrhea. The identified risk factors included 1) eating food that had been kept for more than 12 hours; 2) eating away from home; 3) temporary absence of mother from home for more than one day; and 4) the presence of respiratory infection in the child. The authors conclude that such factors need to be addressed if effective diarrhea control is to be achieved.


A study of 552 typhoid culture positive patients with diarrhea at a Bangladeshi hospital was conducted to correlate features of typhoid fever with age and gender. Results indicated that the patients at the highest risk of complications and death were children from birth through one year of age and adults who were 31 years old or older. In
addition, females had a higher case fatality rate than males.


This article reports on an investigation of a Campylobacter enteritis outbreak which occurred at a camp near Christchurch, New Zealand. Drinking untreated water was identified as the cause of the outbreak. Control efforts included installing a water treatment system and implementing a surveillance system to monitor illness.


The feasibility of the method of impression cytology with transfer (ICT) was assessed during a study of the prevalence of ophthalmological diseases and vitamin A deficiency in Senegalese children. The authors conclude that ICT could be very useful for detecting vitamin A deficiency in children in underdeveloped areas.


A study of 206 Senegalese preschool children was conducted to assess their nutritional status as well as to determine the diagnostic values of the impression cytology with transfer (ICT) method. Results showed that a problem of protein-calorie malnutrition associated with vitamin A deficiency exists in Senegal. The sensitivity and specificity of the ICT varied with the classification criteria of ICT and seemed to be fairly insensitive but specific.

In this letter to the editor the authors discuss a serological test, based on O-antigen antibody detection, which permits screening for E. coli 0157 infection.


In this article the author provides an overview of cholera research with emphasis on characterization of cholera vibrios and treatment of the disease with antimicrobials.


A study was carried out from March 1986 to February 1987 in Hebei Province, China, to examine diarrheal morbidity in children under five years. Results indicated that approximately 80.74% of children had one or more attacks during the study period and that children under three were more susceptible to getting diarrhea than older ones. In addition, diarrheal incidence was greatest during the summer months of June, July, and August.


This article briefly reports on the current cholera epidemic in Peru which has hospitalized 1859 persons and caused 66 deaths to date. Preventive measures recommended by the Peru MOH include exclusive use of boiled drinking water, careful cleaning of fruits and vegetables, and avoiding raw or inadequately cooked fish or seafood.


This article presents statistics on the incidence of cholera worldwide in 1989. Statistics indicate that the total number of cases as well as the number of countries reporting the disease increased in 1989.

A formulation of oral vaccine consisting of Vibrio cholerae lipopolysaccharides (LPS), cell-bound haemagglutinin (CHA) and procholeragenoid (P), namely vaccine A, was compared with another formulation, vaccine B, prepared from killed whole vibrios plus procholeragenoid on their immunogenicity and reactogenicity in Thai male volunteers. The vaccine A conferred higher rates of intestinal anti-V. cholerae classical LPS, anti-CHA and anti-CT than those of the vaccine B. Both vaccine formulations had equal immunogenicity concerning anti-V. cholerae El Tor LPS response. [published abstract]


The authors of this study assessed the relative importance of acute watery diarrhea (AWD) and other types of acute diarrhea in two different age groups of children under five years old in rural Bangladesh. Results indicated that in infants AWD was more important in terms of prevalence, hospital admission and mortality than other types of diarrheas. However, AWD seemed to be relatively less important in children 1-4 years old, thus suggesting that the potential of ORT to reduce mortality in this age group may be limited. The authors suggest that in order to reduce morbidity and mortality in the 1-4 age group, CDD programs should place more emphasis on the field management of non-watery, non-dehydrating diarrheas.


The safety and protective efficacy of a serotype 1 reassortant of bovine rotavirus WC3, designated strain WI79-9, was evaluated in a double-blind placebo-controlled trial [in Philadelphia]...Infants 2-11 months of age were given two doses of vaccine...or of placebo 28 days apart. Adverse reactions to the vaccine were not detected...Although vaccination with WI79-9 affected only the incidence of rotavirus gastroenteritis, the vaccinated infants exhibited a significantly reduced incidence of total days of diarrhea, fever, and illness associated with gastroenteritis in general. [published abstract]
During a recent field trial of killed oral cholera vaccines in rural Bangladesh, the protective association between naturally occurring clinical cholera and risk of recurrence was also evaluated. The findings showed that cholera incidence was 61% lower in persons who had had an earlier episode than in those without such an episode. Whereas initial episodes of classical cholera were associated with complete protection against subsequent episodes, initial episodes of El Tor cholera were associated with insignificant protection.

A field trial with 53 lactating Bangladeshi mothers attempted to determine if oral vaccination of mothers with an effective cholera vaccine would protect their non-vaccinated, breastfed children by increasing the levels of relevant anti-cholera antibodies in ingested breast milk. Results indicated that the vaccine did not significantly increase the levels of breast milk anti-cholera antibodies and thus does not contribute to protecting non-vaccinated children.

A study to determine the role of mycobacteria as an etiologic agent in HIV related enteritis was conducted in 1986 at the Mama Yemo Hospital in Kinshasa, Zaire. Mycobacteria isolation rates were slightly lower in HIV seropositive patients than in seronegative patients and significantly lower in patients with diarrhea than in patients without diarrhea. These results suggest that mycobacteria are not a major etiologic agent in HIV related diarrhea.
This report describes four community outbreaks of shigellosis in the United States during 1986-1989 in which innovative public health control measures were used. The focus of these measures was extensive health education which emphasized preventive strategies such as thorough hand washing.

This paper discusses the advantages and disadvantages of different choices of control group in case-control studies conducted to quantify the effects of risk factors for, and interventions against, childhood diarrhea. A number of studies are reviewed to determine where bias may have occurred through use of an inappropriate control group.

In this document the authors discuss the choice of appropriate outcome measures when conducting prospective studies of diarrheal and respiratory morbidity. They explain how particular research questions can affect the choice of an outcome measure. They also examine some basic statistical techniques available for analyzing various outcomes. An example using data on diarrheal morbidity is presented.

The authors conducted a randomized, double-blind, placebo-controlled trial of the CVD 103-HgR oral cholera vaccine in 50 healthy adult Swiss volunteers. The results corroborated the safety and immunogenicity of this vaccine in healthy adults as well as indicating that it was well tolerated.

The authors review a study of 13 children in France with persistent diarrhea and villous atrophy which was conducted to determine the role of activated mucosal T cells in the pathogenesis of intestinal lesions. The results are presented in this article.


A one year prospective study of 605 Jewish and Bedouin children in the Negev region of Israel was carried out to determine the epidemiologic and clinical patterns of rotavirus diarrhea. Rotavirus was the most commonly detected pathogen among diarrheal children and the rate of rotavirus detection decreased as age increased. Malnutrition appeared to be an important indicator of disease severity, as malnourished children were more likely to be hospitalized in comparison to controls.


This review article covers the epidemiology of cholera in India and its treatment, including ORT, IV therapy, antibiotics, and home available fluids. It also covers cholera control measures such as isolation of patients, immunization, and sanitation.


In this letter to the editor the authors discuss the presence of an endogenous phospholipid (PAF-acether) in the gastrointestinal tract during infectious diseases, including diarrhea.
Between January 1988 and December 1989 various species of Aeromonas were isolated from 45 of 2,480 patients with gastroenteritis in India. No other enteric pathogens were found in any of these 45 patients. All the isolated strains, irrespective of species, were enterotoxin and hemolysin positive. The results suggest that Aeromonas species are potential enteric pathogens in this region.

This memorandum summarizes current knowledge on the epidemiology of cholera and diarrhoea due to enterotoxigenic Escherichia coli (ETEC) and outlines the results of recent research to develop an effective oral vaccine against cholera. The meeting reviewed current research on the protective antigens of ETEC and made a number of recommendations with the aim of stimulating further efforts towards the development of vaccines against disease caused by ETEC. [published abstract]

This news note briefly reports on a recent four-day conference held in Lusaka, Zambia, on diarrheal disease control. Topics discussed include cholera epidemic management, monitoring the quality of diarrhea management, and CDD training in nursing schools.

In November 1990, the Morocco CDD Program carried out a national survey of diarrhea incidence and case management in children less than 5. The annual incidence rate was 7.8 diarrheal episodes per child; 11% were cases of persistent diarrhea. ORT was practiced in 13.5% of cases. Of those children who had had diarrhea within the last 24 hours, 22% had received drugs.
In this editorial, the author discusses the importance of disease surveillance following disasters in order to better organize relief efforts.

In this editorial the author comments on the pathophysiology of magnesium-induced diarrhea and on the study by Fine et al which developed a diagnostic test for the condition. He also discusses cases of chronic diarrhea associated with high magnesium levels, particularly in patients who ingested laxatives containing the mineral. He encourages further research about the relationship between laxative use and diarrheal disease.

This document provides baseline data about diarrheal disease in Latin America. The data, presented in the form of charts, tables, and graphs, provide information on: (1) the planning and management of Latin American CDD programs; (2) training of health workers; (3) ORS production and distribution; and (4) CDD indicators such as diarrheal episodes per child per year, ORS use rates, and diarrheal mortality rates. This document contains the full text in both English and Spanish.

In their report "Health Research: Essential Link to Equity in Development" (New York; Oxford University Press, 1990), the Commission on Health Research for Development, an independent initiative, makes several recommendations about the relationship of research to health problems in developing countries. These recommendations are summarized in this article. The Commission's main conclusion is that the capacity of developing countries' to conduct research most pertinent to the health of their own citizens must be
increased in order to achieve equity in development.


This article discusses the development of animal models to examine the value of different ORS formulas. The development of a rotavirus model in rats is described. Finally, the comparability of animal and human models is discussed.


Diarrheal mortality and hospital admissions for diarrhea are described among children under the age of 5 in a rural Bangladeshi community. Acute watery diarrhea was associated with 5% of deaths among children, while acute non-watery diarrhea was associated with 16%. Persistent diarrhea was associated with 34% of all deaths. These data suggest that exclusive emphasis on ORT will have little impact on diarrhea mortality among children in Bangladesh. A broader strategy, including measles immunization, nutrition education, dietary management of diarrhea, and treatment of dysentery has greater potential.


This letter to the editor describes a new polymerase chain reaction test used to detect Yersinia enterocolitica.


This document presents data from a 1990 household case management survey carried out in six districts in Kenya (Kwale, Kakamega, Kisii, Nakuru, Kisumu, and Kilifi). Among the significant findings was that breastfeeding was generally continued during diarrhea although few caretakers offered more to drink during diarrheal episodes. ORT use rates, including use of packets and home fluids, ranged from 69.4% to 93.0%. Overall results from districts where the
CDD program was more active were more encouraging than results from the other districts. Recommendations based on the findings are also presented.


Excessive magnesium levels, often caused by ingesting too many antacids or food supplements, can induce persistent diarrhea. However, there is no specific method to diagnose the condition. Therefore, the purposes of this study were to establish a method to diagnose magnesium-induced diarrhea and to apply it to patients with persistent diarrhea. The findings revealed that quantitative fecal analysis for soluble magnesium is an accurate method for diagnosing this condition and could save chronic diarrhea patients from undergoing expensive, invasive diagnostic tests.


In this study, the authors tested a new rotavirus vaccine candidate, the M37 human strain, which was originally recovered from a symptom-free newborn baby and adapted to grow in tissue of monkey kidney cells.


This paper discusses data collection techniques for surveying traditional healers about diarrhea treatment. Types of information needed and special considerations to keep in mind when interviewing healers are outlined. A sample survey questionnaire is included.


In order to determine the physicochemical properties and bacterial flora of diarrheal and recovery feces, the authors
examined stool samples from 14 Kenyan children with acute gastroenteritis. Shigella, Campylobacter, enterotoxigenic E. coli, and rotavirus were isolated from samples. Results also indicated that normal anaerobic intestinal flora is remarkably disturbed in patients with gastroenteritis which could result in changes in fatty acid contents and in the pH of diarrheal feces.


The authors of this letter to the editor point out that some 25 developing countries persist in requiring cholera immunization as a condition of entry. Port-of-entry immunization may present risk for hepatitis B and possibly, HIV infection from multiple-use, inadequately sterilized syringes.


In this study conducted in Italy, the authors investigated the specificity of the neutralizing antibody response in patients with acute gastroenteritis caused by a rotavirus strain of known serotype. They conclude that human RV serotypes appear to elicit homo- and heterotypic neutralizing antibody in primary infections.


A community-based, case control study was conducted in a Mexican Mayan village during the peak diarrhea season to prospectively identify the agents associated with childhood diarrheal disease. For the 24 cases of diarrhea from which no enteropathogens were isolated, diffuse-adhering Escherichia coli (DAEC) strains were significantly associated with diarrheal disease. This study provides evidence for the potential pathogenic capacity of DAEC and underscores the variety of diarrheal agents operating in a community.
In this article the authors prepared annual estimates of the morbidity and mortality rates of diarrheal diseases in American children under 5 years of age. They also examined the outcome of cases, measured in terms of visits to doctors, hospitalizations, and deaths. The estimates showed that 16.5 million children have 21 to 37 million episodes annually; of those, 2.1 to 3.7 million episodes lead to a physician visit, a total of 220,000 patients are hospitalized, and 325-425 children die. Deaths are more common in the South and among black persons. The authors conclude that diarrheal mortality could represent as much as 10% of preventable postneonatal death and that mortality could be significantly reduced through disease prevention interventions.

An outbreak of cholera caused by Vibrio cholerae 01 was reported in a psychiatric hospital in Singapore. A total of 74 inmates were infected. Extensive epidemiological investigations showed that the organism was not transmitted by contaminated food but through close person-to-person contact. Early recognition of the outbreak and prompt implementation of epidemic control measures rapidly brought the outbreak under control.

This article presents the results of a study that compared the effectiveness of immunoelectron microscopy to two ELISA methods and three latex methods. The ability of these tests to rapidly detect rotavirus infections in newborns is analyzed.
This study reports the ability of three panels of monoclonal antibodies to identify the serotype of human rotavirus reference strains whose serotype and genotype were known. The advantages and disadvantages of each panel and the performance of individual monoclonal antibodies are described.


This study investigated the utilization of shrimp and crab chitin in saline water by Vibrio cholerae strains as compared to utilization of commercially prepared chitins. All chitin preparations stimulated growth as well as the production of cholera toxin by toxigenic strains. The results suggest that chitins can be a nutrient source for V. cholerae strains.


During a one-year period, 112 infants admitted with nonenterocolic acute diarrhea at 2 hospitals were studied for isolation of etiologic agents. The most frequently identified pathogen was rotavirus (57.8%), followed by Escherichia coli (19.7%). In 32.8% of the cases more than one agent was identified.


A case-control, point-prevalence survey was conducted in Sanaa, Yemen Arab Republic in February 1988 at the start of the diarrhea season. This brief article reports on the pathogens isolated from the study subjects and states that more extensive epidemiological research is needed in this geographical area.


A prospective study of rotavirus serology and stool
excretion was carried out in a group of non-diarrhoeal paediatric patients [admitted to the R.K. Khan Hospital in Durban, South Africa]. A positive ELISA for RV [rotavirus] antigen was found in 13.3% children, which compared favourably with an asymptomatic RV-excretion rate of 16.2% found in normal subjects in the community...This confirms that RV is an important enteropathogen [in South Africa].


This study describes the virological and epidemiological aspects of rotavirus diarrhea in Asian infants in South Africa. It concludes that rotavirus is the most important cause of gastroenteritis in this population, whereas bacterial infections play a relatively minor role.


Since human rotavirus was first identified in 1973, additional enteric viral pathogens have been described and several experimental approaches have been taken to explore mechanisms for viral diarrhea. This editorial focuses on the body of data accumulated from studies of piglet models.

3900 Harrison, H.E. CONTRIBUTION OF AMERICAN PEDIATRICIANS TO TREATMENT OF DIARRHEAL DEHYDRATION. Pediatric Research, vol.27 no.6, 1990, pp.S62-S64.

The history of American pediatricians' contribution to diarrheal disease research is documented in this article.


In the present study hydrogen gas was measured in the breath of patients with chronic diarrhea by thermal conductivity gas chromatography of normalized to alucolar air concentrations. This method can be used to detect intestinal sugar malabsorption and is simple, rapid and
relatively inexpensive.


In collaboration with WHO and the government of Bangladesh, the ICDDR,B conducted a randomized, double-blind field trial of two oral cholera vaccines—the B/WCV and the WCV—in rural Bangladesh. The authors conclude that the killed oral cholera vaccines had a marked overall effect on admissions for life-threatening diarrhea and may have reduced the overall risk of death in adult women.

HOUSEHOLD SURVEYS. Weekly Epidemiological Record, no.45, November 9, 1990, pp.349-351.

In Shandong Province, China, 8,298 children under 5 were studied to assess home management of diarrhea. The estimated annual incidence of diarrhea was 2.8 - 3.6 episodes per child. The majority of mothers continued to breastfeed or give solid foods during diarrhea, but very few offered extra fluids. Since only one caretaker used ORS, it was suggested that it be reserved for cases with dehydration and that caretakers and health workers should be taught to recognize the condition. Health education was recommended as a means to reduce diarrheal morbidity.


The optimal composition for ORS remains controversial. Animal models have been used to assess the efficacy of new formulations but the relevance of these studies to the handling of ORS in human intestine during diarrheal disease state remains uncertain. Here, the authors compare the efficacy of a variety of ORS in both human and rat perfusion models and conclude that rat models offer a valid approach for preliminary screening of new ORS.


This letter to the editor describes an outbreak of diarrhea
in a hospital in Turku City, Finland. The authors state that the latex agglutination tests used for diagnosis yielded many false-positives for Clostridium difficile.

A number of clinical trials of the rotavirus vaccine have been completed in Finland, the U.S., Peru, Rwanda and the Gambia. This brief article reports on the results.

The authors studied 215 infants and children in South Wales with gastroenteritis in order to determine disease severity, the organisms isolated, the frequency of complications, and the adequacy of management before admission. Stool pathogens were isolated in 125 patients. Incidence of morbidity and complications was low. Persistent diarrhea was present in 24 cases and 77 patients had received inadequate treatment prior to admission.

A rapid latex agglutination test, Culturette Brand CDT from Marion Laboratories, was evaluated and compared to a tissue culture assay (TCA) and isolation of Clostridium difficile in 380 faecal specimens from 226 [Swedish] patients with clinically suspected Clostridium difficile-associated diarrhoea. The sensitivity and specificity of the latex test compared with the TCA were 83% and 80% respectively and the positive and negative predictive values were 55% and 94% respectively. [published abstract]

During April and May 1989, 221 Chinese children with diarrhea and 108 controls were studied to determine the role of recently recognized enteropathogens in childhood diarrhea. Pathogens were isolated from 56.5% of diarrheal cases and from 43.5% of controls, with enterotoxigenic E. coli being the most frequently detected. The authors also discuss antimicrobial resistance of the various isolates and
the implications for treatment.


To study the prevalence of infections with Campylobacter spp in Haryana, India, a stool sample was collected using a rectal swab from 30 buffaloes, 62 cattle, 95 pigs and 94 children and was bacteriologically cultured. The subjects were either apparently healthy or had diarrhoea...63% of all thermophilic Campylobacter were cultured from rectal swabs taken from young livestock and children with diarrhoea. Of 32 isolates fully identified, 23 were C. jejuni, 8 were C. coli and 1 was C. laridis. [published abstract]


In developing countries, diagnoses of diseases associated with deaths in children are frequently derived from retrospective maternal interviews. To determine the validity of this methodology, and to define sensitive and specific diagnostic algorithms, [the authors] compared symptoms and signs reported by mothers using structured questionnaires, with selected physician diagnoses for 164 deaths among hospitalized children on the Philippine island of Cebu...Diarrhoea diagnoses based on frequent loose or liquid stools had high sensitivity (78-84%) and specificity (79%), irrespective of whether the child died with diarrhoea alone or in combination with other illnesses. However, maternal reports of moderate/severe dehydration had low specificity. [The authors] conclude that, in this setting, verbal autopsies can diagnose major illnesses contributing to death in children with acceptable sensitivity and specificity. [published abstract]


The authors of this article report on the current research in the development of Vibrio cholerae vaccine strains. They review the characteristics of existing vaccines as well as discuss the considerations in the environmental release of live genetically engineered vaccine strains.
The case of a child with a specific defect in the jejunal brush border membrane sodium/proton exchanger is presented. The data confirmed the importance of a congenital defect in this exchanger as a cause of severe sodium-losing diarrhea.

This study deals with some of the host factors in relation to diarrhoea in a rural population [in Aligarh, India]. Age was found to have a definite and direct relationship to diarrhoea. Male children were affected more. Poor hygiene, malnutrition, and the receipt of supplementary feeds, were found to have a significant association with childhood diarrhoeas. [published abstract]

The authors compared the parasite prevalence rates of non-diarrheal populations of two poor refugee communities located in Dhaka, Bangladesh, with that in the post-diarrheal patients of the International Centre for Diarrhoeal Disease Research, Bangladesh. They conclude that because acute diarrhea flushes out intestinal parasites, the prevalence of parasites was significantly lower in the post-diarrheal population than in the non-diarrheal one.

The diagnostic values of the fluorescent-actin staining (FAS) test in screening enteropathogenic E. coli (EPEC) from stool samples was examined in this study. The results indicated that the FAS test was diagnostic for classical EPEC as well as for Vero cytotoxin-producing E. coli. In addition, it was also effective in detecting EPEC strains which are not currently being diagnosed because they belong to serotypes not generally regarded as EPEC serotypes.
The validity of using ORS use rates to measure ORT program success is evaluated in this paper. The authors examine various methodological aspects which affect rate calculations. Data from Bangladesh and other countries, primarily from Demographic and Health Surveys, are used to illustrate how methodology affects survey results. The authors conclude that use rates are only useful in a limited sense and, therefore, should not be employed as a program indicator.

This report provides an update on guidelines and recommendations for the proper collection of specimens to be sent to CDC, gives general background information on some recently discovered pathogens, lists some of the tests available at CDC, and provides a list of CDC contacts.

The authors reviewed six years of retrospective data on viral agents of gastroenteritis to determine the prevalence, seasonality and demographic characteristics of patients with viral gastroenteritis in the US and Canada. Electron microscopy test results showed that 16% of specimens contained a virus. Rotaviruses, adenoviruses, and small, round viruses were the most commonly detected. Slight seasonal variations were detected in rotavirus and astrovirus detections, but were not evident for other viruses.

The author of this letter to the editor discusses the impact of malnutrition on mortality under disaster conditions such
as severe drought.


In this letter to the editor, the authors state reasons why Clemens and his co-workers should not assume from their field trial of oral cholera vaccine in Bangladesh that there is no reactogenicity of the product tested.


From 1987-1988 the Bangladesh Diarrheal Morbidity and Treatment Survey (BDMTS), was carried out in both rural and urban areas of Bangladesh. Approximately 12,600 households were interviewed to obtain data on diarrheal epidemiology, ORT use and access to ORS, dietary management of diarrheal episodes, sources of advice and referrals, caretakers' knowledge about diarrhea and ORT, and risk factor prevalence for diarrheal morbidity. The survey also examined aspects of correct use of ORT including prompt initiation, correct preparation, adequate volume per treatment day, and continuous use. This document presents the results of the BDMTS as well as the survey methodology and design.


The purpose of this study was to find out the actual circumstances which lead to dysentery-related deaths in the rural Bangladesh...A review of existing data on dysentery-related deaths from this area during 1976-1981 suggests that deaths in children followed a recurring seasonal pattern with an increase during the post-monsoon season of August-November of each year. This seasonal pattern of death was not evident among adults...The risk factors shown to be significantly associated with deaths were: longer median duration of illness (p=<0.001), female sex (p=0.039), signs of respiratory infection (p=<0.001) and severe malnutrition (p=0.0002). [published abstract]

To identify high-risk groups and potential risk of acquiring the disease, an epidemiologic investigation was conducted at a Mozambican refugee camp in Malawi during a cholera epidemic. A matched-pair case-control study of food and water consumption showed that cases were more likely to use shallow wells instead of boreholes compared to controls. Also, cases were more likely to have had contact with the market than controls. Recommendations included early case finding and treatment, temporary closure of the market, tetracycline prophylaxis of contacts, and water chlorination.


In this review [the authors] assess the extent to which programmatic and intellectual emphasis on CDD problems should remain as an appropriate focus in the decade of the 1990s and beyond...The bulk of this review assembles and summarizes the demographic and epidemiologic evidence pointing toward major changes in disease patterns that will need to be addressed by the health sectors of developing countries. [The authors] then discuss some implications for resource allocation and conclude with a discussion of policy issues that will likely be raised as these changes occur. [published abstract]


This study investigated the etiology of two outbreaks of diarrhea in pre-term neonates at Kenyatta National Hospital. The results show that such diarrhea can be caused by a multiplicity of enteric agents. Mixed infections were mainly those of Salmonella and E. coli.

A survey was carried out over 1 year in a rural area of Ghana on the isolation, detection and/or identification of enteric pathogens from children under 5 years of age with and without diarrhoea. The isolation and detection rate of Shigella flexneri, Shigella dysenteriae, Giardia lamblia and rotavirus were higher in children with diarrhoea than in controls...The incidence of other enteropathogenic bacteria and parasites identified in the diarrhoeal and non-diarrhoeal children was calculated and is discussed in this study. [published abstract]


This news note describes a new agglutination assay which can be used to diagnose infectious diseases. This assay would be useful in developing countries because of its high degree of sensitivity and specificity and its relative inexpensiveness.


This review article elaborates on the mechanisms of diarrhea production, using pathogens as illustrative examples. It concludes that a number of mechanisms are implicated in infection-induced intestinal fluid and electrolyte losses.


In recent decades there has been growing interest in health systems research, reflecting the increased complexity of services, the evolution of alternative options, mounting budgetary pressures, and rising skepticism about public programmes. The methodological and operational challenges encountered in this field are reviewed [in this article]. [published abstract]


This document, which is based on the Fundacion Santa Fe de Bogota's three year collaboration with the PRICOR Project,
presents guidelines for persons conducting operations research. It reviews aspects such as methodology, study design, sampling, data collection, and data analysis.


The authors undertook a 2-month prospective survey of the causes and effects of diarrheal disease in children under 5 attending an outpatient clinic in Blantyre, Malawi. Forty-two per cent were found to be infected with rotavirus, 9% Cryptosporidium, 4.2% Adenovirus, 1.2% Astrovirus, and 0.6% Norwalk agent and small round featureless viruses.


In Cairo, Egypt, a hospital-based case-control study was carried out to determine the age-specific frequency of campylobacter infection among diarrheal and non-diarrheal children 0-5 years old. Campylobacter was the most common pathogen in diarrheal stools and children less than one year old were at greatest risk of infection. The results also showed that asymptomatic shedding in controls was positively associated with a recent diarrheal episode and, therefore, could be an important source of new infections.


In this report the authors describe new attenuated derivatives of V. cholerae with mutations that cause intermediate reductions in intestinal colonization. The implications of this research for producing live cholera vaccines are also discussed.


In order to evaluate the diagnostic potential of Scanning Electron Microscopy (SEM) for chronic diarrhea, the authors used SEM to study a series of small bowel biopsies from
patients with clinical evidence of malabsorption. They then compared the results with those obtained with conventional techniques such as Dissecting and Light-Microscopy. Results indicated that SEM could be useful in the differential diagnosis of chronic diarrhea.


This study examined whether hypertonic nasogastric tube feedings cause diarrhea in hospitalized patients in the U.S. The study group included normal volunteers as well as postoperative head and neck cancer patients. Results showed no link between nasogastric feedings and diarrhea in either group studied.


This article briefly describes various types of diarrhea, such as infectious, viral, and parasitic. The etiologic agents associated with the various types as well as possible treatment methods are also described.


This study investigated the occurrence and circulation of different human rotavirus electropherotypes in children with diarrhea in Bangkok, Thailand. During every epidemic only one or a few electropherotypes predominated. Also, the predominant electropherotypes shifted from epidemic to epidemic. No specific electropherotype or serotype correlated with patient age.


To investigate whether peptide YY (PYY) has a role in minimising fluid loss during diarrhoea, its effect on hypersecretion induced by vasoactive intestinal peptide (VIP) was studied in seven subjects with ileostomies...
findings suggest that PYY is a natural inhibitor of diarrhoea. [published abstract]


In this letter to the editor the author discusses the lack of consistent criteria for measuring dehydration in patients with gastroenteritis. He suggests that serum bicarbonate may be a good predictor of dehydration levels, but emphasizes the need for further research.


Referring to the 1990 report of the Commission on Health Research for Development, this editorial discusses the development of essential national health research in developing countries.


New vaccines for cholera, typhoid and rotavirus diarrhea have recently been developed. At a symposium in Gothenburg in May 1990, scientists considered issues regarding the potential public health benefits of these vaccines. Issues discussed included the costs of developing and administering the vaccines, and the relative efficacy and effectiveness.


From 1987-1988, 859 children who were treated for acute diarrhea at the Diarrhoea Control Center in Damman, Saudi Arabia, were studied in order to isolate the most common pathogens. The most common enteropathogens isolated were rotavirus, salmonella, shigella, Campylobacter jejuni, and Escherichia coli. The most common parasite isolated was Giardia lamblia.

In this letter to the editor, the author discusses the testing of neutral fat in stool as a way to diagnose rotavirus diarrhea. Although the test is not highly sensitive, it could be used where only limited laboratory support is available.


This article reviews studies conducted to assess the levels of enteroinvasive E. coli infection in patients at the Dayanand Medical College and Hospital in the Indian Punjab. The studies sought to determine the seasonality of these infections and the antibiotic sensitivity of isolated pathogens. Data showed that incidence was greatest during the hot, dry season. All the isolated strains were mostly susceptible to cephalothin, gentamicin, nalidixic acid, furazolidone, and neomycin.


This letter to the editor reports on an outbreak of cholera that was declared despite failure to isolate vibrios; this was made possible by the use of toxin bead ELISA.


A case-control study was conducted in the highlands of Chiapas, Mexico, to identify factors associated with acute diarrhea in children less than 6 years old. The study found that the diarrhea attack rate among the children surveyed during 3 weeks in the month of August was approximately 30% and that children whose mothers had diarrhea were especially likely to contract the illness themselves. [published abstract]

The author of this article comments on the obstacles to the development of new vaccines. It is his opinion that such obstacles are mostly economic and political. He also reviews vaccine research and development as well as improvements in delivery technology that would facilitate the production and distribution of vaccines around the world.


The U.S. Centers for Disease Control established a National Rotavirus Surveillance System (NRSS) in January, 1989 to monitor national patterns in the epidemiology of rotavirus. This report summarizes the NRSS findings from January 1989 through November 1990.


This review singles out several bacterial and parasite causes of infectious diarrhea about which there have been interesting recent developments in pathogenesis, diagnosis, or treatment. Diarrheagenic mechanisms and infections by Escherichia coli, Salmonella, Giardia lamblia, Entamoeba histolytica, Cryptosporidia, and Isospora are discussed. [published abstract]


A prospective evaluation was designed to evaluate the clinical factors associated with death in children hospitalized with diarrhea in India. Four factors were significantly associated with death: associated major infection, severe wasting, severe stunting, and protraction of illness. In children <19 months of age, breastfeeding had a protective effect. High-risk children can be identified and targeted for intensive intervention, even in settings with high case fatality rates.
The vitamin A status of 454 pre-school age Congolese children was evaluated by the impression cytology method with transfer (ICT) and by the determination of plasma retinol. The subjects were children in good health or suffering from malaria, measles or various infectious diseases. Advantages, disadvantages, sensitivity and specificity of the ICT are discussed. [The authors] suggest its use in mass screening programs for vitamin A deficiency in developing countries. [published abstract]

A study conducted in Matlab, Bangladesh, analyzed mortality patterns of diarrheal diseases and other causes in relation to age, sex, seasonality and yearly variation from 1966-1987. On the average, over 20% of all deaths seemed to be diarrhea related with children aged 1-4 years having the highest diarrheal mortality rate. The rate was also higher in girls than in boys. November was the peak month of diarrheal deaths in this area.

This news note reports on the increased incidence of shigellosis in the US and describes some of the characteristics and symptoms of the disease. Public health education and supervised hand washing for children are cited as preventive measures.

In May 1985, a cyclone and tidal surge devastated Sandwip, an island off the Southern Corner of Bangladesh. Within one week of this disaster a cholera epidemic broke out. It
resulted in 12,194 registered cases and 51 deaths. The factors contributing to the occurrence of the epidemic are analyzed. [published abstract]


A study of two urban areas in Kerala, India, examined the morbidity rate of children from 0-3 years of age. The economic and environmental conditions in the areas differed vastly, one being a slum area and the other a middle class neighborhood. Results indicated that although mortality was low, the morbidity rate was high. The most common illnesses were diarrheal diseases and respiratory infections. Also, the morbidity rate was considerably higher in the slum area than in the middle class area, thus suggesting that environmental and economic conditions can affect morbidity.


In the present paper, using one data set from children in Dhaka, Bangladesh, [the authors] illustrate some of the methodological considerations encountered in using the distributional approach for defining 'chronic diarrhoea'. [They] display the impact of altering these variables on the resultant frequency and/or duration of chronic diarrhoea. [published abstract]


A live oral vaccine consisting of attenuated Salmonella typhi Ty21a expressing Vibrio cholerae 01 Inaba lipopolysaccharide (LPS) 0 antigen was constructed and tested in volunteers [in Australia] for safety, immunogenicity, and efficacy...Although the typhoid-cholera hybrid vaccine did not provide significant protection overall against experimental cholera, this study demonstrates the importance of antibody to V. cholerae 0 antigen in ameliorating clinical illness and illustrates the use of an S. typhi carrier vaccine strain expressing a
foreign antigen. [published abstract]


A total of 854 patients (640 children and 214 adults) admitted with acute or chronic diarrhoea suspected of non-invasive overgrowth of fungi in intestine were screened during a period of 3 years. Fungal proliferation was noted in 54.8% of these patients...The predominant fungal species isolated were Candida albicans...As seen in bacterial diarrhoea, higher incidence was noted in children from April to August. No such seasonal variation was noted in adults. [published abstract]


The authors report on a study designed as a follow-up to one conducted in Grenada from July 1983 to February 1984. The original study (Social Science and Medicine, vol.23, 1986, pp.995-1002) was used in developing a method, the risk approach, for identifying households at high risk of childhood diarrhea. The follow-up, done in 1986, attempted to replicate the original's results, which showed strong associations between risk factors and diarrheal episodes. The results, however, were not replicated. The possible reasons for contrasting results as well as the implications for using the risk approach method are discussed.


The present investigations were designed to analyze the faecal microorganisms and physicochemical properties of diarrhoeal and recovery faecal specimens in Kenyan children in order to clarify the pathogenesis of infectious diarrhoea. [published abstract]

An investigation of the largest nosocomial outbreak of Salmonella Enteritidis in the U.S. found that isolates of S. enteritidis with the same phagetype were found in patients, epidemiologically implicated raw eggs, and the ovary of a hen from the farm that supplied the implicated eggs.


Extracts of black tea exhibited bactericidal activity against Vibrio cholerae 01. The tea extract inhibited the haemolysin activity of V. cholerae 01, El Tor and the morphological changes of Chinese hamster ovary cells induced by cholera toxin. Tea extract also reduced fluid accumulation induced by cholera toxin in sealed adult mice and by V. cholerae 01 in ligated intestinal loops of rabbits. These findings suggest that tea has protective activity against V. cholerae 01. [published abstract]


The epidemiology of foodborne illness in the US and Canada is reviewed in this article. The author also discusses the costs associated with these outbreaks as well as examining the most recent foodborne diseases, such as salmonellosis and Listeria monocytogenes outbreaks and E. coli-associated diseases.


In this review...[the author focuses] on the cellular basis for secretory diarrhoeal diseases and [illustrates] when prospects for therapeutic intervention seem reasonable on the basis of the underlying mechanisms. [published abstract]

The purpose of these guidelines is to assist researchers to identify populations at risk of vitamin A deficiency and to aid in developing appropriate follow-up interventions. The authors also present mechanisms for health workers to advise mothers of high-risk children about appropriate dietary management of vitamin A deficiency.


The authors studied the antibody responses to individual simian rotavirus structural polypeptides in sera of healthy children, in primary and secondary immunodeficiency patients, and in patients with rotavirus infection. Rotavirus IgG, IgA, and IgM responses were studied by immunoblotting...[Results showed that] the scores for primary and secondary immunodeficiency patients were lower than for healthy children. [published abstract]

Van Der Tas; P. HOW TO PLAN A PROJECT AND APPLY FOR FUNDS. AIDS Action, issue 12, December 1990, pp.2+.

This article provides brief guidelines about planning a health project. It reviews basics such as setting objectives, creating an implementation plan, drafting budgets, and conducting evaluations.


Because low gastric acid output (GAO) is an established risk factor for cholera, [the authors] assessed after validation, whether a new non-invasive test which estimates GAO by measuring breath hydrogen excess after ingestion of magnesium and a stimulant of gastric acid secretion, could
discriminate between persons at high and at low risk of developing cholera. Fifteen age-matched pairs, participants in the field trial of two oral cholera vaccines in rural Bangladesh, were tested...The results, which are consistent with past invasive assessments of the association between hypochlorhydria and cholera, suggest that this non-invasive test may be useful in evaluating GAO in epidemiological field studies. [published abstract]


The authors contend that currently there is too much emphasis on health impact during PHC program evaluations. Therefore, they present an evaluation approach which focuses on intermediate variables (e.g. nutrition, hygiene, and reproductive patterns) that directly affect children's health status. Although health impact evaluations should not be eliminated totally, the proposed approach would produce more understandable evaluations and encourage more community participation.


The etiology of diarrhea in children <5 years of age in a low-income housing project in Bangkok was determined over 1 year. Since salmonellae and C. jejuni were the most common bacterial pathogens identified in children <6 months of age, efforts to prevent transmission of salmonellae and campylobacter to young children should be a public health priority in Bangkok.


This project, based on hospitalized children, was undertaken to study the incidence, epidemiology, and clinical features of rotavirus GE [gastroenteritis] in Singapore...Rotavirus was detected in 59 (27.1%) of the 218 GE samples and four (6%) of the control samples. ELISA was the most sensitive test and could detect viral antigen long after the other
methods failed to do so. [published abstract]


This article describes an outbreak of diarrhea due to E. coli which affected healthy school children as well as adults. Results of the investigation indicate that E. coli 0111: B4, and possibly other enteropathogenic E. coli strains, should be considered in the diagnosis of all diarrhea cases, not just infantile diarrhea.


A method for the amplification of rotavirus RNA, reverse-transcriptase polymerase chain reaction (RT/PCR), was developed in order to improve the identification of children excreting rotavirus. When compared in a study to a solid-phase enzyme immunoassay, it was determined that the RT/PCR detected rotavirus shedding for 2-7 days longer than the immunoassay.

3763 Wolff, M.C.; Black, R.E. MANUAL FOR CONDUCTING LOT QUALITY ASSESSMENTS IN ORAL REHYDRATION THERAPY CLINICS. Baltimore, Maryland, Johns Hopkins University, Institute for International Programs, September 1989, 20p.

This manual outlines the methodology for using lot quality assessments (LQAs) to determine if ORT is being properly used to treat children coming to diarrhea clinics. The LQA method involves testing a sample population in order to draw general conclusions about how diarrhea patients are treated.
Although Vibrio Cholera and several other enterotoxigenic bacteria such as the enterotoxigenic Escherichia coli produce secretory diarrhea by exactly the same mechanism, cholera is much more severe. It is proposed that this difference in severity may be because while the alkaline diarrheal fluid produced in these conditions is optimal for the growth of Vibrio cholera, E. coli and other enterotoxigenic bacteria are inhibited. [published abstract]

This study was undertaken to determine the incidence of rotavirus gastroenteritis in hospitalized infants and children >2 years old and its relation to variables such as age, sex, type of feeding, seasonal variations and educational level of the mother.

This brief article describes the isolation of six enteropathogens from the stool of a 30 year old German woman with travelers diarrhea. The pathogens isolated were Entamoeba histolytica, Plesiomonas shigelloides, Campylobacter jejuni, and three strains of Salmonella.

This letter to the editor presents the case of a 38-year-old male patient with diarrhea from whom Aeromonas was isolated as the only pathogen. An Aeromonas strain indistinguishable from the patient's isolate was found in a shrimp cocktail consumed by the patient.

This article briefly describes how Vibrio cholerae attaches to particles commonly found in aquatic environments. Water from such contaminated sources is often used for drinking and washing in many rural areas, thus creating the possibility of water-borne infections.


This letter to the editor describes how photodynamic therapy may be used to eradicate Helicobacter pylori from the stomach.


The hospital-wide attack rate for Clostridium difficile-associated diarrhea at the Hospital of the University of Pennsylvania was observed in 1987. The authors report on their investigation, including a retrospective case/control study with multivariate analysis, undertaken to determine risk factors in the population.


[The authors] review data on the seasonality of rotavirus infections from surveillance studies conducted in a large number of countries, describe the global patterns of rotavirus gastroenteritis, consider the implications of these patterns for transmission, and compare the global trends with those for other childhood viral diseases whose mode of transmission has been established. [published abstract]


The electropherotypes of rotavirus isolated from 500
children with diarrhea and 500 controls in Sao Paulo, Brazil, were classified. Rotavirus was detected in 14.8% of the diarrheal group, of which 5 samples had the "short" and 11 the "long" electropherotype. In the control group, 0.8% of the samples contained rotavirus, all of which had "long" electropherotype.


The relation between E. coli adherence patterns and type and duration of diarrheal episodes during the first two years of life was studied in 636 fecal specimens from 72 Mexican children. Of the 373 specimens yielding E. coli, strains with localized adherence were significantly associated with acute non-bloody diarrhea, whereas strains with aggregative adherence were significantly associated with persistent diarrhea. Isolation of strains with diffuse adherence was not related to type or duration of diarrhea but was generally associated with isolation of another pathogen.

3960 Cruz, J.R.; Caceres, P.; Cano, F. et al. ADENOVIRUS TYPES 40 AND 41 AND ROTAVIRUSES ASSOCIATED WITH DIARRHEA IN CHILDREN FROM GUATEMALA. Journal of Clinical Microbiology, vol.28 no.8, August 1990, pp.1780-1784.

To determine the relative importance of the most common viral agents of diarrhea in the Guatemalan population aged 0 to 36 months, [the authors] studied the prevalence of excretion of Ad40 and Ad41 and rotaviruses in healthy and sick children from a rural community in Guatemala and in a group of patients hospitalized because of gastroenteritis. [published abstract]


In the UK, about 9,000 cases of cryptosporidiosis were reported in 1989. The waterborne cases represent only a small fraction of all cases of diarrhea, but should the main source of water become contaminated, many cases of illness may occur in the local area of supply. Health authorities and water companies should develop a contingency plan for the recognition and management of an outbreak of the disease.
4162 Dan, M.; Gutman, R. PREVALENCE OF CRYPTOSPORIDIOSIS IN ISRAELI CHILDREN WITH DIARRHOEA. Journal of Infection, vol.21, 1990, pp.139-141.

In a prospective study, Cryptosporidium oocysts were detected in seven (3.25%) immunocompetent children with diarrhoea. The predominant clinical features were watery diarrhea and vomiting. The patients' mean age was 1.9 years and infection was more common in late summer-autumn than in the rest of the year. [published abstract]


During an 18 month survey of children admitted to hospital with gastroenteritis, oocysts of the protozoan Cryptosporidium were detected in 35 cases (1.6% of the total surveyed). The affected children...were immunocompetent...Vomiting (94%) with dehydration (80%), fever (66%) and abdominal pain (26%) were clinical features of the diarrhoeal illness which lasted a mean 8.2 (range 3-14) days. [published abstract]


In this article the author describes the sources, modes of transmission, and pathogenesis of foodborne illness caused by Yersinia enterocolitica, Vibrio parahaemolyticus, and several strains of Escherichia coli.


A case-control study in children <5 years of age was undertaken in Bahrain during a 2-year period to study the etiology of diarrhea. Rotavirus was the enteropathogen most commonly detected (20.8%) and represented 68.7% of the total positives from the cases. Rotavirus was detected more often in children of mothers with university education and in children from higher income homes.
The aim of this study was to evaluate the relative incidence, etiology and clinical severity of gastroenteritis caused by more than one microorganism in infants. Patients with gastroenteritis due to a single agent compared with multiple pathogens had a milder course of disease, a milder degree of dehydration and acidosis, a lesser need for i.v. fluid treatment and shorter hospitalization. [published abstract]

This article consists of a case study of a 22-year-old woman with thalassaemia major who suffered from diarrhea due to Cryptosporidium.

In this review [the authors] explore the increasingly complex taxonomy of the genus Campylobacter and discuss various aspects of the physiology of the organisms of relevance in isolation, cultivation, and survival. [They] consider isolation and identification techniques for those Campylobacters known to cause enteritis and discuss aspects of relevance to the control of the spread of Campylobacter enteritis via foods and water. [published abstract]

A total of 112 EPEC strains isolated from children with diarrhoea in New Zealand were examined for mannose-resistant HEP-2 cell adherence and production of exotoxins. Enterotoxin production was not detected in any of the strains examined. Verotoxin production was detected in 13 (11.6%) strains and of these 4 were also found to adhere to HEP-2 cells...These results suggest that if EPEC strains are to be considered as a cause of diarrhoea, the search for new virulence factors must be extended. [published abstract]
This report deals with the clinical and biochemical features of rotavirus gastroenteritis among Indian infants in South Africa, and the outcome in these patients. Mean total duration of rotavirus diarrhea was 5 days, with less than 2% of patients developing persistent diarrhea. Breastfeeding was associated with milder disease.

The importance of C. jejuni as an etiological agent of childhood diarrhea was investigated at an urban hospital in Dhaka, Bangladesh. The significantly higher isolation rate of C. jejuni as the single pathogen from diarrheal patients compared to healthy controls strongly indicates its association with childhood diarrhea in Bangladesh.

To determine the epidemiology and risk factors of rotavirus infections in St. Lucia, 229 children in 3 valleys with varying levels of sanitation were studied for 2 years. Results showed that 48% of infants experienced at least one infection during a 2-year period, and 17% of children were reinfected. Although crowding in the home was significantly associated with repeated infection, the incidence of infection was not affected by the degree of sanitation.

This study aimed to (1) determine the proportion of children presenting with acute EPEC infections who develop chronic diarrhea; (2) compare this with the prevalence of chronic diarrhea in children with diarrhea from other causes; (3) examine characteristics associated with EPEC and chronic diarrhea, and (4) review the treatment of these patients.
The authors studied the risk of C. difficile transmission among patients at a U.S. hospital. Of the 282 patients cultured, 60 were positive for C. difficile. Among this culture-positive group, 51 were symptom-free fecal excretors while the other 9 developed C. difficile diarrhea. Because the diarrheal patients were all on the same ward and the C. difficile isolates from their stools were nearly identical, nosocomial infection was implicated as the cause of the outbreak.

For a period of 2 years, 402 patients and an equal number of controls from Pakistan were studied for the presence of diarrhea pathogens. Pathogens were isolated from 277 patients and 97 controls. Enteropathogenic Escherichia coli was the most frequently isolated pathogen in both the patient and the control group.

In this article the authors report on two distinct groups of aerotolerant Campylobacter that were found among strains of human and animal origin. The characteristics of the isolates and the results of the phenotype tests and DNA studies are presented.

This issue focuses on viral agents of gastroenteritis, such as rotavirus, adenoviruses, and Norwalk viruses, and describes their epidemiologic and clinical features. It also presents various methods of detecting these pathogens as well as ways to prevent and control viral gastroenteritis outbreaks.

After an outbreak of Yersinia enterocolitica infections among black children in Atlanta, a 7-hospital study was conducted to determine the importance of this pathogen in other communities with large black populations. Illnesses were clustered around the holidays, and 62% of patients had been exposed to raw pork intestines in the 2 weeks before the onset. Y. enterocolitica 0:3 is emerging as an important enteric pathogen in this country.


In this letter to the editor, the author comments on Salmonella strains in India which are resistant to several drugs including ampicillin, chloramphenicol, and cotrimoxazole. These strains may also have decreased sensitivity to fluoroquinolones, which are currently used to treat enteric fever caused by multiresistant strains.


A surveillance study of children in Mexico <5 years of age was designed to assess (1) the incidence of diarrhea-associated and asymptomatic intestinal infections by ETEC; (2) frequency of ETEC strains possessing CFA/I, CFA/II, or CFA/IV and the surface antigens of the latter two; and (3) whether the presence of enterotoxin of these CFAs is a risk factor for diarrhea.


During a recent investigation on the etiology of infantile diarrhea in Recife, a city situated on the Northeast Coast of Brazil, eight (5%) strains of Vibrio were identified. Five strains were classified as V. fluvialis and the three others as V. furnissii. In six patients, Vibrio might have been the primary agent of the diarrhea. [published abstract]
Menon, S.; Santosham, M.; Reid, R. et al.  
**ROTAVIRUS DIARRHOEA IN APACHE CHILDREN: A CASE-CONTROL STUDY.**  

A case-control study of rotavirus diarrhea in Apache children up to 2 years old was conducted at the White Mountain Apache reservation in 1985 to identify risk factors for rotavirus diarrhea. Exposure to other children with diarrhea was the single most important factor for acquiring rotavirus diarrhea. Other risk factors were living in homes with septic tanks or in homes with poor environmental sanitation.

Mitra, A.K.; Kabir, I.; Hossain, M.A.  
**PIVMECILLINAM-RESISTANT SHIGELLA DYSENTERIAE TYPE I INFECTION IN BANGLADESH.**  

The authors of this letter to the editor report on the resistance of various strains of Shigella to common antibiotics and antimicrobials.

**BACTERIAL AETIOLOGY OF INFANTILE DIARRHOEA IN PAPUA NEW GUINEA.**  

Bacterial examination of stools of children with diarrhea was carried out at Port Moresby, Papua New Guinea, where little information is available concerning the causative bacteria of diarrhoea. Shigellae, enterotoxigenic Escherichia coli, Bacillus cereus, Staphylococcus aureus, Campylobacter jejuni, and Aeromonas hydrophila were isolated for the first time in this country. [published abstract]

Piddock, L.J.V.; Whale, K.; Wise, R.  
**QUINOLONE RESISTANCE IN SALMONELLA: CLINICAL EXPERIENCE.**  

In this letter to the editor the authors comment on the treatment of Salmonella typhimurium infections with quinolones and discuss the issue of drug resistance.

Piddock, L.J.V.; Wray, C.; McClaren, I. et al.  
**QUINOLONE RESISTANCE IN SALMONELLA SPP: VETERINARY POINTERS.**  
The authors of this letter to the editor report on various Salmonella isolates in animals which are resistant to quinolone drugs.


Fecal specimens from 320 subjects with and 450 subjects without diarrhea were screened for Campylobacter jejuni and C. coli. These pathogens were detected in 5% of subjects with diarrhea and in 0.7% of patients without. The results show that C. jejuni and C. coli are prevalent in the population of northern India and have a definite role in the pathogenesis of the disease irrespective of age.


Escherichia coli was isolated in 382 (94%) of 406 children from 0 to 3 years of age who had been hospitalized for diarrhoea at the Hospital Municipal Salles Neto, Rio de Janeiro...Among the samples in which EPEC strains were isolated, 15% were children living in dwellings which had piped systems of water supply and drains, whereas with regard to those living in houses without such facilities, this percentage was raised to 24%. [published abstract]


This letter reports on a laboratory survey in Great Britain of the incidence of Salmonella in raw, chilled, and frozen whole chicken. The results are reported.


In these letters to the editor the authors discuss the spread of strains of Salmonella typhi which are resistant to several drugs, such as chloramphenicol, trimethoprim, ampicillin, and ciprofloxacin.
The present study describes the spectrum of rotavirus disease in a cohort of Finnish infants followed from birth to the age of 24-32 months... The mean severity score for the 65 episodes of rotavirus diarrhoea was 11.0 plus or minus 3.7 as compared to 5.6 plus or minus 3.2 for the 183 episodes of non-rotavirus diarrhoea in the same population.

(published abstract)

The authors studied the distribution of two biotypes of Vibrio cholerae -- El Tor and classic -- in 24 rural districts of Bangladesh during epidemics in 1988-89. There was clustering of the classic biotype in the southern region and of the El Tor biotype in all other regions. These findings suggest that the southern coastal region is now the habitat of classic cholera.

In regard to a Lancet article on the relation between human Campylobacter enteritis infection and consumption of milk from bottles attacked by birds, the first letter describes a study that took place in Truro, Cornwall. The study showed that magpies are commonly infected with C. jejuni. The second letter concerns studies carried out by the British Trust for Ornithology regarding bird attacks on milk bottles.

A case-control study was carried out to test the hypothesis that the rise in the rate of Campylobacter jejuni infection in South Wales was due to the consumption or handling of milk from bottles that had been attacked by birds. There were strong associations between Campylobacter infection and doorstep delivery of milk bottles, a history of milk bottle
attack by birds, milk bottle attack by birds during the week before illness, and consumption of milk from attacked bottles during the week before illness.


In 631 Thai children with diarrhea, Campylobacter species were isolated from 93 (15%). Atypical Campylobacters were isolated from 17 (3%) of the cases. In this article the authors discuss the isolation rates and describe the microbiologic and clinical features of the atypical strains.


This study examined the frequency of EIEC bioserotypes in the feces of a large group of children aged 1-5 years with diarrhea and controls, screening the strains by biochemical and serological tests, and by the Sereny test. The results suggest that EIEC frequency increases with age and that it occurs more often in children living in slum areas than in developed areas.


The authors of this letter to the editor describe the characteristics of the different V. cholerae strains isolated from South America and the U.S. gulf coast. Though both strains tend to be serotype Inaba, the isolates from the recent South American epidemic have some different characteristics from the gulf coast strains.


The author of this letter to the editor comments that Entamoeba coli should not be disregarded as a diarrheal pathogen. He cites ten cases of persistent diarrhea which appeared to be linked to Entamoeba coli.

The infant feeding practices and home environment of 346 children aged 0-5 years suffering from protein-energy malnutrition in Sudan was studied. Breastfeeding was the preferred type of infant feeding. Age of introduction of complementary foods was delayed; when such foods were offered, they were prepared and served improperly. Eighty-eight per cent of households did not have a clean water supply and latrine. Health education on complementary foods, proper weaning, and hygiene was recommended.


This article reports on a case of congenital chloride diarrhea in a Saudi boy which was suspected ante-natally, confirmed post-natally and managed successfully. The literature on this condition is also reviewed.


This article briefly describes a December 1987 survey which was carried out to determine the rates of persistent diarrhea among Peace Corps volunteers, to identify countries or regions with increased persistent diarrhea rates, and to obtain preliminary data on potential risk factors. Initial results showed that rates were highest in Haiti, and that there was a possibility that drinking unpasteurized milk contributed to diarrheal episodes.


Over a period of 4.5 years, the incidence of rotaviral gastroenteritis in 1729 adults and children was investigated at a referral hospital in Saudi Arabia. Rotavirus was
isolated in 547 of the patients with the majority of cases occurring in in-patients. The authors conclude that rotavirus seems to be emerging as an opportunistic pathogen in debilitated and immunocompromised patients.


In a South Indian hospital department, 150 children out of 1807 who required admission for diarrhea had non-typoidal Salmonellosis. 70% had the illness for 10-14 days while 30% had it for more than 14 days. 70% of the infants were bottle-fed and were in grades II-III malnutrition. Overall mortality was 8%. Antibiotics played a limited role in treatment.


In this letter to the editor the authors present the case of a 72 year old woman who developed persistent diarrhea as a side effect of taking the drug digoxin.


This article begins by examining the epidemiology of foodborne viruses, including food contaminated at the source and at the time and place of preparation. It then reviews information on hepatitis viruses, gastroenteritis viruses and virus detection.


A study was carried out in Santiago, Chile to identify and describe characteristics of persistent diarrhea and subsequently to create a predictive model for persistent diarrhea to be used in preventive programs. Risk factors were identified and logistic regression was used to create a model to identify diarrheal patients who were at risk of prolonged illness.

Records of 36,358 pediatric consultations performed at a primary health care center in Santiago, Chile in 1984 were retrospectively evaluated in regard to persistent diarrhea. Diarrhea represented 5.1% of the consultations; of these, 6.3% were cases of persistent diarrhea. Such diarrhea was most common in children under 2 years of age and among malnourished patients.


A case of gastroenteritis due to Giardia lamblia with severe dehydration and complicated with arterial thrombosis, accompanied by eosinophilia and increased serum IgE levels, is presented. The relationship between Giardia and eosinophilia and allergic manifestations is discussed as well as its pathogenesis. [published abstract]


Referring to a study on a community-based approach to pneumonia which appeared in the July 28, 1990 Lancet, the authors challenge Dr. Bang's assumption that baseline infant and childhood mortality rates in the control and intervention areas were similar. Dr. Bang responds in the letter that follows.


The bacteriology and epidemiology of foodborne salmonellosis are described in this article as well as the costs in terms of food production and health care. The author also discusses the sources and modes of transmission, which mostly consist of consuming contaminated food or water. Since the main source of the pathogen is animals used for food, prevention methods must include careful testing and supervision of livestock.
In this letter to the editor, the authors discuss Khan et al.'s study of ARI in Abbottabad, Pakistan (The Lancet, October 13, 1990). They suggest that the reduction in ARI incidence, which was attributed to community based management in the study, could have been the result of environmental or methodological changes.

This community-based intervention trial in Gadchiroli, India aimed to reduce childhood mortality from pneumonia. Interventions included mass education about childhood pneumonia and case management of pneumonia by paramedics, village health workers and TBAs who were trained to recognize pneumonia and treat it with co-trimoxazole. The trial succeeded in significantly reducing childhood mortality due to pneumonia in the intervention area.

The authors examined the effect of zinc supplementation on linear growth of children in urban Dhaka presenting with acute diarrhea, and followed them at home over 8 weeks during their catch-up growth phase. In this letter to the editor, they report the results of a double-blind, randomized controlled trial with a zinc acetate supplement.

This article provides an overview of shigellosis, including cause, identification through stool cultures or clinical signs, treatment and prevention. Key components of shigellosis treatment are antibiotics, continued feeding, replacement of fluid loss, and follow-up within 48 hours.
To evaluate whether diarrhea is a major cause of malnutrition or whether the association between diarrhea and growth retardation can be explained by a higher susceptibility of malnourished children to diarrhea, all recent studies examining the association were reviewed. That malnutrition predisposes to diarrhea seems likely; however, it is not clear whether diarrhea is a major cause of malnutrition.

The present study was carried out to assess the vitamin A status of preschool children from low socioeconomic families living in the periurban population of Ankara, Turkey, and who have a history of recurrent acute respiratory infections or diarrhea. Sixty-four percent of the children examined had low levels of serum vitamin A.

A study of mothers' perceptions of childhood acute respiratory infections (ARI) was performed in a rural Gambian population. Mothers recognized ARI as a severe disease and recognized fast and difficult breathing as features which discriminated it from upper respiratory infections. They sought treatment on 51% of occasions when chest pain was reported and on 70% of occasions when "open chest" was reported. Even in poorly educated populations, it should be possible to educate mothers to recognize ARIs and to seek treatment.

This news note briefly describes the incidence of Campylobacter and Cryptosporidium infection among a group of children following a school visit.
school children and adults visiting a farm in Scotland. The specific vehicle of infection was not identified, although the consumption of unpasteurized milk from the farm was suspected.


This article discusses foodborne transmission of protozoa which, though uncommon, is almost certainly underdetected. Foodborne enteric infections such as giardiasis, amoebiasis and cryptosporidiosis are discussed, as are foodborne systemic infections. Measures to prevent infection are described.


This article briefly reports on cases of cholera which have been reported in New Jersey and Florida. In New Jersey the cases were linked to consumption of illegally transported crab meat which was contaminated. No cholera cases have been attributed to commercially imported foods. The single case in Florida was that of a woman who had traveled in Ecuador and consumed raw seafood.


This brief article reports on an outbreak of cholera in Peru in January 1991. An editorial note by the Centers for Disease Control comments on the current pandemic of cholera and public health measures to prevent and treat cholera.


This article presents statistics on the global incidence of cholera in 1990. The disease was reported by 36 countries around the world with a total of 69,361 cases. The total number of cases in each reporting country is provided as well as a map indicating countries in which cholera is endemic.
A report on the recent cholera epidemic in Peru is presented in this article as well as a brief history of previous cholera pandemics. Control measures largely focus on improving sanitation and hygiene while treatment entails oral rehydration or IV therapy for the victims. Travelers in endemic areas should avoid eating raw seafood and drinking potentially contaminated water.

This news note briefly reports on the status of the current cholera outbreak in Peru. The relief efforts to date are also discussed.

This information kit provides general information about cholera as well as articles and news notes about the current outbreak in Latin America. There is also a set of guidelines about cholera management which include preparations for possible outbreaks, early responses to outbreaks, cholera treatment, prevention strategies, epidemiologic investigation, and follow-up after controlling an outbreak.

This document provides an overview of the cholera epidemic in Latin America. It specifically reviews the status of the outbreaks in Peru, Ecuador, and Colombia. In addition, it discusses the following topics: historical background of cholera in the Americas; epidemiological surveillance; clinical diagnosis and treatment; laboratory diagnosis; environmental health and prevention strategies; and risk of transmission of cholera by foods.

WHO has no documented evidence of a cholera outbreak occurring as a result of the importation of food across...
international borders. In this brief article, WHO reviews various kinds of foods and the possibilities of contamination.


This article provides a brief historical overview of cholera and how it has spread globally. It also provides statistics on the current epidemic in Peru. As of February 21, 1991, 32,585 cases and 139 deaths have been reported. The proportion of persons hospitalized is 20% and the overall case fatality rate is 0.4%.


This article summarizes the measures taken to control the current cholera epidemic in Peru. The contributions of the United Nations and foreign governments are outlined as well as actions taken by the Peruvian government. Basic control guidelines, including treatment, prevention, sanitation, and food safety, are also presented.


This article briefly discusses the etiology of cholera as well as measures to control outbreaks and treat victims. Control measures largely focus on improving sanitation and providing prevention education. Treatment should mainly consist of oral rehydration, with IV therapy and antibiotics reserved for very severe cases.


A study of 1262 children in Matlab, Bangladesh was carried out to observe if diarrheal illness during one period influenced diarrheal illness in a subsequent period and if this relationship masked the association between diarrhea and malnutrition. Results showed that children who had one diarrheal episode were more likely to have a second episode during the two months following the original attack. Data
also indicated that children with no previous diarrhea showed a positive association between malnutrition and subsequent diarrhea; however, the pattern among those with previous diarrhea was not understandable.


This review article presents the different types of infectious gastroenteritis, the common etiologic agents, and treatment approaches. The types of diseases discussed include inflammatory and non-inflammatory diarrheas, invasive infections, and diarrhea associated with AIDS. Treatment measures reviewed include fluid therapy and use of antibiotics.


[In a British hospital] thirty-three consecutive patients infected by human immunodeficiency virus type 1 (HIV1) with persistent diarrhoea which remained undiagnosed after microbiological examination of six stool samples and rectal histology were investigated for malabsorption...Evidence for malabsorption existed in 24 patients...A simple scoring system based on degree of weight loss and Schilling test results may help to identify the HIV positive patient with seemingly pathogen-negative diarrhoea in whom further investigations are likely to show a specific cause.

[published abstract]


This brief article reviews the risk factors and clinical management of persistent diarrhea. It appears in both English and Arabic.


To investigate the epidemiology of acute and persistent diarrhea, 130 infants in a marginal urban area of Guatemala City were studied. The children were weighed and measured to determine nutritional status. The infants suffered 5.2
episodes annually; 9.4% of all episodes lasted at least 2 weeks. Diarrheal illnesses had a deleterious effect on nutritional status.


This paper reviews the epidemiology of measles in the pre- and post-immunization eras, based on examples from Africa and the USA, and relates this to the effect of immunization programs predicted by mathematical models. Recommendations are made for the improvement of measles control in developing countries.


The part that candida plays in antibiotic-associated diarrhoea was investigated in 24 elderly inpatients (mean age 74 years) who tested negative for Clostridium difficile toxin and other intestinal pathogens. 7 had intestinal overgrowth of Candida species...None of the 24 matched, antibiotic-treated controls without diarrhoea had candida overgrowth...In patients without candida overgrowth, diarrhoea persisted until antibiotics were withdrawn, at a mean of 16 days after study entry. [published abstract]


This letter to the editor reports on an unusual case of very prolonged diarrhea associated with Aeromonas infection in a healthy woman. The woman was successfully treated with Norfloxacin.

3849 LA DIARRHEE DU CHACAL. Developpement et Sante, no.87, 1990, pp.16-17.

This fable, concerning a jackal with diarrhea, can be read to children to warn them of the danger of dehydration. Questions for discussion are included at the end.
4111 DIARRHOEA AND POTASSIUM. Dialogue on Diarrhoea, issue 41, June 1990, p.7.

This article explains how diarrhea can deplete the body's potassium levels and how the deficiency can be corrected by using packaged ORS or adding potassium-rich foods to the patient's diet.


The prevalence of vitamin A deficiency in the Philippines is presented in this brief article. The author also outlines basic treatment for this condition based on the WHO recommendations for vitamin A supplementation.


In this article the author discusses the following nutritional issues: 1) the interactions between protein-energy malnutrition and infection; 2) the effects of certain vitamin deficiencies (A, C, B9, B6) on immune systems; and 3) the effects of certain mineral deficiencies (zinc, iron) on immunity. He also reviews vitamin and mineral supplementation as a way to combat these deficiencies.


An NIH Consensus Development Panel recommended against routine chemoprophylaxis for travelers. However, the author of this article suggests that it is possible to identify persons who could be encouraged to take chemoprophylaxis. These persons should constitute a minority, and no one should take prophylaxis for a stay longer than three weeks due to possible adverse side effects.


The author of this editorial describes several types of parasitic diarrhea. The diarrheas described include amebiasis, giardiasis, trichuriasis, strongyloidiasis, balantidiasis, schistosomiasis, and intestinal capillarisis.

The author of this editorial describes and defines persistent diarrhea, identifies some risk factors associated with the condition, and presents some possible treatment methods.


In these letters to the editor, the authors explore the reasons why hypoglycemia during diarrhea in childhood can result in death.


This article comments on a study by Batchelor and Kerslake that suggests that much failure to thrive is missed by health professionals, and that the feeding process is the root cause.


This article focuses on the socioeconomic effects of the current Latin American cholera epidemic on Tumaco, one of the poorest regions in Colombia. Extreme poverty combined with poor sanitation is contributing to the spread of the disease. In addition, many people are unwilling to take precautionary measures such as boiling water due to traditional beliefs about disease transmission and prevention.


This review article describes the risk factors, etiology, and prevention of travelers' diarrhea, including dietary factors, antimicrobial chemotherapy, and non-antibiotic approaches. Treatment of such diarrhea, based on the use of ORT, is also discussed. A variety of antibiotics are known to reduce the duration of travelers' diarrhea; however,
these cannot be recommended.


This letter to the editor reports on two patients with diabetic ketoacidosis treated at a rural clinic in Pakistan with ORS and insulin. These cases showed that loss of fluid, sodium, and potassium, and the acidosis of diabetic ketoacidosis can be corrected with ORS.


Diabetic ketoacidosis is potentially a life threatening condition, which warrants prompt and effective treatment. Two cases of diabetic ketoacidosis from a rural clinic are described. Both were successfully managed by oral rehydration salt (ORS) and insulin injections. ORS can be safely and effectively given in diabetic ketoacidosis where facilities for intravenous fluids and laboratory measurement of blood glucose and electrolytes are not available. [published abstract]


Five hundred and ninety-four patients were consecutively admitted to an infectious disease unit over a 2-year period with a referral diagnosis of acute gastroenteritis or food poisoning. In 175 (29%) patients, gastrointestinal symptoms were associated with a condition other than gastrointestinal infection...Four illustrative case histories are presented to emphasize the need for a high index of suspicion if diseases such as malaria, septicaemia or appendicitis are not to be missed. [published abstract]


In this letter to the editor the authors describe the case of a 70-year-old patient infected with Vibrio cholerae as a result of eating shellfish.
In this letter to the editor the authors endorse the use of competitive exclusion technique as a means to reduce Salmonella in poultry.

Promoting home gardening and instilling awareness among care providers and families about the importance of vitamin A in the diet can permanently improve the intake of vitamin A-rich foods. This article discusses the obstacles to implementing home gardening projects successfully.

The vitamin A status of 454 pre-school aged children in the Congo was evaluated by the impression cytology method with transfer and by the determination of plasma retinol. The authors conclude that there is a significant relationship between vitamin A deficiency and a malarial attack.

In this article the authors discuss various infectious diseases which US military personnel recently deployed in the Middle East may have contracted. The types of diseases reviewed include gastrointestinal illnesses and enteric fevers such as malaria and Congo-Crimean hemorrhagic fever. The extent of these diseases in the Middle East and possible modes of treatment are outlined.

This article reports on 12 cases of gastroenteritis in Hawaii which were attributed to consumption of raw clams and
oysters. An etiologic agent was not identified. The implicated seafood was inappropriately labeled by distributors, thus causing confusion over the exact place of harvest.


This article describes diagnosis and treatment of diarrhea due to parasites such as G. lamblia, ameba, Cryptosporidium, and strongyloides.


A cohort of 111 children from Bangui, Central African Republic, was followed for enteric campylobacter infection from birth until the age of 2 years...349 episodes of diarrheal illness were recorded (1.6 per child-year). Campylobacters were isolated from 41 (11.7%) of the 349 episodes, but in half of them another enteric pathogen was also isolated...Campylobacter infections were statistically associated with the presence of live poultry and the lack of piped water in homes. [published abstract]


During 6 months, 506 consecutive adult emergency admissions to hospital in Nairobi were enrolled in a study of bacteraemia and HIV infection. 19% were HIV-1 antibody positive. Significantly more HIV-seropositive than seronegative patients had bacteraemia (26% vs 6%)...The findings suggest that non-opportunistic bacteria are important causes of morbidity and mortality in HIV-infected individuals in Africa. [published abstract]


In this letter to the editor an inquiry is made about diagnosing an infant with persistent diarrhea. In his
response, Dr. Joseph Fitzgerald offers a differential diagnosis which suggested that the child may have a type of colitis or rectal/distal colon mass lesion. He also discusses what further analysis can be done to reach a final diagnosis.


This article discusses some unique clinical features of AIDS in Africa that influence clinical decision making and that should also bear on planning for the care of patients. These features may provide a framework for mobilizing an appropriate response to the clinical problems of patients. The problems of pediatric AIDS are not discussed.


The author of this article comments on the use of vitamin A supplements as a means of reducing childhood mortality in developing countries. He briefly reviews two studies from Indonesia and India and draws the conclusion that mass supplementation programs are only interim measures that cannot be viewed as long-term solutions. Instead, promotion of better overall nutrition and increased access to health care should be the goals on which to focus developing countries' resources.


This case-control study evaluated the enteric pathogens isolated from children with measles-associated diarrhea compared with children with only diarrhea during the acute stage of infection during hospitalization. Growth and diarrheal morbidity were evaluated for one month after acute illness. The data support the theory of measles as a risk factor for developing diarrhea.


Diarrheal Diseases and Related Conditions
A case-control study was conducted to investigate occult enteric infections and morphologic changes in the small intestine in advanced AIDS patients with chronic diarrhea of undefined cause. One half of the cases showed an occult infectious cause. The authors discuss the characteristics of this condition and suggest possible causes.


This article reports on an outbreak of gastroenteritis among staff and children at a day care center in Sydney, Australia between January and March 1988. Human calicivirus (HCV) was identified as the principal etiologic agent although the mode of transmission could not be determined. The authors suggest that HCV may be a common cause of gastroenteritis in children that is unrecognized due to insensitive methods of detection.


The authors of this letter to the editor discuss the prevalence of travelers diarrhea caused by enteroadherent E. coli in North Africa and the Middle East, especially among military personnel currently stationed there.


The authors conducted a study of travelers diarrhea in US military personnel deployed in Cairo, Egypt, during July and August 1987. Acute diarrhea requiring medical attention developed in 183 of 4500 troops. Enteric pathogens isolated included enterootoxigenic E. coli, Shigella, Campylobacter, Salmonella, and V. cholerae. A survey of personnel not seeking medical care indicated that 40% of troops may have had diarrhea during this deployment. Travelers diarrhea could cause substantial morbidity in military personnel stationed in Egypt.

It has been estimated that one fifth of all deaths from childhood diarrhea are rotavirus related. In this article the author describes the clinical features, pathophysiology, and treatment of rotavirus diarrhea. He states that oral rehydration therapy should be the main form of treatment for diarrhea caused by rotavirus.


This article discusses the cases of 17 infants with persistent diarrhea who were admitted to a South African hospital. The author describes the patients, the clinical features of their conditions, treatment procedures, and the outcome of the treatment. Basic treatment consisted of oral rehydration supplemented with intravenous fluid when necessary.


A study of 4,588 pregnant women in a high risk Haitian population was conducted in order to quantify the impact of maternal HIV-1 infections on birth weight, gestational age, child survival, and malnutrition. Results showed that HIV-1 seropositive women were more likely to deliver babies who were premature and of low birth weight as well as malnourished at 3 and 6 months of age. Mortality rates of infants born to HIV-1 seropositive mothers were also higher than those of babies born to seronegative women. In addition, the estimated rate of mother-to-infant HIV-1 transmission in breastfed infants was 25%, similar to rates reported for non-breastfed children in Europe and in the US.


The purpose of this series of experiments was to understand
better the effect of carbohydrate (CHO) malabsorption on fecal water output. The data indicated that excessive fecal excretion of CHO and organic acids is common in patients with malabsorption syndrome. CHO malabsorption can contribute significantly to fecal calorie loss in these patients and can be the major cause of their diarrhea.


A study was conducted in the Infectious Diseases Hospital in Rangoon (Burma) to determine the magnitude of measles-associated diarrhoea morbidity and mortality in children under 6 years of age contributing to the overall diarrhoeal morbidity and mortality, and to determine the bacterial pathogens of measles-associated diarrhoea cases. [published abstract]


These two letters to the editor discuss the effects of symptomatic treatment of AIDS-related diarrhea.


This paper presents findings from several communities in Bangladesh on the importance of dysentery with respect to its prevalence at different ages, its relationship with pathogens, and its association with persistent diarrhea, nutritional status, and death. The impact of improved hygiene on the prevalence of dysentery is also demonstrated.


Ciprofloxacin is an uncommon cause of pseudomembranous colitis. A case is described in which diarrhea was associated with the presence of clostridial toxin in an HIV-infected patient and the possible implications are discussed. [published abstract]

[The authors] conducted a randomized, double-blind trial involving 189 children who were hospitalized at a regional center in South Africa because of measles complicated by pneumonia, diarrhea, or croup. The children...were assigned to receive either Vitamin A...or placebo...beginning with five days of the onset of the rash...[They conclude that] treatment with vitamin A reduces morbidity and mortality in measles, and all children with severe measles should be given vitamin A supplements, whether or not they are thought to have a nutritional deficiency. [published abstract]


The case of a U.S. physician who contracted cholera while attending a conference in Lima, Peru is reported in this news note. Travelers are advised to avoid raw seafood and contaminated water when in Latin American countries affected by the current epidemic.


The authors studied urinary acidification daily during the hospital course of 16 infants with acute gastroenteritis and metabolic acidosis. They conclude that impaired urinary acidification is frequently found during metabolic acidosis in infants with acute gastroenteritis and results from a sodium deficit rather than from transient distal renal tubular acidosis.


The authors report on an outbreak of chronic, secretory diarrhea characterized by multifocal colitis which occurred between May and August 1987 in rural Henderson County, Illinois. The water at a local restaurant was implicated originally as the source, although no pathological organism was isolated. The authors conclude that multifocal colitis
may serve as a marker of infectious, chronic diarrhea.


This article briefly reports on how A.I.D. 's health programs have assisted Peru in managing the current cholera epidemic. The Agency is also working with other organizations, such as the Centers for Disease Control and the Pan American Health Organization, to coordinate aid to Peru and other Latin American countries with cholera outbreaks.


This article describes the bacteriological characteristics of Listeria monocytogenes as well as the symptoms of human listeriosis. Because the pathogen is so widespread in the environment—in dust, soil, water, animals, and fresh or processed food—it has been difficult to identify specific modes of transmission.


In this letter to the editor the authors describe a small outbreak of foodborne giardiasis in two Turkish families as a result of eating tripe soup.


This review summarizes recent developments in the understanding of Shigella pathogenesis, with an emphasis on the presentation of the disease in populations in developing countries. It also briefly highlights the most pertinent research issues.


Between 1985 and 1987, a community-based case-management programme for acute lower respiratory infection (ALRI) was conducted in a rural district of northern Pakistan. The
impact on infant and child mortality of this programme, which included active case-finding and maternal health education, was evaluated...Case management of acute respiratory infection by village-level community health workers backed up by local health centre staff appeared to significantly reduce both ALRI-specific and total infant and child mortality rates in this setting. [published abstract]


In response to the Lancet article by Dr. Bang et al on pneumonia case management by village-level CHWs, this letter to the editor discusses a 3-year intervention study in rural Pakistan. In this study, the authors observed not only a decrease in pneumonia deaths, but a decrease in the incidence of pneumonia.


The authors set up a clinical field trial to study the effect of low-dose, short-term antibiotic treatment on rice carbohydrate malabsorption and growth in Burmese village children aged 6-59 months. The purpose was to test the hypothesis that antibiotics would improve rice carbohydrate absorption and thus growth and nutrition of children with rice carbohydrate malabsorption. The authors conclude that only the subgroup of children aged 36-47 months had significantly greater linear growth when treated with antibiotics.


The authors suggest that rotavirus infection may be an important initiating illness in persistent diarrhea. They present the results of a case-control study to investigate the relationship of rotavirus infection to persistent diarrhea.

The authors report a patient with hypertonic dehydration treated with unmonitored oral administration of water who developed generalized seizure despite having a normal serum sodium level at the time of seizure...[They conclude that] the clinician needs to be aware that oral rehydration with plain water in the hypernatremic patient may cause a rapid increase in serum sodium and may cause seizures. [published abstract]


The authors of this letter to the editor comment on an article by Bloem et al which discussed vitamin A deficiency and risk of diarrhea and respiratory infections. They cite examples of several variables that must be considered before concluding that vitamin A supplementation can significantly reduce risks of infections. A reply by the authors follows.


Longitudinal studies of acute and persistent diarrhea in 677 children less than 3 years old were conducted for 27 months in a periurban community near Lima, Peru. The results indicate that there are no clinical or laboratory features of acute diarrhea that are strongly predictive of the subset of diarrheas that persist.


These letters to the editor comment on the study by Rahmathullah et al. which reported decreases in child mortality following vitamin A supplementation. The authors discuss issues such as the viability of mass supplementation programs and the relationship of vitamin A deficiency and measles mortality.
This report reviews outbreaks of listeriosis in Switzerland and France in the 1980s and discusses the link between eating contaminated foods and contracting listeriosis.

The negative effects of infection on nutritional status are examined in this article. The author explores the relationship between infection and decreased food intake, digestive disorders, altered immune response and growth retardation. The significance of the infection-malnutrition interaction is discussed in terms of its effects on child morbidity and mortality in developing countries.

Data from studies of 916 children with diarrhea in southern India were analyzed to determine whether a diagnostic clinical profile of shigellosis could be identified. Blood and/or mucous in stool, increased frequency of stool, abdominal pain, rectal tenesmus, and fever were noted more frequently in patients with shigellosis. Until a single applicable diagnostic test is available, the physician's diagnosis of shigellosis must be based on clinical judgement.

This study describes the findings in 25 infants presenting with hypernatremic dehydration over a 1-year period and highlights some of the features peculiar to the Hail region in Saudi Arabia. All of the babies were bottlefed and 80% were from families with low educational background. Incidence of hypernatremic dehydration was significant.

Diarrheal Diseases and Related Conditions
This study examined serum and rectal mucosal magnesium content in 110 Indian children with acute diarrhea, persistent diarrhea, extra-intestinal infections, and no symptoms. It is concluded that infants with chronic, but not acute diarrhea, are magnesium depleted at presentation; with the continuation of diarrhea there is a progressive depletion of magnesium; and there is a tendency to regain the magnesium status during the convalescent period.


This study assessed the effect of treatment of Shigella infections with an antibiotic on the consumption of food and nutrients by two groups of hospitalized children. It found that children who are treated with appropriate antibiotics not only may recover from infection from Shigella more rapidly, they may also be able to absorb nutrients more efficiently.


A study of 445 adults with acute gastroenteritis was conducted in Barcelona, Spain to determine the cause of the disease in that area. The most frequently isolated pathogen was Salmonella enteritidis. The authors also discuss bacteremia during gastroenteritis and the risk factors associated with it.


These two letters offer responses to the study on vitamin A and measles by Hussey and Klein in the July 19 issue. The first accuses the authors of unethical conduct in performing the study, while the second recommends community-based clinical trials of vitamin A therapy. Hussey and Klein then respond to the letters.

In this article the authors discuss the case of a patient with pernicious anemia who developed severe persistent diarrhea. The diarrhea subsided after antrectomy and reduction of gastrin levels.


Data of pediatric patients screened for HIV-1 infection between 1985 and 1989 were studied retrospectively in a major mission hospital in Kampala. Symptomatic HIV-1 infection was mainly acquired perinatally and was diagnosed in 87% of children >2 years of age. The mortality rate was 40% in pediatric in-patients with HIV-1 infection as compared to 12% in overall pediatric in-patients.


An outbreak of cryptosporidium diarrhea at a children's hospital in Mexico City is briefly reviewed in this article. The outbreak was attributed to nosocomial infections.


The authors report on the results of a study that examined the association between sociocultural factors and nutritional status in Lusaka, Zambia. The results suggest that poverty, rather than ignorance, may be the reason for the children's low nutritional status.


A case of acute pancreatitis and hypoglycemia-associated convulsions following rotavirus gastroenteritis, occurring in a previously healthy 2-year-old girl is reported. No abnormalities were revealed by clinical and laboratory follow-up studies. Further investigations on the possible pancreatic involvement by rotavirus may be helpful.

Diarrheal Diseases and Related Conditions
To determine whether the nutritional status of young children was affected by a January-June 1990 drought in Haiti, a nutrition survey was conducted. The prevalence of chronic undernutrition was shown to be moderate to high. The results do not suggest that a famine existed. However, any further deterioration of nutritional status could result in increased morbidity and mortality.

This article reports on the current cholera epidemic in Latin America of which the majority of cases have occurred in Peru, Colombia, Ecuador, Chile, and Brazil. There have also been one definite and six probable cases in the U.S. WHO Director-General Hiroshi Nakajima commented that about 25% of all Latin Americans were potentially at risk of cholera due to lack of clean water and inadequate sanitation.

Recent reports have described the detection of cyanobacteria (blue-green algae)-like bodies (CLB) in the stools of persons with a prolonged syndrome of diarrhea, anorexia, and fatigue...In each of these reports, affected persons either were immunocompromised or had recently traveled to tropical countries. During 1989 and 1990, the first three reported outbreaks of this CLB-associated syndrome occurred in immunocompetent populations, affecting at least 150 persons. This report summarizes investigations of these outbreaks, which occurred in Chicago in 1990 and in Kathmandu, Nepal in 1989 and 1990. [published abstract]

This letter to the editor comments on an earlier article by Khosshoo et al. on Salmonella typhimurium-associated persistent diarrhea in infants and young children.
Paralytic shellfish poisoning (PSP) is a foodborne illness caused by consumption of shellfish or broth from cooked shellfish that contains either concentrated saxitoxin, an alkaloid neurotoxin, or related compounds. This report summarizes outbreaks of PSP that occurred in Massachusetts and Alaska in June 1990.

In this letter to the editor, the authors describe the case of a 20 year old man who had persistent diarrhea for 17 years. Campylobacter jejuni was identified as the causal agent.

A study of infectious diarrheas in hospitalized patients in Bamako, Mali found that diarrhea was associated with a positive HIV serology in 40% of the cases. Cryptosporidium spp was found in 38% of the cases. The authors concluded that cryptosporidiosis is the main cause of AIDS diarrhea in Mali.

In this letter to the editor the authors describe a case of V. cholerae gastroenteritis in Italy. The raw oysters eaten by the patient prior to the onset of illness were cited as the cause.

This article briefly describes AIDS-related diarrhea and explains how the disease can be caused by parasites, viruses or bacteria.
This article explains how vitamin A deficiency can cause respiratory infections by inhibiting mucous production. In addition, the author notes that there is evidence that respiratory, diarrheal and measles infections could actually trigger signs of vitamin A deficiency. She also briefly discusses how vitamin A supplementation could reduce mortality and mentions the best dietary sources of vitamin A.

This brief editorial comments on cholera epidemic control measures in the past and present, especially in light of the current epidemic in Latin America.

Traveler's diarrhea in North America is most often a self-limited disease that requires little medical intervention unless the course is prolonged or especially severe...Patients should be advised regarding the need for fluid replacement. Antibiotic therapy should be considered only in rare circumstances. [published abstract]

In this study 24 children hospitalized with persistent diarrhea and 43 village children in the Gambia were examined for secretory IgA outputs in urine. All the children were malnourished. The findings indicated that secretory IgA production in the village children was only one third that of better nourished children. In contrast, the children with persistent diarrhea had much higher outputs than the village children, regardless of nutritional state. The results suggest the secretory IgA production in the urinary tract can be stimulated by intestinal disease.

Infectious diarrhea--managing a misery that is still worldwide.
The author reviews the etiologic agents and symptoms of bacterial, viral, and parasitic diarrhea and offers general treatment advice based on the causative agent.


Causes of malnutrition were investigated in an agricultural area of Gilan, Iran. Associated factors were: late introduction and small quantities of solid food, poor maternal knowledge of child feeding, low dietary energy density due to rationing and high price of animal products, contamination of water supply, and use of sedative drugs. [published abstract]


This study focused on 401 children <5 years old who were hospitalized with acute lower respiratory tract infection (ALRI) and diarrhea in Dhaka, Bangladesh, and who were investigated for the presence of both bacterial and viral respiratory tract pathogens as well as for selected diarrheal pathogens. A respiratory tract pathogen was identified in 30% of the patients, and a diarrheal pathogen was identified in 34%. The overall case-fatality rate in children with ALRI and diarrhea was 8%. [published abstract]


As a first step in developing a national ARI program in Lesotho, a survey of medical practitioners was conducted to determine whether current WHO recommendations on the management of ARI are being followed. The results of the survey are analyzed in this article.


In this article the author reports on the current cholera epidemic in Peru and discusses some possible reasons for its...
occurrence. A breakdown of the government's infrastructure resulting in inadequate housing and sanitation is cited as the main cause. However, the government's educational campaign to warn people and outline preventive measures has been credited for keeping the number of fatalities to a minimum.


In this brief article, Jon Rohde describes how the study of cholera, its epidemiology, pathophysiology and clinical management has had a greater effect on overall public health than on cholera alone.


A controlled randomized trial was conducted in 40 infants (6-18 months old) with persistent diarrhoea (>2 weeks' duration) to evaluate the effect of oral zinc supplementation...It was concluded that in persistent diarrhoea there is depletion of zinc with the progression of disease and oral zinc administration can improve the zinc status. The possible anti-diarrhoeal effect of zinc, however, merits further study. [published abstract]


The association between parasitic infection and malnutrition in preschool children in the city of Sao Paulo was studied according to degree of malnutrition, age and income...Higher risks of malnutrition were found in children above 24 months infected with Ascaris, Trichuris or with more than three different parasites. The presence of more than three parasites per child affected nutritional status independently of income level. [published abstract]

A study was undertaken in an urban Brazilian slum to determine the relationship between malnutrition and subsequent diarrheal disease among children. The most malnourished children were shown to have nearly twice the total number of days of diarrhea than better nourished children had. These results provide additional evidence that a significant association between malnutrition and both increased diarrhea incidence and duration exists.


The authors undertook prospective diarrheal surveillance among a cohort of 175 children >5 years of age over a 28-month period in an urban slum in northeastern Brazil. 65% of children had at least one episode of persistent diarrhea per year. These episodes accounted for 50% of all days of diarrhea and 11% of all episodes. The agents isolated from children with acute and persistent diarrhea were similar.


The authors describe the case of a 63-year-old man with persistent diarrhea. Possible causes of the condition included celiac sprue, diverticulosis, and bacterial overgrowth syndrome. The final diagnosis was small intestine diverticulosis, with diverticulitis, perforation, and abscess in mesentery.


To determine whether the degree of small intestine mucosal damage would be reflected in a corresponding reduction in
disaccharidase activity, the authors compared intestinal mucosal histology with the results of disaccharidase activity measured in per oral suction small intestine biopsies obtained from 21 infants with persistent diarrhea. They conclude that the extrapolation of disaccharidase activity from the results of histologic measurements in infants with persistent diarrhea is not reliable.


Structural regression models are applied to longitudinal data to study reciprocal causal influences between malnutrition and infection in preschool children [in rural Guatemala]. Results provide evidence of significant causal influence of both diarrhea on acute malnutrition and of acute malnutrition on diarrhea. A cumulative effect of acute malnutrition on chronic malnutrition that leads to growth retardation is identified. [published abstract]


None of the published evaluations of simple clinical signs for the diagnosis of pneumonia have focused on the neonatal group. This letter to the editor reports on a prospective study to evaluate symptoms and signs used by primary health care workers to diagnose neonatal pneumonia.


This article discusses the bacteriology and incidence rate of Campylobacter enteritis. It reviews the sources of campylobacters, various modes of transmission, and suggestions for controlling the spread of campylobacter-associated illness. The author concludes that the best preventive method is to control infection in broiler chickens, a frequent carrier of the pathogen.


The authors of this letter to the editor dispute the idea that contact between health workers and children reduced
mortality by 35-75% in the Indonesian intervention trial that provided vitamin A capsules. Infrequent, casual contacts between health workers and children have not convincingly produced substantial health benefits, they claim.


The authors examined 44 papers on persistent diarrhea for comparability of the age range of subjects under study and for the use of standardized definitions of "persistent" and "diarrhea." They found no consistent age range for selection of study populations, nor did they find consistent definitions for "persistent" or "diarrhea."


In order to assess the significance of nontyphoid bacteremia in patients hospitalized with diarrhea, the authors studied blood samples from 1,824 Bangladeshi patients. 243 patients had nontyphoid bacteremia. The case fatality rate was 29.7% in bacteremic patients versus 7.8% in controls. Bacteremia seems to be an important link between diarrheal illness and death in Bangladesh.


The purpose of this study was to quantitate the jejunal lesion in Gambian children with persistent diarrhea-malnutrition syndrome. The study showed that Gambian children with this syndrome have an enteropathy characterized by a spectrum of immunopathologic changes suggestive of T-cell-mediated mucosal injury.

A study of 31 Gambian children with diarrhea showed that giardia is highly prevalent in children with persistent diarrhea and malnutrition and that the infection does not respond to standard therapeutic measures such as metronidazole. Depressed immune functions and rapid reinfection of children returning to the hospital were cited as possible reasons for treatment failure.


In this article the author reports on the outbreaks of cholera in Bangladesh prior to the recent devastating cyclone. The number of cases could rapidly spread as the cyclone left many people without adequate sanitation and clean drinking water. Government authorities are reluctant to claim that there is an actual epidemic due to fears that other countries will cease seafood imports from Bangladesh.


Nearly 20% of children seen in the outpatient department of Children's Hospital in Bangkok, Thailand for diarrheal disease had bloody diarrhea. Shigella species and EIEC were the most frequent causes of bloody diarrhea. Campylobacter sp. and nontyphoidal Salmonella sp. were also isolated frequently but were much less often associated with bloody diarrhea. None of the species isolated always caused bloody diarrhea.


The relationship between nutritional status and the incidence and duration of diarrhea was examined in a sample of 1,117 Thai mothers and 1,364 children under 5 years of age. Study results did not indicate a significant relationship between diarrhea and malnutrition. The authors analyze these findings and offer suggestions as to why no relationship was found.
In these letters to the editor, the authors discuss whether or not vitamin A supplements actually reduce childhood mortality. They compare Vijayaraghavan et al's study, which showed no mortality reduction from supplementation, to similar studies which indicated that fewer deaths occurred among children receiving supplements.

This article covers the epidemiology, physicochemical properties, detection and biological activities of staphylococcal foodborne illness.

This article reports on 90 cases of trichinosis among a group of South-East Asian people attending a wedding in Iowa. The illness was associated with the consumption of commercially purchased pork which was served uncooked. Virtually none of the people knew about trichinosis or about the dangers of eating undercooked pork. This is the fourth outbreak since 1975 that occurred among South-East Asian refugees living in the U.S.

A recent study of 1,978 Filipino children under five examined the impact of malnutrition on morbidity and mortality associated with acute respiratory infection. Results indicated that there was a significant association between malnutrition in children with ARI and their morbidity and mortality. In addition, it was determined that children with severe acute lower respiratory infections had a mortality risk two to three times higher than that of healthy children.
4762 UPDATE: CHOLERA OUTBREAK -- PERU, ECUADOR, AND COLOMBIA. 
Morbidity and Mortality Weekly Report, vol.40 no.3, April 5, 

This article, largely reprinted from the WHO Weekly 
Epidemiological Record, discusses the risks of cholera 
transmission by food imports and the measures taken by the 
FDA to prevent such transmission.

4440 UPDATE: SALMONELLA ENTERITIDIS INFECTIONS AND SHELL EGGS--
UNITED STATES, 1990. Morbidity and Mortality Weekly Report, 

Three Salmonella enteritidis outbreaks in the U.S. in 1990, 
which were associated with eggs, are summarized in this 
article. It is recommended that Salmonella isolates be 
serotyped by state public health laboratories in order to 
characterize sporadic cases and to assist in epidemiologic 
investigations.

4841 Varavithya, W.; Sunthornkachit, R.; Eampokalap, B. ORAL 
REHYDRATION THERAPY FOR INVASIVE DIARRHEA. Reviews of 

This paper describes the nature and quantity of fluid lost 
during an episode of invasive diarrhea. The role of ORT in 
the treatment of this illness is reviewed and evaluated. 
Studies from hospital and the community both document the 
effectiveness of ORT for rehydration of patients with 
invasive diarrhea. Children with moderate dehydration 
benefited most from ORS.

4324 Victora, C.G.; Kirkwood, B.R.; Fuchs, S.C. et al. IS IT 
POSSIBLE TO PREDICT WHICH DIARRHOEA EPISODES WILL LEAD TO 
LIFE-THREATENING DEHYDRATION? International Journal of 

Early detection of children who are likely to develop life-
threatening dehydration as a consequence of diarrhea would 
be of great value to health workers. The authors carried 
out a case-control study to compare the symptoms and signs 
observed on the first day of diarrhea in 2 groups of 
children in Porto Alegre, Brazil. The analysis showed that 
if selection was based on the presence of fever, vomiting, 
or both, one-third of episodes of diarrhea would be 
identified as at high risk. These episodes would include 
75% of those which would lead to dehydration.
The synergism between nutrition status and hospital admissions due to diarrhea and pneumonia was studied in a population-based birth cohort of >5000 children in southern Brazil...Diarrhea admissions were stronger predictors of malnutrition than were pneumonia admissions, but malnutrition was a more important risk factor for pneumonia than for diarrhea. All associations were stronger in the first 2 y of life, although the early effect of severe diarrhea and pneumonia on nutrition status could still be detected in the fourth year of life. [published abstract]

The effect of vitamin A supplementation on preschool child morbidity and mortality was assessed in a prospective double blind, placebo-controlled study around Hyderabad, India. Vitamin A supplementation had no effect on morbidity status. Mortality rates were similar in the two groups. The findings suggest that vitamin A supplementation alone may not reduce child mortality.

This editorial reviews the recent studies of vitamin A supplementation in regard to its effect on morbidity and mortality. In addition, it briefly explores the issue of how to improve vitamin A status.

A total of 270 participants from 33 countries attended the National Symposium and XIII International Vitamin A Consultative Group meeting, held from November 5-10, 1989 in Kathmandu, Nepal. This article briefly reviews the topics discussed and the conclusions reached by the participants.
A prospective study of 257 children in Lusaka was conducted to monitor their growth from birth to 2 years, their weaning practices, and their illnesses. Deaths were due to prematurity and respiratory problems during the first few months, and diarrhea, measles and malnutrition during the later months. Growth was good during the first 6 months but faltered after 8 months. At one year of age, 66% of children were still breastfed more than 6 times a day. Over 70% of children were fully immunized.

This brief article mentions cultural, socioeconomic and environmental factors that offer constraints and opportunities to improving the diet.

Measles antibody concentrations in Gambian children immunised at 4 months of age with a high-dose Edmonston-Zagreb (EZ) measles vaccine or at 9 months with conventional Schwarz vaccine were measured 5 months after vaccination, and at 18 and 36 months of age. Schwarz vaccinees produced, on average, a 2.4-fold higher concentration of measles haemagglutinin inhibiting (HAI) antibody than EZ vaccinees, but at 36 months of age 82 of 93 (88%) EZ vaccinees and 83 of 87 (95%) Schwarz vaccinees had measles plaque-neutralizing antibody concentrations above the assumed protective level of 200mIU/ml (p>0.1). [published abstract]

This overview will present a summary of the epidemiology and aetiology of TD [travelers diarrhea], antibiotic susceptibility of enteric pathogens, trials on antibiotic prophylaxis and the indications for such prophylaxis. [published abstract]
3979 Wolfe, M.S. ACUTE DIARRHEA ASSOCIATED WITH TRAVEL. American Journal of Medicine, vol.88 suppl.6A, June 20, 1990, pp.6A-34S-6A-37S.

The author discusses the bacterial, viral and parasitic agents that cause traveler's diarrhea; diagnosis of traveler's diarrhea; and proper treatment with oral fluids and drugs.


During the 1988-89 winter holidays an outbreak of gastroenteritis caused by raw chitterlings, or pork intestines, contaminated with Yersinia enterocolitica occurred in Atlanta. The following year, the local WIC Program incorporated information about raw chitterlings into its group nutrition education program. This article discusses the program.


In this article the authors present the case of a 7-month-old girl in Saudi Arabia who developed necrotizing enterocolitis (NEC) following acute diarrhea. Prior to developing NEC, the child had been given an anti-diarrheal drug. The authors note that all cases of NEC following diarrhea are in tropical countries. They suggest that this may be related to the use of anti-diarrheals and associated malnutrition.
TREATMENT (General)


In a retrospective survey of 300 children with diarrhea at the King Khalid University Hospital in Riyadh, Saudi Arabia, it was observed that 65% of the cases were treated with IV therapy, 22% with ORT, and 13% with IV plus ORT. There were no fatalities in the study group. The authors concluded that IV therapy was used excessively and identified the need to encourage ORT use.


A total of 292 traditional healers were interviewed in five districts of Uganda to discover how diarrhoeal diseases were treated by them. At least two healers were present in every village visited, and over 42% of their case-load was concerned with diarrhoeal treatment. The investigation showed that a great variety of herbs/plants were used by traditional healers in the treatment of diarrhoeal diseases. All those interviewed used water as the main vehicle for their herbal preparations...Only 3.1% of healers either limited or did not advise fluid intake. These findings indicate that traditional healers could play an important role in interventions to control diarrhoeal diseases using modern oral rehydration therapy if they were assisted to improve their techniques. [published abstract]

3930 Balistreri, W.F. ORAL REHYDRATION IN ACUTE INFANTILE DIARRHEA. American Journal of Medicine, vol.88 suppl.6A, June 20, 1990, pp.6A-30S-6A-33S.

The significance of acute diarrheal illness...is presented...Methods for managing acute diarrhea and its subsequent dehydration, including intravenous rehydration and refeeding, are discussed, with emphasis on the use of oral rehydration solutions. [published abstract]

The management of childhood diarrhea at the household level was studied in a population-based survey in northeast Brazil. Fifteen percent of children <5 years old had had diarrhea within the last 15 days. A total of 66% of the children were not taken for treatment; government health services were used by 14%, private doctors by 1%, and traditional healers by 24%. ORT was given to 24% of the children. Only 18% of the caretakers prepared the rehydration solutions correctly.


In this article the author discusses an approach to the diagnosis and management of infectious diarrheas that may be encountered in an office practice. He reviews the pathogenesis, etiology, and laboratory evaluation of infectious diarrheas and then offers some guidelines for case management.

Brownlee, H.J. FAMILY PRACTITIONER'S GUIDE TO PATIENT SELF-TREATMENT OF ACUTE DIARRHEA. American Journal of Medicine, vol.88 suppl.6A, June 20, 1990, pp.6A-27S-6A-29S.

Family practitioners who receive calls from patients complaining of diarrhea must determine if the patients can be treated at home or if further work-up is required. This article reviews key concepts for family practitioners to consider in assessing patients with acute diarrhea. [published abstract]


In this article the author traces the development of cholera treatment from the early 19th century practices of purging and bloodletting to the current use of oral rehydration therapy.
In this letter to the editor the authors comment on a survey of pre-hospitalization management of diarrhea by medical practitioners in Britain. Findings showed that the majority of cases were prescribed various drugs and that fluid therapy was significantly underused. They conclude that ORT still needs extensive promotion.

A prospective study over a one year period examined preadmission illness and its treatment, social characteristics and referral patterns, and inpatient illness progression in 1148 children admitted to a British hospital with a primary diagnosis of gastroenteritis. Results showed that suboptimal treatment was common, with one-third of the cases receiving no treatment and another third receiving inappropriate antibiotics, anti-diarrheals, antiemetics, or changes in milk.

Almost 500 children per year die of acute diarrhea in the U.S. In this article the author explains the dangers of dehydration, how to differentiate between loose stools and diarrhea, and how to manage diarrhea at home. He gives basic guidelines for using oral rehydration therapy and continuing feeding during diarrheal episodes. He also provides a list of things a doctor should know about a child's diarrheal episode prior to treatment.

In England a study was carried out to investigate the role of community pharmacists in providing advice for treating childhood diarrhea and to examine mothers' responses to their children's diarrheal episodes. The majority of pharmacists recommended inappropriate treatments such as anti-diarrheals and withholding breast milk. Mothers' knowledge of home treatment was also inadequate. Since
pharmacists are widely used for consultation in childhood illnesses, the authors recommend education to train pharmacists in appropriate diarrhea management.


In 1987 a review of the records of paediatric inpatients over the period 1981-86 was carried out at KCH [Kamuzu Central Hospital, Lilongwe, Malawi] to evaluate retrospectively the impact of the refresher training on hospital practices for dehydration associated with acute diarrhoeal diseases and of outpatient ORT activities on the number, severity, and cost of paediatric admissions for such diseases. [published abstract]

4581 HOUSEHOLD MANAGEMENT OF DIARRHEA AND ACUTE RESPIRATORY INFECTIONS. Baltimore, MD, The Johns Hopkins University, Institute of International Programs, November 1990, 36p.+app.

This paper reports on a scientific meeting about household management of diarrhea and acute respiratory infections held in November, 1990 at the Johns Hopkins University. The participants discussed issues such as early recognition of illness and appropriate care seeking by child caretakers as well as proper home treatment procedures. Communication in CDD and ARI programs in terms of resource commitment, strategies for behavior change, and social mobilization was also reviewed.


This article outlines a meeting of WHO's Global Programme on AIDS and Traditional Medicine Programme held from February 6-8, 1989, which focused on the use of traditional medicines to treat AIDS. The methodology for selecting and screening various plant derivatives for use in AIDS treatment is described. Also available in French.
The objective of this study was to compare the efficacy and cost-effectiveness of alternative strategies for evaluating and treating diarrhea in AIDS patients. The three strategies compared were full evaluation, limited evaluation, and minimal evaluation. The authors concluded that the minimal evaluation in all patients, with full evaluation reserved for only nonrespondents to symptomatic treatment, is efficacious and is the most cost-effective strategy for managing AIDS-related diarrhea.

This article reviews the epidemiology, origin, clinical presentations, and diagnosis of acute diarrhea, and provides a rationale for the symptomatic treatment of acute diarrhea...Early self-treatment aimed at reducing symptoms of acute diarrhea is recommended. [published abstract]

This article will focus on a systematic approach to decision making in the management of diarrheal dehydration by means of parenteral fluid, with special emphasis on infants. Hypothetical case simulations will be used to illustrate the principles outlined in the article. The author suggests that although ORT is recommended for mild dehydration, there are cases where IV therapy would be preferable.

Reports of salmonella gastroenteritis in England and Wales continue to increase. This paper considers the sources of salmonella, control of salmonella sources, and the management of outbreaks. The major factors in controlling institutional outbreaks are control-of-infection measures, patient isolation, good communications and the use of an
effective plan to initiate appropriate investigations and provide rapid responses to problems encountered.


In this letter to the editor, the authors comment on the importance of a clear definition of eradication of Helicobacter pylori following drug therapy. They concur that the term eradication should only be used for patients without H. pylori at least one month after the end of the treatment.


This document reviews how diarrhea is managed presently in Ghana with the use of antibiotics and anti-diarrhea's and by withholding food. The effects of various drugs are outlined and the disadvantages of the present methods are discussed. ORT is described and is suggested as a safer, more cost-effective mode of treatment. The importance of explaining the concept of dehydration and the benefits of ORT to parents is emphasized.


This manual, developed by the Ghana Social Marketing Programme and the Somarc Project, provides basic guidelines on using ORT to treat dehydration due to diarrhea. There are brief sections on the pathophysiology of diarrhea and dehydration followed by guidelines for assessing and treating diarrheal patients. The final section reviews methods for preventing diarrheal episodes.


The author describes the etiology and clinical features of travelers diarrhea, both in the mild and persistent form. He also discusses proper diagnosis and treatment, which includes fluid therapy and, in some cases, drug therapy.

This document is a guide for medical students studying clinical pediatrics as well as for physicians taking part in training courses on diarrhea management in children. It provides information on the epidemiology and etiology of various forms of diarrhea and presents guidelines for assessing the diarrhea patient and treating the condition.


This article briefly outlines the revisions made in the WHO diarrhea treatment chart, which was updated in 1990. Changes made include more detailed guidelines for management of bloody diarrhea and persistent diarrhea, recommendations for feeding during diarrheal episodes, and emphasis on limiting the use of drugs.


The objective of this study was to determine who provides care to persons in a rural community in Bangladesh and to determine what care is actually provided to children with dysentery. The study found that of 643 health care providers, 50% practiced Western medicine, 24% were spiritualists, 17% were herbalists, and 9% were homeopaths.


A questionnaire administered to four groups of US physicians, including private practitioners, pediatricians, and housestaff of two Massachusetts hospitals, indicated that the ORS use rate consistent with the American Academy of Pediatrics' recommendations was less than 30%. The majority of respondents also withheld feeding until the second day or later during a diarrheal episode. These findings indicate the need for ORT educational programs in the US.
3982 Soenarto, Y. DYSENTERY CASE MANAGEMENT IN PRIMARY HEALTH CARE IN INDONESIA. Berita Pusat Informasi Diare, vol.? no.1, January-February 1990, pp.2-5.

The author suggests that primary health care workers in Indonesia could be trained to teach mothers how to manage dysentery cases. He discusses proper treatment of dysentery, including diagnostic approach, nutritional management, and antimicrobial therapy.

3892 Wasunna, A. DIARRHOEAL DISEASES IN PRETERM NEONATES. East African Medical Journal, April 1990, pp.221-222.

This editorial discusses etiological factors for diarrhea in preterm infants and proper case management in such cases.
ORT (Oral Rehydration Therapy)


The authors of this brief article examine the barriers to ORT use in the U.S. and discuss ways that physicians and others can promote fluid therapy.


The worldwide consequences of [ORT] are discussed in four categories: (1) adoption of ORT as the primary therapy for acute dehydrating diarrhea; (2) establishment of national ORT programs; (3) scientific knowledge gained from studies into intestinal absorption of oral rehydration solutions; and (4) implications of ORT for the next decade. [published abstract]


[This study] evaluated the efficacy and safety of an oral rehydration solution containing glycyl-glycine, glycine, and maltodextrin (GGG-ORS), in comparison to the glucose based ORS...Ninety-two children [in India] presenting with acute gastroenteritis [caused predominantly by rotavirus] and moderate dehydration, aged 3 months to 3 years, were randomly assigned to receive standard ORS or GGG-ORS. All the patients were successfully rehydrated orally...We conclude that glycine and glycyl-glycine supplemented oral rehydration solution does not have any therapeutic advantage in the treatment of acute gastroenteritis with moderate dehydration caused predominantly by rotavirus. [published abstract]


This paper critically considers some of [the] concerns regarding current recommendations for diarrhea management. It begins with a description of the physiologic basis of oral rehydration. The following sections examine the available evidence concerning the advantages and
disadvantages of using oral rehydration versus intravenous therapy for the treatment of diarrhea-induced dehydration. The final sections review the literature regarding the effects of continued feeding during diarrhea. The discussion focuses on the management of diarrhea in young children (under five years of age) in the health facility setting. [published abstract]


During the 1984-1985 famine in Ethiopia, approximately 51,000 women were taught to use food based ORT (FBORT) to treat diarrhea in children. In 1989 a follow-up survey was conducted in 12 communities to determine the use rate of FBORT. Of the 857 mothers questioned, 69.9% used some form of ORT for diarrheal episodes in the past 14 days, 48.3% used FBORT alone and 11.5% used FBORT with ORS packets. The results indicate that the initial training was generally effective and that FBORT has fit well into the child care culture of those communities. The authors conclude that a combined ORS-FBORT strategy would be the most effective in many developing countries.


The physiology of intestinal water and electrolyte transport and the pathophysiology of diarrhea are described in this article. There is also a description of the composition of ORS with emphasis on key elements such as sodium and potassium. Finally, the authors discuss the use of ORS in terms of administering the solution, patient monitoring, volume of fluid, and refeeding of infants.


.. study was undertaken to compare the efficacy and safety of ORS-60, containing 66 mmol/L of sodium and 1.8% glucose and having osmolality of 240 mosm/kg, with those of ORS-26, a low-sodium, high-carbohydrate ORS with an osmolality of 343
mosm/kg. The authors conclude that ORS-60 conferred earlier recovery and reduced fluid losses.


The authors of these letters to the editor discuss the use of various terms regarding oral rehydration. Aside from the familiar terms of ORT and ORS, they discuss OFT (oral fluid therapy), ODDS (oral diarrheal disease solution), OHT (oral hydration therapy), and OHS (oral hydration solution).


This article reviews the physiological aspects of dehydration due to diarrhea and explains how oral rehydration therapy can treat the problem.


The authors discuss the development of ORT as it relates to various physiological concepts. They state that clinical use of ORT represents a new relationship between physiological concepts and public health.

4661 DIFFERENT REHYDRATION SOLUTIONS AND THEIR USEFULNESS. Glimpse, vol.12 no.6, November-December 1990, pp.5+.

This article briefly reviews the efficacy of various ORS formulas including the standard glucose solution and the rice-based formula. It is stressed that if home fluids are promoted, they should be safe and readily available. Also, the measurements should be standardized and measuring utensils should be home-available and affordable.


The authors of this letter report on the statistics on diarrhea cases from the Diarrhoeal Diseases Research and
Rehydration Centre in Cairo, Egypt. These statistics show that, since 1983 when the CDD Program began, the severity of dehydration in patients presenting to the centre has lessened. Case fatality rates have also decreased. Nearly 100% of children with diarrhea are treated with ORT.


The aim of this study was to evaluate the safety and efficacy of a new ORS, reformulated Dioralyte, containing sodium 60 mmol/L and glucose 90 mmol/L, and having an osmolality of 240 mosm/kg, in children with acute gastroenteritis. Results showed that the solution was safe and effective but not superior to standard treatment.


This article traces the development of oral rehydration therapy from its beginnings in the 1940s to the current research on cereal-based ORS. The clinical and field trials conducted in the Philippines, India, and Bangladesh in the 1960s are highlighted.


This article discusses several issues about the preparation and formulation of ORS: whether ORS should be homemade or commercially prepared; what constitutes the optimal sodium content; what base should be present in the ORS; and whether other nutrients can be substituted for glucose. Recommendations for the ideal ORS are also presented.


At the Queen Elizabeth II Hospital [in Lesotho], diarrhoea-related admissions as a proportion of all admissions in
children <5 years of age declined from 23% in the year prior to the opening of the Oral Rehydration Therapy Unit (ORTU) to 13% in the first nine months of 1987 (p<0.05). In addition, the case-fatality ratio of children treated in the ORTU declined from 1.4% in the first quarter of 1986 to zero in the second and third quarters of 1987 (p<0.05)...At this major hospital in Lesotho, the standardization of outpatient treatment for diarrhoea with oral rehydration salts (ORS) in the context of an ORTU resulted in a marked decrease in diarrhoea-associated hospitalization and deaths in children <5 years of age. [published abstract]


Studies show that significant errors often occur in the preparation of sugar-salt solution. This document provides a step-by-step guide for conducting a household survey to determine the safety of SSS prepared by mothers with previous knowledge of the intervention. It enables managers to decide whether IEC strategies about SSS have worked well.


In this document the author reviews the history of ORT from its early uses as a treatment for cholera to its current status as the mainstay of diarrhea treatment in general. He discusses the physiological aspects of diarrhea and how ORT prevents life-threatening dehydration. In addition, he discusses related topics such as ORS composition, cereal based solutions, nutrition, and feeding practices.


In this article the authors present a historical overview of ORT from its earliest use for cholera treatment to its present day use during all types of diarrhea. They explain the physiology of dehydration and how ORT alleviates the condition. Finally, they comment on the newest innovations in ORT, such as cereal based solutions, as well as on the importance of feeding during diarrheal episodes.

This document begins by providing criteria for the selection of home fluids for treatment of diarrhea. It then discusses the role of cereal-based ORS and feeding in home treatment of diarrhea. Finally, it offers criteria for identifying children who should be taken to a health worker.

HOW TO...MAKE A RICE BASED DRINK FOR ORAL REHYDRATION. Dialogue on Diarrhoea, issue 41, June 1990, p.3.

This brief article describes the steps in making a simple rice based oral rehydration solution.


In a block-randomized trial [the authors] compared the efficacy of citrate-containing glucose electrolyte solution (GES) versus maize-salt solution (MSS) in the treatment of children [in Kenya] with mild and moderate diarrhoeal dehydration and acidosis...[Results showed that] carefully prepared maize-salt solution may be used successfully in mild and moderate dehydration in the home, as an alternative to the preferred glucose electrolyte formula. [published abstract]


In this article the authors review clinical studies of cereal based ORS and their effect on stool output and duration during diarrhea. They also discuss the possible beneficial effects of adding amino acids and their polymers to cereal based solutions. They suggest further research to determine the optimal mix of starch, amino acids, oligopeptides, and proteins that would decrease fluid losses as well as reduce duration of diarrhea.

In this editorial, the authors discuss the possibility that glucose polymers from rice, sorghum, corn and tapioca might be a cheaper and better therapeutic modality than D-glucose in diarrhea.


The author discusses the role of cereal based ORT in treating diarrhea. Among the cited advantages of cereal based solutions are that it is less expensive than packages, it is more accessible to mothers in the developing world, and it can alleviate the logistical problems associated with supplying packets. Some of the disadvantages of cereal based ORT, such as confusing these fluids with weaning foods, are also presented. The importance of further research to determine the viability of home fluids is stressed.


This article discusses the use of oral rehydration therapy for patients who suffer consequences from various types of bowel resections and small-bowel stomas.


The author discusses the results of clinical and field trials of improved ORS formulations, including maltodextrin ORS, L-alanine and glucose ORS, rice based ORS, and ORS based on other cereals.


A randomized, multicenter clinical trial comparing two oral ORT.
Rehydration solutions (ORS) with different sugar content and total osmolality was carried out in France. Weight gain, stool output, and biologic variables were analyzed. Patients in both groups gained weight without any significant difference between the two ORS. The weight increase during the first 24 hours and the reduced frequency of stools was similar in both groups. [published abstract]


A study was conducted to examine potassium balance during ORT in infants using a solution containing 20 mmol potassium per liter. All the infants were successfully rehydrated. The results demonstrated that an ORS solution with 20 mmol potassium per liter provides enough potassium and, therefore, an increased concentration is not recommended.


This study compared ORS containing sodium bicarbonate to ORS with trisodium citrate dihydrate in a clinical trial. Results indicated that the citrate formula was highly stable and was as effective as bicarbonate solution.

4179 Mehta, S. SYMPOSIUM ON ORAL REHYDRATION THERAPY IN INFANTS AND CHILDREN. Chandigarh, India, PGIMER and India, UNICEF, 1990, 50p.

This document includes the papers presented at the Symposium on Oral Rehydration Therapy held on February 18, 1990, in Chandigarh, India. The topics presented include: electrolyte loss, current concepts in ORT, ORT in infants and super ORS. There is also a review of an ORT program conducted in a Madras hospital. The general aim of the conference was to assess if the need for ORT is being met in India and if the persons using ORT, namely mothers and health workers, understand the concept of oral rehydration.


The authors of this letter to the editor comment that ORT is
not always perceived as the most effective treatment for diarrhea because it does not necessarily reduce stool output.


The Fluid/Food Panel was appointed by the Kenyan Division of Family Health to assist the national CDD Program to identify operational research areas and to provide guidance in formulating policy issues concerning home management of diarrhea. This report includes the panel's recommendations, as well as draft reports by panel members.


In a clinical trial with 2000 Bangladeshi children suffering from acute diarrhea, it was determined that a staple- or food-based ORS achieved a 40% to 60% reduction in stool volume compared to the standard ORS formula. The results suggest that staple-based or food-based ORS is the optimal treatment for diarrheal episodes.


This brief article describes the composition of ORS as well as basic guidelines about preparation, dosage, and administration. A table is also provided which indicates the approximate amount of ORS to give in the first four hours of a diarrhea episode.


This booklet presents the lecture notes from a Philippine pharmacists' continuing education seminar on use of ORT to treat diarrhea. The notes provide simple guidelines on how to assess levels of dehydration, ORS preparation, the use of drugs in diarrhea treatment, and ways to prevent diarrhea. The pharmacists' role in diarrhea control is also outlined. It includes persuading mothers to use ORT, discouraging
unnecessary drug use, and participation in the community CDD program.


In this letter to the editor the author requests the correct formula for sugar-salt solution and asks what can be done to increase potassium intake during ORT administration. In response, Dr. Nate Pierce provides the WHO SSS formula and suggests alternating giving of fluids with potassium-rich foods to combat hypokalemia.


In this letter to the editor, the authors briefly describe a food traditionally used for diarrhea in Nigeria, consisting of potash and guinea corn, millet, or maize. With a little salt added, this food might resemble a cereal-based ORS.


Sixty-four children between 2.5 months and 5 years of age were randomly treated in a hospital in Jos, Nigeria with either WHO ORS or a cereal based ORS containing 60g/l sorghum powder. There were no significant differences between the two groups in amount of fluid used, number of stools, and duration of diarrhea. Sorghum ORS was well accepted and tolerated. This study suggests that it can be safely used as an alternative to WHO ORS.


In Costa Rica, 86 mildly to moderately dehydrated infants were rehydrated using one of three ORS formulas: a solution containing only rice-syrup solids, a solution with rice-syrup solids and casein hydrolysate, or a glucose-based solution. Results indicated that the rice-syrup solutions
were as effective as the glucose solution in rehydrating the patients. In addition, they decreased stool output and promoted greater absorption and retention of fluid electrolytes than did the glucose solution.


Feasibility of home treatment of diarrhoea [in Bangladesh] with packaged rice-based oral rehydration salts (R-ORS) was compared, in terms of cost, with that for glucose-based oral rehydration salts (G-ORS)...The treatment cost per episode was more with R-ORS than with G-ORS, though fewer R-ORS packets were used per episode. Among others, the main factor for the higher cost was found to be the higher production cost of R-ORS packets. Expected early recovery from diarrhoea with use of R-ORS was not observed in this study. [published abstract]


In response to a question about the wisdom of using industrial salt for sugar-salt solution, Dr. Hans Faust of WHO replies that industrial salt can be safely used for making SSS.


Recent clinical trials in Bangladesh and India have shown that rice based ORS is as effective as the standard WHO formula and that it could reduce stool output as well. This article briefly reports on the studies which have shown that rice based ORS decreases stool output compared to standard ORS.


This CDD Update reports on WHO's current views about rice-based ORS. The clinical trials to date are briefly reviewed and the results discussed. These results indicate that rice-based solutions are more effective than standard glucose solution in patients with cholera. However, the advantages—if any—of rice-based solutions over standard solution in children with acute non-cholera diarrhea need further evaluation.
Some diarrhea control experts now advocate the use of oral rehydration fluids based on traditional foods. This article explores the pros and cons of using such fluids as maize-based gruels, rice water or sorghum water in place of glucose-based ORS.

A study in India used whole gut perfusion in humans to compare the effect of WHO formula ORS, a hypertonic commercial ORS, and three experimental bicarbonate-free, hypotonic solutions on intestinal water and electrolyte transport during acute diarrhea. Results suggest that a hypotonic solution with glucose 80mmol/l, sodium 30 mmol/l, potassium 20 mmol/l and 177 mosm/kg may be the optimal choice for acute diarrhea.

Intestinal glucose and water absorption in response to glucose [was] studied in tropical enteropathy with a view to determine the optimum glucose concentration in oral rehydration solutions for use in the tropics...This study suggests that the optimal glucose concentration for oral rehydration solutions used in the tropics should be 80mM, as lower and higher concentrations result in diminished jejunal water absorption. [published abstract]

Diarrhea can be life-threatening in older people. This brief article notes that ORT could be used to treat diarrhea in the elderly. If administered early enough, ORT may reduce the need for hospitalization and IV therapy in older patients with diarrhea.

To compare the use of rice-based oral rehydration solution (R-ORS), with the introduction of food immediately after rehydration ('early feeding'), using standard glucose-based oral rehydration solution (G-ORS) in the management of acute diarrhea, [the authors] conducted a four-cell randomized, controlled trial among 200 hospitalized Egyptian infants between 3 and 18 months of age...There were no statistically significant differences among the four groups in the mean duration of diarrhea. [The authors] conclude that (1) infants who were given R-ORS had reduced total stool output (by 35%) compared with the control group and (2) feeding of boiled rice or a rice-based formula immediately after rehydration therapy was as efficacious as treatment with R-ORS alone for 24 hours, followed by feeding with a soy-based, lactose-free formula. [published abstract]


This article provides an overview of oral rehydration therapy as it has been practiced since the 1970s. It begins with a history of the development of fluid therapy, moving on to cover clinical studies of various oral rehydration solutions, including cereal-based ORS. Finally, it provides recommendations for management of acute diarrhea.


A scientific rationale for the use of ORT in treating severe diarrhea is presented...The composition of the ideal ORT solution -- one that maximizes absorption of water, electrolytes, and nutrients -- is discussed in relation to the digestive-absorptive mechanisms of the gut. [published abstract]

SELECTION OF HOME FLUIDS. Dialogue on Diarrhoea, issue 41, June 1990, pp.2-3.

This article briefly discusses alternatives to packaged ORS, such as sugar-salt solutions and various food-based solutions. Guidelines are included for selecting home fluids. These include choosing ingredients that are readily
available and acceptable, adding proper amounts of salt, and using a recipe that is safe and familiar.


[This study] compared the in vitro hydrolysis and clinical tolerance of rice glucose polymer with those of corn glucose polymer...[Results indicate that] rice glucose polymers are more rapidly absorbed than are corn glucose polymers in children with chronic diarrhea. [published abstract]


In this article, the authors review the history of oral rehydration therapy in the U.S. as well as discuss the current diarrhea treatment practices throughout the world. They suggest that ORT may be underused because it is a labor intensive and time consuming activity for child caretakers. They also state that more education is needed to promote ORT use in the United States in order to prevent dehydration and unnecessary hospitalization.


A clinical trial was conducted in Mexico to compare the efficacy and safety of a new oral rehydration solution (ORS) with that of the ORS recommended by the World Health Organization (WHO). The new solution, ORS-60, had a lower osmolality than the WHO formula (ORS-90). Results suggest that using a solution with lower osmolality than the WHO formula can have clinical advantages because of the lower incidence of treatment failures.


This discussion among several doctors touches on the sodium concentration of ORS, the danger of hypoglycemia, and the
use of rice syrup solids in infants less than 3 months old.


In this roundtable discussion, leading figures in international health policy discuss a number of issues: (1) advantages and disadvantages of home-mix ORS versus ORS packets; (2) whether the social marketing of packets is at odds with community empowerment; (3) whether international organizations have been slow to accept cereal based ORS; and (4) how far are we from "Health for All by the Year 2000."


An operations research study and two KAP surveys carried out in a rural area of Zaire showed that health worker involvement in education and counseling has a strong impact on mothers' knowledge and practices concerning ORT. Mothers' knowledge and use of ORT increased significantly following sessions with trained health workers.
DRUG THERAPY AND IV (Intravenous) THERAPY


This article briefly reviews the actions taken by countries in the WHO Eastern Mediterranean Region in terms of anti-diarrheal drug policies. Countries such as Iraq, Jordan, Pakistan, Yemen, and the Syrian Arab Republic have reviewed policies and initiated new regulations. An evaluation of Jordan's CDD program found that several anti-diarrheals had been deregistered, mass media campaigns were promoting ORT, and health workers were being trained in rational drug use.


The susceptibilities of 53 isolates of Aeromonas species and 16 Plesiomonas shigelloides from patients with diarrhea to 15 commonly used antimicrobial agents were determined by the disk-agar diffusion technique. This article reports on the results.


This study aimed to compare the efficacy of a single, 200 or 300mg dose of doxycycline with the standard multiple doses of tetracycline in adult patients with cholera. It concluded that doxycycline is as effective as tetracycline treatment for cholera in terms of stool output, duration of diarrhea, vomiting, and requirement for ORS.


This news brief reports on the Wellcome pharmaceutical company's suspension of its Anti-Diarrhoecal Mixture (ADM) following a UK documentary on inappropriate drug use.

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4721 ANTIDIARRHOEALS IN LATIN AMERICA. HAI News, no.58, April 1991, p.5.

This news note reports on a survey carried out in several Latin American countries on the availability of anti-diarrheals. The findings indicated that 326 anti-diarrheals were marketed in the surveyed countries (Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Peru, Uruguay, and Venezuela). The data also showed that 63% of the drugs contained one or more antibiotics.

4524 ANTIMOTILITY DRUGS. Dialogue on Diarrhoea, issue 43, December 1990, pp.4-5.

Two anti-diarrheal drugs, loperamide and diphenoxylate hydrochloride, are described in terms of their formulation, pharmacology, efficacy and adverse effects. Neither drug is recommended for managing diarrhea in children under any circumstances.


The Atma Jaya Medical Faculty research group examined the beliefs and practices of physicians in Jakarta, Indonesia regarding treatment of acute childhood diarrhea. The study found significant differences between public and private practices. Antibiotics were recommended more often than ORS in both kinds of practices. Nutritional advice was given less frequently than antibiotics. The study showed a continuing need to educate physicians about appropriate use of ORS and antibiotics.


Fluid and electrolyte replacement is the mainstay in treatment of infectious diarrhea of any etiology. However, use of antibiotics is recommended to prevent the complications of certain bacterial diarrheal diseases, such as shigellosis, cholera, and Salmonella gastroenteritis. Here the authors provide guidelines for the proper use of antibiotics.

4202 Bala, K. NATIONAL FORUM FOR RATIONAL DRUGS. HAI News, no.54, August 1990, p.1+.
The proceedings of the National Workshop on Rational Use of Drugs held in Savar, Bangladesh, on June 9, 1990, are presented in this article. Participants discussed the reasons for overprescription and unnecessary use of drugs in Bangladesh. Their recommendations included increased education for prescribers and consumers, new legislative and regulatory measures, and the establishment of a drug information service.

3833 Balchin, C. ANTIDIARRHOEAL KILLER MEDICINES. She, June 1990, pp.56-59.

In this article the author comments on the uselessness and possible harmful effects of anti-diarrheal medications. She stresses that many anti-diarrheals distributed in developing countries for children are not recommended for their Western counterparts. The article also provides a list of commonly prescribed anti-diarrheals along with the names of the companies that distribute them.


In this letter to the editor, the authors report on two cases in which the patients had Clostridium difficile infections following treatment with ciprofloxacin for enteric salmonellosis.


In a double-blind, randomized clinical trial with 78 adults with acute watery diarrhea and severe dehydration [in India], 37 subjects were positive for Vibrio cholerae. In conjunction with rehydration therapy, 13 patients received norfloxacin, 12 received trimethoprim-sulfamethoxazole (TMP-SMX), and 12 received a placebo. Norfloxacin was superior to TMP-SMX and to the placebo in reducing stool output, duration of diarrhea, fluid requirements, and vibrio excretion. TMP-SMX was no better than the placebo. [published abstract]

In this follow-up letter to the editor, the author comments on the withdrawal of loperamide drops from third world markets by the Johnson and Johnson pharmaceutical company. He also mentions other companies, such as Searle and Feroze Sons, which produce anti-diarrheals that have not been withdrawn.


Due to the severe economic crisis in Zambia, efforts are being made to explore mechanisms for local production of essential drugs. This report reviews the possibilities for local production as well as the constraints. Despite the fact that production capacity is available, it would be difficult for the Zambian industry to compete with the international pharmaceutical industry since international prices tend to be very competitive. Based on their findings, the authors present a proposal for local production of essential drugs that would be feasible and cost efficient.


The consultant performed an assessment of the operations of the Pharmacare pharmaceutical plant in Ramallah based on the US Current Good Manufacturing Practice (GMP) regulations. Small deviations from GMP were detected, but none were serious enough to warrant halting production. Recommendations are made for improvements.


Anticholinergic psychosis was observed to follow ingestion of proprietary antidiarrheal preparations in a 63-year-old woman. The diagnosis was that of psychosis due to the belladonna in a preparation called Enterosan. Possible abuse or accidental overuse of such medicines in the acutely psychotic patient should always be considered.

This news note reports on a newly founded organization in Brazil, Sobravime (the Brazilian Society for the Surveillance of Medicines), which was formed to encourage rational drug use. The organization has already been criticized by the Brazilian Association of the Pharmaceutical Industry, which says that the new organization will only create public panic about drugs.


From November 1988 to March 1989, 37 strains of Shigella were isolated from 804 Malagasy children in Madagascar. Five strains of S. dysenteriae serotype 1 were found to be resistant to several antibiotics including ampicillin, carbenicillin, streptomycin, chloramphenicol, tetracycline, sulphonamide and trimethoprim. Resistance to trimethoprim is a recent occurrence in Madagascar.


The authors review the use of drugs such as adsorbents, opioids, anticholinergic agents and others in the treatment of infectious diarrheas. They caution that drugs can make the diarrhea worse.


The authors of this letter to the editor comment on adverse effects of using antimotility drugs for children. They state that such medications can enhance toxin absorption and lead to worsening of some infectious conditions, such as haemolytic-uraemic syndrome.


In this brief article the authors comment on the use of drugs containing hydroxyquinolones as anti-diarrheals. They cite evidence showing that these drugs are ineffective and
unsafe and recommend a worldwide ban of hydroxyquinolone-containing medicines.


These letters to the editor address an earlier article in The Lancet about the WHO book on the rational use of drugs in the management of acute diarrhea in children. The first letter protests the fact that WHO failed to recommend the use of smectite for children with diarrhea. This drug reduces the duration of diarrhea, but not stool output. The second letter, by T.I. Bhutta, expresses the view that the WHO book will not help get dangerous and ineffective anti-diarrheal drugs off the market.


This paper reviews the scientific background to the development of new drugs for the treatment of diarrhoeal diseases, and it includes an update of three classes of drugs which may prove useful: gut specific alpha 2-adrenergic agonists, intestinal Cl- channel blockers, and somatostatin analogues. [published abstract]


This brief article discusses the problem of misuse of drugs in the treatment of childhood diarrhea. It includes a graph comparing use of ORS to use of drugs for diarrhea in 5 regions.

4257 DRUGS AND DIARRHOEA. Dialogue on Diarrhoea, no.42, September 1990, pp.2-4.

In most cases of childhood diarrhea, drugs are unnecessary and inappropriate. Based on a literature review by the WHO CDD Program this article reviews the information available on 3 types of antimicrobial agents: neomycin, streptomycin and hydroxyquinolines.
Once widely recommended for treating diarrhea, adsorbents and sulphonamides are no longer considered appropriate drugs for diarrhea. Adsorbents such as kaolin and pectin do not appreciably reduce diarrhea duration, stool frequency, or stool losses. Their use may also detract from use of ORT and feeding. Sulphonamides have been shown to be ineffective and toxic, and many bacteria have become resistant to them.

With more than 100 antidiarrheal products on the market, choosing the best product for the self-treatment of diarrhea is not an easy process...To determine which ingredients and products are safe and effective and, therefore, which should be maintained on the OTC market, the FDA is in the process of reviewing the ingredients of all OTC products. [published abstract]

An open-label, parallel comparison of loperamide hydrochloride (Imodium A-D) and bismuth subsalicylate (Pepto-Bismol) was conducted using non-prescription dosages in adult students with acute diarrhea...It was concluded that loperamide is effective at a daily dosage limit of 8mg (40ml) for the treatment of acute nonspecific diarrhea and provides faster, more effective relief than bismuth subsalicylate. [published abstract]

The efficacy of nonprescription doses of loperamide hydrochloride (Imodium A-D) was compared with nonfibrous activated attapulgite (Diasorb) in a randomized, parallel, open-label study of adult patients with acute diarrhea. The
results of the study showed loperamide to be more effective than attapulgite in the control of diarrhea. [published abstract]


This news note describes the formation of the group DURG-AFRO (African Drug Utilization Research Group), which was formally established in 1990 by eleven African countries with assistance from Italy and Norway. The group will conduct drug utilization studies, devise curricula that incorporate rational drug use components, and promote the adoption of national essential drug policies.


The author discusses the dangers of having too many drugs available over the counter, especially in developing countries where knowledge of drug effects is limited and quality control is not rigorous enough. He uses examples from Nigeria, where many drugs are readily available at pharmacies without a prescription.


This brief article reports on the results of an evaluation of a national essential drugs program in Yemen. The evaluation found that patients in the program area received fewer antibiotics and fewer drugs per prescription than patients in the control area. Health workers in the program area also had higher levels of knowledge about rational drug therapy than workers in areas that were not yet included.


An assessment of the quality and appropriateness of German and Swiss drugs marketed in developing countries is described in this news note. The study found that almost half of exported drugs from both countries were unnecessary and that several drugs still marketed in developing countries had lost licenses in the home country for safety reasons.
The author of this letter to the editor comments on the importance of teaching pharmacists about dehydration and use of ORT in order to reduce unnecessary drug prescriptions.

In this letter to the editor, a representative of the Johnson and Johnson pharmaceutical company comments on the company's efforts to withdraw the anti-diarrheal, Imodium (loperamide) from the developing country market. The company initiated these efforts as a result of infant fatalities in Pakistan due to use of loperamide drops. The author states that the drug itself is not the problem, but rather the misuse of it in developing countries.

A study in Mexico City examined the prescribing practices of 69 physicians before and after educational interventions that promoted ORT use and discouraged overuse of drug therapy. After the education sessions ORT prescriptions rose while drug prescriptions declined. The prescription patterns of physicians in the control group (those who received no education) did not change.

The authors of this letter to the editor discuss the increasing resistance of Shigella strains to trimethoprim, an antimicrobial. They suggest that this points to the need for more prudent use of antimicrobials in the treatment of shigellosis.

In this article the author discusses the concept of essential drugs and how private volunteer agencies have been collaborating with WHO to promote rational drug use. He also briefly outlines the key elements of an effective national drug policy including legislation, procurement and
This news note describes a study conducted in Tunisia, Algeria, Morocco, Burkina Faso, Congo, Ivory Coast, Mali, Senegal, and Zaire. The study focuses on the sale and distribution of drugs in these African countries and the involvement of the French pharmaceutical industry in such activities. The results indicated that pharmaceutical marketing practices often neglected the needs of African patients and that many unnecessary drugs were being promoted for sale.

Availability and rational use of drugs was assessed in a random sample of 19 peripheral health units in two governorates in Democratic Yemen in which an essential drugs programme has been operational in the past few years. Programme areas differed considerably from control areas in patterns of drug use, with fewer injections (24.8% vs 57.8% of prescriptions) and fewer antibiotics (46.3% vs 66.8%) being prescribed in programme areas, which also had fewer drugs per prescription (1.5 vs 2.4). [published abstract]

This review article evaluates fluoroquinolone antimicrobial agents in terms of their mechanisms of action and resistance, in vitro activity, pharmacokinetics, clinical efficacy, adverse effects, and clinical uses. Clinical efficacy was examined with respect to several conditions including urinary tract infections, gastrointestinal illnesses, sexually transmitted diseases, and respiratory tract infections.
This news note reports that the Indonesian government officially ordered the withdrawal of the anti-diarrheal loperamide from the drug market.


In this article the authors focus on new bacterial resistance mechanisms that have appeared in response to the widespread use of newer, broad-spectrum antibiotics and the increased and often indiscriminate use of older agents. Only drugs currently available commercially in the U.S. are discussed, including methicillin, vancomycin, amikacin and fluoroquinolones.


The authors of this letter to the editor point out that shigellae have become resistant to most antimicrobial agents used in its treatment. Therefore, antimicrobials only should be used in severe Shigella dysentery.


The consultant reports on his assessment of the manufacturing and production operations of the Balsam pharmaceutical plant in Ramallah, West Bank. The two major deficiencies noted are lack of management and lack of good manufacturing practices. Recommendations are given to correct these problems.


Of 190 isolates of Escherichia coli from children aged up to 5 years with diarrhoea [in Ibadan, Nigeria], 72 (37.9%) were resistant to trimethoprim and of the 70 isolates tested, 38 transferred high level trimethoprim resistance into E. coli EC 1005. Of the enterotoxigenic isolates from which
trimethoprim resistance was transferred, 41.2% also contained transmissible toxigenic characteristics. All the trimethoprim-resistant isolates were resistant to other antibiotics. [published abstract]


This study compared the resistance of 8 agents of Escherichia coli in stool samples from untreated, healthy children in cities in 3 continents. It found that the bacteria that colonize healthy children may be resistant far more often in some regions than in others. A low rate of carriage of antimicrobial resistance should become a public health goal.


This editorial describes the problem of bacterial resistance to antibiotics, focusing on the results of a recent study by Lester et al. of antibiotic resistance in Caracas, Venezuela; Qin Pu, China; and Boston, MA. Various means of reducing reservoirs of resistance genes are discussed.


This article describes the work of the Alliance for Prudent Use of Antibiotics (APUA). APUA is attempting to curb the unnecessary prescribing and use of antibiotics, especially in developing nations, which has led to increases in bacterial resistance.


This news note reports on Professor Tariq Bhutta's letter to the Johnson and Johnson pharmaceutical company which asked the company to recall the anti-diarrheal imodium. Imodium was cited as the cause of death of six Pakistani children. Despite the company's agreement to withdraw the drug, a television team discovered that 2 months following the withdrawal, imodium drops could still be bought over the
This article briefly describes two projects in Burkina Faso which were undertaken to combat malaria and to improve the national production, distribution, and quality control of essential drugs. These projects were carried out with assistance from the Italian government.

87 strains of Streptococcus pneumoniae isolated during three winter seasons (1986-1989) from the blood of children with acute lower respiratory tract infection (ALRI) in Pakistan were serotyped and tested for susceptibility to a range of antimicrobial agents. 97% of isolates were resistant to at least one antimicrobial drug...The findings highlight the need for surveillance of antimicrobial resistance and serotype distribution of S pneumoniae in developing countries as a guide both to the choice of agent for treatment of pneumococcal infections, especially ALRI, and to the formulation of new pneumococcal conjugate vaccines for use in young children. [published abstract]

For over 14 years, physicians in Northern Ireland have benefited by a prescribing feedback system, based on complete computerized records of all GP prescriptions. Two things maximize the system's impact: it needs to be interpreted for each group of doctors (practice), and it should be discussed with the doctors at a face-to-face meeting.

The therapeutic efficacy of Bioflorin...in acute watery
diarrhea was evaluated in 183 Bangladeshi adults... It is concluded that Bioflorin has no demonstrable antidiarrheal property in adults with acute diarrhea due to V. cholerae or enterotoxigenic E. coli infection. [published abstract]


This study was designed to assess the effect of loperamide, given to infants in higher than recommended doses, on the severity and duration of acute diarrhea [in South Africa]... Infants receiving loperamide had a shorter duration of diarrhea... and lower daily stool output than the control subjects had. The study confirmed the efficacy of loperamide in reducing the duration and severity of diarrhea but raised doubts regarding its safety in the treatment of young infants. [published abstract]


This news note reports on Nigerian pharmacists' and drug manufacturers' protest regarding the banning of all pharmaceuticals not appearing on the official list of essential drugs.


This article reports on Nigerian pharmacists' reaction to a decree which banned public and private use or promotion of drugs not included in an essential drugs list. The government's attempt to regulate the private sector has led the pharmacists to protest the decree.


The antidiarrheal effects of a substance (BN) isolated from the seed of Abrus precatorius were examined in this study. Results showed that BN inhibited both the incidence and severity of diarrhea, thus supporting the use of the seed in traditional medicine as an antidiarrheal.

A survey of medicinal plants used in Thailand has been made from Thai books on traditional herbal medicine. In this part of the survey, 326 plants with antidiarrheal, laxative and/or carminative properties are described. Information provided for each species includes plant part used, methods of preparation and administration and literature references to Thai books, together with indications of usage in other Southeast Asian countries and of phytochemical work which has been performed. [published abstract]

4740 PERU: A MAJOR DRIVE TO RATIONALIZE TREATMENT OF DIARRHOEA. 

National surveys in Peru showed that despite the government's endorsement of ORT, the majority of diarrheal episodes were treated with drugs, especially antibiotics and anti-diarrheals. A workshop was held in November 1989 by the Peruvian scientific community and the WHO/PAHO office in Lima to discuss the survey results and to consider options. As a result pediatric seminars on proper diarrhea management have been held as well as various forums for health professionals which encourage rational drug use.


This brief article describes WHO's position on the use of drugs to treat diarrheal disease.


Ciprofloxacin and other related fluorinated 4-quinolones have microbiological and pharmacokinetic properties that suggest they could be useful agents in the management of typhoid fever and bacterial gastroenteritis. This paper reviews the clinical experience with ciprofloxacin in typhoid fever and infectious diarrhea.

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This brief article discusses the role of the new quinolones in the treatment of non-travellers diarrhea. These agents are contraindicated in children.

4180 RATIONAL USE OF DRUGS. Africa Health, vol.12 no.6, September 1990, p.3.

This news note briefly describes the activities of INRUD (International Network for the Rational Use of Drugs), which include improving physician prescribing behavior and promoting essential drug policies.


This document reviews the documented pharmacology, mechanism of action, efficacy, adverse effects and drug interactions of various types of antimotility drugs, antimicrobial agents and adsorbents used in the management of acute diarrhea in children. Conclusions are presented and recommendations made on the role and use of such drugs in treating childhood diarrhea. This information is intended primarily for CDD program managers, health professionals, educators of medical students, nurses, pharmacists and other health workers.


In this letter to the editor, the authors report on their findings of fluoroquinolone-resistant Campylobacter strains in Spanish patients with diarrhea.


The relatively weak market position of ORS may be one reason why it is not used more often, as compared to anti-diarrheal drugs. The authors of this short article argue that understanding commercial sales techniques could help to increase the use of ORS.
In this letter to the editor the authors report on the incidence of penicillin-resistant strains of pneumococci in Bangladesh.

Among a cohort of children in a poor urban setting in Brazil, the relative risk for the occurrence of a new episode of diarrhea in the two weeks following antibiotic use vs all other weeks was 1.44...Among children never exposed to antibiotics, the odds ratio was 1.34...Further research is needed to confirm whether antibiotics are a risk factor for diarrhea in such settings. [published abstract]

In this trial the authors have investigated the antidiarrhoal effect of loperamide and the drug's contribution to the correction of dehydration in adult patients presenting with acute diarrhoea at the Al-Bashir Hospital in Amman [Jordan]...[Results indicated that] loperamide significantly reduced the number of loose stools and the time until the first solid stool, but there was no significant effect on fluid requirements. [published abstract]

The authors present four cases of severe illness associated with Salmonella infection in previously healthy patients with no recognized risk factors. Common to each patient was the pre-hospital oral administration of anti-diarrheal drugs. The authors conclude that antimotility drugs should be avoided in patients with diarrhea which may be due to gastrointestinal infection.
This letter reports on the results of a study in Great Britain that recorded actual pharmacist-parent consultations about childhood diarrhea on audiotape. In all cases, ORS was supplied; no other product was recommended or sold. However, the pharmacists sometimes advised against offering food or milk products.

The authors conducted a clinical trial in 123 Chilean children with acute diarrhea to determine the effectiveness of bismuth subsalicylate when used in conjunction with rehydration therapy. Bismuth subsalicylate was well tolerated, produced no adverse effects, and reduced the duration of the hospital stay.

Implementation of the Philippines' Generics Act went into full force in January 1990. This article reviews the first four months of implementation of the law based on monitoring by the Philippine Drug Action Network.

A study was conducted among U.S. military personnel to compare the safety and efficacy of loperamide used in combination with ciprofloxacin or ciprofloxacin alone for the treatment of travelers diarrhea. The most common pathogen isolated from the patients was enterotoxigenic E. coli (ETEC). Results indicated that in an area where ETEC was the predominant cause of diarrhea, the combination of loperamide and ciprofloxacin was not better than ciprofloxacin alone. Both regimens were determined to be safe.
TOWARDS A MORE RATIONAL USE OF ANTIBIOTICS IN ACUTE RESPIRATORY INFECTIONS IN CHILDREN. Essential Drugs Monitor, no.9, 1990, p.5.

This brief article describes training activities in Fiji and Vanuatu ARI programs that reduced the levels of unnecessary prescriptions for antibiotics.


Following a letter from the Medical Lobby for Appropriate Marketing (MALAM), the producers of the anti-diarrheal Kaomycin (Upjohn) has decided to phase out marketing of the drug over the next eighteen months. This brief news note reports on Upjohn's reasons for this decision.


The authors suggest that the time has come to reorient essential drugs policies towards the improvement of drug use, rather than the improvement of drug supply. Based on studies in several developing countries, they show how social and cultural forces shape the distribution and use of drugs.


This study looks at the historic roles of the public, church mission and private sectors in making drugs available and at their respective strengths and weaknesses. It discusses donor-supported strategies to improve pharmaceutical distribution, including the Bamako Initiative. The paper argues that the private sector is the most efficient distributor of pharmaceuticals.


This letter to the editor discusses the use of intravenous fluids for dehydration in terminally ill patients. The authors state that IV use should be based on the preference
of the patients and their families.


In this letter to the editor, the authors caution against unselective treatment for H. pylori with colloidal bismuth subcitrate or bismuth subsalicylate combined with tetracycline and metronidazole, as it can increase the incidence of metronidazole resistance.


The authors of this letter to the editor report on an outbreak of Shigella sonnei infection in the United Kingdom which was treated with ciprofloxacin.


This letter to the editor reports on an outbreak of salmonellosis in a British psychiatric hospital in October 1988, which was treated with ciprofloxacin.


This letter to the editor reports on the isolation of a strain of E. coli resistant to penicillins and cephalosporins because of a plasmid-encoded beta-lactamase that was not inhibited by clavulanic acid.


The author of this letter to the editor describes a mini-study which he conducted in an African country to determine pharmacists' treatment advice for diarrhea. Of the 14
pharmacies visited, all recommended using drugs as the
initial treatment. Only one pharmacist recommended ORT, but
only as a second-line therapy.
DIETARY MANAGEMENT OF DIARRHEA

In this article the author presents general guidelines for feeding children who have acute diarrhea. Guidelines are given for exclusively breastfed, partially breastfed, and non-breastfed children.

A randomized clinical trial was completed to study the severity, duration, and nutritional outcome of acute diarrhea in 85 Peruvian children aged 5-24 months, who received a soy-protein isolate, lactose-free formula or one of two mixtures of home-available foods. Children in all groups gained weight during hospitalization, and there were no significant differences by diet group in the change of anthropometric status during treatment.

This study was conducted in four villages in India during the hottest and driest season of the year to determine whether exclusively breast-fed infants need additional water under extremely hot and dry climate conditions... Even under hotter and drier climatic conditions than have previously been studied, healthy exclusively breast-fed infants do not require additional water. [published abstract]

Feeding patterns by mothers and child acceptance of food were measured in a Peruvian village to determine changes on days when children had diarrhea as compared to days of convalescence and health...[Results showed that] maternal...
encouragement to eat decreased significantly during convalescence compared to diarrheal days... and health compared to diarrhea... In contrast, child acceptance of food increased during health compared to diarrhea... Results illustrate the importance of carefully examining the behavioral aspects of nutritional intake. Decreases in intake during diarrhea are due to anorexia and not withdrawal of food by mothers. In response to reductions in child appetite during illness, mothers are more likely to encourage children to eat, while they tend to become more passive feeders after the diarrhea has stopped. [published abstract]


A randomized, double-masked clinical trial was completed to compare the effects of four dietary regimens for the nutritional management of 116 Peruvian children between 3 and 24 months of age with acute diarrhea. Diets consisted of a modified whole milk formula (group M), a lactose-hydrolyzed milk formula (HM), wheat noodles and whole milk (N-M), or wheat noodles and lactose-hydrolyzed whole milk (N-HM)... In this group of patients, noodle-milk mixtures produced fewer treatment failures, lower fecal outputs, and shorter durations of diarrhea than did milk alone, regardless of the lactose contents of the respective milks or mixed diets... Thus, the noodle-milk diets employed during this study were safer than the milk diets for the dietary management of children with acute diarrhea. [published abstract]


Working in Zaire, the author... initiated a simple method of nutrition surveillance for African communities... This method... is designed to predict and show short-term trends of protein-energy malnutrition. It can be used to forecast and document famine, as well as modest variations in the nutritional status of the community. [published abstract]
In this letter to the editor the authors comment on the efficacy of treating persistent diarrhea with lactose-reduced formulas.

In this study the authors modified the dietary intake of 16 children in a hospital in Italy to determine if limited restriction of energy intake would decrease serum IgE levels and chronic non-specific diarrhea (CNSD). The data indicated that a reduction in eating incentive could safely achieve lower energy intakes and thus could be useful in preventing overeating and IgE increase as well as in controlling symptoms of CNSD.

Community-based, quantitative studies of dietary intake by 5- to 28-months-old Nigerian children were conducted during episodes of diarrhoea and subsequent convalescent and healthy periods. Energy intakes during diarrhoea...were slightly lower than during health...The magnitude of illness-associated differences in these children's daily intake was small relative to the deficit in their intakes, even on healthy days, when compared to the amounts recommended for this age group. [published abstract].

In this article the author describes how the Royal Tropical Institute, a Dutch NGO, helps developing countries to produce culturally acceptable weaning foods which can be made locally. Several aspects of production, including storage, marketing, and packaging, are discussed specifically in terms of developing sustainable projects. Successful projects in Burundi, Sierra Leone, and Ghana are described.
A study was conducted among mothers in a suburban community in Lagos [Nigeria] to ascertain child feeding patterns during episodes of diarrhoea...The vast majority restricted the consumption of yams and sugar (>90%) and substantial numbers (40/50%) restricted bread and rice. On the other hand other carbohydrate foods were increased--plantain (73%), ogi maize pap (53%), amala (56%). Of protein foods the vast majority restricted beans (94%) and milk formula (69%) with 35% restricting meat but not fish. Few increased the intake of such foods. Beverages, fruit and vegetables were restricted by the majority; water intake was maintained. These dietary restrictions are apparently based on tradition but can have serious consequences. [published abstract]
using wet nurses as a third alternative to breast and bottle feeding by the HIV-infected mother.

4110 HOW TO FEED A BABY WHO CANNOT BREASTFEED. Dialogue on Diarrhoea, issue 41, June 1990, pp.6-7.

This article provides guidelines on how to feed infants who cannot breastfeed. By using expressed breast milk, these babies can be fed safely and effectively from a cup. The article also strongly discourages bottle feeding, as it is often unsanitary.


This brief article describes an improved weaning food developed by the Dietary Management of Diarrhea project (DMD) in Peru. The food consists of carrot, oil, sugar, wheat flour and bean flour.


The effects of early home management of acute diarrhea followed by rapid in-hospital realimentation on intestinal permeability were studied in 41 children aged 3-25 months with acute gastroenteritis...[in Finland]...The study indicated that fasting maintains the increased intestinal permeability associated with acute gastroenteritis whereas early feeding at home may promote reduction of permeability and hasten recovery. [published abstract]


This editorial addresses the methods that can be used to increase the caloric content of weaning foods, such as malting and adding oil, fat or sugar.
Two studies were conducted to examine the capacity for greater fat absorption relative to carbohydrate absorption during infantile persistent diarrhea in children from a developed or developing country. Twenty children in Buffalo, New York and thirty in Bangkok, Thailand with persistent diarrhea received either a standard semielemental diet or a high-fat semielemental diet. Both diets were well tolerated in both studies and there was no difference observed in the coefficient of fat absorption between the groups receiving the two formulas. The authors conclude that a high-fat diet may be a good means of assuring proper caloric intake in children with carbohydrate intolerance.

To determine the extent of protection from breast feeding against acute diarrhoea, a cross-sectional study was conducted in rural areas in a Western region of Ethiopia, Gamo-Gofa. When infants with partial breast feeding were contrasted with those on exclusive breast feeding, a relative risk of developing diarrhoea of 5.2...was obtained. [published abstract]
In this article [the authors] examine the current knowledge about, and trends in, feeding infants with diarrhea...[They] discuss treatments for the well-nourished infant with acute diarrhea, the infant with prolonged diarrhea, and the malnourished infant. Information regarding the use of local staples will also be provided. [published abstract]


The authors studied 29 Brazilian infants with persistent post-infectious diarrhea and lactose intolerance in order to evaluate the efficacy of three formulas commonly used to treat this condition. Of the three formulas, Pregestimil seemed to be the most effective one for treating infants with persistent post-infectious diarrhea and lactose intolerance.


This prospective, randomized, multicenter study of dietary management of 926 preterm infants, the relation between early diet of feeding practice and the frequency of necrotising enterocolitis was explored. It concludes that with a decrease in the use of breast milk in British neonatal units, exclusive formula feeding could account for an estimated 500 extra cases of necrotising enterocolitis each year. About 100 of these infants would die.


This article discusses the chronic diarrhea-malnutrition syndrome and the subsequent intestinal lesions in Gambian children. It also assesses the ability of the dual sugar permeability test to determine these children's intestinal mucosal status. Because the test can be used frequently in a non-invasive way, the authors determined that it would be useful in studying the etiology of chronic diarrhea-malnutrition syndrome.

The nutritional management of infants admitted with diarrhea to the University Hospital of Botucatu includes a change from bolus feeding of a modulated minced-chicken formula to a continuous nasogastric drip feeding, whenever the required calorie intake is not achieved or the diarrhoea does not subside. To evaluate this approach, the clinical course and weight changes of 63 children, aged 1-20 months, were reviewed. [published abstract]


This paper reports the protein absorption and nitrogen and fat balance of 21 infants in the first week after the onset of diarrhea. The results are compared with those of 22 infants who had severe diarrhea for 8 days. The infants were fed a cow's milk, soy-based, or low lactose formula. The smallest loss of nitrogen and fat was found in infants who had had diarrhea for four days and who were fed a soy-based formula.


A group of concerned pediatricians and physicians recently met in Manila, Philippines, to reaffirm the 20-point declaration on breastfeeding originally drawn up in Thailand in 1986. This brief article enumerates the 20 points.


In this study conducted in Ireland, three commonly used dietary regimens—low-lactose, low-fat formula, conventional formula, and hydrolyzed soya and collagen formula—were compared to determine their effect on the duration of loose stools and weight change in children with gastroenteritis.
Earliest recovery from gastroenteritis was observed when using the low-lactose, low-fat formula in the initial post-rehydration phase.


This letter to the editor reports on a retrospective study on the duration of breastfeeding of Ethiopian refugee mothers in California. The study found that urban mothers breastfed less than 3 months and rural mothers less than 9 months.


Although the cost of artificial feeding increased during the 1980s in Jamaica, bottle-feeding continued to increase. The percentage of mothers breastfeeding at 6 weeks declined from 63% in 1983 to 46% in 1989. It appears that breastfeeding duration is not influenced by economic conditions in third world countries.


Unfermented and fermented maize dough weaning foods prepared by mothers in a Ghanaian village were examined for gram-negative bacilli (GNB) immediately after preparation and during storage to assess the antimicrobial effect of fermentation...Fermentation of maize dough is an effective method to reduce contamination of maize dough weaning foods. [published abstract]


The authors conducted a study in Ghana to determine the levels of coliform bacteria in fermented and unfermented maize dough porridges. After 12 hours, the fermented porridge was found to be less contaminated than the
unfermented porridge; therefore, porridge may make a good weaning food.


The authors of this letter to the editor respond to a letter by Cabellero and Solomons (Pediatrics, vol.86 no.4, pp.645-646) which discusses the use of lactose-reduced formulas in treating children with persistent diarrhea. They state that these formulas could speed up recovery in sick children, thus reducing expensive hospital stays.


This study analyzes the relationship between the effects of diarrheal disease and food supplementation on the growth of children in a rural area of Guatemala. Diarrheal disease was found to have a negative effect on the growth of children aged 3 to 36 months with low dietary intake. The effect was not as negative when food supplements were given.


In this paper the author discusses the relationship between persistent diarrhea and malnutrition. He stresses the importance of continued feeding during diarrhea to prevent malnutrition and stunting. Other issues discussed include continuation of breastfeeding, use of cereal based ORS, and catch-up growth during convalescence.


In India, 45 healthy, exclusively breastfed infants were studied to determine the need for water supplementation to maintain water homeostasis in exclusively breastfed children during the hot season in a tropical country. The infants
were divided into two groups, one receiving only breast milk and the other breast milk plus supplementary fluids according to the mothers' usual practice. There were no significant differences between the groups in urine output, urine or serum osmolality, weight change, or rectal temperature. The authors concluded that exclusively breastfed infants do not need supplemental water and that, in fact, reduced breast milk intake is a potential disadvantage of this practice.


This study reports the management of 8 children from 9 months to 3 years of age with persistent diarrhea by colostrum feeding. Results showed effective anti-diarrheal action of colostrum in some patients with persistent diarrhea of infective origin.

Schroeder, D.G.; Piwoz, E.G.; Black, R.E. et al. IMPROVING INFANT FEEDING PRACTICES TO PREVENT DIARRHEA AND REDUCE ITS SEVERITY: INTERVENTION RESEARCH PRIORITIES AND METHODOLOGIC CONSIDERATIONS. Baltimore, Maryland, Johns Hopkins University, Institute for International Programs, September 1989, 55p.+app.

Part I of this report explores the relationship between infant feeding practices and diarrhea...This first part will include a review of feeding patterns and practices that have been implicated in the risk of diarrhea and will give examples of prior experiences with interventions to improve infant feeding practices...Part II of the report will propose methodological approaches for carrying out intervention research. Included in this part will be discussion of intervention research designs and the methods of developing interventions to motivate behavioral change. [published abstract]


Two hundred urban mothers and 86 rural mothers in Dubai were interviewed to obtain baseline data about the duration of
breastfeeding and weaning patterns. The median duration of breastfeeding was 4.75 and 9 months in urban and rural groups, respectively. Results of the study call for a national program to promote breastfeeding.


This letter describes the results of a survey of 700 mothers in Northern India regarding breastfeeding practices. All children were breastfed at birth; supplements were introduced at age 9-11 months by 87% of mothers. Breastfeeding was found to protect against diarrhea and against malnutrition, at least until 9-11 months of age.


This letter describes a weaning food developed and taught to Nigerian mothers by community health workers. The food consists of soy beans, porridge, palm oil and sugar. It is also given during diarrhea in addition to sugar-salt solution.


In this letter to the editor, the authors describe a small study that showed that some patients with severe persistent diarrhea cannot tolerate any commercially available formula or human milk.


This paper discusses various ways in which diarrhea may be prevented from occurring in children living in developing countries...Possible strategies include promotion of breastfeeding, dietary supplementation with vitamin A, zinc and iron, the prevention of protein-energy malnutrition as
far as possible, and improvement in the standard of preparation and hygiene of available weaning foods, involving in particular the wider use of fermented foods.

[published abstract]


This article presents some practical recommendations for dietary management of diarrhea which take into account nutritional, physiological, cultural and economic considerations. Among the main points were continuing breastfeeding, using appropriate local staples, and avoiding dilution of cow's milk when it is used in place of breast milk.


This letter to the editor reports on a study that suggests that kanwa-cooked cowpeas can be used in formulating an infant weaning food.

**1149 Walker-Smith, J.A.** MANAGEMENT OF INFANTILE GASTROENTERITIS. Archives of Disease in Childhood, vol.65, 1990, pp.917-918.

In this article the author discusses lactose intolerance during re-feeding of bottle-fed infants who are recovering from a diarrheal episode.


These letters to the editor discuss an earlier article by J. Walker-Smith on dietary management of infantile gastroenteritis. The lack of clear guidelines concerning cessation of milk feeds and solids during the first 24 hours of infantile diarrhea is discussed.
Mothers are often given advice about how to feed their children with diarrhea at home. Here the author describes two studies in Kenya and Tanzania where the views of mothers and health workers were sought. In both cases, fermented or germinated cereals were recommended for children but were often not adopted by mothers.
HEALTH ASPECTS (of Control and Prevention)


These two letters to the editor protest the interpretation of Ayur-Vedic medicine offered in an October 27, 1990 Lancet article. They point out that Ayur-Vedic medicine has been practiced for thousands of years on the Indian sub-continent and that it emphasizes maintaining a healthy lifestyle.


This paper lists the obstacles that were encountered in breastfeeding promotion among pediatricians in India and gives 17 recommendations for overcoming them. The major obstacles included insufficient knowledge about breastfeeding physiology and management, absence of explicit policies, lack of commitment, and problems in getting proper information. Several educational measures are suggested to remedy the problems.


This brief article discusses the advantages of breastfeeding and the nutritional and psychological risks of weaning babies too early or abruptly.


This paper updates documented program achievements of the Nigerian EPI Program for the period 1974-1988. Data analysis shows a clear reduction in measles and whooping cough since 1986, and an increase in TB incidence since 1984. The minimal impact of the EPI Program is due mainly to an inability to achieve high coverage.

The author describes an experiment in primary health care in Florestopolis, Brazil, designed to decrease the infant mortality rate. Volunteers from poor communities who were judged to have leadership qualities attended a one-week training course on child health. The IMR decreased by 50% and hospital admissions for diarrheal disease dropped by 70%.


This report presents the findings of a Demographic and Health Survey conducted in Brazil from May to August 1986. The survey focused on maternal and child health issues with emphasis on breastfeeding and diarrhea. Results indicated that prevalence and duration of breastfeeding were low in Brazil. Diarrheal episodes did not vary significantly between breastfed and non-breastfed children, which the authors attribute to confounding socio-economic variables. Several factors related to breastfeeding prevalence are discussed, including maternal education, type of delivery, smoking, and introduction of weaning foods.


In this article the authors evaluated a program for improving influenza vaccination in a health maintenance organization (HMO). The data indicated that immunization rates increased when HMO members received reminders and physicians received peer comparison feedback. The authors concluded that the reminder and feedback system can contribute to the effectiveness of ongoing influenza immunization programs.


The impact of starting breastfeeding immediately after delivery on establishment of lactation was studied in 100 cases in a Pakistani hospital. Pregnant women were counselled in proper breastfeeding practices prior to delivery and babies were started on the breast immediately
after birth. Study results indicated that 95% of studied women had established breastfeeding at the time of discharge.


This document discusses the importance of including breastfeeding promotion in family planning programs. Breastfeeding's effect as a contraceptive method is examined as well as its compatibility with women's other roles. Several successful promotional programs are highlighted, including those in Jordan, Pakistan, Colombia, and Jamaica.


The author of UNICEF's "Children and AIDS: An Impending Calamity" disputes Malcolm Potts's statement that UNICEF is reluctant to advocate family planning. The difficulties of implementing family planning programs, particularly in Africa, are described.

4254 Boerma, J.T.; Baya, M.S. MATERNAL AND CHILD HEALTH IN AN ETHNOMEDICAL PERSPECTIVE: TRADITIONAL AND MODERN MEDICINE IN COASTAL KENYA. Health Policy and Planning, vol.5 no.4, 1990, pp.347-357.

This paper presents the results of an operational research project on traditional medicine in coastal Kenya. Data were collected on health services utilization and traditional medicine. High levels of utilization of both modern and traditional medical services were observed for child illnesses. Large-scale training of TBAs and healers did not appear to be feasible, but focusing on the leading traditional practitioners may be worthwhile.


In this article the authors examine the Comprehensive Health Improvement Program - Province Specific (CHIPPS), which achieved partial success in decentralizing the Indonesian ministry of health. The basic approach was to develop health officials' skills in data collection, management and analysis so that these officials could identify local conditions.
problems and address them with project activities. By implementing locally based solutions, provincial and local officials could effectively challenge central office decisions and, thus, achieve some decentralization objectives.


This brief article describes three UNICEF projects in the Great Rift Valley, Kenya, a slum area of Nairobi, and Kampala, Uganda that show how the capacity for essential national health research is being developed.


This document reports on the results of rapid ethnographic assessment focusing on infant feeding and nutrition practices in 14 Zarma-speaking villages in Niger. Among the areas for which data were gathered are breastfeeding, weaning, perceptions of health and illness, use of traditional healers, practices during pregnancy, and diet and food preparation. The implications of these findings on conducting nutrition education programs are also discussed.


This news note focuses on reasons why breastfeeding has not been promoted extensively for its ability to limit fertility. Three reasons were cited in a World Bank report: (1) promotion is considered unnecessary; (2) breastfeeding decline is often associated with modernization and its impact may be negligible if the corresponding use of modern contraceptives increases; and (3) breastfeeding is not considered a completely reliable contraceptive.


This news note briefly outlines the proceedings of the international breastfeeding conference in Florence, Italy, from July 30 to August 11, 1990. Participants reinforced the idea that breastfeeding is vital to child survival and
that it should be intensely promoted.


This document describes AID's strategy to promote breastfeeding in conjunction with other child survival activities. The specific goals of the strategy are to increase the percentage of infants who are: (1) breastfed within one hour of delivery; (2) exclusively breastfed from birth through four to six months of age; (3) fed appropriate complementary foods in addition to breast milk by the end of six months of age; and (4) breastfed for one year or longer. A list of AID projects that will incorporate breastfeeding promotion into their activities is also provided.


A 1982 KAP study of infant feeding practices in Kenyan maternity wards found low levels of knowledge among health workers about proper breastfeeding. As a result, the Ministry of Health and several non-governmental organizations launched an educational campaign to improve feeding practices and promote breastfeeding. The follow-up study in 1989 found that in almost all areas of breastfeeding management, knowledge among health workers had improved since 1982. This report reviews and compares the data from both studies and presents recommendations for future improvements.


This article explores the reasons for the increase in breastfeeding rates in Kenya. The increase is credited to government health policies, training for health workers, increased funding, research, and publications.


This report...highlights some of the major breastfeeding activities A.I.D. has supported over the past decade and discusses the opportunities A.I.D. sees for enhancing breastfeeding promotion and support in developing countries. [published abstract]
PRICOR has carried out 9 assessments of health worker performance in regard to ORT in 8 countries: Colombia, Niger, Pakistan, Peru, Philippines, Senegal, Thailand and Zaire. This report identifies areas of strength and weakness in the delivery of ORT services, and suggests ways in which the quality of some of the components might be improved.

The efficiency and effectiveness of the health-for-all strategy have been judged largely by the results achieved in developing countries. Assessments of progress have failed to take into account the slowness of advances previously made in developed countries. In most African countries the process has been hindered by worsening economic, social and legal conditions. This article argues against undue bias towards the profit motive, which could lead to many people having access to second-class services.

This article describes PROALMA, a pilot project carried out in Honduras to develop hospital norms and procedures supportive of breastfeeding and to establish a national breastfeeding program and policy. Preliminary data indicated that the project had positive impacts on changing feeding practices in hospitals. By 1985 national norms had been adopted and PROALMA was extended in order to implement the expansion of the hospital model.

This study describes the demographic and nutritional status in the Timbuktu region during the drought of 1983-1985. Malnutrition rates are compared to two other drought-affected areas in the Sahel. Among children less than five,
28% had weight-for-height less than 2SD of the NCHS median. Measles vaccination coverage was 47% based on vaccination card and 60% based on history and card among children 12-60 months of age.

4183 THE CASE FOR ROUTINE VITAMIN A PROPHYLAXIS IN TREATMENT OF CHILDHOOD INFECTIONS IN DEVELOPING COUNTRIES. MCI Newsletter, no.15, September 1990, p.4.

This article briefly outlines two studies in Indonesia and South Africa which observed the role of vitamin A supplements in treating childhood infections. Both studies showed that morbidity and mortality rates among children receiving vitamin A supplements were far lower than in control groups who were given placebos.


These letters claim that a previous Lancet article on Ayur-Veda medicine attempted to discredit the system through inaccuracies and omissions. They discuss the proven benefits of transcendental meditation.


The consultant evaluated a proposed prosthetic project in Laos to be managed by World Concern. He concludes: "The proposed prosthetics project in Laos is feasible, technically warranted, and politically welcome. Its principle problem will be the coordination and management of its several components in the absence of an AID mission." The major components of the project are outlined.

216 CHILD SURVIVAL REPORT PRESENTED TO CONGRESS. Frontlines, vol.30 no.5, July 1990, p.17.

This news note provides information on AID's fifth annual report to Congress. The report focuses on programs such as ORT, nutrition, breastfeeding, and immunization. Notable progress included the increased global use rates for ORT and improved measles vaccination coverage.

An evaluation of the Joint WHO/UNICEF Nutrition Support Programme (JNSP) being implemented in the Iringa Region of Tanzania was carried out between June and October 1988. This report describes the program's activities and outlines the key elements responsible for its success.


In 1986 the authors conducted a survey examining the performance of health promoters in Pucallpa, Peru, three years after an initial Danish project for training and supervising those promoters ended. The survey found that some two-fifths of the promoters were still active, that increased stress had been placed on curative tasks, and that the promoters appeared to have had their greatest impact in the areas of vaccination coverage and increased use of the available public health care service. No significant changes were found in the affected population's treatment of diarrhea or improvement of drinking water quality.


This document consists of several articles and research notes about breastfeeding in Pakistan, breastfeeding techniques, and other aspects such as prelacteal feeding and counselling for breastfeeding mothers. The benefits of breastfeeding are reviewed and practical guidelines provided for appropriate lactational management.

COMMUNITY BASED DISTRIBUTION PROGRAMS. Alternatives, March 1990, p.10.

This article briefly outlines some lessons for family planning managers based on the experiences of various projects in Peru, Ecuador, and Bolivia. The CEMOPLAF project in Ecuador found that adding ORT to family planning negatively affected volunteer contraceptive distribution. Conversely, adding family planning to ORT projects reduced the distribution of ORS packages.
The authors conducted a prospective study in Colonia El Limon, a marginal urban area of Guatemala City, in order to explore the relationship between breastfeeding and diarrhea morbidity rates in underprivileged populations. They also sought to examine the possible role of anti-infective substances in breast milk. Results indicated that exclusive breastfeeding limits infant infections by enteropathogens, limits their expression in the gastrointestinal tract, reduces the risk of infantile diarrhea and, thus, promotes appropriate physical growth.

The present study...used a simplified method designed to assess population-level data on the duration of breast-feeding and amenorrhea, and on the patterns of postpartum contraceptive use among women in the State of Mexico. The study was conducted to gather information that could be used to make planning decisions about community health worker programmes, and offered the opportunity to evaluate the simplified methodology proposed by the WHO Maternal and Child Health (MCH) Working Group. [published abstract]

This paper presents the major findings of a study on the effect of breastfeeding and nutritional status on the duration of postpartum lactational amenorrhoea and incidence of pregnancy among Egyptian women. The mean duration of lactational amenorrhoea was 8.8 and 11.4 months for urban and rural women, respectively.
This document reviews UNICEF's goals for children and development in the 1990s, specifically in areas such as maternal/child health, nutrition, water and sanitation, education, and literacy. Strategic priorities for reaching these goals are discussed, as well as key operational strategies and program approaches in different country situations.

4033 DIARRHEA MANAGEMENT RESULTS FROM SYSTEMS ANALYSIS STUDY IN PUNJAB. Bethesda, MD, PRICOR Child Survival Report, October 1989, 2p.

This report describes a systems analysis of service delivery activities at health centers and community health worker outreach activities in the Punjab, Pakistan. Interactions between supervisors and health workers were also observed. Finally, 1300 mothers were interviewed regarding their knowledge of diarrhea management practices.


The author of this article describes a project to develop a regional centre for traditional medicine in Mali and discusses its role in the treatment of neuropsychiatric patients.


In this letter to the editor the authors discuss the protective effects of breast milk against necrotising enterocolitis.


In this editorial, Ebrahim states that "it is now time to look beyond survival and ask about the quality of life that the survivors are likely to enjoy." He focuses on meeting children's developmental needs through programs such as Head Start in the U.S.
This report discusses the testing of data forms for outpatient clinics in Ecuador and makes recommendations for improvements. It also includes a schedule for implementing these changes.

This article describes a successful pilot project conducted in the Sudan from 1981 to 1983 which involved training village midwives to deliver maternal and child health and family planning services. In addition to educating mothers about family planning, the midwives were also trained to give information about ORT, nutrition, and immunization. A post-intervention survey in 1987 showed that 87% of mothers with children under 5 had used ORT for the last diarrheal episode. The survey also indicated that overall contraception use had increased from 10% prior to the project to 26% after the project.

In 1986, a national survey was carried out to better determine the knowledge, attitudes, and practices among health care providers in Guatemala in terms of five major interventions: immunization, control of diarrheal disease/ORT, breastfeeding and lactation management, growth monitoring, and acute respiratory infections. Also available in Spanish.

A comprehensive primary health care project in Choco, Colombia carried out an evaluation for decision-making purposes over a 5-year period. All information gathered by different methods was analyzed and ordered. Criteria for the analysis were reliability and validity, relevance, costs of obtaining the data, and use of the data. The most
relevant data were obtained by WHO protocols, external evaluations, and from participatory evaluation.


This article describes how to take an arm circumference measurement of a child for growth monitoring. It includes graphics that show exactly where and how to measure the arm.


This news note reports that supplementary feeding of pregnant women and lactating mothers in Kenaba, the Gambia, often resulted in fewer low birth weight babies and an overall increase in the weight of village children. Although supplementation did not directly affect child growth, supplemented mothers were healthier and therefore could care better for their children.


This article reviews the 1987-1988 evaluation of the Brazilian National Breastfeeding Program. The Program used an integrated approach to protect, promote, and support breastfeeding including activities such as enacting employment legislation, controlling formula marketing, using mass media, and creating support groups. The evaluation indicated that the Program had a positive impact since breastfeeding duration increased in the survey areas of Sao Paulo and Recife.


Despite substantial progress in child survival rates in Ecuador in the 1980s, further advances have been hindered by problems within the ministry of health (MOH). Among the problems cited are lack of funding, the politicized nature of the MOH, and various structural and managerial inadequacies. The authors examine the problems and present recommendations for addressing them. In addition, the MOH's
current major initiative, the Regionalization Programme, is described in terms of how it can rectify the managerial and structural problems.


A British midwife comments on elements of successful breastfeeding: (1) the mother's desire to breastfeed; (2) correct positioning of the baby at the breast; and (3) allowing the baby to control time at the breast.


This article describes 8 areas in which the Combatting Childhood Communicable Diseases Project provides assistance to African nations. These areas include immunization, diarrhea treatment, malaria treatment, health information, training health professionals, public health education, health care financing, and operational research.


This paper reviews the background factors contributing to malnutrition in Zambia (economic, demographic) and then addresses the major determinants of health and nutrition...The effect of economic decline on health/nutrition is presented from available data on disease trends, health service indicators, and malnutrition statistics. Some recommendations on what should be done to address the problem and finally some research priorities for the future are suggested. [published abstract]


Child survival interventions such as ORT, immunizations, ARI, malaria control and nutrition programs have not had as great an impact on child mortality as was anticipated in the early 1980s. This article discusses constraints to implementing such interventions and suggests some changes in
implementation that are needed in the 1990s.


This study evaluated the possible protective role of breastfeeding against Giardia lamblia in 400 infants in Gabon. Results indicated that the rates of infection with G. lamblia was significantly lower in breastfed children than in non-breastfed children.

694 Gerein, N.M.; Ross, D.A. IS GROWTH MONITORING WORTHWHILE? AN EVALUATION OF ITS USE IN THREE CHILD HEALTH PROGRAMMES IN ZAIRE. Social Science and Medicine, vol.32 no.6, 1991, pp.667-675.

An evaluation of three child health programs in rural Zaire was carried out to determine if the health workers used growth monitoring to target health and nutrition interventions to children at risk of disease or malnutrition. None of the programs used growth monitoring as an educational or motivational tool to promote action by mothers or communities to improve children's health. The authors suggest that further research is needed to determine if growth monitoring should be a part of child health programs.


During site visits in the Gambia, the consultant assisted GAFNA and PRITECH/West Africa staff in designing and conducting their respective ongoing qualitative research on infant feeding. The assistance included selection of appropriate qualitative data collection and analysis methods, training of data collectors in research methods, establishing systems for qualitative data management and analysis, training computer operators, and reviewing preliminary data in order to make decisions about continued research.

This brief article summarizes the contents of a recent UNICEF report, "Development Goals and Strategies for Children in the 1990s." The report states that health expenditures per person dropped in the 1980s in most developing countries, while infant mortality rates stopped declining and malnutrition incidence grew.


The success of Dr. Jose Fabella Memorial Hospital in the Philippines in expanding a pilot rooming-in project to rooming-in for all mothers, regardless of birthing method, is described in this article. Rooming-in would facilitate breastfeeding since mothers and newborns would be kept together.


This paper examines various aspects of the growth monitoring component of the Integrated Child Development Services program of India. Data from 3704 rural children, 0-6 years of age, revealed that growth of almost half the children had never been monitored, and had been monitored inadequately in another 25% of cases. Near universal illiteracy among mothers seems to be the most formidable obstacle to the effective implementation of growth monitoring programs.


These three letters concern the relationship of lactational amenorrhea and child spacing. The first letter claims that women need to breastfeed very intensively to achieve prolonged protection from pregnancy. The second, reporting on a study in Malawi, found that lactational amenorrhea lasted 7.9 months. The third discusses use of lactational amenorrhea in developed countries.

Using growth monitoring to encourage and promote breastfeeding is discussed in this article. The authors suggest that if mothers see that their children grow properly during breastfeeding periods, they will gain confidence in their ability to produce an adequate milk supply. The problems as well as the benefits of using this tactic are outlined.


This paper discusses strategies for including African traditional healers in national CDD programs. It includes information on obstacles to including healers in CDD programs and strategies for overcoming these obstacles. It then presents a model system for incorporating healers into programs based on initiatives that have taken place in Nigeria.


This brief article describes the Community Doctors Project in Mexico operated by the Mexico Foundation for Family Planning. The program enables doctors to set up offices in semi-urban areas and small towns with low income residents. The project's aim is to provide low-cost family planning services and maternal and child health care.


One hundred and forty-four children aged 9-20 months living in 14 villages in a rural area of Guinea-Bissau were examined for circulating rotavirus antibodies twice in a 15 month period. The age-specific proportion of seropositivity increased from 4/40 (10%) at 9-11 months to 26/29 (90%) at 33-35 months of age. All the initially seropositive children retained detectable antibodies to rotavirus. Breastfeeding, decreasing sharply through the age interval covered by the follow-up (9-35 months), had no apparent influence on seroconversion at the ages concerned.

This report summarizes the findings of the health and nutritional assessment of Liberian refugee children living in Guinea. Based on the findings, the assessment team recommended accelerated food distribution; strengthened surveillance systems for food availability, nutritional status, morbidity and mortality; improved PHC structure; intensified ORT promotion; and improved water supply.


In May 1990 an assessment was conducted to determine the nutritional status and health needs of the thousands of Liberian refugee children living in Guinea. Based on their findings the team recommended increased food distribution and access to health care; improved surveillance systems for food availability, nutritional status, morbidity and mortality; improved water supplies; and intensified efforts to promote ORT. This article highlights the vulnerability of both host and refugee populations when local food reserves are depleted and stresses the necessity of prospective district health service planning.


[This article] discusses situations where breast-feeding is not possible, or is contraindicated, for reasons related to the physical health of the infant or the mother, and where breast-milk substitutes may therefore be needed for extended periods. Finally, there are also a number of situations which are frequently thought to be an impediment to breast-feeding but which in fact generally are not; these, too, are discussed. [published abstract]

In 1986 the WHO European Regional Office convened a meeting of health workers' organizations to draw up a strategy for breastfeeding promotion. This paper outlines the elements in the strategy, the reasons why some countries have seen increases in breastfeeding, and the possible ways international organizations can help.


This background paper will review mortality trends in the Asia and Near East (ANE) region over the last 25 years, and will examine the implications for health programs of different paths of mortality decline between now and the year 2000...[The authors] also consider the implications of mortality change for the implementation of health interventions, and particularly how to improve efficiency and effectiveness as mortality declines. [published abstract]


The authors discuss the activities of WHO's CDD program in terms of breastfeeding promotion. These activities include (1) studying the protective effects of breastfeeding; (2) identifying, testing, and implementing interventions to promote breastfeeding; and (3) including breastfeeding promotion information in management training courses.


This document reviews a project undertaken by the Manoff Group Inc. and CARE/Cameroon to improve feeding practices in Mayo Tsanaga and Mayo Sava, Cameroon. The authors describe the planning and implementation of the project, which used social marketing to convey messages about proper feeding. Finally, the results of a post-intervention survey conducted to evaluate the project are discussed. Data showed that mothers' knowledge about nutrition as well as their participation in nutrition-related activities had increased,
although there were minimal changes in feeding practices.


This letter to the editor advocates the use of parent-held growth cards in growth monitoring programs. Experiences with the Road to Health Card in Zimbabwe are described.


This paper discusses the impact of child survival interventions on child growth and presents evidence that while programs such as ORT and immunization may avert death, the reduced mortality is not necessarily accompanied by increased growth or improved general morbidity. It suggests that the central focus of the child survival revolution should be the improvement of feeding of young children in addition to interventions to control infections.


This document provides a synthesis of published literature on the health interview survey (HIS) research method often used in child survival programs. Eight child survival HIS are compared in order to review what was done and the methodology for carrying it out. The three specific topic areas reviewed are problem formulation, measurement of variables, and design features. There is also a summary of the future implications of using this method in child survival programs in developing countries.


This article discusses the effect of infections on the nutritional status of young children. It describes the impact of various infections, such as diarrheal diseases and measles on a child's overall health. The effect of various dietary regimens, including exclusive breastfeeding and use of breast milk substitutes, on nutritional status are also

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reviewed.


This article outlines the declaration which was produced and adopted by participants at the WHO/UNICEF policymakers' meeting, "Breast-Feeding in the 1990s: A Global Initiative," held in Florence, Italy from July 30-August 1, 1990. The declaration states why breastfeeding is essential and why obstacles to it in the health system, in the workplace, and in the community must be removed. There is also a listing of operational targets for governments in terms of breastfeeding promotion.


An evaluation of domiciliary midwifery services in a suburban area of Benin City, Nigeria, revealed that mothers liked them mainly because of the provision for home delivery. The integration of traditional birth attendants into organized health care was considered desirable by both mothers and the midwifery staff. Domiciliary midwifery services are recommended as a means of integrating traditional birth attendants into primary health care. [published abstract]


For over a decade the international health community has appropriately given priority to communicable childhood diseases. The rapid demographic transition that many developing countries are undergoing is now producing great epidemiological diversity among developing countries; however, this demands that health policymakers consider a broad range of options. Governments need to consider options beyond the direct provision of health services, such as regulation, legislation, subsidies, and mass communication.

This paper presents a discussion of the steps being taken by the Institute for International Studies at Georgetown University, in collaboration with the United States Agency for International Development (A.I.D.), to assist family planning organizations to increase their promotion and support of breastfeeding. [published abstract]

Johnson, J.S. WORLD LEADERS FOCUS ON CHILDREN AT SUMMIT. Frontlines, November 1990, pp.2-3.

This brief article describes the position of the U.S. at the first World Summit for Children, held in New York City in September 1990.


In these letters to the editor, the authors comment on the relationship between reducing child mortality and the population problem. They respond to Dr. King's argument (The Lancet, September 15, 1990) that reduced mortality without accompanying economic and social changes will only lead to increased population growth rates.


This article briefly reviews the African Medical and Research Foundation's (AMREF's) current efforts to train Kenyan traditional healers in modern medical practices. The healers are being trained to promote ORT and immunization as well as to treat common illnesses such as diarrhea.


In this editorial the author discusses the use of vitamin A supplements to reduce morbidity and mortality from malnutrition and related illnesses, such as measles and diarrhea. He cites two vitamin A supplementation studies from India and Africa which produced excellent results in terms of reduced morbidity and mortality related to diarrhea.
and measles. He concludes that supplementation programs should not be substituted for immunization, primary health care and improved water supply and sanitation, but should be conducted in addition to these measures.


In this letter to the editor, Dr. Maurice King comments that child survival and world health in general are dependent upon the capacity of our ecosystem to support life in quantity and variety.


In this editorial, the author discusses "the terrifying spectre of human communities destroying their ecological support systems as the result of population growth." He proposes a new global health strategy for WHO based on an understanding of the demographic and ecological implications of public health measures.

4279 Klein, S. BIRTH, DEATH AND HOPE IN THE PHILIPPINES. Links, vol.7 nos.3 and 4, Fall/Winter 1990, pp.22-23.

A woman who taught midwifery to urban and rural midwives in the Philippines describes some of her experiences and impressions from the trip. She concludes that it is the uneven distribution of wealth and power that makes pregnancy difficult for Filipina women and their babies.


This issue of Children in the Tropics focuses on implementation of the Bamako Initiative in Benin and Guinea and the lessons learned from the experience. The authors conclude that such efforts can be effective and sustained as long as there is active participation of health workers and communities, some cost recovery mechanisms, and rationalization of the supply and management of essential resources.
In this brief article, Andean Rural Health Care reports on the success of its child survival project in Carabuco, Bolivia. Since the project's inception 3 years ago, child mortality has dropped to one-third the previous level. The project involves vaccinations, growth monitoring, ORT and nutrition education.

This brief article comments on the study by Sandiford et al. on the infant mortality rate in Nicaragua (American Journal of Public Health, January 1991). The two principal lessons to be learned from the study are: the infrastructure to deliver PHC must be in place; and the government must be committed to health as one of its priorities.

This study examines the impact of measles vaccination on childhood mortality, based on longitudinal data from the Matlab maternal and child health/family planning programme in rural Bangladesh. It analyzes the mortality experience of 8135 vaccinated and 8135 randomly matched nonvaccinated children ages 9-60 months...The results indicate that measles vaccination had a pronounced impact on both short- and long-term survival—the mortality rates for vaccinated children were as much as 46% less than those for nonvaccinated children. [published abstract]

To test the validity of using international standards as references for the assessment of nutritional status, investigations were carried out on preschool-aged children in Papua New Guinea. The findings show that any deviation below standard weight, height and arm circumference is associated with greater prevalence of disease. The use of international standards is therefore appropriate.

In this letter to the editor, the authors describe a study undertaken in a rural village in Ciskei, South Africa that suggests that the quality of weight information on the "Road to Health" growth charts may be inadequate for growth monitoring.


The physiological aspects of lactation are described in this article. The composition of breast milk and its immunological properties are reviewed. There is also a discussion of the effect of breastfeeding on mothers, especially with respect to the nutritional needs of lactating mothers and the relationship between lactation and contraception.


This series of news notes on breastfeeding briefly reviews three topics: lactational amenorrhoea and fertility control; breastfeeding and deaths from diarrhea; and transmission of the HIV virus through breast milk.


Enteritis necroticans, known locally as pigbel, has been a major cause of illness and death among children in the highlands of Papua New Guinea. Effects of an immunization program on pigbel admissions in 3 of the 5 major hospitals were assessed. Admissions for pigbel were less than one-fifth of previous figures after immunization was well established.


In this paper the author contends that insufficient
attention has been paid to the extent, causes, and consequences of malnutrition among women. The author argues that women's malnutrition must be addressed in order to promote the overall health and welfare of developing country families. The causes and prevalence of women's malnutrition are described and suggestions for improving the situation are presented. Two suggested approaches are school-based supplementation programs for adolescent girls and the development of programs designed to reduce the extreme demands on adult women's time and energy.


This article reports on a study of 375 Nicaraguan women with newborns which attempted to determine the factors that promote the initiation and continuation of breastfeeding. 87% of all the cases initiated breastfeeding but only 54% continued breastfeeding for at least four months. The findings suggest that in populations where most women initiate breastfeeding, post-partum mother-infant contact practices combined with standardized breastfeeding promotion can influence the initial choice to breastfeed. However, these practices alone are not sufficient to prolong breastfeeding.


This article discusses the specific nutritional needs of low-birth-weight infants as well as dietary intakes for such babies. Based on current studies, it is suggested that breast milk is the optimal food for low-birth-weight children.


A survey was conducted throughout Iran of infant nutrition and status of the EPI and CDD programs. Information was gathered on breastfeeding, weaning, immunization, incidence of diarrhea, and treatment of diarrhea.

The author examines the possible impact of food supplementation programs on breastfeeding practices. Because supplementation may be substituted for breast milk, the author states that such programs should include quality nutrition education that is culturally appropriate to targeted populations. Supplementation programs, if properly managed, could also be used as a vehicle for breastfeeding promotion.


In this paper the authors examine the relationships among reproductive behavior, fertility, and child survival with particular emphasis on the effects of breastfeeding and weaning on fertility and child mortality. Data from Egypt from 1975-1980 were used to study these relationships. The authors conclude that in areas where modern contraceptive use is low, as in Egypt, breastfeeding could be the single most important proximate determinant of fertility and child survival.


This document deals with the determinants of child feeding practices in developing countries and with the implications these practices have for the health and nutritional status of young children. The authors review the determinants, provide a framework to identify intervention points, identify useful indicators for the surveillance of nutritional problems during weaning, and suggest areas where more research is needed.


In this study 397 Guatemalan children were given either a
high-energy, high-protein drink (atole) or a low-energy drink (fresco) in order to assess the effect of food supplementation and diarrheal diseases on growth. Results indicated that diarrheal disease prevalence was similar in both atole and fresco groups; however, diarrheal disease was negatively related to growth in only the fresco group, since the atole seemed to attenuate the relationship between growth and diarrhea.


In Bolivia a Demographic Health Survey was carried out in 1989 which included an extra section about maternal and child health. The main findings about MCH are briefly outlined in this article. Data showed that almost half of all deaths after the neonatal period among children under five were diarrhea related and that one in five deaths was associated with respiratory illness. There were also marked differences in the treatment rates of these diseases based on socioeconomic status. For example, children whose mothers had some education were more likely to receive treatment than those whose mothers were uneducated.


In 1982, the ICDDR,B Matlab Health and Research Centre began a measles vaccination program. A study was undertaken to assess the impact of measles vaccination on child mortality over a 3 1/2 year period. Findings showed a 40% reduction in mortality, indicating a positive effect of vaccination on both short- and long-term child survival.


In this article the author addresses the problem of breastfeeding declines in developing countries and identifies factors responsible, such as infant formula promotion and inadequate social support systems. The implications of such declines are discussed as well as strategies to increase breastfeeding.

4305 Meyers, A. THE CHILD SURVIVAL COUNTERREVOLUTION. Links, vol.7 nos.3 and 4, Fall/Winter 1990, pp.6-8.
This essay argues that the way child survival technologies are implemented not only dooms them to failure, but may even exacerbate hunger and disease. It claims that UNICEF chose to abandon the community participation goals of Alma Ata in favor of selective PHC. A.I.D.'s ORT programs are attacked because they failed to empower third world people.


In this article the author states that although breastfeeding may be advised in the U.S., the recommended techniques often undermine the practice. In particular, she focuses on the rigidity of feeding schedules which can impede proper breastfeeding. She also discusses how various cultural themes affect feeding practices and the mother-child relationship in general.


This article discusses feeding low birthweight infants exclusively with breast milk. Breast milk can be expressed and fed to these infants by cup when mothers do not directly breastfeed. The feeding practices for low birthweight babies at the Kenyatta National Hospital's newborn unit are described as an example.


This article discusses the evolution of primary health care activities in Thailand since 1978. It concludes that PHC has been successful because of community involvement in health, collaboration between government and NGOs, the integration of the PHC program, the decentralization of planning and management, and resource allocation to PHC, among other factors.


In this editorial the author refers to Maurice King's
article (The Lancet, September 15, 1990) in discussing the necessity of controlling fertility in developing countries as well as conducting child survival interventions. He states that more funding should be directed to family planning efforts in order to curb runaway population growth. This, in turn, would lead to a better health situation in the long-term for developing country people.


This article provides statistics from 71 surveys which assessed the nutritional status of 17,639 children living in Khartoum, Sudan. The surveys, which were conducted from September 1988 to February 1989, showed decreases in the prevalence of severely malnourished children and in numbers of children dying from measles. Supplementary feeding campaigns and mass immunization programs are cited as possible reasons for these decreases.


Infants [in Edmonton, Canada] were immunised at the ages of 2, 4, 6 months with conjugate Haemophilus influenza type B vaccine, and their responses to the vaccine were evaluated by feeding method (breast or formula). There were no significant differences between the groups in antibody levels at early ages. However, the antibody levels were significantly higher in the breast-fed (57 infants) than the formula-fed group (24 infants) at 7 months...and at 12 months. [published abstract]


This news note reports on the West African Pharmaceutical Federation's meeting. The participants recommended strengthening West African primary health care activities and emphasized the need to involve pharmacists in the policy and decision-making levels in the PHC system.


From January 31 to February 17, 1989, a review was conducted
of the primary health care (PHC) program in Ghana with emphasis on the Expanded Programme on Immunization (EPI). A separate survey was also carried out to determine the knowledge, attitudes and practices about control of diarrheal diseases as well as the accessibility of ORS. The reviewers found that significant progress has been made in EPI, mainly due to increased government commitment to immunization. PHC efforts seemed fairly well integrated, although various regions needed more specific targets for disease reduction. The diarrheal disease survey results indicated that the majority of mothers had heard about ORS (mostly from health workers), but most could not prepare it correctly. Health education that emphasizes feeding and correct ORS preparation is recommended.


[This article] reviews the development of the gastrointestinal tract and renal functions [of infants] during early extra-uterine life and the corresponding nutritional needs. It also considers infant-feeding practices, particularly complementary feeding. [published abstract]


In order to study the relationship between breastfeeding and diarrhea, the authors conducted a longitudinal study of 3000 mother-infant pairs from pregnancy through infancy in the Cebu region of the Philippines. Results indicated that any supplementation of breastfeeding, with either non-nutritive or nutritive foods, increased the risk of diarrhea. Breastfeeding benefits were most evident in the earlier part of infancy and were slightly greater in urban environments.


The author summarizes some of the discussions at the World Summit on Children held in New York City in September 1990. He makes the point that efforts need to be made not just to ensure survival but to develop the full potential of children.
This article suggests that a realistic goal for the 1990s is to ensure universal access to family planning by the year 2000. Certain key policies, however, would have to be implemented first in regard to contraceptives, abortion, breastfeeding management, and AIDS.

This article focuses on aspects of maternal and child nutrition during the prenatal and immediate post-partum periods. The specific nutritional requirements of pregnant women and newborn infants are reviewed and the importance of immediate mother/child contact after birth is stressed.

Traditional birth attendants (TBAs) are a key element in any successful strategy to reduce maternal and infant mortality in Guatemala. This report reviews the proposed INCAP "Quetzaltenango Maternal and Neonatal Health Project" which will focus on improving TBAs' knowledge, skills, and relationship to the formal health system as well as on the system's capacity to respond appropriately to cases which are referred.

As follow-up to a high risk birth strategy seminar held in Guatemala City in March 1990, two further sessions succeeded in producing a plan of action and a set of recommendations for presentation to the Ministry of Health. A key recommendation was the establishment of a Technical Advisory Group to monitor, advise, and carry forward the process of designing and implementing a national traditional birth attendant program.
The authors conducted a randomized, controlled, masked clinical trial with 15,419 south Indian pre-school children to study the effect of vitamin A supplementation on mortality. Results showed that with regular supplements of vitamin A, mortality was reduced on the average by 54%, thus indicating that supplementation can have a significant impact on child survival in areas where deficiency and malnutrition are recognized public health problems.

A broad-based national breast-feeding programme was launched in Brazil in 1981 that was preceded by an evaluation of infant feeding habits in two metropolitan areas of the country. This paper reports on the initial findings of an evaluation of the programme in Greater Sao Paulo that was carried out in 1987...As a result of the programme, the mean duration of breast-feeding rose from 89.4 days to 127.5 days and of feeding only breast-milk from 43.2 days to 66.6 days. The proportion of previous children who were breast-fed for more than 6 months rose from 10.9% for those born in 1981-82 to 37.7% for those born in 1984, when programme activities were at their highest, and slipped back again to 27.6% in 1985-86. [published abstract]

A study was conducted to evaluate the performance of Indonesian village health workers (kader) and to examine which motivating factors were related to performance. The observations showed that while kader performed immunization, growth monitoring and other clinic activities adequately, they failed to take advantage of opportunities to educate mothers about nutrition, ORT, and other important areas. In turn, interviews with kader indicated that although money for services was a motivator, they valued expressions of appreciation even more.
This publication summarizes the case studies and discussions of the Fifth International Conference of the International Nutrition Planners Forum (INPF), that was held in Seoul, Korea, August 15-18, 1989...the participants reviewed and analyzed six major cross-cutting issues: political commitment; community mobilization and participation; human resources development; targeting; monitoring, evaluation, and management information systems; and replicability and sustainability. [published abstract]

In a study in Sweden 72 normally delivered infants were observed for two hours after birth in order to determine the effects of two different ward routines and of pethidine administration to mothers on babies' sucking technique. Results suggested that mother-infant contact should not be interrupted during the first hour after birth or until the first successful breastfeed had been accomplished. Use of drugs such as pethidine should be restricted as they can interfere with the infant's ability to suck shortly after birth.

These letters to the editor respond to Dr. Maurice King's assertion that child survival programs without accompanying social and political changes are harmful because they only increase human misery and could contribute to runaway population growth.

The research reported in this paper examines the relative
influence of reward and feedback factors associated with the community compared to those associated with the health system on the performance of community health workers. The findings indicated that feedback and rewards from the community have greater influence on work performance than do those stemming from the health system. The authors suggest a model that would focus management support on the worker-community interface rather than the worker-health service interface.


The authors explain how to evaluate village MCH programs. They offer indicators for gauging the effectiveness of such services in reducing childhood malnutrition and increasing vaccination levels. They also offer criteria for judging the overall impact of MCH services.


To investigate the role of breast-feeding in preventing diarrhea caused by campylobacter jejuni, we followed 98 Mexican children prospectively for 2 years beginning at their birth. Attack rates of diarrhea in children less than 6 months of age who were not fed human milk were 2.3 times greater than those in children of the same age who were fed human milk. Breast-fed children remained free of diarrhea for a longer time than non-breast-fed children...The diarrhea attack rate caused by C. jejuni for non-breast-fed infants was significantly greater...than that in the breast-fed group. [published abstract]


The authors discuss the use of breastfeeding as a child spacing method and describe the mechanisms used to assess lactational amenorrhea. They also review how breastfeeding can be used effectively with other contraceptive methods and
when such methods should be introduced. Finally, there is a brief discussion of the health policy implications associated with lactation associated infertility.


In India, 45 healthy, exclusively breastfed infants were studied to determine the need for water supplementation to maintain water homeostasis in exclusively breastfed children during the hot season in a tropical country. The infants were divided into two groups, one receiving only breast milk and the other breast milk plus supplementary fluids according to the mothers' usual practice. There were no significant differences between the groups in urine output, urine or serum osmolality, weight change, or rectal temperature. The authors concluded that exclusively breastfed infants do not need supplemental water and that, in fact, reduced breast milk intake is a potential disadvantage of this practice.


A comprehensive review of available sources of mortality data was undertaken to document the changes that have occurred in infant mortality in Nicaragua over the last 3 decades. It was found that a rapid fall in infant mortality began in the early 1970s and has continued steadily since. Improved access to health services seems to have been the most important factor.


Despite escaping war and drought, Sierra Leone's mortality rate for children under five is still one of the world's highest. The most common causes include tetanus, respiratory illness and diarrheal diseases. In this brief article the author cites unequal wealth distribution and a poor national economy as the main reasons for high mortality.

The author examines some reasons why mothers choose to bottle feed or only partially breastfeed. Health education was cited as crucial to promotion, with special emphasis on training health workers to teach mothers proper breastfeeding techniques. Making breastfeeding information more readily accessible was also noted as a necessary part of promotion.


This document presents the results of a study which attempted to detect the major problems regarding the management of high risk obstetric and neonatal cases at the level of families, traditional birth attendants (TBAs), community health services, and hospitals in the Quetzaltenango area of Guatemala. The findings are discussed in terms of assisting health personnel to develop and implement problem-solving interventions and to evaluate the impact of such interventions.

Schlossman, N.P. BREASTFEEDING PROMOTED FOR IMPROVED INFANT NUTRITION. Frontlines, October 1990, pp.4-5.

This article describes the activities of WELLSTART, an organization which promotes breastfeeding through educational programs for doctors, nurses, nutritionists, and hospital administrators from developing countries. Examples from Indonesia and Honduras show that increased breastfeeding resulted in lower infant morbidity and cost reductions in a hospital setting.


After investigating a high rate of wound infections in a West African hospital, the author describes the problems he found and recommends steps to prevent further nosocomial infection.

Commenting on an earlier article by Maurice King on overpopulation, Dr. Rumishael Shoo argues that the answer is not to abandon the selective PHC interventions but to run them more cost-effectively and to explore ways in which local communities can participate. King’s reply follows.


In Australia a study was conducted among breastfeeding women to investigate the contraceptive effects of lactational amenorrhea. The study concludes that lactational amenorrhea can provide excellent contraception during the first six post-partum months and that it can offer good protection even up to twelve months. However, once menstruation resumes, it is essential to use other forms of contraception to avoid pregnancy.


In the present study, confined to the four urban areas of Malawi, a comparison was made between the weight-for-age (W/A) and mid-upper arm circumference (MUAC) measurements...Correct use of MUAC was found to be as effective as W/A in detecting undernutrition. [published abstract]


The authors describe the use of makeshift treatment centers which were erected during cholera outbreaks in Bangladesh to increase rural patients' accessibility to health facilities. In this article they present the data collected at one such center and discuss its efficacy as a way to deliver emergency care in rural areas of Bangladesh.

A Family Planning Strategy Seminar was held on March 29, 1990, to begin work on expanding family planning programs as part of the solution to Guatemala's high risk birth problem. A summary of the proceedings, conclusions reached, and recommendations for further action are presented. Also available in Spanish.


This article provides an overview of the first World Summit for Children which was held at the UN on September 30, 1990. Leaders of more than 70 nations met to discuss child survival issues such as poverty, illiteracy, hunger, and disease. Their goals for this decade included reduction of infant mortality by one-third and malnutrition by 50%, and the eradication of polio.


This article outlines the statement on breastfeeding and diarrhea prevention made by the Interagency Workshop on Health Care Practices Related to Breastfeeding held from December 7-9, 1988, in Washington, D.C. The statement emphasizes the importance of exclusive breastfeeding in terms of preventing diarrhea.


This article examines the decrease of infant mortality rates in developed and in some developing countries. The decreases are attributed to improved infant care, better primary health care, healthier life-styles, and better social and cultural development. Data from developed and developing countries are compared and ways to make further progress are discussed.


This paper discusses some of the factors than can make a difference between successful and unsuccessful breastfeeding programs in hospitals and the experience of a nurse educator.
who tried to promote breastfeeding in a large inner city teaching hospital [in New York]. It will show how a well-intentioned program was unsuccessful and that one obvious reason for failure was the lack of administrative support and supervision. [published abstract]


This article briefly highlights several studies which focused on strategies for the prevention of diarrheal diseases. The studies discussed include weaning education, hygiene education, vitamin A supplementation, and breastfeeding promotion.


This [UNICEF] strategy, based on previous nutrition-oriented programmes, proposes to reduce and ultimately eliminate malnutrition in developing countries. It proposes a methodology for the identification of appropriate actions in a given context through situation assessment and analysis... Important strategy components include the promotion of breast-feeding and attention to outreach and urbanization. [published abstract]


This paper discusses the future role of national non-government development organizations in health development. Taking the case of Bangladesh it is shown how some NGOs have developed into large professional organizations and how their position relates both to foreign donor support and the state. It is argued that the future contribution of national NGOs to the development of primary health care may be considerable.


Realizing that EPI coverage was lower in urban Filipino areas than in rural areas, the Department of Health adopted a 3-year plan of action designed to increase coverage in urban areas. The plan included identification of priority
areas within each city, development of service delivery plans, social mobilization efforts, and creation of an IEC plan.


In this paper the authors present recent data with indicators that attempt to address some of the major policy-relevant nutrition issues. They analyze recent (1986-89) Demographic and Health Survey (DHS) survey data on mortality, anthropometry, breastfeeding, feeding and illness, plus existing data from the UN system to address the food-nutrition GAP and the mortality-nutrition LAG. Data from Guatemala, Uganda, and Sri Lanka are examined in-depth. Research and policy and program recommendations are suggested to address the issue of reducing hunger in the 1990s.


This document presents simple guidelines for the care of children, both well babies and those who are ill. It reviews basic anatomy as well as discussing pregnancy, nutrition, and immunization. Among the types of diseases covered are diarrhea, respiratory infections, tuberculosis, hepatitis, and typhoid.


The socio-demographic and biological processes contributing to infant mortality and undernourishment were studied in five urban squatter settlements of Karachi [Pakistan]...Forty-one per cent of all deaths were in the neonatal period...Age, duration of breastfeeding, birth interval, and live/dead status of the previous sibling were significant biological variables accounting for 23 per cent of the variance for survival. Socio-economic status
accounted for 22 per cent of the variance and health-seeking behavior...for 28 per cent. [These variables were also important determinants of malnutrition among this population.] [published abstract]


This article reviews the health profiles of refugee and internally displaced populations during the emergency and post-emergency phases. The major causes of mortality have been measles, diarrheal diseases, respiratory infections, and malaria. Strategies for provision of food rations, clean water, and immunization for children are discussed as ways to decrease excessive mortality.


This brief article reports on the findings of a study done by the Institute of International Studies in Natural Family Planning (Georgetown University) about breastfeeding trends in developing countries. The study showed that breastfeeding was still prevalent in developing countries and that no country showed a significant decrease.

3778 Traore, B.; Traore, M.; Campbell, O. ETUDE DES EFFETS DE L'ALLAITEMENT SUR LA MORBIDITE DIARRHEIQUE, L'ETAT NUTRITIONNEL ET LA MORTALITE DES ENFANTS AU MALI. London, London School of Hygiene and Tropical Medicine; Columbia, Maryland, DHS Project; and New York, The Population Council, April 1990, 96p.

This document outlines a study which sought to determine the effects of breastfeeding on diarrheal morbidity, nutritional status, and mortality of children in Mali. Results indicated that exclusive breastfeeding was associated with lower diarrheal morbidity and better nutritional status. It was also suggested that children who were weaned before 12 months of age ran the risk of dying earlier than those weaned between 12 and 18 months.


The author briefly reviews the vitamin A study conducted in
India by Rahmathullah et al. which indicated that regular supplements could decrease child morbidity and mortality. She then discusses options for integrating supplement programs into other development programs such as diarrheal disease control and family planning.


This article reviews the health and nutritional status of Somali and Sudanese refugees living in Ethiopia and discusses how various interventions, such as supplementary feeding programs and immunization surveillance, affected morbidity and mortality in these populations.

4045 URBAN PHC PROGRAMME IN ADDIS ABABA, ETHIOPIA--A MODEL FOR THIRD WORLD CITIES. Urban Examples, no.10, February 1990, pp.18-19.

This article briefly describes a program designed to improve the health and hygiene of urban dwellers in Addis Ababa, Ethiopia. The program focuses on immunization of the under 5 population.

4539 USAID: BUILDING A BETTER FUTURE FOR CHILDREN. USAID Highlights, vol.7 no.2, Fall 1990, pp.1+.

This article provides an overview of AID's efforts to improve child survival in developing countries. Among the programs discussed are ORT, immunization, AIDS, breastfeeding, maternal health, and education. ORT is cited as one of AID's greatest success stories.


Breastfeeding trends in the Philippines in terms of duration and incidence are discussed in this article. Due to declining duration and incidence rates since 1973, the National Movement for the Promotion of Breastfeeding is attempting to reverse the trends by encouraging various promotion activities. The activities include improving hospital practices and implementing a 5 year plan for breastfeeding promotion.
Winikoff, B.; Semeraro, P.; Zimmerman, M. et al.  

This book was developed for clinicians who work with postpartum and breastfeeding women. It is designed as a quick reference guide for health workers so that they can provide accurate information to women about the contraceptive effects of breastfeeding. It also provides information on other forms of contraception which can be used while breastfeeding.


In this letter to the editor the author advocates comprehensive primary health care programs for developing countries. He states that selective programs can conflict with the needs and priorities of patients.


This document presents data on breastfeeding and infant feeding practices in 18 developing countries. The data are presented in the form of graphs and were taken from the results of demographic health surveys. Topics reviewed include percentages of breastfed and bottle-fed children, age at introduction of solid foods, nutritional status, risk of infection, and the link between growth and feeding practices.
This article describes the problem of using leaves to wrap foods in Nigeria. The discarded leaves cause a refuse problem as well as being vehicles for disease transmission. Health education measures have been undertaken to encourage people to use polythene bags instead of the leaves.

The impact of a water, sanitation and hygiene education intervention project on diarrhoeal morbidity in children under 5 years old was evaluated in a rural area of Bangladesh...By the end of the study period, children in the intervention area were experiencing 25% fewer episodes of diarrhoea than those in the control area...These results suggest that an integrated approach to environmental interventions can have a significant impact on diarrhoeal morbidity. [published abstract]

In this letter to the editor the authors comment on the relationship between bird attacks of milk bottles and Campylobacter infection in Great Britain.

This document reviews the water and sanitation programs in Bangladesh, India and Nigeria in terms of the technological, managerial, and social aspects which were critical to progress. It discusses such issues as community participation, women's roles, and linking water and sanitation to improvements in the health situation.
This brief article outlines how the government of Lesotho is promoting the introduction of a latrine into every household by providing the design for an affordable, desirable pit latrine, by using extensive hygiene education, and by providing a loan scheme to finance latrine building.

This study investigated mothers' perception of the importance of babies' feces and other factors in the etiology of diarrhea in Papua New Guinea. Children whose mothers did not perceive babies' feces to be important in causing diarrhea had a 7.4 times greater risk of getting diarrhea than those whose mothers recognized the relationship. The risk for contaminated food was 6.8 times greater for those children whose mothers did not recognize its importance.

This article briefly describes diarrhea caused by worm infections, especially trichuris dysentery, and discusses the impact of such infections on community health.

The effect of housefly control on the incidence of diarrhea and shigellosis was evaluated in a prospective crossover intervention study at two military bases. Overall, fly counts were 54% lower on the bases exposed to fly control measures. Clinic visits dropped by 42% for diarrheal diseases and by 85% for shigellosis.
This article reports on organisms that cause gastrointestinal disease as well as organisms that may be foodborne but produce other infections. It includes data on bacterial foodborne agents such as Salmonella, Campylobacters, listeria and E. coli, as well as viral foodborne disease and foodborne intoxications.


Anthropometric data were collected for 1295 children in Sri Lanka to examine the relationship between anthropometric status and a range of water, sanitation and hygiene exposures. Some evidence was found that boiling of water was associated with improved height-for-age. Water source was not associated with anthropometric status. The authors conclude that CDD interventions may have no detectable impact on anthropometric status.


A health impact evaluation of the Rural Sanitation Pilot Project in Mohale's Hoek district, Lesotho, was conducted from October 1987 to September 1988. The results indicate that under-5-year-olds from households with a latrine may experience 24% fewer episodes of diarrhoea than such children from households without a latrine. The impact of latrines on diarrhoea was greater in those households that used more water, practiced better personal hygiene, and where mothers had a higher level of education or worked outside the home. [published abstract]


The Dodota Water Supply Project (DWSP) was implemented between 1982 and 1986 to provide a sub-district in Ethiopia with piped drinking water. When an evaluation was conducted, 40,000 of the 56,000 targeted people were receiving water from the project. This article outlines the project's operational features and the findings of the evaluation. The main conclusion was that the target community's responsibility and concern is vital to project
success. Therefore, project implementers should encourage community members to set their own priorities and to shoulder the responsibility for activities once they are started.


This report reviews and analyzes the findings of a number of studies of the impact of improved water supply and sanitation facilities on six diseases: diarrheal diseases, ascariasis, dracunculiasis (guinea worm), hookworm, schistosomiasis, and trachoma. Study results show that water supply and sanitation have a significant impact on morbidity. Median reductions in morbidity ranged from 26 percent for diarrheal diseases to 78 percent for guinea worm.


A study in a low-income community in Yangon, Myanmar was conducted to determine the source of household fecal contamination, devise an index, and associate this index with diarrheal incidence in children. The risk of diarrhea significantly increased when the household fecal contamination index increased. Important risk factors were (1) going without footwear; (2) unsanitary or no latrine; and (3) indiscriminate defecation near or under the house.


This study was conducted to determine if proper hand washing by children and their mothers with plain bar soap after defecation and before preparing and eating meals could reduce the incidence of acute diarrhea and dysentery in children. Diarrheal incidence among the children in the hand washing households was found to be significantly lower than that among those in the control group.

This article reports on projects in Chaozhou City, China which involved women in creating water supply and sanitation systems. Water supply systems decreased women's workload, thus allowing them to participate more in community enterprises. In addition, improved sanitation facilities significantly decreased the incidence of infectious diseases such as dysentery, typhoid, and viral hepatitis.


This article describes a low-cost sewage system being used in the poorer areas of Brazil. The system is based on communal consent and participation since a common sewage pipe connects neighbors and each family is responsible for maintaining the section on its property. The initial programs were publicized through a television soap opera and were very successful. Plans have been made to expand the system to many more disadvantaged areas.


In this article the author discusses appropriate means of drainage and sanitation for medical facilities, from small health centers to large hospitals. Two relatively simple sanitation systems--septic tanks and waste stabilization ponds--are described.


A review of results published in English or French between 1980 and 1990 was carried out to determine the levels of indigenous human enteric viruses in untreated surface and subsurface freshwaters and in water that had undergone "conventional treatment." Also reviewed was the stepwise efficiency of virus removal at different stages of the conventional drinking water treatment process, as practiced by full-scale plants.

This article reviews current knowledge of the major water- and sanitation-related diseases and the potential impact of improved sanitary facilities on health. Four health indicators are considered: diarrheal diseases, soil-transmitted nematode infections, dracunculiasis, and nutritional status.


The author discusses animal enteric pathogens, pathogens affecting the udder (which may get into milk), and the problems of animal feed, transport and control of pathogens.


This article reports on an outbreak of Norwalk virus gastroenteritis at a southwest US resort traced to a contaminated private deep water well. Although the latest technology was used to design the resort's water sewage treatment plants, the region's unique geological conditions posed unexpected problems that may trouble developers faced with similar subsurface geological formations and arid climate conditions in many parts of the world.


In this letter to the editor the authors comment on the transmission of Campylobacter in England by infected birds that peck milk bottle caps. Birds that were tested were Campylobacter-positive, thus confirming their role in transmitting the infection.

Outbreaks of food poisoning due to Bacillus and Clostridium species are reviewed in this article. Properties of each pathogen are discussed, as well as symptoms and control measures.

3807 MAJOR CHOLERA OUTBREAK HITS LUSAKA AFTER RAINS BURST SEWERS.

This news note reports on a cholera epidemic in Lusaka, Zambia, which occurred in February, 1990. Deterioration in sanitation was blamed for starting the outbreak.

4577 Mertens, T.E.; Cousens, S.N.; Fernando, M.A. et al. HEALTH IMPACT EVALUATION OF IMPROVED WATER SUPPLIES AND HYGIENE PRACTICES IN SRI LANKA: BACKGROUND AND METHODOLOGY.

This article reviews a health impact evaluation of the Rural Water Supply and Sanitation Project conducted from January 1987 to March 1988 in the Kurunegala District of Sri Lanka. The seasonality of diarrhea cases as well as the sociodemographic characteristics and health-related behaviors of the study populations are examined. The authors also discuss the study design in terms of validity and potential sources of bias.

4720 Millson, M.; Bokhout, M.; Carlson, J. et al. AN OUTBREAK OF CAMPYLOBACTER JEJUNI GASTROENTERITIS LINKED TO MELTWATER CONTAMINATION OF A MUNICIPAL WELL.

A large outbreak of Campylobacter jejuni gastroenteritis attributed to contamination of an unchlorinated municipal water system [in a town in Ontario, Canada] was investigated. Unlike most previous summer outbreaks, this one began in early spring and was attributed to meltwater entering one or more municipal wells...It is concluded that intensive surveillance of water quality during periods of spring runoff is essential, and that timely reporting of disease outbreak patterns in emergency department settings is necessary to protect the public's health. [published abstract]


This article discusses a two-part report done by the Committee on the Microbiological Safety of Food in Great
Britain which focused on reducing foodborne illnesses. The measures outlined to control these illnesses include new government regulations, public education about food hygiene, and enlisting the cooperation of the food industry. Part two of the report reviews the progress to date and makes recommendations for the future.


A study was carried out to assess the effect of hygiene education and new latrines on the defecation habits of 172 adults in a New Delhi slum following a cholera epidemic. Results showed that females used the latrines more often than males. Study participants cited cost, distance, and problems in using the latrine itself as the main reasons for non-utilization.


In 1985 a rural water project was undertaken in four Indonesian villages. Community participation was encouraged with women playing a leading role in project implementation. Among the gains resulting from the endeavor were better health, increased vegetable production, and increased confidence on the part of the women in undertaking such projects.


In this letter to the editor the authors comment on the competitive exclusion technique which is used to limit the spread of Salmonella in poultry.


A cross-sectional study was carried out in the low income population of certain areas of the city of Tijuana, Mexico. Data collected showed that these suburban areas are...
inhabited by people from rural areas of Mexico. General hygienic conditions were poor and the services insufficient. The prevalence of diarrheas among the population was extremely high in the two weeks previous to the study, being highest for children less than one year old, in which the proportion with at least one episode of diarrhea was 47 per cent. [published abstract]


The National Rural Sanitation Programme (NRSP) in Lesotho started in 1963 as a single district project and slowly expanded to a national level program. The program provides on-site sanitary facilities for rural households by employing a user cost recovery fee scheme. Health impact studies showed that diarrhea incidence decreased in areas with improved facilities.


The author discusses the importance of integrating water supply and sanitation programs into primary health care initiatives. The progress made by the UN International Drinking Water Supply and Sanitation Decade is briefly reviewed as well as the relationship between public health and improved water quality.


The authors of this letter to the editor report on several cases of giardiasis in Scotland due to a contaminated water tank.


This document serves as a model for evaluating water supply and sanitation projects. It provides guidelines for evaluating the key components of such projects: water supply, sanitation, health education, and community participation. The model can be adapted to review both urban and rural projects.
There are three main routes by which microorganisms reach fresh food: raw food and ingredients, the foodhandler, and the environment. Here the author reviews what is known about each route and provides recommendations for proper food handling.

This article describes a low-cost latrine system which the government of India is incorporating into the country's water supply and sanitation program.

An outbreak of gastroenteritis due to Cryptosporidium infection in Los Angeles county is reported in this article. The vehicle of transmission was a swimming pool contaminated with Cryptosporidium. Improved filtration systems are cited as a strategy to reduce risk of infections.

In this review article, the authors discuss surveillance of foodborne diseases, current eating habits and the associated risks of foodborne disease, methods for improved control, and prospects for the future.

This article briefly describes the accomplishments made during the International Drinking Water Supply and Sanitation Decade which began in 1981. Over the decade over 1.3 billion people in developing countries gained access to safe drinking water and improved sanitation services have been provided for almost 750 million. Goals for the future include increased funding, better environmental management, and greater private sector participation.
This brief article outlines several basic rules of safe food preparation. They include thoroughly cooking food; storing carefully; reheating properly; hand washing; keeping the kitchen clean; avoiding contact between raw and cooked foods; and using clean water.

This study collected data on the sanitary conditions in the rural areas of Bangladesh where 85% of the population live. Data indicated that even where a safe water supply and sanitary latrines were provided, people did not always use them. The authors conclude that socioeconomic conditions and education levels need to be improved, since they both can influence the level of sanitation.

The authors studied perceptions of cleanliness and the role of soap and handwashing in two poor Bangladeshi communities, one rural and one urban. Ideas of cleanliness generally were not based on germ theory; cleanliness was viewed in a larger context of purity vs. impurity. Washing served both physical and spiritual needs, while soap was regarded as a cosmetic rather than as an agent for removal of microorganisms.
SOCIAL ASPECTS (of Control and Prevention)


A survey of decision makers and community leaders in Saudi Arabia indicated that most adequately recognized the importance of community involvement in health development. A survey of residents in Ha'il and Qasim regions, however, showed that community participation in health activities was just beginning. Considerable effort is needed at the central, regional and peripheral levels to achieve meaningful community involvement in health.


This article reports on a survey carried out in the northern Transvaal, South Africa, to identify to what extent diarrhea was a problem, to determine the degree of knowledge of ORT in the population, and to find out whether care givers, or volunteer community health workers, have an impact on the use of ORS for home therapy of diarrhea in children.


In this article the author briefly describes the traditional beliefs about pertussis in a community in South India. Based on the research about these beliefs, health educators were able to plan appropriate programs to inform the people about proper immunization against the disease. The educators also involved local traditional healers in the programs.


This paper asks the question, "does formal education increase a mother's propensity to use modern child health services?" Multivariate methods are used to isolate the effect of maternal education on service utilization. The paper also focuses on maternal education as a determinant of
early childhood mortality. Finally, it centers on whether education per se and health behaviors conditioned by maternal education operate to decrease disease prevalence or to diminish case fatality.


In western Nigeria some mothers are suspicious of sugar-salt solution because sugar is known to cause a more serious ethnomedical condition known as jedi jedi. A survey was conducted to learn more about local perceptions of jedi jedi. As a result, health education efforts will emphasize the need to taste the solution before giving it to a sick child, so parents know the drink does not contain too much sugar.


This review of behavioral aspects of breastfeeding, weaning and nutrition concentrates on several major issues. First, beliefs, practices and other important factors affecting feeding practices, nutrition and child survival are examined. Then results from infant and child nutrition interventions both at the community level and in health institutions are reviewed. The issue of sustaining and expanding nutrition programs is then discussed. Finally, qualitative research methods of particular value in examining behavioral aspects of infant and child feeding are presented. [published abstract]


In this review the author presents the major behavioral issues related to growth monitoring, such as traditional beliefs about child growth and promotion of community participation. She then reviews significant findings and discusses them in terms of project design and implementation. Finally, programmatic recommendations are outlined on the basis of the conclusions drawn from the
A study of 60 mothers in Cameroon was conducted to assess their knowledge and practices concerning treatment of diarrhea in 0-5 year olds. The majority of mothers (85%) considered diarrhea a serious illness and all of them fed their children during a diarrheal episode. Sugar-salt solution was familiar to 55% of them, although none of them could prepare it correctly. Health education about diarrhea prevention and treatment was recommended.

In Bangladesh, 4 types of illnesses with names derived from folk terminology have been identified for which the clinical symptoms resemble diarrhea. Use of the word "diarrhea" in epidemiologic evaluations was problematic; people confused this term with "daeria," which accounted for only 5% of all diarrhea episodes. The implications of such information for a large-scale ORT program are discussed.

This document reports on the results of a demographic and health survey conducted in Senegal in 1986. The study focused on diarrheal morbidity among young children and the socioeconomic and environmental factors which affected it. Despite high diarrheal morbidity levels, no conclusive relationship between morbidity and any one socioeconomic or environmental factor was found.

The authors of this article use data from a study conducted in rural Nigeria to describe how some pharmaceuticals are being used as indigenous medicines, as opposed to being used as alternatives to traditional remedies. They then examine the biological implications of this behavior and discuss how indigenous understandings of disease and therapeutics may influence the utilization of biomedicines.


In this article the author addresses the issue of mothers' self-confidence as a critical aspect of family health promotion. She points out that self-confident mothers feel more in control of their children's lives and therefore are more willing to try new health measures. Thus, mothers' self-perceptions should be considered when designing new health interventions.


Mobilization of women in Indonesian villages resulted in improved health care, particularly for mothers and children. This article describes women's involvement in the health care system, including volunteering at village health service posts (posyandu), participating in the Family Welfare Movement, and starting neighborhood nutrition clubs.


Anthropological studies carried out in Guatemala reveal that, according to popular beliefs, maternal milk plays a role in the etiology of diarrheal diseases. This paper presents information on the popular classification of diarrheal diseases, including the concept of "hot-cold" that is common in Latin American medical beliefs.


This article reports on the development of Mawas Diri, a problem-solving tool, by an Indonesian NGO. The tool is
used by village health workers (VHWs) to evaluate the healthiness of homes and the neighborhood. The tool has also proved to be an effective motivational tool for stimulating people to initiate a wide variety of activities aimed at creating a healthier environment and lifestyle.


In traditional communities, the relationship between patients and traditional healers differs from that of patients and modern doctors. Traditional healers often have deeper personal and social relationships with their patients upon which their fees are based. Modern doctors in traditional communities often sell drugs as opposed to charging a consultation fee in order not to invalidate the personal nature of the consultation. The author discusses how this practice can hinder the rational use of drugs as well as possible ways to address the problem.


Mothers' perception of the signs and symptoms of dehydration in children under 3 years of age was studied and compared to the medical classification in a children's hospital in Rio de Janeiro. Mothers with low educational level tended to underestimate the severity of dehydration, while mothers with more education overestimated the degree of dehydration.


In order to assess the effect of medical practice guidelines on actual practice, the authors surveyed hospitals and obstetricians in Ontario before and after the release of a widely distributed and nationally endorsed consensus statement which recommended decreased use of cesarean sections. They concluded that guidelines for practice may predispose physicians to consider changing their behavior, but unless there are other incentives or the removal of disincentives, guidelines may be unlikely to effect rapid change in actual practice.

Social Aspects 211
The purpose of this paper is to link together the existing knowledge about women's work, reproductive roles, and household production to highlight opportunities for helping women improve nutrition. The authors point out the linkages and competition among women's life roles. They highlight the need to give women access to the necessary productive, intellectual and nutritional resources to solve their own problems.

The significance of dysentery has not been recognized in community-based programs for the management of diarrhea. Culturally sensitive methods of classification and algorithms for treatment must be developed. This article considers how ethnographic studies of diarrhea can contribute to descriptive epidemiologic data on diarrhea and dysentery and to procedures of health education and evaluation of interventions for the diseases.

A total of 6414 mothers in a rural Ethiopian district were sampled and interviewed about the presence of under-5 yr children and the prevalence of diarrhea in the previous 2 weeks...A structured questionnaire on home and professional treatment as well as knowledge about diarrhea was completed by the mothers of 619 of these cases. Over 50% of the mothers restricted the child's fluid intake and 70% stopped or decreased food intake; only 20% used ORS or cereal based ORT. The major factor associated with adequate home treatment was the mother's knowledge about the causes and treatment of diarrhea. Only 26.8% of the mothers had sufficient knowledge. [published abstract]
This paper identified areas of research on behavioral factors that would contribute critical information for use in the management and prevention of invasive diarrheas. These include behaviors and associated beliefs and attitudes as they influence treatment in the home; use of health care providers; compliance with treatment regimens; treatment practices of health care providers; and relations between health care providers and patients.


This anthropological study of two Andean communities focused on perceptions of childhood diseases, especially diarrhea. People believed that diseases were caused by either natural or supernatural forces. Diarrhea believed to be caused naturally was treated in terms of the "hot/cold" aspects of natural phenomena. Diarrhea, a "cold" disease, could be treated by using a "hot" remedy such as tea. Diarrhea caused by supernatural forces had to be treated with rituals that would re-establish the balance between body and soul.

Robson, E. MEXICO TAPS COMMUNITY SPIRIT TO EXPAND WATER SUPPLIES. Source, September 1990, pp.4-7.

In Oaxaca State, Mexico, the "tequio" system, an ancient tradition of communal labor, was used to mobilize villagers to expand much needed water supplies and generally revitalize the state's economy. Organization of villagers has resulted in initiating public works projects, increased farming capabilities, and advancement of local businesses.


In this letter to the editor the author comments on local beliefs about the causes of diarrhea in Kerala State, India. He also states that home fluids seem more acceptable in this area than packaged ORS.


This article begins with a vignette from northeast Brazil that illustrates the absence of public outrage about the death of children. The author points out that the child survival interventions are sensible, but do nothing to alter...
the underlying structural causes of child death. Medicine alone cannot solve the questions posed by child hunger and death.

4680 Senturis, E. KANAK--THE PEOPLE OF NEW CALEDONIA STRUGGLE TO HOLD ON TO THEIR CULTURE...AND TO THEIR HEALING TRADITION. Contact, no.115, July 1990, pp.1-11.

The author describes the Kanak people of New Caledonia and their history of traditional healing. The Kanak traditional healing system is described as well as the impact of Western medical practices on this culture. The author also discusses how the Kanak healing tradition is blending with modern methods of disease control and treatment.


This monograph synthesizes the qualitative literature about behavioral issues related to ORT use in developing countries. It also attempts to clarify the constraints and opportunities associated with ORT use in various cultural settings and makes recommendations in terms of project design and implementation.


In this article the author gives four examples of tropical disease research and control measures in Tanzania, Venezuela, Burkina Faso, and Brazil where certain techniques were modified to be more locally adaptable. The author points out the importance of considering local perceptions and capabilities when planning health interventions or research activities for a particular community.

The author discusses public health management in terms of the basic disciplines involved and the types of training required to produce qualified health managers. He states that an increased emphasis on the multidisciplinary approach is needed because currently there is too much focus on efficiency and cost effectiveness without an understanding of how health services affect the total health experience of defined populations.


The International Baby Food Action Network Africa Regional Office (IBFAN Africa) has given thirteen courses in lactation management to sub-Saharan health workers. The aims of training, the process of running national courses in collaboration with local organizers, and the content of one- to two-week courses are described...Obstacles to training are listed and solutions recommended. [published abstract]


This manual provides guidelines for nutrition program managers in order to assist them with program development, implementation, monitoring, and evaluation. Each chapter focuses on a specific nutrition intervention responsibility and then addresses the related management issues, with emphasis on providing implementation guidelines.


In this article the author describes the experiences of a community health worker (CHW) in Sora Sora, Bolivia. The CHW's training as well as his activities in his community, such as providing basic health services and working to improve food production, are discussed. The author concludes that CHWs must be actively involved with the people they serve and share their values in order to successfully integrate modern and traditional methods of
health care and agriculture.


In this report the author documents the major findings of a resurvey of ORT practices in Honduras following the ORT communications campaigns carried out by the Mass Media and Health Practices Project and the Communication for Child Survival Project. The campaigns achieved high ORS awareness and use rates. Of the children who had diarrhea two weeks prior to the resurvey, 45% were treated with ORS, although many mothers did not prepare the solution correctly. Breastfeeding was also continued in 98% of cases; however, only about one third of children were given increased fluids and normal amounts of food during diarrhea. Also, a large number of cases were treated with drugs (67%). Based on these results several recommendations are outlined to correct these problems and to continue to increase awareness of ORS.


The author describes how mass media, especially prime-time television commercials, were used to educate women about breastfeeding in Brazil during the launching of the National Breastfeeding Program. Radio, print materials, lotteries, competitions, and street animations were also used as part of the campaign.

4542 CHILD TO CHILD IN ZAMBIA. Child to Child, 1990, p.3.

This brief article describes the child-to-child programs currently underway in Zambia. Attempts are being made to integrate health education more effectively into school curricula and teachers are being trained to spread the child-to-child approach.


This article briefly discusses the Enhancing the Teaching of ORT in the Medical Schools Project in the Philippines, which
is integrating ORT education into medical school curricula. Although only six schools were involved originally in the project, all the medical schools will be using ORT education in the near future.


PRITECH's communications consultant in Kenya discusses progress made under the three main objectives of the consultancy from 1987-1989: 1) to generate a plan to integrate communications into the ongoing CDD program; 2) to integrate communications into the program and transfer responsibility for implementation to the districts; and 3) to produce basic materials to support the communications effort. The report also presents planned activities for 1990.


This document outlines the first two steps in developing health learning materials for use in developing countries. The first step involves identifying the needs of a target population so as to develop culturally relevant materials. The second step focuses on identifying the resources necessary for producing the materials.


This article describes the proceedings of the International Workshop on Consumer Health and Drug Information and Education, which took place in Malaysia in August 1990. The workshop's purpose was to examine how the media could be used to communicate information to parents on child health and the rational use of drugs.


This paper focuses on the experiences of the Africa Child Survival Initiative--Combating Childhood Communicable Diseases (ASCI-CCCD) project in training Togolese health
workers in focus group research methods. The authors suggest that using the focus group method encourages community competence, which then promotes collaborative program planning by health workers and target villages.


In 1989, the Johannesburg City Health Department developed an AIDS education poster. The poster was formally evaluated before its final production. The methodology used in the evaluation is outlined here. This study highlights the importance of formative evaluation of printed health educational media by a sample of the target audience before production.


This document contains examples of educational materials on diarrheal diseases and related topics, such as ORT and nutrition, which are being used in Africa. Each illustration is accompanied by a description and source information. There is also a section which discusses the development, testing, and evaluation of new materials.


In 1988 and 1989 approximately 180 people in health, social work, teaching and other related professions assessed 16 French films about AIDS. Their observations are outlined and the elements required in such material are discussed. Among the most important components are providing clear information, precisely targeting an audience, and giving prominence to human and social dimensions.

4208 FIGHTING DIARRHOEAL DISEASES. HAI News, no.54, August 1990, p.4.

This news note reports on a one-day workshop, the Role of Mass Media in the Control of Diarrhoeal Disease, which took place in Karachi, Pakistan, in June, 1990. Participants
explored ways to use mass media in educating the public about diarrheal diseases and proper treatment measures.


A radio health education program in Cochabamba, Bolivia targeted fourth and fifth graders to teach them about sanitation, hygiene, ORT and nutrition. Based on the "child-to-child" approach, older children were targeted since many of them care for younger siblings. Teachers reinforced the lessons after each broadcast. An evaluation of the program showed that students achieved significant knowledge gains although greater attention to teacher training was needed.


In this article the author briefly outlines how the Nigerian Ministry of Health, the Nigerian Television Authority, UNICEF, and the Federal Radio Corporation of Nigeria collaborated to increase the use of mass media to support national primary health care and generate public demand for PHC services.


This study examines whether educated mothers have different strategies for protecting the health of themselves and their children than uneducated mothers in rural West Bengal. It concludes that educated mothers used strategies significantly more appropriate than uneducated mothers in regard to pregnancy and childbirth, diarrhea, immunization, family planning, and source of treatment.


This document serves as a set of guidelines for trainers who will be teaching community health workers to carry out nutrition activities. It includes a section on improving
trainers' teaching skills as well as modules on assessment of community needs, malnutrition, and diarrhea and
nutrition. This manual is meant to be a model upon which local training programs can build.


School health education stimulates research, either to ascertain the base for curriculum development or to evaluate educational outcomes. In 1987, members of the American School Health Association's Council on International Health explored the scope and content of school health education being conducted outside the U.S. The results of that exploration are reported here.

4610 Huffman, S.L.; Combest, C. PROMOTION OF BREASTFEEDING: YES, IT WORKS! Bethesda, MD, Center to Prevent Childhood Malnutrition, nd, 39p.

This document discusses the results of projects in Honduras, Panama, Brazil, Indonesia, and Thailand that promoted breastfeeding. Promotional activities focused on educating health professionals and mothers about the benefits of breastfeeding. The authors also discuss the role of breastfeeding support groups in influencing policy changes, conducting educational efforts, and supporting breastfeeding mothers.


This article briefly describes a family planning questionnaire specifically designed for husbands, which was used in demographic health surveys in Ghana and Kenya. The article states that interviewing both men and women permits a more accurate assessment of family planning issues.


This article briefly describes how the Theatre for Development popular theater group educates villagers about common health problems in Malawi.
Two previous studies (1988 and 1989) showed that educational materials produced by the PNDMD (National Control of Diarrheal Diseases Program) were being under-utilized by health personnel. This study looks at the reasons behind this under-utilization in terms of health education materials produced by the various programs of the Family Health Division, Ministry of Health.

The author discusses the role of health documentation centers, based on experience gained when the Voluntary Health Association of India set up such a center. Suggestions are given for establishing acquisition, cataloging and dissemination policies. A checklist of materials needed is also provided.

Based on program experience in Asia, Latin America and Africa, this article discusses what training strategies work particularly well for women, and what factors enable training to make a significant difference in women's lives.

This article describes how mothers' support groups can promote breastfeeding by giving practical information and moral support to new mothers. Such groups can be incorporated into health care systems to fill the need for one-to-one support for breastfeeding mothers. Several operating groups, such as La Leche League International and the Nursing Mothers Association of Australia, are also described.
This document describes the Lactation Management Education (LME) Program in the Philippines, which is a component of the national breastfeeding promotion program. The initial phase of the program, administrated by Wellstart, sought to train key decision-makers and provider teams in lactation management so that they in turn could promote LME in their own institutions. To date, the LME program has achieved considerable success in national breastfeeding promotion by assisting participating teams to develop training programs and by aiding in development of national breastfeeding promotion plans.


Two independent reviewers examined approximately 67 journal articles that described and evaluated health education interventions in developing countries. Of the articles reviewed, 47% provided a sufficiently detailed description of the intervention to allow replication. Based on their findings, the reviewers concluded that successful health education interventions depend on using a few messages of proven benefit and on presenting those messages repeatedly in many forums. The reviewers also make recommendations about how the methodological quality of health education research can be improved.


A follow-up survey of knowledge of water-sugar-salt solution (WSS) in the Gambia was conducted in 1987, three years after the end of the Mass Media and Health Practices Project. The overall findings indicated that knowledge gains (i.e., knowledge about how to mix and administer WSS) were somewhat more sustainable than behavior gains (i.e., using WSS at home to treat diarrhea). Reduced access to mixing materials seems to have contributed to the decline in use. The major lessons learned from this project were that WSS use will not automatically become self-propagating and that sustainability cannot be achieved unless local program management is financially and technically supported.
The author describes how the Marolothi Travelling Theater group of Lesotho incorporates village health workers into their health education performances in order to encourage community participation.

This curriculum was developed for undergraduate physicians in Kenya, as well as for resident pediatric specialists. The aim was to prepare physicians to manage diarrhea cases more effectively. It contains lectures on: management of CDD programs, epidemiology and pathophysiology of diarrheal diseases, clinical syndromes of acute diarrheal diseases, clinical management of acute watery diarrhea, and prevention of diarrhea.

Printed materials meant to convey health messages are apt to make a striking and lasting impression on their audience if they are well illustrated...This article will briefly discuss some of [the Program for Appropriate Technology in Health's] experiences in working with local organizations around the world...to develop well-illustrated communication materials that are appropriate for the cultures in which they will be used...PATH found that the best way of ensuring that illustrations will be understood and accepted is to develop them with the help of representatives of the target audience. [published abstract]

The author describes the Wellstart education program which trains physician-nurse teams from teaching hospitals in developing countries in lactation physiology and breastfeeding management. To date the program has trained 64 teams who have in turn taught others in their own countries.
This document consists of materials designed to help community health workers develop the skills needed to teach nutrition at the community level. It is designed for use with the publication "Guidelines for Training Community Health Workers in Nutrition" (WHO, 1986, 2nd edition). The materials include, for example, information sheets on various nutrition-related topics, question-and-answer sheets, and ideas for role-plays and demonstrations.

The author discusses four major problems which currently hinder breastfeeding promotion: (1) the decline in funding for campaigns; (2) failure to use mass media; (3) lack of program evaluation; and (4) vague messages. Use of social marketing to make promotion more consumer oriented and incorporation of breastfeeding messages into other health programs, such as family planning and ORT, are presented as ways to address the problems.

This report presents the results of a communications needs assessment for the Dominican Republic's child survival activities coordinated by Save the Children Federation. CARE's activities within this structure are also reviewed. The authors make recommendations for developing a communications strategy and discuss the technical assistance required to execute a communication program.

After conducting a knowledge-attitudes-practices survey of Indonesian mothers of under-fives on ORT, PATH/Jakarta concluded that a large gap exists between knowledge of ORT
and actual use. This report identifies the reasons for low ORT usage and recommends a communications strategy for the future.

3999 Plopper, S. ASSISTANCE TO THE FAMILY HEALTH DIVISION WITH TRAINING OF TRAINEES\SUPERVISION AND EVALUATION WORKSHOPS, MALI. Arlington, VA, Management Sciences for Health, PRITECH, HSS 084-MA, March 5 - April 21, 1990, 10p.

The consultant and three Malian co-trainers conducted two workshops for central and regional level Division of Family Health personnel. The first was a three-week training designed to prepare personnel to train MCH\FP (Maternal and Child Health\Family Planning) staff at the "cercle" and "arrondissement" levels. The second was a two-week training which prepared personnel to supervise and evaluate MCH\FP services at the regional, "cercle," and "arrondissement" levels.


The Pakistan National Institute of Health requested assistance from the PRITECH Project in the production and pre-testing of TV spots for the CDD program. Results of two rounds of pre-testing are reported on in this document. The methodology used was qualitative pre-testing with the purpose of incorporating feedback from representatives of the target audience.


With assistance from the Swiss Development Cooperation, the Information Services Centre at the International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR,B) has been equipped with CD-ROM technology. This article briefly reports on how this technology works and how ICDDR,B has been using it for quicker, easier literature searches.


In this paper the author discusses how health communications can contribute to the sustainability of EPI programs and
makes recommendations to EPI managers in terms of strengthening and sustaining their communication capacity. The emphasis of the paper is on moving beyond consumer demand creation to using communication to sustain appropriate immunization behavior among both consumers and providers.


In 1983, the Ministry of Health began airing messages about ORT on Egyptian TV. Results were stunning: surveys conducted in 1987 showed that 80% of Egyptian mothers could explain how and when to correctly administer ORT. This article describes the content of the TV messages.


A health education program in Mali is using videos made by trained country nationals to promote good health and hygiene habits. Once the videos are completed the film makers spend time in the field showing the videos and teaching people about the films' messages. Two examples of such videos are one which shows how to decontaminate water and another which explains the use of ORT for diarrhea.


This article reports on how the people of Canto Grande, a shanty town in Lima, Peru, are being taught good hygiene habits. Health workers use drawings that reflect the people's aspirations in terms of living conditions to encourage them to start good habits such as washing hands more frequently and using soap regularly.


This study compared mothers' understanding of two growth charts, "road-to-health" and "growth surveillance," in Lesotho. Results showed that mothers who received instruction on either chart had significantly better understanding than those who received no training. In
addition, mothers using the "road-to-health" understood
their chart better than those using the "growth
surveillance" did theirs.

138 Shipp, P.; Lebow, R.H. THE STRENGTHENING OF PUBLIC HEALTH
TRAINING FOR MIDDLE LEVEL HEALTH MANAGERS IN NEPAL.
Arlington, VA, Management Sciences for Health, PRITECH, HSS

Decentralization and regionalization of all government
services in Nepal have created increasing numbers of
officials whose responsibilities include significant public
health management functions. However, very few of these
individuals have had formal public health training. The
authors present their assessment of the training needs and
recommendations for meeting these needs.

4695 Shoham-Yakubovich, I.; Pliskin, J.S.; Carr, D. THE IMPACT OF A
HEALTH EDUCATION COURSE ON MATERNAL KNOWLEDGE: A
COMPARATIVE STUDY IN A LOW SOCIOECONOMIC RURAL REGION.
Health Education Quarterly, vol.18 no.1, Spring 1991,
pp.145-150.

In order to assess the impact of a health education course
on maternal knowledge, a comparative study was carried out
in a low socioeconomic, rural region in the West Bank.
Following a course on nutrition, hygiene, child development,
and first aid 241 participants and 284 non-participants were
interviewed to determine their knowledge of course topics.
As expected, participants had higher knowledge levels than
non-participants. Course participation and level of
maternal formal education were the two most significant
predictors of knowledge.

4417 Silayan-Go, A. ENTERTAINMENT FOR HEALTH. World Health Forum,
vol.11 no.3, 1990, pp.297-301.

This article reviews a pilot project in the Philippines
which used popular music to educate teenagers about family
planning. The implementation of the campaign as well as the
results of follow-up surveys are presented. The campaign
demonstrated that entertainment media can be a valuable and
effective component of a health education program.

3795 Smith, W.A. LIFESTYLES FOR SURVIVAL: THE ROLE OF SOCIAL
MARKETING IN MASS EDUCATION. Washington, D.C.; The Academy
This document examines the evolution of social marketing as an educational tool and presents illustrations of successful campaigns. It also outlines 5 key elements of a successful social marketing campaign as well as discussing 5 main ideas which should be considered in planning a mass education strategy.

3820 Sobti, J.C. EXPERIENCE IN REORIENTING 30,000 DOCTORS IN THE APPROPRIATE MANAGEMENT OF DIARRHOEA BY INDIAN MEDICAL ASSOCIATION. New Delhi, India, Indian Medical Association, nd, 4p.

This paper describes the various steps, activities, and achievements of the Indian Medical Association in training its members in proper diarrhea management and use of ORT. By August 30, 1989, 1,078 meetings had been held and 29,821 doctors had been trained. The program was the result of collaborative efforts by the Indian Medical Association, the Indian Ministry of Health and Family Welfare, and UNICEF.


This field note describes the process of developing counseling cards for community health workers to use in teaching mothers proper diarrheal disease management in West Java, Indonesia. The counseling cards are a useful, understandable device for CHWs to aid them in talking with mothers about their children's diarrhea.


The author explains how appropriately designed social marketing campaigns aimed at parents of school-age children can have a marked effect on student enrollment and performance.


The author explains why it is important for development communicators to think about women. She then explores the
question of why Third World women have less access to information than do men.


In this article the author discusses how strip cartoons are used to convey health education messages. He examines the cultural implications of using this medium and presents examples of how it has been used to date.


The Indian Market Research Bureau recently carried out a nationwide survey of mothers' knowledge, attitudes, and practices in regard to diarrheal disease in India. This article describes the results of the survey and shows how the results were used to change the direction of the National Diarrhoea Management Programme.


This brief article reports on the VIVA program which was conducted in Brazil by Project HOPE. VIVA worked with traditional healers and volunteer health workers to bring primary health care to rural areas of northeastern Brazil. Those trained by VIVA promoted breastfeeding, growth monitoring, and immunization as well as teaching mothers to use ORT. By the program's end in 1990 infant mortality was reduced by more than one third in the area.


This article concentrates on two strategies for health promotion in the mass media: social marketing aims to influence people's behavior, media advocacy to influence their environment. The author argues that greater weight should be given to media advocacy than to social marketing so as to achieve an improved understanding of the conditions required for health. [published abstract]
This article reviews a community-based approach used in the Machakos District in Kenya to train health workers through participatory learning. The approach also encouraged community participation to ensure sustainability. A profile of the Machakos District is presented as well as the process by which the program was implemented.

In 1989, the Pakistan CDD Program established diarrhea training units at 10 major teaching hospitals. These DTUs provide model diarrhea management on both an inpatient and an outpatient basis. This report contains the trainer's guide and training materials for health worker training at the DTUs.

The author suggests that hygiene education is not effective unless it is accompanied by efforts to upgrade community facilities or to ensure better use of existing facilities. In addition, government sanitation workers need training in communication skills.

This manual presents guidelines for developing health and family planning print materials for illiterate and low-literate populations. Special emphasis is given to tailoring materials to meet specific needs of target audiences; producing and distributing materials including pretesting, revision, and printing; training health workers to effectively use the materials; and evaluating the impact of the materials.
This report presents a comparative historical analysis of the sustainability of U.S.-supported health projects in Guatemala from 1942-1987. The authors discuss the project characteristics and the contextual factors which contributed most to project continuation and review important criteria needed to assure sustainability. These criteria include: 1) incorporating national priorities and involvement in project design; 2) building counterpart capacity with strong technical training and assistance; 3) designing funding mechanisms to encourage national absorption of project costs; and 4) integrating project activities into implementing agencies and enhancing these agencies’ administrative effectiveness.

This article presents a synthesis of five country studies of the sustainability of U.S. government funded health projects in Central America and Africa...This review found that health projects in Africa were less firmly sustained than those in Central America. The studies then evaluated context factors and project characteristics that were related to the sustainability of the projects. [published abstract]

This document reviews cost and cost-effectiveness studies of immunization programs and is aimed primarily towards field officers and national EPI managers. It also provides methodological guidelines for conducting field studies as well as suggestions for further studying immunization program costs. The methodologies presented could be applied to other health and child survival interventions.

The inability to understand what sustainable development means has led to its mistaken acceptance by many organizations. Here the author discusses the various definitions of sustainability and their implications for programs.


The authors describe a successful collective payment scheme for health services in Guinea Bissau which developed at the village level over the last 10 years. The keys to success are two-fold: 1) the village population is allowed to decide on the amount of money and method of collection and 2) the government supports the scheme by guaranteeing sufficient drugs, low prices, effective control measures and a health worker who is part of the national referral system. The advantages and disadvantages of this program are presented and the possibilities for using such a system in other countries are discussed.


This news note briefly discusses the Kenyan and Ugandan governments' plans to introduce new cost sharing plans for health care.


In Lesotho a study was conducted to compare the cost-effectiveness of diarrheal disease treatment for children under 5 years of age at Queen Elizabeth II Hospital 1 year prior to the establishment of the ORTU Oral Rehydration Therapy Unit and 1 year after the establishment of the ORTU. Data showed that diarrhea-related admissions as well as the average duration of stay decreased after establishment of the ORTU. Because the savings due to decreased admissions was greater than the cost of establishing and maintaining the unit, the ORTU was considered cost-effective.
This manual is designed to illustrate how one essential tool of resource management—cost analysis—may be employed by programme managers to answer basic questions about the efficiency, equity and sustainability of the health activities for which they are responsible...The manual consists of three general parts with a total of twelve modules...["Part A" discusses] financial costs and also provides a first look at effectiveness of health services. "Part B" broadens the coverage in terms of costs covered, and brings together costs and effectiveness estimates in cost-effectiveness analysis. In "Part C", several important uses of cost and cost-effectiveness data for planning and management are discussed and illustrated. At the end is a set of exercises to be used with the individual modules. [published abstract]

At the June 19, 1990 meeting of the National Council of International Health, USAID Administrator Ronald Roskens emphasized the need for collaboration among governments, PVOs, and the public and private sectors in order to further child survival efforts. As an example of fruitful collaboration, he cited the Soloshot syringe, which was developed by the Program for Appropriate Technology in Health in cooperation with AID, in order to protect patients and health workers from contaminated needles.

This paper describes the health financing experiences of 12 voluntary organizations in India. Community and self-financing methods are described, and then evaluated on the basis of three criteria: yield, equity, and risks shared in prepayment/insurance schemes. The survey shows that India's voluntary sector demonstrates much experimentation and innovation with community and self-financing methods, including user charges, community-based prepayment schemes, fund raising, commercial schemes, and in-kind contributions. There is mixed success with financing efforts...It is noted that these financing methods can be further strengthened with better planning, management, monitoring and evaluation. [published abstract]
After presenting general information on the Malian health system, the authors present trends in health system financing, composition of recurrent expenditures in public health facilities, and distribution of recurrent and investment expenditures between national and foreign funding. They then examine household expenditures on health services such as traditional healing, drugs, private fees and health-related transport. They conclude with a discussion of proposals to solve the recurrent cost financing problem.

This booklet discusses breastfeeding as an economic resource. The costs, in terms of time, materials, and health effects, of breastfeeding and bottle feeding are summarized from four developing country perspectives: national, public sector, hospitals, and households. The booklet is intended to introduce the economic aspects of breastfeeding to policy makers.

The authors of this letter to the editor comment on a previous Lancet editorial which discussed structural adjustment and health in Africa (The Lancet, vol.335 no.8694, April 14, 1990, pp.885-886). They point out that maternal mortality was not used as an indicator to measure social and economic development.

The author describes how sesame seed cultivation in the Gambia has improved the economic as well as the nutritional status of the population. In addition, the article mentions how the Gambians are using sesame seed to make new weaning foods that are palatable and easy to prepare.
This document examines how poverty can be defined, measured, and understood by using various data collection and analysis methods. The author also discusses the factors which create conditions for change and the role of governments and donors in facilitating these changes. Several aspects of poverty reduction, including labor-intensive economic growth, income transfers, and improved natural resources management are also outlined.

In this review the authors discuss the economic value of breastfeeding in developing countries, the relationship between infant feeding practices and infectious disease morbidity and mortality, and the factors thought to be responsible for changes in breastfeeding patterns. The costs and benefits of breastfeeding are reviewed with respect to four levels: the national level, the public sector, hospitals, and households.

This article reports on the use of several cost-recovery mechanisms which were implemented in the Garango area of Burkina Faso in order to improve health care services. Among the methods tried were revolving drug funds and patient fees for lab tests, hospitalization, and maternity services. Health committees were organized to manage the resources and finances of health centers and to facilitate health worker and pharmacist training. As a result, access to pharmacies has increased as has the use of maternal and child health services.

Due to the inadequacy of existing financial cost-accounting study methods for hospital drug expenditures, more effective
methods were needed. This paper outlines two new methods developed in Papua New Guinea which allocate total expenditures based on the number of out-patient visits and in-patient discharges at a particular hospital. Study results can be used to modify pricing strategies and improve inventory management.


The major objective of this paper is to provide A.I.D. with a clear map of the for-profit sector to define the total market and show how it might be broken into manageable segments as the basis for project activity. Using a market approach, the paper has grouped corporate collaborators according to their possible motives for taking an active interest in family planning issues. [published abstract]


The authors report a death due to hypernatremic dehydration caused by rotavirus diarrhea of a 9-month-old infant in the U.S. whose mother attempted to purchase ORS at a pharmacy but was unable to afford it. While efforts such as the National ORT Project should help to promote proper home treatment of diarrhea, ORT will not be used optimally by the parents of children living in poverty until the economic barriers to its use are removed.


This paper presents the currently available data on the financing and economics of hospitals in developing countries. Part I first discusses some of the problems of data availability and comparability, and then reviews data on the hospital share of health sector resources, the extent to which hospital expenditure is distributed equitably, and whether the hospital share of expenditures has been changing over time. [published abstract]
In Zaire's Kasongo district an effort is being made by the community to reduce costs and increase income for the health centres. Decisions on improvements in the running of the centres are partly based on analyses of their utilization.

This article briefly summarizes the results of efforts at program sustainability used by some PVOs. These strategies include using various funding mechanisms, encouraging community participation, collaborating with the ministries of health, and entering into partnerships with local non-governmental organizations.

This article analyzes the problems of childhood malnutrition and mortality within a conceptual framework that identifies the key determinants which influence the survival and development of children. It concludes that long-term structural causes, such as household food and economic insecurity, must be addressed to eradicate child malnutrition and mortality in Malawi.

This report summarizes a study of the feasibility of implementing the Bamako Initiative in Senegal. It describes how the study was carried out, the findings, and the subsequent recommendations for action if the Initiative is to be used successfully to improve the quality of life in Senegal.
This paper examines the possible impact of user fees on the health of individuals living in Bangladesh. The authors note that the existing government health care system provides care to two of the most medically vulnerable groups in Bangladesh—the poor and women—and provide evidence that such fees may interfere with maintaining this patient profile. They also discuss the significant public health role that curative care provides for the individuals, their families, and the wider community.


The authors express concern that the conception of the Bamako Initiative was based on the over-hasty generalization of two small projects. They describe a successful experiment in Kolda district, Senegal to change the pattern of underutilization of health services by rationalizing the mechanisms for financing services and supplies of pharmaceuticals.


This paper examines the effect of health service user charges on service utilization in the Ashanti-Akim district of Ghana since the introduction of such charges in 1985. The charges have been successful in the areas of cost recovery and maintenance of urban utilization. However, creating an equitable and affordable system has posed problems since the services are no longer affordable for
CDD (Control of Diarrheal Diseases) POLICIES AND PROGRAMS


This article discusses factors that have the greatest influence on project sustainability based on an evaluation of World Bank projects. Among the main factors were: 1) developing institutional capacity; 2) encouraging good management; 3) mobilizing financial resources after donor funding ends; 4) maintaining borrower and government commitment; and 5) creating a clearly defined national development strategy.


In this paper the author presents an overview of the impact of the CDD program in Nigeria on diarrheal incidence and treatment practices from 1978-1989. Data showed that dysentery morbidity has declined since 1982 but cholera, typhoid and paratyphoid incidence have all been increasing since 1982. Community-based CDD survey data only indicated minimal impact on diarrheal incidence and treatment practices from 1986 to 1989. The author emphasizes the difficulty of evaluating the impact of CDD programs and points out various constraints to program success in Nigeria. Among the main problems identified were insufficient ORS use in health facilities and low sugar-salt solution use in the home; inappropriate community treatment; and incorrect ORS and SSS preparation by mothers and health workers. Some recommendations to improve program effectiveness are also presented.


The accomplishments of the USAID Child Survival Program are briefly outlined in this article. One of the achievements noted was that 58 countries are now producing oral rehydration salts.

The authors discuss worldwide progress in controlling diarrheal diseases. The issues discussed include etiology and epidemiology; case management and the use of ORT; acute and persistent diarrhea; the role of food and fluid; home treatment; anti-diarrheal drugs; preventive strategies; and indicators and impact of diarrheal disease control programs. They conclude that success in the control of diarrheal diseases will depend on the capacity of national CDD programs to implement correct case management and preventive strategies.


This paper examines the impact of various surveys on Mozambique's National CDD program, formulates a plan for future use of surveys in program evaluation, and discusses the wider issues of the use of surveys in evaluation.


Four areas were included in this evaluation of Niger's CDD program: health worker training in ORT; diarrhea case management in the health centers; ORS packet availability and use; and mothers' degree of knowledge about ORT. The study was carried out in three departments and one urban community (Niamey).


In 1989, the WHO Diarrhoeal Diseases Control (CDD) Programme completed the first 10 years of its activity. Its achievements to date in support of national CDD programs and research activities are described in the Seventh Programme Report, 1988-1989 and are summarized in this article.

This document reviews various Indonesian child survival programs and their impact on the health system, on efficiency of health services, and on infant and child mortality. The programs examined include family planning, nutrition, EPI, and CDD. Data indicate that these activities have achieved significant positive results, although it is difficult to attribute specific gains to specific interventions. Based on program results, the evaluation team recommended continuance of AID support to these projects.


This report summarizes the proceedings, discussions, and recommendations of the "Symposium on Improved Oral Rehydration Therapy in Practice in the Home and in the Community," held November 12-14, 1989 at Aga Khan University in Karachi. One of the conference presentations, "Food-based ORT - Management Considerations," by Jon Rohde, is included in the appendices.


In this paper the author reviews the problem of diarrhea in Zambia and then outlines components of the national CDD program. Among the components reviewed are health worker training and supervision, ORS production and distribution, social mobilization, and program integration. Convincing health workers and mothers about the effectiveness of ORS and providing adequate ORS supplies are cited as keys to program success.


This paper highlights findings from several recent studies which could improve the design of child survival strategies in Bangladesh and elsewhere. Specific components of child survival, including ORT/CDD, growth monitoring, breastfeeding, and EPI are assessed. A shift in emphasis of the child survival strategy is recommended.
4135 Herman, E. REPORT OF WORKSHOP ON HOME AVAILABLE FLUIDS STRATEGIES AND RESEARCH. Arlington, VA, Management Sciences for Health, PRITECH, SUP 092-PA, April 17, 1990, 17p.

This workshop was organized in response to the need expressed by many countries for specific guidelines on identifying and selecting home fluids that can be recommended for the initial household management of diarrhea. Summaries of country experiences, statement of key issues, conclusions reached by the participants, and the author's recommendations for country programs are outlined, as is a recommended plan of action for one specific country, Pakistan.


This article reports on a seminar held in May 1990 in Abidjan, Ivory Coast, about strengthening evaluation capacities in Africa. Participants discussed the constraints to evaluation in Africa, such as the lack of policies and methods as well as inadequate resources. Other topics included dealing with donors, conducting joint evaluations, training and feedback.


An evaluation of Dutch-funded projects in the Western Province of Zambia is briefly reviewed in this article. The evaluators noted that more Zambian nationals needed to be trained about and involved in project activities, such as backstopping and management, in order to strengthen the infrastructure and ensure sustainability.

4484 PLAN OF ACTION FOR THE CONTROL OF DIARRHEAL DISEASES IN THE REGION OF THE AMERICAS. Interagency Coordinating Committee for the Control of Diarrheal Diseases, nd, 32p.

This plan of action, jointly developed by PAHO, UNICEF, and A.I.D, articulates key areas of consensus, signals a new level of commitment for collaborative efforts at the regional level, and describes several strategies on which sound national CDD programs would be based. It also recommends specific ways to operationalize these strategies and suggests mechanisms of collaboration of national ICCs with the national CDD program in each country. (Available in English and Spanish) [published abstract]
This report describes the activities undertaken by the [WHO CDD] Programme during the 1988-1989 biennium. It contains information on activities carried out in support of national CDD programmes and describes the results of WHO-supported research that came to completion during this biennium. Major topics reviewed include health worker training, ORS access, country program evaluations, and research agendas.

[published abstract]

This report summarizes the discussion and conclusions of the eleventh technical advisory group (TAG) meeting of the WHO CDD program. The TAG reviewed such topics as research management and priorities, targets for the future, and financial matters. In general, the TAG found the overall progress of the program to be encouraging and made specific recommendations in terms of program implementation, training, ORS production, and research.

This study examines three possible approaches to engaging the private sector in diarrheal disease control in India: 1) reaching private practitioners to improve diarrhea treatment; 2) educating and mobilizing the public through private organizations and agencies; and 3) enhancing the commercial marketing of ORS as a mechanism to reach both private practitioners and mothers/consumers.
PRODUCTION AND DISTRIBUTION OF ORS


At the request of PRITECH/Pakistan, Aftab Associates (Pvt.) Ltd. launched a perpetual trade audit. The audit consists of a monthly survey of 1200 retailers in 21 cities to monitor the sales of ORS. Comparative market shares of competing brands are presented, as well as market size and distribution. In addition to the overall figures, tables for the top 10 cities are included.


This study tested two alternative (primary health care alone and primary health care in combination with commercial supply) means of ORS delivery for increasing utilization coverage and awareness of ORT by rural Kenyan families. It concludes that a combination of a commercial approach and mass communication techniques can further ORS use. Commercial availability of ORS can create an extra demand for the service, without replacing distribution of ORS delivered for free through primary care sources.


The authors examine the technical feasibility of packaging liquid ORS using Tetra Pak machines in three Pakistani dairies which already use the Tetra Pak system for milk. They conclude that the material currently available for juice Tetra Pak packaging is appropriate for liquid ORS, and that the dairies' machinery and operator/facility expertise are adequate. Phase II will examine the best ORS formula to use, the best processing methods, and actual packaging performance.

Four Pakistani dairies participated as test facilities to demonstrate physically the feasibility of packaging liquid ORS in Tetra Paks using aseptic conditions. The trials showed that liquid ORS can be dependably filled into Tetra Paks aseptically and contained for extended periods (more than 2 months to date).


The author reports on his follow-up to a previous visit (see #3494). He describes progress made in current ORS commercialization efforts and discusses the options for action. Recommendations of which companies to use and a scope of work for an ORS commercial consultant conclude the report.