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MANAGEMENT SCIENCES FOR HEALTH
DRUG MANAGEMENT PROGRAM
PROGRAM DESCRIPTION

March, 1988

The MSH Drug Management Program

Management Sciences for Health (MSH) is a non-profit technical assistance, educational, and scientific institution involved in the management aspects of international health development programs since 1971. MSH has provided technical assistance to over sixty countries in Latin America, Africa, Asia, and the Pacific and has trained hundreds of health system managers through international courses at its Boston training center, through regional courses in other countries, and through national and local courses.

The MSH Drug Management Program, formed in 1981, works to improve the availability, affordability, quality, and appropriate use of essential drugs, medical supplies, and vaccines through training, technical assistance, publications, operations research, and microcomputer applications. Other areas of interest include financing of drug supply and promoting rational drug use.

Technical Assistance

At the request of host countries and international agencies, MSH provides both long-term and short-term technical assistance in planning, implementing, and evaluating pharmaceutical management programs. Currently, the USAID-supported Eastern Caribbean Regional Pharmaceuticals Management Project is working to develop the Eastern Caribbean Drug Service to offer pooled tendering, contracting, formulary management, drug information, and supply management services for its six member-countries.

Through a World Bank-assisted agreement with the World Health Organization, MSH, over the last eighteen months, has assisted in the development of the Nigeria National Essential Drugs Programme. MSH has participated in the design of the national program, the development of three state essential drugs plans, and the design and presentation of national essential drugs workshops for local governments, states, teaching hospitals, and Federal resource people.

Also during 1986-1987, MSH has undertaken an analysis of child survival pharmaceutical (CSP) requirements in two countries. The Indonesia CSP Country Study focused on resource allocations, epidemiologically-based need, and resource utilization of essential drugs and vaccines. The Nepal CSP Country Study focused on resource allocations, cost-recovery experiences, health post treatment patterns, and private sector use of child survival pharmaceuticals.

During the last year the Drug Management Program has also provided short-term assistance to the World Health Organization (quantifying drug requirements in Zimbabwe and Nepal), the PRITECH Project (ORS supply-related assistance and systems support in Indonesia, Pakistan, Nigeria, Ghana, Nepal), the Honduras Health Sector Project (pharmaceutical warehousing, procurement, and related areas), the Afghanistan Health Assistance Project (supply management planning for procurement and distribution of emergency medical equipment and supplies), and other projects in Latin America, Africa, and Asia.

Training

Since Drug Management Training began four years ago, MSH has conducted or helped to design over twenty courses and workshops involving nearly 400 participants in Boston, Indonesia, Costa Rica, the Eastern Caribbean, Nigeria, Nepal, Zaire, India, and Tanzania. Topics have included Managing Drug Supply for Primary Health Care, National Drug Policy and Strategy, Curriculum Design Workshop for a Course on Rational Drug Use, Drug Epidemiology and Management, Financing Drug Supply, Microcomputers for Drug Supply, Training of Trainers and Curriculum Design for Drug Supply Management, Quantification of Essential Drug Requirements, and Management Aspects of Drug Supply Systems.

MSH currently has a grant for Training Development for Improving Drug Supply from the Pew Charitable Trust. The grant provides for production of participant and facilitator training materials on drug management in four volumes over three years; for some training courses; and for strengthening institutional training capabilities, particularly in the Caribbean region.

Drug Management Information Systems

Efforts in Drug Management Information Systems (MIS) include software development and information services. Software under development includes the DEM (Drug Estimation and Monitoring System), menu-driven database software for consumption-based and morbidity-based analysis of essential drug requirements; ECPRO (Eastern Caribbean Drug Service Procurement Information System), software designed to assist with each phase of the procurement process, including tendering, adjudication, monitoring of supplier performance, and order processing; and RX (Prescribing Analysis) software to allow ready input and summary of diagnostic, drug utilization, and patient identification information for patient encounters at the health post level or above.

Information services include a review of available pharmacy software appropriate to MSH and other PHC field projects and printed and computer files of essential drug prices for major low-cost procurement services.

Drug Financing

In addition to having developed a one-week seminar in Financing Drug Supply, including several case studies from MSH field experiences, MSH continues to provide technical assistance to improve the efficiency of drug management, strengthen financial management, and support the design and implementation of cost-sharing programs such as revolving drug funds.

Rational Drug Use

A long-standing interest in MSH field projects, the subject of promoting rational drug use has been a priority area over the last year. Recent activities have included training interventions in Indonesia and Costa Rica. MSH is currently involved in evaluation of efforts to promote rational drug use in Nepal, Indonesia, and Costa Rica. The new one-week technical seminar being developed jointly with faculty from Harvard Medical School will provide a focus to further define activities in this area.

Publications

Concerned about the importance and relative lack of attention to this field, MSH in 1981 published a practical manual, *Managing Drug Supply*. The manual has been distributed throughout the developing world and is used in a variety of training and management settings. In addition, the Drug Management Program produces occasional monographs and articles on topics such as revolving drug funds, cost reduction techniques, and drug management software.

Managing Drug Supply is available from the following sources:

- English:** *Managing Drug Supply*. Management Sciences for Health, Drug Management Program, 165 Allandale Road, Boston, Massachusetts 02130, USA. Price: \$18.50.
- French:** *Bien Gérer les Médicaments*. Institut Universitaire d'Etudes du Développement, 24, rue Rothschild, CH-1211, Geneva, Switzerland. Price: \$15.00.
- Spanish:** *El Suministro de Medicamentos*. Pan American Health Organization, 525 23rd Street, NW, Washington, DC 20037, USA. Price: \$5.15.

DRUG MANAGEMENT PROGRAM TRAINING ACTIVITIES

1988

India	January	National Seminar on Rational Drug Therapy in Pediatric Practice
Senegal	February	Gestion de l'Approvisionnement en Médicaments pour les Soins de Santé Primaire
Nigeria	March	Workshop for Planning and Implementing Statewide EDP and World Bank assisted Projects
Boston	May	Managing Drug Supply for Primary Health Care (MSH) with Technical Seminars on Financing Drug Supply and Promoting Rational Drug Use and optional 5th week seminar on Managing Drug Supply Using Computers

1987

St. Vincent	January	Drug Supply Management Course (Eastern Caribbean Project and PEW Project)
St. Lucia	January	Training of Trainers for Drug Supply Management Course (Eastern Caribbean Project and PEW Project)
Boston	April	Managing Drug Supply for Primary Health Care (MSH) with Technical Seminars on Financing Drug Supply and Microcomputers for Drug Supply
Costa Rica	May	Training Program for Rational Prescribing by Physicians
Boston	August	Managing Drug Supply Workshop, Boston University

1986

Zaire	March 12- April	Curriculum Design Workshop for Course in Drug Supply Management
Boston	May	Managing Drug Supply for Primary Health Care (MSH) with Technical Seminars on Financing Drug Supply and Microcomputers for Drug Supply
Indonesia (W. Sumatra)	July	Drug Epidemiology and Management (Co-training with Yayasan Indonesia Sejahtera)
Indonesia	August	Training Steps for Promoting ORS by Regency Decision-makers

Costa Rica	August	Workshop on Rational Drug Use (USAID)
Nepal	October	Quantification of Essential Drug Requirements (in collaboration with WHO)
Nigeria	December	National Workshops on Essential Drugs (in collaboration with WHO)

1985

Six courses and workshops in Boston, Tanzania, Costa Rica, Indonesia, India, and Morocco. Topics included Managing Drug Supply for Primary Health Care, National Drug Policy & Strategy, Curriculum Design Workshop for a Course on Rational Drug Use, Drug Epidemiology and Management, and Management Aspects of Drug Supply Systems.

1984

One week technical seminar in Boston, Policy Issues in Managing Drug Supply.

1983

One week technical seminar in Boston, Policy Issues in Managing Drug Supply.

DRUG MANAGEMENT PROGRAM

SELECTED REFERENCES (1986-March 1988)

Monographs, Manuals and Other Publications Produced by
MSH or Produced by MSH in Collaboration with Other Organizations
or Local Government Counterparts

MONOGRAPHS

Management Sciences for Health (for the World Health Organization Action Programme on Essential Drugs). The Drug Estimation Model: Guide to the Computer Drug Estimation Model for Quantification of Essential Drug Requirements. Boston, February 1988.

Management Sciences for Health. Review of Pharmacy and Inventory Software. Boston, July 1986.

MANUALS

Federal Ministry of Health, Nigeria/World Health Organization. Guidelines for Planning and Implementing Statewide Essential Drugs Programmes and World Bank-Assisted Projects. Management Sciences for Health, Lagos, February, 1988.

Auxila, P. A. The Eastern Caribbean Drug Service Procurement Information System (ECPRO). Castries, December 1987.

Federal Ministry of Health, Nigeria/World Health Organization. National Workshop for Teaching and Specialist Hospitals. Management Sciences for Health, Lagos, October 1987.

Federal Ministry of Health, Nigeria/World Health Organization. National Workshop on Essential Drugs Facilitator's Guide. Management Sciences for Health, Lagos, December 1986.

Federal Ministry of Health, Nigeria/World Health Organization. National Workshop on Essential Drugs, Workshop Sourcebook. Management Sciences for Health, Boston, December 1986.

Tawfik, Y. Training Steps for Promoting Procurement of ORS by Kabupaten Decision-Makers. Management Sciences for Health, July-August 1986.

SELECTED REPORTS, ARTICLES, AND CONFERENCE PRESENTATIONS

Foreman, P. Technical Assistance in Drug Management Information Systems (Afghanistan Health Sector Support Project), March, 1988.

Hartman, A. F. Evaluation and Final Report of the Continuing Education Component to Improve the Rational Use of Medications of the Health Services Support Project, March 1988 (DRAFT).

- Quick, J. D. and M. Hume. *Child Survival, Cost-Recovery, and Essential Drugs: Experiences and Issues*. Boston: Management Sciences for Health, March 1988.
- Soumerai, S., J. D. Quick, J. Avorn, and Y. Tawfik. *Changing the Unchangeable: Principles and Experiences in Improving Prescribing Accuracy*. Presented at the National Seminar on Rational Drug Therapy and Pediatric Practice held at the All India Institute of Medical Sciences, New Delhi, January 1988.
- Management Sciences for Health/PRITECH (Strategy Paper). *Supply Management and Distribution for ORT Programs*, January 1988.
- Management Sciences for Health, in collaboration with New Era, Nepal; HMG Department of Drug Administration; Britain Nepal Medical Trust; Institute of Medicine, Tribhuvan University. *Child Survival Pharmaceuticals in Nepal: Opportunities for Expanded Supply and Improved Use of Pharmaceuticals*, January 1988.
- Management Sciences for Health, in collaboration with Yayasan Indonesia Sejahtera and Ministry of Health/Indonesia. *Child Survival Pharmaceuticals in Indonesia: Opportunities for Therapeutic and Economic Efficiencies in Pharmaceutical Supply and Use*, December 1987.
- Federal Ministry of Health, Nigeria/World Health Organization. *Nigerian Essential Drugs Project Consolidated Project Design*. Management Sciences for Health, Lagos, September 1987.
- Foreman, P. *Nepal Child Survival Pharmaceuticals Retail Sector Study*, September 1987.
- Foreman, P. *Indonesia Child Survival Pharmaceuticals Survey Field Test*, September 1987.
- Adenika, F., J. Pogany, S. Sacca, G. D. Moore. *Initial Assessment of the Domestic Production of Essential Drugs in Nigeria*. Report of a WHO Mission. Lagos, June 1987.
- Bates, J. A. *Review of Supply Management Requirements for the Afghanistan Health Sector Support Project*, May 1987.
- Quick, J. D., H. Fraser. *Formulary Development, Prescriber Education, and Related Issues*. Castries, February 1987.
- Goldberg, M. *MIS Assistance and Data Analysis for the Eastern Caribbean Drug Service*. Castries, February, 1987.
- Battersby, A., P. Foreman, Y. Tawfik. *An Implementation Plan for Improving the Ghana Ministry of Health Logistics System*. Accra, February 1987.
- McDavidson, N., C. B. Olson, G. D. Moore. *Republic of Zimbabwe National Essential Drugs Action Programme (ZEDAP), Report of a WHO Mission*. Harare, January 1987.

- Battersby, A., Y. Tawfik. Assessment of Logistics Systems Used to Supply Drugs, Vaccines, Supplies, and Contraceptives to Ministry of Health Facilities Throughout Ghana. Accra, December 1986.
- Ross-Degnan, D. Health Post Diagnosis and Treatment Study: Coding Manual, November 1986.
- Roberts, Richard S. Health Management Improvement Project Quarterly Report, Three Quarters Ending 30 September 1986. Management Sciences for Health, October 1986.
- Goldberg, M. In-Service Training and Assistance with Basic Computer Operations for the Eastern Caribbean Drug Service. Castries, October 1986.
- Quick, J. D. Observations on the Development of a National Essential Drug Programme/Project. Boston, October 1986.
- Fajardo, I. M., U. Nordenson, J. D. Quick, G. D. Moore. Nigeria Imo State Health and Population Project Essential Drugs Programme and Drug Revolving Fund, Report of a WHO Mission. Owerri, September 1986.
- Olson, C., J. Bates. Evaluation of the Public Sector ORS Supply System in Pakistan. Pakistan, August - September 1986.
- Holmstrom, L., M. Hume, J. D. Quick, J. Steenstrup, G. D. Moore. Nigeria Sokoto State Health Project Essential Drugs Programme and Drugs Revolving Fund Report of a WHO Mission 14 April - 2 May 1986. Ministry of Health, Sokoto State, June 1986.
- Quick, J. D., Y. Tawfik. Design of a National Review of Public Sector ORS Supply Management, Indonesia. Management Sciences for Health, August, 1986.
- Kempner, D., R. W. O'Connor. Asia/Near East Child Survival Resource Planning Methodology Development, Nepal Trip Report March 31 - April 12, 1986. Kathmandu, April 1986.
- Castellon, J. R., J. D. Quick. Proceso Para el Re-Epaque de Medicamentos: "Secuencia Fotografica". Santa Cruz, April 1986.
- Quick, J. D. and R. Roberts. Progress Review: Haiti Rural Health Delivery System Project. Management Sciences for Health, January 1986.
- Hartman, F. and S. Onganyo. Analysis of Contraceptive Logistics System and Recommendations for Improvement. In: Plan for A National CBD Programme: Kenya. Boston, MA: Pathfinder Fund, January 1986.

DRUG MANAGEMENT PROGRAM TECHNICAL STAFF

Core Staff

Jonathan D. Quick, Director (Boston)

Youssef S. M. Tawfik, Training Coordinator, and Director, Training Development Program (Boston)

Patricia L. Foreman, Drug MIS Specialist (Boston)

Richard B. Blakney, Drug Financing Coordinator (Boston)

Maggie Huff-Rousselle, Chief of Party, Eastern Caribbean Regional Pharmaceuticals Management Project (St. Lucia)

Chris B. Olson, Procurement Management and Drug Logistics Specialist, Eastern Caribbean Regional Pharmaceuticals Management Project (St. Lucia)

James A. Bates, Supply Management Advisor (Indonesia)

Vimal S. Dias, Staff Associate (Sri Lanka)

Consulting Staff (Partial Listing)

Jerome Avorn

Margaret Hume

Louis Loutan

James Rankin

Richard Roberts

Dennis Ross-Degnan

Stephen Soumerai

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION
JONATHAN D. QUICK

EDUCATION

- M.D. University of Rochester, School of Medicine and Dentistry,
Rochester, New York (1979). Distinction in Research.
- M.S. University of Rochester, School of Medicine and Dentistry,
Rochester, New York (1979). Preventive Medicine and
Community Health.
- A.B. Harvard University, Cambridge, Massachusetts (1974). Magna
Cum Laude in Social Relations.

CLINICAL TRAINING

Family Medicine Chief Resident (1981-1982) and Resident
(1979-1981), Duke University, Duke-Watts Family Medicine Center,
Durham, NC.

General Preventive Medicine Resident, University of Rochester,
School of Medicine and Dentistry, Rochester, NY (1983-1984)
(off-site).

PROFESSIONAL EXPERIENCE

September 1984 to Present Management Sciences for Health
Boston, Massachusetts

Director, Drug Management Program. Responsible for overseeing
program activities, including long-term and short-term technical
assistance, Drug Management Program training, publications, and
microcomputer applications. Currently provides regular technical
support for the essential drug sales component of MSH's long-term
Rural Health Delivery System Project in Haiti; serves on the WHO
Informal Working Group on Estimating Drug Requirements; and
provides technical assistance in supply management for MSH's
Primary Health Care Technologies Project (PRITECH).

September 1982 to August 1984

U.S.P.H.S. Indian Hospital
Talihina, Oklahoma

Clinical Director and Chief of Staff (beginning March, 1983),
Family Practitioner. Responsible for administrative and clinical
supervision of ten person medical staff. Clinical responsibilities
included high volume outpatient practice, pediatric and adult
inpatient practice, emergency medical care, and routine
obstetrics. Emphasis on strengthening outpatient and preventive
health services.

September 1978 to September 1984

Management Sciences for Health
Boston, Massachusetts

Short-term health management consultant for the following
projects:

His Highness the Aga Khan Health Services, Tanzania.
Strengthening pharmaceutical supply services and preparation of
five-year hospital services plan (April 1982 - February 1983).

UNICEF, New York, NY. Prepared and presented background paper for
the Action Programme on Essential Drugs (August, 1982).

Center for Public Resources, New York, NY. Contributed to a
survey and report on pharmaceutical logistics training
opportunities for developing countries (July, 1980).

Harvard Institute for International Development, Cambridge, MA.
Provided staff training in pharmaceutical logistics for Mali Rural
Health Project (June, 1979).

January 1978 to September 1978

Management Sciences for Health
Boston, Massachusetts

Staff Associate. Studied pharmaceutical logistics in public
health programs in developing countries. In cooperation with the
World Health Organization traveled to Peru, Costa Rica, Guatemala,
Norway, Tanzania, Sri Lanka, Malaysia, and Papua New Guinea.

June 1976 to August 1976

U.S. Senate
Washington, DC

Assistant to Professional Staff, U.S. Senate Committee on Labor
and Public Welfare, Subcommittee on Health, Senator Edward M.
Kennedy, Chairman. Participated in legislative research, editing
of Senate hearing transcripts, preparation of briefing materials
for Committee meetings, and office support.

June 1975 to August 1975

Kaiser Health Services Research
Center
Portland, Oregon

Summer Fellow. Studied the impact of the 1969 Oregon liberalized
abortion law. Learned about the Kaiser-Permanente health
maintenance organization.

June 1974 to August 1974

Center for the Analysis of Health
Practices
Harvard School of Public Health
Boston, Massachusetts

Research Assistant. Prepared a literature review and developed the research methodology for a cost-effectiveness study of coronary artery bypass surgery.

June 1973 to August 1973

Phillips Brooks House Association
Harvard University
Cambridge, Massachusetts

Executive Vice President. Responsible for program planning and development for undergraduate community action and volunteer service organization.

September 1971 to August 1972

Erich Lindemann Mental Health Center
Boston, Massachusetts

Mental Health Counselor. Supervised psychiatric inpatients; led informal group therapy sessions; conducted short-term individual therapy; organized patient outings.

VOLUNTEER EXPERIENCE

Board of Directors, Program Committee Chairman, CENTER FOR YOUTH SERVICES, INC., Rochester, NY (May 1975 - November, 1976).

Executive Committee Member, VOLUNTARY ACTION CENTER, Boston, MA (March 1973 - March, 1974).

Executive Vice-President; Co-Founder and Chairman, Community Medicine Program, Fund Raiser, Mental Health Committee; Chairman, Family Aid Program; PHILLIPS BROOKS HOUSE ASSOCIATION, Harvard University, Cambridge, MA (1969-1974).

HONORS

Korean War Prize for responsible participation in university activities. Lowell House, Harvard University (1973).

Project HOPE Prize for Scholarly Analysis of Health Issues for an essay entitled, "Medical Efficiency in Clinical Decision-Making: Hospital Cost Containment at the Front Line," (1978).

LICENSURE, CERTIFICATION, MEMBERSHIPS

American Academy of Family Physicians
American Public Health Association, Medical Care Section
National Council for International Health
Oklahoma Medical License (inactive)
North Carolina Medical License (inactive)
Massachusetts Medical License
Diplomate of the American Board of Family Practice
Diplomate of the National Board of Medical Examiners

THESES

"Patient-Practitioner Relations: A comparison of compliance among hypertensive patients treated primarily by a nurse practitioner with compliance among hypertensive patients treated by a physician." Honors thesis, Department of Social Relations, Harvard University, 1974.

"Prenatal Care and Pregnancy Outcome in an HMO and General Population: A comparative multivariate cohort analysis." Thesis for M.D. with Distinction in Research, University of Rochester, School of Medicine and Dentistry, 1979.

"Improving Pharmaceutical Supplies Management in Developing Countries: Impact of selected factors on costs and shortages." M.S. Thesis, Department of Preventive Medicine and Community Health, University of Rochester, School of Medicine and Dentistry, 1979.

BOOKS

Quick, J.D.; Hume, M.L.; O'Connor, R.W.: Managing Drug Supply: The Selection, Procurement, Distribution, and Use of Pharmaceuticals in Primary Health Care. Boston: Management Sciences for Health, 1981 (available in English, Spanish, French).

Quick, J.C.; Quick, J.D.: Organizational Stress and Preventive Management. New York: McGraw-Hill Book Company, 1984.

ARTICLES, CHAPTERS, PROCEEDINGS

Quick, J.D.: Liberalized Abortion in Oregon: Effects on fertility, prematurity, fetal death, and infant death. American Journal of Public Health, 68(10): 1003-1008, 1978.

Quick, J.D.; Greenlick, M.R.: Multivariate Prediction of Neonatal Mortality with Emphasis on Health Care Inputs. In Strand, R.H. (Ed.), Proc. Third Annual Conference of the SAS Users Group International. SAS Institute, Inc., Raleigh, NC, 1978, p. 78-82.

- Quick, J.C.; Quick, J.D.: Reducing Stress through Preventive Management. Human Resource Management 18(3): 15-22, 1979.
- Quick, J.C.; Quick, J.D.: Organizational Stress and Preventive Management. Journal of Chronic Disease and Therapeutic Research 3(13): 185-204, 1979.
- Bates, J.A.; Hartman, A.F.; O'Connor, R.W.; Quick, J.D.; Rousselle, P.J.: Procurement and Use of Drugs: Managing the Process to Advantage. In Zatzuchni, G.I. (Ed.), Vaginal Contraception: New Developments. New York: Harper and Row, 1979, pp. 325-335.
- Quick, J.D.; Greenlick, M.R.; Roghmann, K.: Prenatal Care and Pregnancy Outcome in an HMO and General Population: A multivariate cohort analysis. American Journal of Public Health 71(4): 381-390, 1981.
- Quick, J.D.: Applying Management Science in Developing Countries--ABC Analysis to Plan Public Drug Procurement. Socio-Economic Planning Sciences 16(1): 39-50, 1982.
- Quick, J.D.: Integration or Co-Optation: Bringing Traditional Medicinal Plants into Public Health Programs. In deVries, M.W.; R.L. Berg; M. Lipkin (Eds.), The Use and Abuse of Medicine. New York: Praeger Scientific, 1982, pp. 254-264.
- Hartman, A.F.; O'Connor, R.W.; Quick, J.D.: Pharmaceutical Procurement, Distribution, and Use in Primary Health Care. In: The Training and Support of Primary Health Care Workers. Washington, DC: National Council for International Health, 1981.
- Berg, R.L.; Quick, J.D.: Hospital Use by Rural Residents. In Tilquin, C. (Ed.), Systems Science in Health Care, Volume I. Toronto: Pergamon Press, 1981, pp. 456-466.
- Quick, J.D.; Moorehead, G.; Quick, J.C.; Gerloff, E.A.; Mattox, K.; Mullins, C.: Decision-Making Patterns of Emergency Room Residents: Preliminary Observations and a Decision Model. Journal of Medical Education, 58(2): 117-125, 1983.
- Quick, J.C.; Shannon, C.; Quick, J.D.: Managing Stress in the Air Force: An Ounce of Prevention. Air University Review 34(4): 76-83, 1983.
- Quick, J.D.; Kertesz, J.W.; Nelson, D.L.; Quick, J.C.: The Preventive Management of Stress. In Myers, D.N. (Ed.), Employee Problem Prevention and Counseling Handbook. Westport, CT: Greenwood Press, 1986.

Quick, J.C.; Dalton, J.E.; Nelson, D.L.; Quick, J.D.: Health Administration Can Be Stressful...But Not Necessarily Distressful. Hospital and Health Services Administration, 1984 (in press).

Quick, J.C.; Quick, J.D.: Preventive Stress Management at the Organizational Level. Personnel: 24-34, September-October, 1984.

Cross, P.N.; Huff, M.A.; Quick, J.D.; Bates, J.A.: Revolving Drug Funds: Conducting Business in the Public Sector. Social Science and Medicine, Vol. 22, No. 3 pp. 335-343, 1986.

CONFERENCE PRESENTATIONS

Quick, J.D.; Berg, R.L.: Differences in Hospital Utilization Between Rural and Urban Residents. Presented at the Medical Care Section Roundtable Discussions, American Public Health Association Annual Meeting, October 18, 1978, Los Angeles, CA.

Germano, E.; Quick, J.D.: Rural-Urban Determinants of Prenatal Care. Presented to the Institute on Delivery of Human Services to Rural People. Sponsored by the American Rural Health Association, June 22-24, 1980, Myrtle Beach, SC.

Germano, E.; Quick, J.D.; Obstetrical Care for High-Risk Pregnancies: Risk Factors and Levels of Services. Presented to the Maternal and Child Health Section, American Public Health Association Annual Meeting, October 19-23, 1980, Detroit, MI.

Quick, J.D.; O'Connor, R.W.; Hirschhorn, N.: Improving Pharmaceutical Supplies Management in Developing Countries. Presented at International Health Section Roundtable Discussions, American Public Health Association Annual Meeting, November 4-8, 1979, New York, NY.

Quick, J.D.; Germano, E.; Berg, R.L.: Rural-Urban Differentials in Maternal Risk, Prenatal Care, and Pregnancy Outcome. Presented to the Maternal and Child Health Section, American Public Health Association Annual Meeting, October 19-23, 1980, Detroit, MI.

Quick, J.D.; Cross, P.N.; Bates, J.A.; Huff, M.A.: The Potentials and Pitfalls of Revolving Drug Funds. Presented at the National Council for International Health Conference, June 13-16, 1982, Washington, DC.

George H. Whipple Prize for Medical Students, Rochester Academy of Medicine (1979).

Mead Johnson Award for Graduate Education in Family Practice (1981).

CLINICAL PRESENTATIONS

Quick, J.D.; McLaurin, P.: Health Promotion in Office Practice -- Exercise Prescription. Family Medicine Grand Rounds, Duke-Watts Family Medicine Center, December 3, 1980, Durham, NC.

Quick, J.D.; Cohen, H.J.: Cancer in the Elderly -- To Chase or Not to Chase? Family Medicine Grand Rounds, Duke-Watts Family Medicine Center, June 10, 1981, Durham, NC.

Quick, J.D.; Baker, C.; Kramish, M.; Hanlon, J.: Promoting Longevity and Good Health in the Adult Diabetic: The Team Approach. Family Medicine Grand Rounds, Duke-Watts Family Medicine Center, October 21, 1981, Durham, NC.

Quick, J.D.: Intrasynovial Injection and Aspiration. Specialty Conference, Duke-Watts Family Medicine Center, March 15, 1982, Durham, NC.

Quick, J.D.; Quick, J.C.; Kertesz, J.: Preventive Management of Work Stress -- Guidelines for Providers and Patients. Family Medicine Grand Rounds, Duke-Watts Family Medicine Center, August 18, 1982, Durham, NC.

MANAGEMENT SCIENCES FOR HEALTH
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YOUSSEF TAWFIK, MD, MPH

EDUCATION:

Harvard School of Public Health: Master's degree, 1983

School of Medicine, Cairo University: MBBCh, 1979

EXPERIENCE:

1986 - Present

Management Sciences for Health
Boston, Massachusetts

Director, Training Development Grant. Responsibilities included evaluating and redesigning the Drug Management Program's training activities; developing training curriculum and directing courses for senior level managers in Boston, India, Nigeria, Indonesia, Yemen, Senegal, and the Eastern Caribbean States.

1985-1986

Management Sciences for Health

Consultant. Provided technical assistance in a number of field projects including evaluation of program impact (Yemen), assessment of logistics management systems (Ghana), and conducting management training workshops (Nigeria).

1983-1985

Director, PRICOR Grant, Egypt. Evaluated ORS distribution and inventory control in Egypt through Operation's Research methodology. Recommendations were integrated into the National Control of Diarrheal Diseases Project.

1982-1984

Strengthening Rural Health Delivery Project, Egypt.

Chief of Evaluation. Responsibilities included designing evaluation systems for project components: Diarrheal Disease Control; Family Planning; Acute Respiratory Infection Control; Immunization and Training. Methodology included a series of household surveys, pre and post tests, work sampling survey and supervisory field visits.

1980-1982 Physician, Teaching and Public hospitals, Egypt.
Performed internship duties in departments of Ob/Gyn,
Pediatrics, Surgery, E.N.T., Orthopedics and General
Medicine.

LANGUAGES:

Arabic: Native
English: Fluent
French: Fair

PUBLICATIONS:

Managing Drug Supply Training Series, Part I: Policy
Issues in Managing Drug Supply, Management Sciences for
Health, 1987.

Improving ORS Distribution System in Egypt, PRICOR, 1985.

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION
PATRICIA LOUISE FOREMAN

EDUCATION

- M.P.A. Indiana University Graduate School of Public Administration.
Double majors in Health Systems Administration and International
Affairs, 1978.
- B.S./
PD. Purdue University College of Pharmacy, emphasis on hospital and
clinical pharmacy, 1974.
- B.S. Purdue University College of Agriculture. Animal Science,
concentrations in nutrition and genetics, 1973.

PROFESSIONAL EXPERIENCE

1985 to present: Management Sciences for Health
Boston, Massachusetts

Drug Management Information Specialist, Drug Management
Program (DMP). Responsible for overseeing all DMP activities
involving information systems for managing drug supplies
including computer applications for pharmaceuticals
management. Participated in operations research in Indonesia
and Nepal regarding drug use and private sector patterns.
Provided technical assistance to Ministries of Health in
Liberia, Ghana, India, Nepal, Pakistan, Honduras, and the
Eastern Caribbean.

1973 to present:

Licensed Pharmacist since 1973 working at least part-time in
local area hospital and/or retail pharmacies. This has made
possible keeping informed of new pharmaceutical developments;
consultations with patients about their medications; and
continuing to gain experience in inventory control, with
medical supply procurement. Technical experience with compu-
terized pharmacy systems, unit-dose and kit drug delivery
systems, logistics and pharmaceutical policy planning.

1983 to 1985:

Freelance Consultant. A major portion involved researching
and evaluating issues, projects, and systems. As a consult-
ant for the National Academy for Public Administration was a
member of a study team which analyzed the Environmental
Protection Agency's budget process and its usefulness as a
management tool. Participated in a number of program

evaluations ranging in scope from service delivery assessment of Health Maintenance Organizations to a management analysis of the reorganization of FDA's Bureau of Veterinary Medicine.

1981 to 1983:

Health Sciences Administrator, Food and Drug Administration. Responsible for coordinating international drug control activities. This included providing advice and preparing technical and policy documents for the U.S. Delegations to United Nations meetings.

1980 to January 1981:

Science Office, United Nations International Narcotics Board, Vienna, Austria. Responsible for analyzing trends shown by data provided by national governments on drug manufacturing and trade. Negotiated, prepared, and presented various policy, technical, and training materials on national and international drug control.

1978 to 1980:

Appointment as a Presidential Executive Management Intern, assignments with the Food and Drug Administration, Centers for Disease Control, the Agency for International Development, and Office of the Secretary, Department of Health and Human Services.

1976 to 1977:

Associate Instructor of Pharmacology, Indiana University School of Nursing.

HONORS AND ACTIVITIES

Doctor of Pharmacy, Maryland Pharmaceutical Association
CERES -- Agriculture Honorary of Purdue University
Fulbright-Hays Fellow
Alpha Lambda Delta -- Women's Honorary

Project Commodities: Using a U.S. Procurement Service Agent, responsible for procuring \$2 million in drugs and medical supplies, medical equipment, office and general equipment and supplies;

Fee-for-service Policy: Devise policy and strategies for Ministry to shift from total government support to non-salary items funded by fee;

Drug and Medical Supplies Operations Manual: Write county-level Operations Manual.

July 1981-June 1984

MEDEX Group, University of
Hawaii
Ministry of Health, Guyana

Management Specialist, developed and implemented management support systems for health workers by planning implementation strategies, preparation of implementation documents, providing orientation and training in new systems. Systems included financial management information, programming and budgeting, supply system, transport, regional supervision, communication (especially 2-way radio), health center operations manual and orientation manual. Was Project Team Leader.

July 1979 - June 1981

University of Washington
Seattle, Washington

Lecturer and Management Advisor.

Lecturer, responsible for comparative international health systems graduate course, curriculum development for Strategic Planning in Hospitals Institute with Kellogg grant.

Management Advisor on USAID contract to develop TA capability University of Washington in design and implementation of PHC projects. Writer for MEDEX series books. August 1979 consultation in Lesotho to develop PHC management systems.

1965-1978

Board of Global Ministries of
the United Methodist Church
United Christian Medical
Service
Hong Kong

Planning Officer then Administrative Director and Hospital Administrator.

Hospital planning and construction phase (1965-73): Functional programming, liaison on design, government relations (planning, site acquisition, capital and operating financing, manpower, etc.), fund raising, incorporation, supervise construction, employ and train staff, general organization.

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION

RICHARD BARNETT BLAKNEY

EDUCATION

M.P.H. Yale University, New Haven, Connecticut 1960-1962.

B.S. University of Washington, Seattle Pharmacy,
1953-1956.

Good Samaritan Hospital, Portland, Oregon, Residency in
Hospital Administration, 1961-1962.

Cornell University, Health Executive Development Program,
June 1972

University of Washington, Seattle, Health Services
Administration and Planning, 1978-1979

The MEDEX Group, University of Hawaii, Residency in Primary
Health Care, 6 months; 1979-81

PROFESSIONAL EXPERIENCE

April, 1988 - Management Sciences for Health
Boston, Massachusetts

Drug Financing Coordinator: provides technical assistance to
Ministries of Health and other institutions in the areas of
financing and financial management for drug and medical supply
systems.

August 1984-April, 1988 MEDEX Group, University of
Hawaii
Ministry of Health and Social
Welfare
Monrovia, Liberia

Logistics Specialist, provided technical assistance in the areas
of:

National Drug Service: Established new pharmaceutical and
medical supply service including essential drug list and
formulary, organization, staffing and training, supply
management, financial management, and facilities and equipment;
Revolving Drug Fund Schemes: For county hospitals (and JFK
Medical Center), health centers, health posts and community
health workers, assess strengths and weaknesses of existing
schemes, use workshop methodology to devise basic design, draft
operational policies and procedures, write manuals, train
trainers and staff, implement, and monitor operations.

Project Commodities: Using a U.S. Procurement Service Agent, responsible for procuring \$2 million in drugs and medical supplies, medical equipment, office and general equipment and supplies;

Fee-for-service Policy: Devise policy and strategies for Ministry to shift from total government support to non-salary items funded by fee;

Drug and Medical Supplies Operations Manual: Write county-level Operations Manual.

July 1981-June 1984

MEDEX Group, University of
Hawaii
Ministry of Health, Guyana

Management Specialist, developed and implemented management support systems for health workers by planning implementation strategies, preparation of implementation documents, providing orientation and training in new systems. Systems included financial management information, programming and budgeting, supply system, transport, regional supervision, communication (especially 2-way radio), health center operations manual and orientation manual. Was Project Team Leader.

July 1979 - June 1981

University of Washington
Seattle, Washington

Lecturer and Management Advisor.

Lecturer, responsible for comparative international health systems graduate course, curriculum development for Strategic Planning in Hospitals Institute with Kellogg grant.

Management Advisor on USAID contract to develop TA capability University of Washington in design and implementation of PHC projects. Writer for MEDEX series books. August 1979 consultation in Lesotho to develop PHC management systems.

1965-1978

Board of Global Ministries of
the United Methodist Church
United Christian Medical
Service
Hong Kong

Planning Officer then Administrative Director and Hospital Administrator.

Hospital planning and construction phase (1965-73): Functional programming, liaison on design, government relations (planning, site acquisition, capital and operating financing, manpower, etc.), fund raising, incorporation, supervise construction, employ and train staff, general organization.

MAGGIE A. HUFF-ROUSSELLE

EDUCATION

- M.B.A. Boston University 1985. Public Management and Health Care Management.
- Boston University MET College, Financial and Managerial Accounting, I and II, 1979.
- M.A. Goddard College in Writing/Education.
- B.A. Windham College, English.
- A.A. Community College of Vermont, 1975. English/Library Science.

PROFESSIONAL EXPERIENCE

1986 to present Management Sciences for Health
Castries, St.Lucia, W.I.

Chief of Party: Responsible for the Regional Pharmaceuticals Management Project's four person technical assistance team, contracted by the Organisation of Eastern Caribbean States (OECS) to assist the ministries of health in six countries to improve pharmaceutical supply in their public sectors through forecasting needs, facilities upgrading, inventory control and stock management, repackaging, cost recovery mechanisms, supply management training, prescriber education and public promotion. As Project Coordinator, has overall responsibility for the Eastern Caribbean Drug Service (ECDS) and its nine member staff, a new agency of OECS that provides a pooled tendering service, assistance in formulary development, MIS, quality assurance, and professional publications to the six countries.

Member of ECDS Policy Board, along with Ministers of Health and Governor of Eastern Caribbean Central Bank.

1985 - 1986 Management Sciences for Health
Port-au-Prince, Haiti, W.I.

Finance and Management Advisor: Member of an AID-funded technical assistance team assisting the Ministere de la Sante Publique et de la Population (MSPP) in an effort to decentralize and expand rural health delivery services; assisting in the implementation of regional and district level accounting systems; and advising the Agence d'Approvisionnement des Pharmacies Communautaires (AGAPCO) on issues of financial management, marketing, and strategic planning.

Short Term Assignments: Focus on financial management, marketing, and policy with particular interest in public enterprises (self-financing), public health programs and non-profits. Design and training in financial management systems for public sector drug sales programs: Haiti (10 trips 1981-85), Dominican Republic (1983-84), and Dominica (1983). Consultancies in finance (e.g. indirect cost management, donor accountability, program specific financial management issues, and fund-raising), marketing or program evaluation of non-profits: ADRA (Washington, D.C.), INCAP (Guatemala City), LASPAU (Cambridge, MA), ORANA (Senegal), ICC, AOPS and Cite' Soleil (Haiti), CRS (Nepal), AHRTAG (London, Eng.) and a dozen grass roots PVOs in Haiti. Design and training in cost accounting for family planning and primary health care programs: Yemen Arab Republic (1984-85), Nepal (1986) and Haiti. Project management and contract negotiation trips include: Haiti, Morocco, Bolivia and Malawi.

Business Manager: Indirect supervision of staff of 17 and direct supervision of staff of 8 including all accounting functions, contracts and grants management, office finance and administration with emphasis on contract negotiations and business aspects of proposal preparation, cash flow management including arrangements for necessary corporate financing, monitoring project budgets, and management of overhead expenditures and projections. Member of 5 person Management Operations Team which coordinated and planned company-wide activities. Elected officer of corporation by Board of Directors 1983. (See short term overseas assignments.) (1981 - 1985)

Chief Accountant: Responsible for all accounting functions, including: maintenance and review of input and output of computerized departmental general ledger and financial statements (ACA processing converted from ADP); labor, fringe and overhead allocations (in-house computer system); reconciliation and analysis of field project accounts; billings and expenditure reports; compliance with IRS, Donor Agency and government contracting regulations; supervision of accounting staff. Developed and implemented field accounting system standardized in five country sites. Responsible for business management proposals including all budgets and negotiation of small contracts. (1979 - 1981)

Accountant/Staff Associate: Served internship as staff accountant including nuts-and-bolts experience with all functions; developed in-house manuals communicating accounting office operations. Designed coding system and computer data base/selection programs for consultant C.V. resource files. (1978 - 1979)

1975 - 1980 (part-time)

Various Publications
and Organizations

Free-Lance Writer: Journalism includes: historical and political research articles; play and lecture reviews; interviews, personality profiles, and human interest stories; serious and satirical essays; columns and publicity. Fiction included a collection of short stories and some poetry.

1977 - 1978

Windham College
Putney, Vermont

Faculty Member: Designed and taught curriculum in freshman composition that relied on both classroom and tutorial sessions, while emphasizing rewrite/revise method; faculty advisor to campus newspaper; coordinated campus-wide guest lecture program.

1977 (part-time)

Community College of Vermont
Chester, Vermont

Writing Instructor: Taught fiction, journalism, and expository prose to adult students.

1974 - 1977 (part-time)

Springfield Town Library
Springfield, Vermont

1972 - 1974 (part-time)

John Harvard Library,
Freeport, Bahamas

Public Relations/Library Assistant: News columns, monthly newsletter with book reviews, flyers, posters, and displays. Reference services; outreach programs; circulation and registration routines; cataloging; operating, duplicating, film, and video-tape equipment; conducting story hours; training volunteers.

1971 - 1973 (part-time)

McCleans Town Settlement
Schools, Bahamas

Teacher: Taught girls age 11 through 18.

PUBLICATIONS: (related to current profession only)

Auxila, P., M. A. Huff-Rousselle and D. Kuhl. "The Eastern Caribbean Procurement Information System (ECPRO): S-T-R-E-T-C-H-I-N-G The Purchasing Power of Public Sector Drug Budgets." Paper presented at Aga Khan International Workshop on Management Information Systems and Microcomputers in Primary Health Care in Lisbon, Portugal, 1987.

Bates, J. A., M. Descouens, M. A. Huff, and J. Rohde "Doing Business in Primary Health Care: Selling Essential Drugs in Haiti." Paper presented at the National Council for International Health 1985 conference.

Cross, P. N., M. A. Huff, J. D. Quick, and J. A. Bates. "Revolving Drug Funds: Conducting Business in the Public Sector." Social Science and Medicine. Vol.22, No.3, pp. 335 - 343, 1986.

Huff, M. A. "Manual Para Servicio Externo". Secretaria de Estado de Salud Publica y Asistencia Social. Santo Domingo, 1984.

Cross, P. N. and M. A. Huff. "Financial Management for Health Programs" (training seminar text). Management Sciences for Health. Boston, 1983.

Quick, J. D., P. N. Cross, J. A. Bates, and M. A. Huff. "The Potentials and Pitfalls of Revolving Drug Funds". Paper presented at the National Council for International Health 1982 conference.

Huff, M. A. "Manuel Pour le Fond de Roulement". Agence d'Approvisionnement de Pharmacie Communautaire. Port-au-Prince, 1982.

OTHER SKILLS:

French: Working Knowledge

Micro Computer applications: Use of electronic spreadsheets, word processing, and graphics programs; have developed models for cash-flow projections, standard budgets, labor-based flexible overhead budgeting, and other financial models specific to organizations or projects.

ORGANIZATIONAL AFFILIATIONS AND PROFESSIONAL MEMBERSHIPS

1987 - Present	National Council for International Health
1987 - Present	Toastmasters International, Castries, St.Lucia
1986 - Present	Policy Board, Eastern Caribbean Drug Service
1981 - Present	Notary Public, commissioned in Massachusetts.
1980 - 1981	Treasurer, Free Afghanistan Alliance.
1977 - 1978	Review Committee, Community College of Vermont, awarding associate's degrees.
1974 - 1977	Board of Directors, League of Women Voters, Springfield, Vermont, as Bulletin Editor and Publicity Chairperson.

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION
CHRIS B. OLSON

EDUCATION

Pharm.D. University of Southern California, School of Pharmacy, 1978

B.S. University of Southern California, School of Pharmacy, 1974.

PROFESSIONAL EXPERIENCE

January 1988-Present: Management Sciences for Health
St. Lucia

Procurement and Drug Service Specialist to the Organization
of Eastern Caribbean states through the AID-funded Regional
Pharmaceuticals Management Project.

October 1985-Present: Management Sciences for Health
Boston, Massachusetts

Drug Supply/Logistics Specialist.

Management Sciences for Health - Boston, MA. Developed
session guides on the development of formularies and
administration, strategies of distribution, and inventory
concepts for a training manual funded by a PEW grant awarded
to the MSH Drug Management Program. (September-November
1987)

National Institute of Health - Islamabad, Pakistan.
USAID-funded team for development of management information
system in national CDD program. (June 1987)

Ministry of Health - Tegucigalpa, Honduras. USAID-funded
study of selection and procurement of medications in the
public health care system. (May 1987)

Management Sciences for Health - Boston, MA. Trainer,
Managing Drug Supply Course. (April 1987)

Ministry of Health - Tegucigalpa, Honduras. USAID-funded
consultancy, recommendations for development of inventory
control systems at regional warehouses and clinical
facilities. (March 1987)

Ministry of Health - Harare, Zimbabwe. WHO team for
development of morbidity-based computer program for
estimation of drug requirements in the public health sector.
(January - February 1987)

Ministry of Health - Tegucigalpa, Honduras. USAID-funded consultancy, recommendations for occupancy and organization of the new central medication warehouse. (October-November 1986)

National Institute of Health - Islamabad, Pakistan. USAID-funded consultancy, assessment of the ORS distribution system. (August - September 1986)

Ministry of Health - Tegucigalpa, Honduras. USAID-funded consultancy, recommendations for internal modifications and computerization of the new central medication warehouse. (June-July 1986)

Management Sciences for Health - Boston, MA. Trainer, Managing Drug Supply Course. (April - May 1986)

Ministry of Health - Lagos, Nigeria. USAID-funded health care assessment team. (October-November 1985)

1986-Present (part-time): American Medical International
1979-1986 (full time): Pharmacy Management Services

Clinical Pharmacist, Mission Bay Hospital, San Diego.

Director of Pharmacy, College Park Hospital, San Diego. Responsibilities include training seminars and lectures; development and implementation of medical distribution systems; supervision of group procurement and inventory control, bulk compounding, and re-packaging.

September 1984 to June 1985: Pharmacy Tour

Lecturer and Consultant on pharmacy management systems. Countries included: Japan, South Korea, Taiwan, Hong Kong, Thailand, Malaysia (Penninsular and Sabeh), Singapore, Indonesia, Sri Lanka, India, Philippines, and China.

June 1980 to October 1981: Pharmacy Tour

Lecturer and Consultant on pharmacy management systems. Countries included: Guatemala, Honduras, Costa Rica, Panama, Colombia, Equador, Peru, Bolivia, Brazil, Paraguay, Chile, Tahiti, Fiji, New Zealand, Australia, Indonesia, Singapore, Malaysia, Thailand, Burma, Nepal, Hong Kong, and the Philippines.

PUBLICATIONS

"Observations of a Traveling Pharmacist" (Parts III, IV,, and V),
American Journal of Hospital Pharmacy, April, May, and June 1986.

"A Critical Review of Pharmacy Practice in Japan", Pharmacy
Journal, May 1985.

"Observations of a Traveling Pharmacist" (Parts I and II),
American Journal of Hospital Pharmacy, May - June, 1982, Volume
39, pp. 872-876, 1051-1056.

San Diego Society of Hospital Pharmacists Newsletter, Co-editor.

Mission Bay Hospital Drug Information Newsletter, Editor.

LICENSES

California State Board of Pharmacy #32415

Nevada State Board of Pharmacy #7236

LANGUAGE

Conversant in Spanish.

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION

JAMES A. BATES

Education

M.A. University of Wisconsin 1972 History

B.A. University of Hawaii 1968 History

Professional Experience

Twelve years working in drug management supporting primary health care and child survival programs in developing countries.

Long term positions in Afghanistan, Bolivia, Haiti and Indonesia.

Short term consultancies in Peru, Honduras, Guatemala, the Eastern

Caribbean, Togo, Mali, Chad, Morocco, Tunisia, North Yemen, and Pakistan.

Substantial practical experience solving problems in operations research, project design, procurement and distribution, cost recovery, social marketing, and training for improving drug management.

September 1985 - Present

Management Sciences for Health
Jakarta, Indonesia

Drug Management Advisor to both the Ministry of Health and the USAID Mission to Indonesia. On the Ministry side, working in the Sub Directorate of Control of Diarrhoeal Diseases, responsible for assisting counterparts to develop and implement an ORS logistics program in support of social marketing of Oral Rehydration Therapy. This requires working in two areas of activity: First, practical, hands on work in needs estimation, procurement, and distribution of ORS (particularly community based distribution) in three provinces; and second, design and implementation of major studies on commercial production of ORS, management of ORS supplies in the public sector, and drug prescribing practices for major childhood diseases.

Working with the USAID Mission, responsible for advising the Office of Health and Population on opportunities for working in drug management within its portfolio of six major projects. Principal achievement in this area has been to design the Drug Component of the Health Sector Financing Project, a \$3,400,000 program of activities whose objective is to rationalize management of drugs within the Ministry of Health so that maximum benefit is obtained for child survival initiatives. To achieve this objective, the Drug Component will design, test, and communicate about strategies for improving the selection, procurement, distribution, and use of essential drugs.

August 1980 - September 1984

Management Sciences for Health
Port-au-Prince, Haiti

Drug Management Advisor to the Ministry of Health, Republic of Haiti. Responsible for the design and implementation of a national sales program for essential drugs. To help the Ministry deal with the high recurrent cost of its drug needs, worked with counterparts and short term consultants to set up a public enterprise for procurement, distribution, and sale of drugs and medical supplies. This required management of a varied range of technical activities including financial design of a revolving fund, drafting legislation, staff training, and community organization. The last point was key to the overall financial strategy, because to facilitate achievement of cost recovery targets, the program distributed and sold drugs through a retail network of 150 economically managed "community pharmacies." Staffed by members of the communities in which they were located, each of these pharmacies was paired with a Ministry clinical facility, most of them located in rural areas.

March 1979 - March 1980

Management Science for Health
Santa Cruz, Bolivia

Drug Management Advisor to the Montero Primary Health Care Project. The Montero Project was an attempt by the Bolivian Ministry of Health to develop a cost effective package of facility based and community based primary health care services for rural areas. Between 1976 and 1979, the project made good progress in recruiting and training various categories of health workers. Efforts to provide these workers with basic drugs and medical supplies, however, had not been successful. Assignment was to work with project staff and develop a practical distribution system to serve 15 rural health posts and 60 communities. This required setting up a revolving fund to finance the drug supply and training health workers at all levels to manage the system. With the close collaboration of the Bolivian project staff, it proved possible to design and implement the new distribution system in the course of the year.

July 1977 - April 1979

Management Sciences for Health
Kabul, Afghanistan

Drug Management Advisor to the Ministry of Health, Republic of Afghanistan. Responsible for working with counterparts to develop a program for rationalizing the distribution of drugs and medical supplies to the Ministry's 45 hospitals and 122 basic health centers. This required development of improved procurement procedures, storage practices, and distribution schedules. A major emphasis was a program for training Ministry staff at all levels in each of these areas of supply management.

Before July 1977

Prior to joining MSH, lived and worked in Honolulu, Hawaii and Madison, Wisconsin and held a variety of positions such as taxi driver; delivery person for a wholesaler of rock salt; technical writer for a manufacturer of out door clothing; and director of a legal assistance project for assisting disadvantaged veterans.

Public Service

U.S. Army Germany 1969-71

Peace Corps Iran 1973-75

Publications and Conference Presentations

Chapter I.C.: "Planning for Drug Supply" in *Managing Drug Supply: the Selection, Procurement, Distribution, and Use of Pharmaceuticals in Primary Health Care*. Boston: Management Sciences for Health, 1981.

Chapter IV.D.: "Design and Operation of Storage Facilities" in *Managing Drug Supply: the Selection, Procurement, Distribution, and Use of Pharmaceuticals in Primary Health Care*. Boston: Management Sciences for Health, 1981.

Chapter IV.E.: "Delivery Strategies" in *Managing Drug Supply: the Selection, Procurement, Distribution, and Use of Pharmaceuticals in Primary Health Care*. Boston: Management Sciences for Health, 1981.

Bates, J. A. "Drug Supply in Kojast." In: *Managing Drug Supply Training Series, Part I: Policy Issues in Managing Drug Supply*. Boston: Management Sciences for Health, 1987.

Cross, P. N., Huff, M. A., Quick, J. D., and Bates, J. A. "Revolving Drug Funds: Conducting Business in the Public Sector." *Soc. Sci. Med.*, Vol. 22, No. 3, pp. 335-343, 1986.

Bates, J. A. and Quick, J. D. "ORS Supply Management." In LeSar, J., Harrison, P. and Buxbaum, A. (eds.), *Manual for Assessment and Planning of Natinal ORT Programs*. Arlington, VA: PRITECH, Management Sciences for Health, 1985

Bates, J. A. "Doing Business in Primary Health Care: Selling Essential Drugs in Haiti." Washington: National Conference for International Health Conference, June 1985.

Bates, J. A. and Cross, P. N. AGAPCO Case, Part I: "The Decision to Sell Drugs," and Part II: "Designing a Drug Sales Program." Boston: Management Sciences for Health, 1984.

Quick, J. D., Cross, P. N., Bates, J. A., and Huff, M. A. "The Potentials and Pitfalls of Revolving Drug Funds." Washington: National Conference for International Health Conference, June 1982.

Bates, J. A., Hartman, A. D., O'Connor, R. W., Quick, J. D., and Rouselle, P. J. "Procurement and Use of Drugs: Managing the Process to Advantage." In: Zatuchni, G. I. (ed.), *Vaginal Contraception: New Developments*. New York, Harper & Row, pp. 325-335, 1979.

Language Skills

English, native speaker
Persian, good
French, good
Indonesian, good
Spanish, fair

Computer Skills

Work effectively with published word processing, spread sheet, data base and graphics software plus special applications software developed by MSH for drug management.

Honors

Phi Beta Kappa

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION
VIMAL SENARATH DIAS

EDUCATION

- M.S. Columbia University, New York,
Industrial Engineering and
Management, 1973 - 1974
- B.Tech Loughborough University, England,
Hons. in Production Engineering
and Management, 1969-1973.

PROFESSIONAL EXPERIENCE

- January, 1988 - Present Management Sciences for Health
Boston, Massachusetts, USA

Staff Associate. Provides short term technical assistance and management training in the areas of pharmaceutical procurement, logistics, and management information systems.

- July, 1986 - December, 1987 Management Sciences for Health
St.Vincent, West Indies

Logistics Management Specialist/Windward Islands, Eastern Caribbean Regional Pharmaceuticals Project. Responsible for in-country logistics management activities in St. Vincent and the Grenadines and Grenada, working as counterpart to a project Implementation Officer named by and directly responsible to the Permanent Secretary of the Ministry of Health of these countries. Was responsible for recommending improvements and implementation of new systems in areas of stores management, inventory control, estimating drug requirements, drug distribution, management information systems and providing management training.

- 1985 - 1986 Management Sciences for Health
Boston, Massachusetts

Staff Associate. Provided short term technical assistance and management training in areas of pharmaceuticals procurement, local manufacture and management information systems.

Provided periodic technical assistance in estimating drug requirements; selecting drugs appropriate for local manufacture and carrying out a financial feasibility study of expanded local production of essential drugs in Honduras.

Assessed training needs of Family Planning personnel Bangladesh and developed a training plan for Family planning Logistics.

1981 - 1984

Management Sciences for Health
Boston, Massachusetts

Author of chapters on procurement methods and terms, inventory control, importation and port clearing and systematic cost reduction in Managing Drug Supply (MSH, 1981)

Consultant in development of MSH's pharmaceutical logistics training course for physicians, pharmacists, and senior managers of drug supply programs.

Trainer in international training programs on "Managing Drug Supply for Primary Health Care" in India (March 1985), sponsored by the World Health Organization and the Commonwealth Pharmaceutical Association at Management Sciences for Health in Boston (April 1985), (May 1986). Commonwealth Pharmaceutical Association in Lesotho (June 1986), and at Management Sciences for Health in Boston (April 1987), (May 1988). Course Director of the Eastern Caribbean Regional Training Program on "Managing Drug Supply", sponsored by the Eastern Caribbean Drug Service in St. Vincent, West Indies. (January 1987)

Pharmaceutical Logistics Consultant for a World Bank project on improving procurement procedures, inventory control, and management information systems at the Central Medical Stores, Malawi, February to October 1984.

1974 - 1984

National Institute of Business
Management
Sri Lanka

Management Consultant. Consulted at both private and state organizations, directing and conducting training programs for management personnel, and undertaking research projects.

Consultancies included:

- State Pharmaceuticals Corporation of Sri Lanka, 1974-1979. Designed and implemented new systems and procedures for procurement, inventory control, forecasting drug requirements, stores management, merit rating of suppliers and a management information system for the Corporation.
- Designed and installed production planning and control systems at the State Hardware Corporation of Sri Lanka, 1977.

- Completed a diagnostic study for the World Bank on material procurement procedures and inventory control systems at the Sri Lanka Central Transport Board, 1979.
- Developed a computer simulation model for assessing the manpower requirements in the construction industry and training needs of skilled workers over the next decade in Sri Lanka. A World Bank project for funding the construction Industry Training Program in Sri Lanka, 1983.

May - September 1974

Columbia University
New York, New York

Assistant to the Director of Advanced Systems, Columbia University computer center. A simulation study of the dental clinic of the Columbia Presbyterian Medical Centre in New York using GPSS simulation language.

OTHER PROFESSIONAL EXPERIENCE

Research Assignments

- Awarded the Oshikawa Fellowship for 1981 by the Asian Productivity Organization of Japan for conducting research on "Technology Development, Transfer, and Assimilation in industry"; conducted in Sri Lanka, India, Taiwan and Japan.

Experience in Management Training

Trainer and Course Director of many programs for middle and top management personnel in the following fields over the last 15 years:

Production Management	Inventory Control
Forecasting	Waste Control
Maintenance Management	Management Information Systems
Quantitative Techniques	Small Industry Management
Project Evaluation	Technology Development and Transfer

LANGUAGE

Fluent in English and Sinhala.

PUBLICATIONS

Managing Drug Supply, published by Management Sciences for Health, Boston, USA, 1981. Translated into French and Spanish. Author of chapters on Procurement Methods, Inventory Control of Drugs, Port Clearing and Systematic Cost Reduction in Pharmaceutical Logistics.

CURRICULUM VITAE

Jerome L. Avorn

Education:

1969 A.B. Columbia University, New York
1974 M.D. Harvard Medical School, Boston

Postdoctoral Training:

Internship and Residencies

1974-75 Intern in Medicine, The Cambridge Hospital, Cambridge, MA
1975-77 Resident in Internal Medicine, Beth Israel Hospital, Boston, MA

Licensure and Certification:

1974 Massachusetts License Registration No. 41147
1977 American Board of Internal Medicine, Certificate No. 61934

Academic Appointments:

1972-74 Teaching Fellow in Social Studies (Medical Sociology), Harvard College
1974-77 Clinical Fellow in Medicine, Harvard Medical School
1977-79 Instructor in Preventive and Social Medicine, Harvard Medical School
1978-80 Director, Division of Geriatrics, Harvard School of Public Health
1979-85 Assistant Professor of Social Medicine and Health Policy,
Harvard Medical School
1985- Associate Professor of Social Medicine and Health Policy,
Harvard Medical School

Hospital Appointments:

1977- Department of Medicine, Beth Israel Hospital, Boston, MA
1984- Department of Medicine, Brigham and Women's Hospital, Boston, MA

Other Positions, Committee Assignments, and Consultancies:

National and Regional:

1978-81 Professional Advisory Committee, Department of Elder Affairs,
Commonwealth of Massachusetts

National and Regional (cont.):

- 1979 Study section on long-term care gerontology centers, Administrative
on Aging, Department of Health, Education and Welfare
- 1979-81 Research Group on Ethics and Health Policy of the Institute of
Society, Ethics, and the Life Sciences (The Hastings Center, NY)
- 1981-82 Public Policy Committee, The Gerontological Society
- 1981-82 Task Force on Ethical Issues and Medical Technology,
The Hastings Center
- 1982-83 Program Director, Geriatric Drug Education Project, Department of
Public Health, Commonwealth of Massachusetts
- 1982-83 Curriculum developer (social medicine), The Aga Khan Medical
College, Karachi, Pakistan
- 1982- Consultant (geriatric medicine and epidemiology), The Greater
New York Blood Program
- 1982-84 Co-director, Program in Ethics and Geriatrics, a joint project of
The Hastings Center and Harvard Medical School
- 1982-83 Advisor, National Center for Health Services Research,
drug utilization studies
- 1983-84 Review Panel, Robert Wood Johnson Found., Program for Hospital
Initiatives in Long-term Care
- 1983- Program Evaluator (geriatric pharmacology and policy), American
Association of Retired Persons Pharmacy Service
- 1983-85 Member, working group on "The Aging Society," The Carnegie Corpora
- 1985-86 Member, Expert Panel on Prescription Drug Use, Blue Cross of
Massachusetts
- 1985- Review Panel on Medications and the Elderly, The John A. Hartford
Foundation
- 1985-87 Chair, Task Force on Determinants of Antibiotic Utilization, Natio
Institutes of Health

Harvard Medical School and Harvard University:

- 1977-80 Committee on Geriatrics, Harvard Medical School
- 1978-80 Teaching Committee, Department of Preventive and Social Medicine
- 1978-80 Director, Geriatric Curriculum Development Program, Harvard School
of Public Health
- 1979-80 Director, Long-term Care Gerontology Program, Harvard Medical Scho
- 1979- Director, Drug Information Program, Harvard Medical School
- 1980- Executive Committee, Division on Aging, Harvard Medical School
- 1980-84 Malpractice consultant, Risk Management Foundation of the
Harvard Medical Institutions
- 1981- Working Group on Health Policy and Aging, Divison of Health Policy
- 1981-85 Board of Directors, The Harvard Public Interest Health Foundation
- 1986- Director, Program for the Analysis of Clinical Strategies
- 1986- Member, Joint Center on Clinical Computing
- 1986- Member, Faculty Council, Harvard Medical School

Beth Israel Hospital:

- 1976-77 Committee on House Officer Education, Department of Medicine
- 1980-81 Chair, Committee on Medical Research, Beth Israel Ambulatory
Care Center
- 1982- Director, Beth Israel Hospital Drug Information Program
- 1983- Member, Pharmacy and Therapeutics Committee
- 1986- Director, Center for the Analysis of Clinical Strategies
- 1986- Member, Laboratory Board
- 1986- Member, Transfusion Committee

Editorial Review Responsibilities:

1980	Harvard University Press
1981-84	The Journal of Gerontology (Clinical Medicine Section, Editorial Board)
1981-	The New England Journal of Medicine
1984-	Journal of the American Medical Association
1984-	American Journal of Public Health
1985-	Journal of the American Geriatrics Society

Research Interests:

Clinical decisionmaking and epidemiology, with particular reference to:

- a. geriatrics;
- b. drug therapy;
- c. transfusion medicine.

Bibliography:

Articles and Chapters:

1. Lief J, Avorn J, Caddell H, Anderson H, Gorlin P, Kennedy S, Goodwin V, Verlenden L. Attitudes of the medical profession toward drug abuse. *Amer J Publ Health* 1973; 63:1035-1039.
2. Avorn J. Beyond dying: Experiments with drugs in easing the transition from life. *Harper's Magazine* 1973; 246:54-64.
3. Avorn J. The future of doctoring: Information technology and health care delivery. *The Atlantic Monthly* 1974; 234:71-79.
4. Avorn J. The role of cocaine in treating intractable pain in terminal disease. In: Jeri R, ed. *Cocaine: Proceedings of the Interamerican seminar of medical and sociological aspects of cocoa and cocaine*. Lima, Peru: Pan-American Health Organization, 1979: 227-235.
5. Avorn J, Soumerai S. Demarketing strategies in prescription drug use. *Ann World Assn Med Informatics* 1981; 1:13-16.
6. Avorn J, Soumerai S. Use of computer-based Medicaid drug data to analyze and correct inappropriate medication use. *J Med Systems* 1982; 6:377-386.
7. Avorn J, Langer E. Induced disability in nursing home patients: A controlled trial. *J Amer Geriat Soc* 1982; 30:397-400.
8. Avorn J, Chen M, Hartley R. Scientific vs. commercial sources of influence on physician prescribing behavior. *Amer J Med* 1982; 73:4-8.
9. Langer E, Avorn J. Impact of the psychosocial environment of the elderly on behavioral and health outcomes. In: Chellis R, Seagle J, eds. *Congregate housing for older people*. Lexington, MA: D.C. Heath and Co, 1982.
10. Avorn J. Beyond the bedside: The social context of geriatric practice. In: Rowe J and Besdine R, eds. *Health and disease in old age*. Boston: Little, Brown and Co., 1982.
11. Avorn J, Lamy P, Vestal R. Prescribing for the elderly. *Patient Care* 1982; 16(12):14-62.
12. Avorn J. Needs, wants, demands, and interests: Their intersection in medical practice and health policy. In: Bayer R, ed. *In search of equity*. New York: Plenum Press, 1983.
13. Avorn J. Biomedical and social determinants of cognitive impairment in the elderly. *J Amer Geriat Soc* 1983; 31(3):137-143. Reprinted as: Studying cognitive performance in the elderly: A biopsychosocial approach. In: Crai and Trehub S, eds. *Aging and cognitive processes*. New York: Plenum Press, 1982: 317-329.
14. Soumerai S, Avorn J. Perceived health status, morale, and activity in urban retirees: A randomized controlled trial of part-time employment. *J Gerontol* 1983; 38(3):356-362.

Articles and Chapters (cont.):

15. Avorn J, Soumerai SB. Improving drug-therapy decisions through educational outreach: A randomized controlled trial of academically based "detailing." *N Engl J Med* 1983; 308:1457-1463.
16. Avorn J. Drug policy in the aging society. *Health Affairs* 1983; 2:23-32.
17. Avorn J. Medications and the elderly: Testimony before a joint session of the Committees on Aging of the U.S. Senate and House of Representatives. In: *The Congressional Record*. Washington, DC: Government Printing Office, 1983; S Hrg 98-392:50-57, 75, 82-84.
18. Avorn J. Containing the costs of improper prescribing. *Business and Health* 1984; 1(4):35-39.
19. Soumerai SB, Avorn J. Efficacy and cost-containment in hospital pharmacotherapy: State of the art and future directions. *Milbank Mem Fund Quart* 1984; 62:447-474.
20. Avorn J. Benefit and cost analysis in geriatric care: Turning age discrimination into health policy. (special article) *N Engl J Med* 1984; 310:1294-1301.
21. Soumerai SB, Avorn J. Economic and policy analysis of university-based drug "detailing". *Med Care* 1986; 24:313-331.
22. Avorn J. Geriatric drug epidemiology and health services research based on large-scale computerized datasets. In: Moore SR, Teal TW, eds. *Geriatric drug use: Clinical and social perspectives*. New York: Pergamon Press, 1985.
23. Avorn J. Medicine, health, and the geriatric transformation. *Daedalus: J Amer Acad Art Sci* 1986; 115:211-225. Reprinted in: Pifer A and Bronte L, eds. *Our aging society: Paradox and promise*. New York: W. W. Norton, 1986.
24. Avorn J. The prescribing practices of physicians. In: Maronde R, ed. *Clinical pharmacology and therapeutics*. New York: Springer Verlag, 1986.
25. Avorn J, Everitt DE, Weiss S. Increased antidepressant use in patients prescribed beta-blockers. *J Amer Med Assn* 1986; 225:357-360.
26. Everitt DE, Avorn J. Drug prescribing for the elderly. *Arch Int Med* 1986; 146:2393-2396.
27. Pindyck J, Avorn J, Cleary P, et al. Notification of anti-LAV/HTLV-III positive blood donors: Psychosocial, counseling and care issues. In: Petriociana JA, ed. *AIDS: The Safety of Blood and Blood Products*. New York: John Wiley & Sons, 1987.
28. Cleary PD, Rogers TF, Singer E, Avorn J, et al. Health education about AIDS among seropositive blood donors. *HLth Educ Quart* 1986; 13:317-329.
29. Avorn J. Drug innovation and public policy. *HLth Affairs* 1986; 5(2):124-127.
30. Avorn J, et al. Information and education as determinants of antibiotic use. *Rev Infec Dis* 1987; 9(3):S286-S296.
31. Soumerai SB, Avorn J. Predictors of physician prescribing change in an educational experiment to improve medication use. *Med Care* 1987; 25:210-221.

Articles and Chapters (cont.):

32. Pindyck J, Avorn J, Kurian M, et al. Blood donation by the elderly: Clinical and policy considerations. *JAMA* 1987; 257:1186-1188.
33. Campion EW, Avorn J, Reder VA, Olins NJ. Overmedication of the low weight elderly. *Arch Int Med* 1987; 147:945-947.
34. Sherman DS, Avorn J, Campion EW. Cimetidine use in nursing homes: Prolonged therapy and excessive doses. *J Amer Geriatr Soc* 1987 (in press).
35. Soumerai SB, Avorn J, Gortmaker S, Ross-Degnan D. Payment restrictions for prescription drugs in Medicaid: Effects of therapy, cost, and equity. *New Eng J Med* 1987 (in press).
36. Avorn J, Learman LA, Everitt DE. Patterns of detection and drug treatment of incontinence in a large Medicaid population (submitted for publication).
37. Soumerai SB, Avorn J, Gortmaker S, Hawley S. Effect of government warnings on propoxyphene use and overdose deaths. *Amer J Publ Health* 1987 (in press).
38. Avorn J, Soumerai SB, Wessels M, et al. Reduction of irrational antibiotic use through a structured antibiotic order form (submitted for publication).
39. Buchwald D, Soumerai SB, Avorn J, et al. Implementation of a hospital-wide reduction in clindamycin dosage schedules: Effects on clinical outcomes (submitted for publication).
40. Avorn J. Pharmacology and geriatric practice. *Clin Pharmacol Ther* 1987 (in press).
41. Avorn J. Geriatric pharmacology. In: Rowe JW, Besdine R, ed. *Health and disease in old age*. Boston: Little, Brown and Co., 1988 (in press).

Editorials and Commentaries:

1. Avorn J. Nursing home infections: The context (editorial). *N Engl J Med* 1983; 305:759-760.
2. Avorn J. Ethics and experts: A physician's perspective. *Hastings Center Report* 1982; 12(3):11-12.
3. Avorn J, Soumerai SB. A new approach to reducing sub-optimal drug use (editorial). *J Amer Med Assn* 1983; 250:1752-1753.
4. Avorn J, Soumerai SB. Changing patterns of drug prescription (correspondence). *N Engl J Med* 1983;
5. Soumerai SB, Avorn J. Physician education and cost containment (correspondence). *J Amer Med Assn* 1985; 253:13.
6. Avorn J, Everitt DE. Beta-blockers and depression (correspondence). *J Amer Med Assn* 1986; 255:3249-3250.
7. Soumerai SB, Avorn J. Changing prescribing practices through individual continuing education (correspondence). *J Amer Med Assn* 1987; 257:487.

Book Reviews:

1. Avorn J. Going to see the doctor: The consultation process in general practice. Soc Sci & Med 1978; 12:144.
2. Avorn J. Strong medicine: Conscience and medical politics. Working Papers for a New Society 1978; 6:70-73.
3. Avorn J. Human health and illness: A biocultural view. N Engl J Med 1979; 301:1402-1403.
4. Avorn J. Alcohol and old age. N Engl J Med 1981; 304:303.
5. Avorn J. Ailments of aging. N Engl J Med 1981; 304:303.
6. Avorn J. The core of geriatric medicine and other texts in geriatrics and gerontology. N Engl J Med 1982; 306:1433-1434.
7. Avorn J. Fundamentals of geriatric medicine. N Engl J Med 1983; 310:665-666.

MANAGEMENT SCIENCES FOR HEALTH
A NONPROFIT INSTITUTION

MARGARET L. HUME

EDUCATION

- M.B.A. Stanford University, Stanford, California (1987).
- M.S. Harvard University, School of Public Health, Boston, Massachusetts (1980). Public Health and Population Science.
- B.A. Oberlin College, Oberlin, Ohio (1973). French and Natural Science.

PROFESSIONAL EXPERIENCE

June 1980 to Present: Management Sciences for Health
Boston, Massachusetts

Consultant on financial management, training, and program development for U.S.A.I.D., W.H.O., and other organizations

Manager of MSH's Drug Management Program, 1982-1986. Responsibilities include development and management of MSH training courses in drug supply management, coordination of short-term consultancies, management of individual projects and project billing, and coordination and supervision of support staff, drug library, and files.

Project Director and Consultant for PRICOR-funded Revolving Drug Fund Project in Dominica, 1983-1985. Responsibilities included technical assistance and operations research in collaboration with Dominica Ministry of Health; design of revolving drug fund; development of MIS accounting system; introduction of micro-computer to Central Medical Stores and development of computer applications, improved procurement, inventory management, distribution procedures, and staff training. Developed workplan and supervised consultants.

Training Consultant for MSH Family Planning Management Training Project in Bangladesh, February, 1986. Assisted the MOHPC Directorate of Population Control and the National Institute of Population Research and Training to develop a training program for mid-level family planning officers and storekeepers. Elaborated curriculum development requirements in forecasting, inventory management, good storage practices, and supervision, as well as training methodology for the training of trainers.

Consultant Trainer to the World Health Organization for development of a Workshop on National Drug Policy Strategy in Arusha, Tanzania, September, 1985. Participants included government leaders from the Prime Minister's office and the Ministries of Health, Planning and Economic Affairs, and Trade and Industries, directors and managers of parastatal pharmaceutical industries, and procurement agencies.

Consultant to the World Health Organization for development and presentation of a case study and training materials for a Workshop and subsequent working group in the management of essential drugs, held in Nairobi, Kenya, December, 1983. Participants included government leaders from the Prime Minister's office and the Ministries of Health, Planning and Economic Affairs, and Trade and Industries, directors and managers of parastatal pharmaceutical industries, and procurement agencies.

Coordinator of MSH Drug Logistics Program, 1981-82. Managing Editor of Management Drug Supply: The Selection, Distribution, and Use of Pharmaceuticals in Primary Health Care (1981), a 600-page work which addresses issues of SELECTION: establishing drug needs; PROCUREMENT: purchasing methods and terms, locating and selecting suppliers, quality assurance programs, financing drug supplies, local production opportunities; DISTRIBUTION: information systems, importation and port-clearing, storage, delivery schedules and transportation; and USE: promoting rational drug prescribing, establishing good dispensing practices, and encouraging appropriate use by patients. Managed the translation of MDS into Spanish (1983). Co-author of a report on pharmaceutical logistics training opportunities available to public health personnel from developing countries (1980). Coordinator of the development of training materials in drug supply.

Consultant in Manpower Planning and Human Resource Management, 1982-84. Assisted in the development of a health manpower system in Morocco, including design of comprehensive personnel information system and development of staff training. Developed annotated bibliography of a WHO publication on careers and health manpower development.

Trainer/MSH Program for Management Training, 1981 - present. Trained in MSH executive-level management training courses for decision-makers from Ministries of Health, in Boston and overseas. Developed and functioned as trainer in two workshops for rural health administrators in Haiti. Managed 4-week course and functioned as senior trainer in Morocco.

Evaluator for classroom trials in The Changer and the Changed, the third in a series of Learning for Life curricula developed at MSH. Activities have included development of objectives, design of evaluation instruments, participation in teacher training, testing, and analysis of results. Also collaborated on the

evaluation of two earlier nutrition-health education programs, and managed and supervised the dissemination of these curriculum packages.

Management Support in the design and implementation of revised procedures for improved internal management and communications at MSH. Developed procedures manual.

1979 to 1980:

Management Sciences for Health
Boston, Massachusetts

Project Assistant in the preparation of a report on six years' project activity in Afghanistan, "Implementing a National Rural Health System: Management Experiences from Afghanistan," Vols. I and II, July 1979. Collaborated on project proposal. Evaluated pre- and post-tests for assessing changes in knowledge, attitudes, and practices in a school nutrition/fitness program.

Evaluator in health data collection systems in Massachusetts. Interviewed health service providers, researchers, and administrators. Participated in the preparation of a grant for federal funding.

1975 to 1977:

ACTION/Peace Corps
Washington, DC

Rural Development Advisor and Health Educator. Worked for the Ivory Coast Development Authority in remote rural areas. Held village meetings. Assessed local demand for assistance in agriculture, education, and primary health care. Discussed local practices with village women in nutrition, pre- and post-natal care, and preventive health measures; offered health education classes in the elementary school; organized a literacy program for women. Wrote anthropological monograph on the Krou ethnic group.

Teacher. Taught English as a foreign language to Ivorian high school students in the public College Moderne in Toumodi, Ivory Coast.

1974 to 1975:

Department of Medical and Public
Affairs, George Washington
University Medical Center,
Washington, DC.

Abstractor for the Population Information Program, Science Communication Division in the Department of Medical and Public Affairs. Wrote summaries of biomedical articles, both technical and clinical, for publication in Population Reports and Prostaglandin Abstracts: A Guide to the Literature, Vol. 2 (ed. Shalita). New York, Plenum, 1975.

1973 to 1975:

Meloy Laboratories, Inc.
Springfield, Virginia

Research Assistant. Conducted biochemical laboratory research to investigate possible viral role in the etiology of human breast cancer. Cited for technical assistance in "RNA Subunit Structure of Mason-Fizer Monkey Virus" by Schochetman and Schlom, Journal of Virology, 1975.

LANGUAGES

English: Native speaker
French: Fluent

MEMBERSHIPS

American Public Health Association
Population Association of America

CURRICULUM VITAE

LOUIS C. LOUTAN

Date of Birth: [REDACTED]

Citizenship: Switzerland

Marital Status: Married

Languages: Mother tongue: French

Foreign Languages: English, German, Hausa

EDUCATION

1986-1987	Harvard University School of Public Health Master of Public Health degree Emphasis on Tropical Public Health, International Health and Health Policy and Management in developing countries.	Boston, USA
1984	University of Geneva Hopital Cantonal Universitaire de Geneve Swiss Specialty Degree (FMH) in Internal Medicine	Geneva, Switzerland
1983 (May)	Swiss Tropical Institute Tropical Medicine Course	Basel, Switzerland
1982 (May-June)	London School of Hygiene and Tropical Medicine Postgraduate course in nutrition	London, England
1979	PLAB (Professional and Linguistic Assessments England Board)	
1978	Royal Postgraduate Medical School Hammersmith Hospital General Medicine Course (Oct. - Dec.)	London, England
1978	University of Geneva Hopital Cantonal Universitaire de Geneve Medical Doctorate in Internal Medicine	Geneva, Switzerland

1975	Geneva University School of Medicine Swiss National Diploma of Medicine	Geneva, Switzerland
1975	Educational Commission for Foreign Medical Graduates Certification (U.S. Certification)	Geneva, Switzerland
1974	Swiss Tropical Institute Diploma in Tropical Medicine	Basel, Switzerland
1968	College de Geneve Maturite degree	Geneva, Switzerland

PROFESSIONAL EXPERIENCE

I International Experience

1984-1986	Nutrition, Epidemiology & Public Health Planning: Republic of Niger. Physician for Tufts/Niger Integrated Livestock Project responsible for human public health and nutrition component of successor project to the Niger Range and Livestock Project. (USAID-sponsored host-country project, with technical assistance provided by contract to Tufts University). Responsibilities: Planning and implementing emergency food relief program. Nutrition surveillance of nomadic refugee populations during drought. Organizing training seminars at inter-regional level for Nigerien physicians and nurses on nutrition surveys, applied epidemiology and primary health care. Designing and evaluating primary health care program for pastoral populations. Planning and establishing village pharmacies. Conducting a malaria and serological survey in the pastoral zone. Regular consultation with the Ministry of Health on implementation of national programs.
1984-1986	Maternal and Child Health: Republic of Niger. Coordinator in Niger of a Swiss NGO "Enfants du Monde". Activities of this project located in Tahoua in central Niger: Training and support of traditional birth attendants (TBA). Survey of traditional practices of TBAs. Design and production of teaching materials for TBAs.
1979-1982	Nutrition, Epidemiology and Public Health: Republic of Niger. In charge of the health and nutrition sector of an integrated development project in the pastoral zone of central Niger (Niger Range and Livestock Project, USAID/Republic of Niger). Nutrition survey for a year among a group of nomadic Wodaabe herders. Training of nomadic health auxiliaries. Organization of a national seminar on problems encountered in establishing primary health care programs in nomadic societies (June 1981). Survey of the use of health services by nomadic herders in the Departments of Tahoua, Agadez and Maradi in Niger. Proposals to establish primary health care program in the pastoral zone of Niger and organize an early warning system in case of drought and famine.

Missions

- 1987 (February) Republic of Niger. Swiss NGO "Enfants du Monde". Evaluation of two years' activities of a traditional birth attendant support project. Planning of the following two years' activities.
- 1984 (February) Republic of Niger. ILP/USAID Design of the Implementation Plan of the nutrition and health sector of the Integrated Livestock Project in the pastoral zone of Niger.
- 1983 (March) Republic of Niger: Same purpose as in January 1983.
- 1983 (January) Republic of Niger: organizing jointly with officials of Tufts University the nutrition and health sector of the Integrated Livestock Project in the pastoral zone of Niger (USAID/Republic of Niger).

II Clinical Experience

1. Undergraduate training

- Hospital aid: Department of Ophthalmology, Hopital Cantonal Universitaire de Geneve, Switzerland (2 months)
- Surgery: out-patient clinic, Hopital Cantonal Universitaire de Geneve, (1 month) Hopital de la Chaux-de-Fonds, Switzerland (2 months)
- Internal medicine: out-patient clinic, Policlinique de Medecine, Hopital Cantonal Universitaire de Geneve, (4 months)
- Obstetrics and gynecology: Crittenton Hospital, Detroit, Michigan, U.S.A. (a hospital in the black ghetto of Detroit, affiliated with the University of Michigan, Ann Arbor, Michigan, U.S.A.), (3 months)
- Neurology: Hopital Cantonal Universitaire de Geneve, Switzerland (1 month)
- Pediatrics: Hopital de la Chaux-de-Fonds, Switzerland, (1 month)
- Additional: Obstetrics and gynecology, Hopital Regional de Medenine, Tunisia, (2 months)
Leprosy Hospital of Valbonne, France, (2 weeks)

2. Postgraduate Experience

- 1983-1984 Tropical Medicine and Internal Medicine: one year at the Policlinique Universitaire de Medecine, Hopital Cantonal Universitaire de Geneve, as senior resident in charge of the out-patient clinic and of consultations in Tropical Medicine
Reference: Prof. J. Fabre

- 1982-1983 Internal Medicine: one year at the Policlinique Universitaire Medecine, Hopital Cantonal Universitaire de Geneve, responsible for one sector of the out-patient clinic
Reference: Prof. J. Fabre
- 1978-1979 Cardiology: eight months at Papworth Hospital, Cambridge, England
Reference: Dr. M.C. Petch, M.D. MRCP
- 1976-1978 Internal Medicine: two years at the Policlinique Universitaire Medecine, Hopital Cantonal Universitaire de Geneve (one year on the wards and one year in the out-patient clinic)
Reference: Prof. J. Fabre
- 1975-1976 Surgery: one year internship at the Hopital Regional de Sion, Switzerland, with experience in orthopedic and abdominal surgery as well as ordinary surgery.
Reference: Dr. F. Bagnoud, Dr. A. Boitsy

III Teaching experience

- 1986-1987 Tufts University School of Medicine, Department of Community Health. Seminars on nutrition and public health issues in developing countries.
- 1983-1984 Institut Universitaire des Etudes du Developpement (Geneva, Switzerland). One year seminar on "Nutrition, Health Care and Water in the Sahel", leading weekly sessions focussing on nutrition and health consequences of rural development policies and on simple ways of evaluating their impact.
- 1983-1986 Swiss Tropical Institute (Basel, Switzerland). Survey methods for assessing the nutritional status of populations in developing countries.
- 1982-1984 Hopital Cantonal Universitaire de Geneve. Case presentations teaching tropical and geographical medicine. Organization of seminar on tropical medicine for 200 medical practitioners
- 1982 London School of Hygiene and Tropical Medicine, Department of Nutrition

ACADEMIC APPOINTMENTS

Assistant Professor in Community Health, Tufts University School of Medicine. 1984-87

ACTIVITIES AND INTERESTS

Extensive traveling in developing countries in North, West and East Africa, and in the Middle East

Sports: jogging, skiing, mountain climbing, swimming, tennis

Music: saxophone, piano, accordion, flute

Photography

SCIENTIFIC COMMUNICATIONS

- Institut du Sahel, Bamako, Mali (24-27th January 1983): Seminar entitled "The demography, social structure and welfare of selected pastoral and agro-pastoral communities in the Sahel". Paper entitled "Nutrition amongst a group of Wodaabe (Bororo) pastoralists in Niger"
- Swiss National Congress of Internal Medicine, Lucern, Switzerland (May 1983): paper entitled "The nutritional status of a group of nomadic herders of Niger".
- Medicus Mundi Spain and the Academy of Medical Sciences, Barcelona, Spain (13-14 October 1983): International Symposium on "The training of the Spanish health officer working in tropical countries". Paper entitled: "The profile of a public health technical assistant".

PUBLICATIONS

Les metabolites des sulfonyleures hypoglycemiantes dans l'insuffisance renale; experiences avec le glibenclamide. Schweiz. med. Wschr., 108: 1782-1786, 1978.

HDL and atherosclerosis. Schweiz. Rundschau Med. (Praxis), 68: 1109-10, 1979.

Hypertrophic Cardiomyopathy. Schweiz. Rundschau Med. (Praxis), 69: 141-143, 1980.

Nutrition and health in a group of Wodaabe (Bororo) herders in Central Niger (149 pages). NRL Project, USAID/Ministry of Rural Development, Republic of Niger, 1982.

Health and nutrition in the pastoral zone: proposals (85 pages). NRL Project, USAID/Ministry of Rural Development, Republic of Niger, 1982.

Mother and child care in the pastoral zone: proposals (25 pages). NRL Project, USAID/Ministry of Rural Development, Republic of Niger, 1982.

Seasonal variations in nutrition among a group of nomadic pastoralists in Niger. Lancet, i, 945-947, 1984.

Nutrition amongst a group of Wodaabe (Bororo) pastoralists in Niger, In: Population, Nutrition and Health in the Sahel, (Allan G. Hill, Ed.) Kegan Paul Ltd, London, 1985.

Parasitoses d'importation rencontrees a Geneve et elements d'investigations en pratique ambulatoire. Med. et Hyg. 42, 3786-3790, 1984.

Les Schistosomiasis, Schweiz. Rundschau Med. (PRAXIS) 74, 395-396, 1985.

Technical reports written for the Integrated Livestock Project
Tufts University/USAID/Republic of Niger.

Nutritional surveillance and rehabilitation at Kao dispensary
in the Tchintabaraden arrondissement, April 1985

Nutritional status and census at the Kornaka camp
(Dakoro-Maradi) June 1985

Nutrition surveillance in the Tchintabaraden arrondissement
(Tahoua department), December 1984 - September 1985

Village pharmacies in the Tahoua Department, March 1986

Health auxiliaries supervision in the Tahoua arrondissement
July 1986

Health auxiliaries supervision in the Tchirozerine
arrondissement, July 1986

Malaria survey in the pastoral zone: Seasonal variations of
the malaria prevalence in a group of pastoralists in the
Tchintabaraden arrondissement, July 1986

JAMES R. RANKIN

PROFESSIONAL EXPERIENCE

January 1988 to Present: Presbyterian Medical Services
Santa Fe, New Mexico

Director, Pharmacy Services.

November 1986 to Present: Management Sciences for Health
Boston, Massachusetts

Logistics Management Specialist/Leeward Islands, Regional
Pharmaceuticals Management Project, Eastern Caribbean,
Responsible for in-country logistics management activities in St.
Kitts and Nevis, Montserrat, and Dominica, working as counterpart
to a Project Implementation Officers of these countries, in the
areas of stock management; personnel organization and training;
pharmaceutical needs estimation; procurement.

April 1983 - October 1987 Presbyterian Medical Services
Santa Fe, New Mexico

Director, Pharmacy Services.

Responsibilities include management of Presbyterian Medical Services (PMS) Central Pharmacy, a program which provides consulting clinical pharmacy services, and central purchasing of pharmaceuticals for thirty ambulatory clinics and three hospitals. All non-pharmacist personnel are trained in on-the-job training program: developed the training methodology, including an interactive programmed learning course for pharmaceutical warehouse personnel (including pharmaceutical terminology, warehouse procedures, ordering procedures, formulary utilization, etc.).

Central purchasing includes: a) centralized bid tender to 150-200 companies, soliciting and evaluating quotations on 1000+ pharmaceutical items, collation of bids and awards; b) receiving in bulk, shipping to 35-40 facilities; c) repackaging 250 items into units of use packaging for clinic use; d) tracking expiration dates centrally for all stock received, providing lists each month of expiring items; e) inventory control system provides perpetual inventory for all items as well as records of utilization for each item by clinics/hospitals; f) regularly visiting clinics and hospitals to assess operations of overall program and to provide inservice training as required; and g) provision of newsletter to clinics. Operating budget is \$400,000, pharmaceutical volume is \$1,200,000, staff consists of six clinical pharmacists, two mid-level managers, one purchasing coordinator, one warehouse supervisor, and eight warehouse personnel.

Serve on Management Team of PMS, consisting of PMS President, Vice-President, Treasurer, Medical Director, Director of Pharmacy, Director MIS, Personnel Director, Directors of three clinic systems. PMS operating budget is over \$12 million; the management team monitors operations, addresses corporate problems, and develops plans for future PMS activities.

Provide consultant services to System Administrators including coordination of Formulary Committee activities for all systems served; analysis of pharmacy and material-

In conjunction with a PMS programmer, devised Automated Data Processing system to assist in warehouse operations and to provide clients with useful fiscal information. The system prints invoices and statements, annual bid lists and awards, inventory lists, and formulary lists for each client. The system also tracks incoming and outgoing merchandise from the warehouse, maintaining records on monthly and cumulative purchases of each line item. Controlled drug purchases and shipments are tracked separately and a daily printout is provided in a form suitable for use in DEA reporting. Clients can obtain reports on monthly and cumulative purchases of each of their formulary drugs; purchases of non-formulary drugs are clearly indicated. If desired, pricing stickers are available with each shipment.

Develop new programs in pharmacy related areas, including clinical pharmacy; non-profit group purchasing and clinical education. Now expanding purchasing and distribution to other areas of Region VI (Texas, Arkansas, Oklahoma, Louisiana, and New Mexico). First program to come on-line is in Louisiana (December 1985), which will add up to \$200,000 in volume; subsequently programs in Texas (Rio Grande Valley) may double current volume. Now purchase and distribute most pharmaceuticals for New Mexico Department of Corrections.

In former capacity as Special Projects Coordinator for PMS (1976-1983), developed the PMS Medical Information System, including periodic newsletter on new products, FDA approvals, Therapeutic or Generic Replacements; as new working relationships are developed with clinics in Louisiana and Texas, new clients are afforded all information services, including newsletter.

Provide formal clinical pharmacy training programs for pharmacy students from University of New Mexico, University of Minnesota (University of Southern California in the past), provide training programs for clinic drug room personnel as well as medical providers (new concepts in therapeutics, etc.).

CONSULTANT APPOINTMENT

Technical Assistant for Pharmacy and logistics through James Bowman Associates (Austin, Texas).

USPHS Region IV (Atlanta)

USPHS Region VI (Dallas)

CONSULTANT WORK (1976-1986)

CONSULTANT

Texas Association of Community Health Centers Austin, Texas
(James Bowman Associates)

May-September, 1986

Prepare proposed drug formulary for Texas Association Members based upon 15 separate formularies from member clinics and clinic systems. Develop Policy and Procedure manual for TAC Pharmacy & Therapeutics committee. Provide literature research to TACHC Pharmacy and Therapeutics Committee Members. Assist P & T Committee in comparative evaluation of drugs. Develop bid solicitation to Pharmaceutical vendors and assist TAC to collate and evaluate bids in order to develop a shared services pharmaceutical purchasing program for TACHC.

CONSULTANT

Su Clinica de Familiar, Harlingen, Texas, (James Bowman Associates)
July 1986

Assess inventory control policies and procedures, purchasing procedures and sources, computer requirements and all related aspects of Su Clinica's pharmaceutical purchasing and distribution. Make recommendations to revise Policies and Procedures as needed to minimize diversion and/or leakage from inventory.

CONSULTANT

Mary Mahoney Community Health Center, Oklahoma City, Oklahoma
(James Bowman Associates)

June 1986

Evaluate pharmacy purchasing and distribution and inventory control systems, including newly installed pharmacy computer system. Assess interactions between pharmacy department and business office and develop means for improving interdepartmental communication and cooperation.

CONSULTANT

Teche Action Clinic, Franklin, Louisiana (James Bowman Associates)

June 1986

Follow-up to prior Technical Assistance. Assist TAC to negotiate agreement with local pharmacist for prescription service. Develop purchasing program to allow TAC to purchase drugs at bid prices through national shared services organization.

CONSULTANT

Utah Navajo School Board, Navajo Reservation, Utah and Arizona

1980-present

Design and implement pharmaceutical distribution and control program in four clinic system serving isolated areas. Trained local personnel to function in system and provide ongoing consultation as needed.

CONSULTANT

Ramah Navajo School Board, Pinehill Clinic, Ramah Navajo
Reservation

1978-present

Design and develop pharmacy program for clinic funded under Indian Self Determination Act. Program includes purchasing, inventory control, training for local personnel involved in system.

CONSULTANT

Centro Campesino de Salud, Northern New Mexico

1976-present

Coordinate pharmacy program in eight clinic system; analyze prescription expenditures and develop and monitor procedures for controlling drug utilization and costs.

CONSULTANT

James Bowman Associates, Hidalgo County Health Care Corporation,
Pharr, Texas

November 1985

Evaluate pharmacy program for border area clinic system serving patients from Texas and Mexico, considering program cost and staffing patterns. Make recommendations concerning future staffing needs, data processing requirements and feasible cost control measures, including formulary development and improvement in purchasing procedures, and warehouse procedures. Pharmacy budget, \$650,000.

CONSULTANT

Africare, Washington, D.C.

November 1985

Helped develop Policy and Procedure Manual for Sierra Leone MOH/GMS pharmaceutical warehouse, including purchasing, storage, accountability, recordkeeping, receiving (including port clearance), and up country distribution for pharmaceuticals handled by Government Medical Stores in Sierra Leone. Returning September 1986 for one month to implement drug distribution/inventory control program.

CONSULTANT

United States Public Health Service, DHSD, Region VIII
Valley Wide Health Services, Alamosa, Colorado

August 1985

Design pharmacy purchasing and distribution system for five clinic locations. Provide technical assistance during program implementation. Pharmacy budget, \$400,000.

CONSULTANT

Africare Inc., and World Bank, Republic of Sierra Leone, West Africa

June-July 1985

Assist World Bank team in assessment of GSL proposal for improving primary health care in Sierra Leone. Responsible for design of logistics system for drug control and distribution with emphasis on controlling diversion. Included specifications for warehouse renovation including negotiations with MOH, MOD, local contractors. Surveyed obsolete stock. Also, developed Africare program as a component of World Bank project, to focus specifically on improving drug control at Government medical stores and develop leak proof pipeline to one upcountry district as pilot phase of project. Will provide incountry technical assistance for 1986; this assistance will coincide with implementation of P&P at GMS.

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CONSULTANT

James Bowman Associates, Teche Action Clinic, Franklin, Louisiana
July 1985
Analyze drug utilization patterns and pharmacy expenditures.
Develop systems for purchasing and inventory control to bring
program costs within Federal guidelines. Pharmacy budget \$200,000.

CONSULTANT

James Bowman Associates, United Medical Centers, Eagle Pass Texas
May 1985
Responsibilities: design cost-effective system for purchasing,
distribution and control of drugs in four clinic system serving
patients from Texas and Mexico in border area. Pharmacy budget of
\$200,000.

CONSULTANT

Dr Guillermo Lopez, Oaxaca, Mexico
1984
Responsibilities: prepare proposal for program which would improve
availability of drugs to clinics in rural Oaxaca.

CONSULTANT

Alamo Navajo School Board, Magdalena, New Mexico
1982
Responsibilities: provide original program design for developing
pharmacy component of clinic as clinic divorced itself from Indian
Health Service control, under provisions of Indian Self
Determination Act.

CONSULTANT

New Mexico Corrections Department, Santa Fe, New Mexico
1976-1980
Responsibilities: provide original design, at State request, for
system to improve drug utilization and inventory control and to
prevent diversion in state penal institutions, including maximum,
medium and minimum security facilities. Provided ongoing
monitoring and consultation through weekly visits to facilities.

PREVIOUS EMPLOYMENT

COORDINATOR, SPECIAL PROJECTS AND DRUG INFORMATION

Presbyterian Medical Services, Central Pharmacy, P.O. Box 2329,
Taos, New Mexico 87571

July 1976-April 1983
Assist Director in administration of PMS Central Pharmacy;
coordinate and provide information and educational services for
client hospitals and clinics; provide administrative and clinical
consulting services to PMS clients; coordinate new program
development, prepare funding proposals and program reports;
coordinate and supervise purchasing and sales activities and
reporting to regulatory agencies; develop system for automation of
purchasing and inventory control; supervise six support personnel.

PHARMACY SUPERVISOR

Brotman Medical Center, 3828 Delmas Terrace, Culver City
California 90230

February 1973-July 1976

Assist Director of Pharmacy in management of program providing decentralized pharmacy services to 500 bed institution; develop and coordinate drug information and patient education services; develop pharmacy purchasing and inventory control system; develop pharmacy interface with hospital automated data processing system; supervise seven support personnel and eight pharmacy student interns.

GEOPHYSICAL COMPUTER

Amerada Petroleum Corporation, 6th and Denver, Tulsa, Oklahoma

June 1966-March 1970

Compute time/depth relationship from seismic records; assist Chief Observer and Chief Surveyor as required on offshore seismograph crew.

EDUCATION

Health Care Administration (MA Program) Columbia Pacific
University, San Rafael, California

1986

English Literature, New Mexico Highlands University, Las Vegas, NM
1977-78

Clinical Pharmacy, Brotman Memorial Hospital, Los Angeles,
California 1973-1976

Pharmacy Specialist, U.S. Army Hospital, Frankfurt, Germany
1970

English Literature, Tulsa University, Tulsa, Oklahoma
1964-65

Engineering Physics, University of Oklahoma
1962-1963

HONORS/AWARDS

National Merit Scholarship Finalist
1962-1963

Presidential Scholarship, University of Oklahoma
1962

HP & Sophomore Brotman Memorial Scholarship, University of Tulsa
1963

Who's Who in the West 1986
1986

LANGUAGE SKILLS

Working knowledge of Spanish

PROFESSIONAL AFFILIATIONS

National Rural Primary Health Association

American Association for the Advancement of Science

National Council for International Health

New Mexico Primary Health Care Association

OTHER PROFESSIONAL ACCOMPLISHMENTS

Elective Position: Chairman, Panel on Consumer Interest, United States Pharmacopeial Convention

Originally elected 1980, re-elected 1985
Responsibilities: Member, Executive Committee of Revision; Executive Committee, Standards Division; Executive Committee, Drug Information Division; General Committee of Revision, United States Pharmacopeial Convention.

Responsibilities: as member of Executive Committees, consider staff recommendations and approve all USP publications, including United States Pharmacopeia, USP Drug Information (Volume 1 & 2); and USAN. Make recommendations concerning USP current and future programs and activities.

Chair panel which provides consumer input to USP programs and publications. Develop educational material for consumers with varied educational backgrounds concerning pharmacology, therapeutic use, adverse reactions/side effects of pharmaceutical products.

Participate in development of a Drug Information Guide to the World Health Organization list of essential drugs.

REFERENCES

Alan Alemian, M.P.H., Regional Director, East and Southern Africa, Africare, 1601 Connecticut Ave., N.W., Washington, D.C. 20009
(202) 462-3614

Olla Williams, Senior Planning Officer, Ministry of Development, Youyi Building, Freetown, Republic of Sierra Leone, West Africa
Telex 3218

Keith Johnson, Director, Research and Development, Drug Information Division, United States Pharmacopeia Convention, Rockville, Maryland

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N.I. Khan, Ph.D., Team Leader, Population Health and Nutrition
Division, World Bank, 1818 H St., N.W., Washington, D.C.
(202) 477-123

Dick Casper, Project Director, James Bowman Associates, 419 1/
East 6th Street, Suite 202, Austin, Texas
(512) 476-834

Jay McGath, New Mexico Group Leader, United States Public Health
Service/DHSS Region 6, 1200 Main Tower Building, Dallas, Texas
75202
(214) 767-302

Alan Yamashita, Project Officer, United States Public Health
Service/DHSS Region 8, 1961 Stout Street, Denver, Colorado 80294
(303) 837-595

Jose Camacho, Executive Director, Texas Association of Community
Health Centers, 2512 South I.H. 35, Austin, Texas 78704
(512) 447-077

RICHARD S. ROBERTS, JR.
Full Time, MSII

EDUCATION

- Ph.D. University of Geneva (Switzerland), Graduate Institute of International Studies. Political Science, 1962.
- License in political science (international studies). University of Geneva (Switzerland), Graduate Institute of International Studies, 1959.
- B.A. Yale University. Political and Economic Institutions, 1957.

PROFESSIONAL EXPERIENCE

- 1985 - present: Management Sciences for Health
Boston, MA
- Management Advisor. Assistance in development of management information systems for revolving drug fund stock management (Haiti), logistics management (Zaire). Assessment of project evaluation indicators (Honduras). Evaluation of follow-up on Moroccan Health Management Improvement Projects. Evaluation of Family Health and Population project (Senegal.)
- 1983 - 1985 Management Sciences for Health
Rabat, Morocco
- Project Director. Health Management Improvement Project, Ministry of Health, Morocco. The aim of this AID-funded project was improvement in key aspects of Ministry of Health management and development of institutional capacity to continue improvement of the information systems and Ministry management. The project was implemented in close collaboration with top Ministry technical and administrative officials. Personnel, pharmaceutical logistics and the vehicle parts were major areas of focus, with information system improvement a thread common to all. This assignment involved supervision of two other resident advisors and numerous short-term consultants and Moroccan colleagues. In addition to playing a general project and staff management role, provided training to Ministry staff, and supervised and participated in system studies and redesign, and the introduction of micro-computers as management tools.
- 1982 - 1983 National Association of
Schools of Public Affairs and
Administration (NASPAA),
Washington, DC
- Senior Advisor, Management. Rabat, Morocco. National Association of Schools. Responsibilities: helped the local Government Training Department of the Moroccan Ministry of the

institutions. In addition, evaluated AID-funded public management projects in Niger and Tunisia.

1980 - 1982:

Independent Consultant, Public Sector Management.

Clients included:

National Association of Schools of Public Affairs and Administration (NASPAA), United Nations Conference on Trade and Development (UNCTAD), Management Development Branch, International Labor Office (ILO), Development Project Management Center (DPMC), U.S. Dept. of Agriculture.

Assignments included:

Training trainers for local government management training; management consultancy in a regional development agency; evaluation of the African Center for Administrative Training and Research (CAFRAD); analysis of "tied aid" policies and practices of donor countries as an influence on recipient country procurement options and practices; study of recipient and donor policies and practices effecting the use of foreign assistance by the Government of the Sudan; development of management training materials; design of a management consulting/training service; design of a public technology information and assistance service for industry; evaluation of a management training program in an agriculture ministry.

1978 - 1980

Denver Research Institute
University of Denver, Denver,
Colorado

Senior Industrial Economist. Principal work involved: participating in and/or directing the design, organization, and teaching of tailor-made management training programs in the US and abroad (Egypt, Guatemala) for managers of research institutes and projects; case studies of "appropriate technology," field evaluation of organization and management aspects of development projects (Mali, Sudan).

1977

Institute of World Affairs
Salisbury, Connecticut

Acting Executive Director. A temporary assignment to plan, organize and direct the annual one-month graduate level resident seminar in international affairs (on North-South relations).

1975 - 1977

International Management
Development Institute
New York, NY

President. Chief executive involved in marketing, design, and organization of custom-tailored management seminars in francophone West Africa and Haiti.

1974 - 1975

Center for International Affairs
Harvard University
Cambridge, Massachusetts

Fellow. Attended classes at the Kennedy School and the Business School, and seminars at CFIA. Conducted private research related to public sector management.

1968 - 1974

The Ford Foundation
Tunis, Tunisia

Assistant Representative for North Africa. Program management responsibility for Foundation-funded family planning projects implemented by the Population Council in Tunisia, Algeria and Morocco, and for public administration and management development projects in the same countries; administrative responsibility for field office staff and operations.

1967 - 1968:

Robert R. Nathan Associates
Washington, DC

Social Sector Economist. Member of a team of advisors to the National Planning Council, Government of El Salvador.

1965 - 1967

The Ford Foundation
Egypt

Project Specialist. Advisor to the Director, Human Resources Development Center, Aswan Regional Planning Project, Government of Egypt. Technical assistance focused on policy and program planning and the conception, planning and supervision of pilot projects.

1963 - 1965

Stanford Research Institute
Behaviorial Sciences Unit
Palo Alto, California

Economist. Major studies included a series of case studies of "Management Decisions to Automate," a study of the role of the private sector in implementing US foreign assistance policy, and participation in the design of a small industry advisory and technical service for the Government of Peru.

LANGUAGE

French

CURRICULUM VITAE

DENNIS GERARD ROSS-DEGNAN

EDUCATION

HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MASSACHUSETTS

1984-1987 Sc.D. in Health Policy and Management. Major in program evaluation and research design, minors in statistics and international health. Thesis on methods, results, and implications of the National Eye Disease Survey of Saudi Arabia. International Eye Foundation Fellow ('84-'86).

1977-1979 M.S.P.H. in Health Policy and Management. Concentration in program planning and evaluation, quantitative methods for decision making, maternal and child health, and international health. Kellogg Fellow ('77-'79), Sinclair Kennedy Traveling Fellow in Kenya ('79-'80).

BOSTON COLLEGE, CHESTNUT HILL, MASSACHUSETTS

1968-1972 B.A. in Psychology. Concentration in social psychology, research methods and cognitive development. Presidential Scholarship ('68-'72), Scholar of the College ('71-'72).

AREAS OF PROFESSIONAL EXPERIENCE

Field survey research in international and domestic environments - project management, sample design, data collection systems, field training and supervision, data analysis.

Community health needs assessment, community program development and evaluation.

Design, programming, and implementation of computerized data systems - mainframe, microcomputer, portable microcomputer, and linkages.

Data processing, statistical analysis, and statistical consultation. Teaching of research methods and statistics.

PROFESSIONAL CHRONOLOGY

- 1984-1987 PROGRAM FOR THE ANALYSIS OF CLINICAL STRATEGIES, HARVARD MEDICAL
1982-1983 SCHOOL, BOSTON, MA
Instructor in Social Medicine (1987-), Consultant (1982-1986).
Participate in research on strategies to alter physician drug
prescribing behavior, analyze effects of Medicaid drug restrictions.
- 1986-1987 MANAGEMENT SCIENCES FOR HEALTH, BOSTON, MA
Consultant to Drug Management Program. Develop integrated data systems
for consumption and morbidity-based assessment of pharmaceutical needs
and evaluation of drug utilization; evaluate supply of pharmaceuticals
for child survival in Indonesia and Nepal.

- 1985 WORLD HEALTH ORGANIZATION, GENEVA, SWITZERLAND
Participant in working group to develop standardized clinical eye examination protocol for use in Prevention of Blindness Programme.
- 1983-1984 KING KHALED EYE SPECIALIST HOSPITAL, RIYADH, SAUDI ARABIA (FOR INTERNATIONAL EYE FOUNDATION, BETHESDA, MD)
Project Director. Conceptualize, design, administer and analyze a national survey of eye disease, and make recommendations for a national blindness prevention program.
- 1982-1983 BUREAU OF HEALTH, MAINE DEPT. OF HUMAN SERVICES, AUGUSTA, ME
Consultant. Design and develop MIS and clinical reporting system for state Hypertension Control Program; analyze statewide survey on health and economic effects of smoking and smoking risk factors, and make recommendations for improved preventive programs.
- 1982-1983 YORK COUNTY HEALTH SERVICES, SACO, ME
Worksite Health Coordinator and Consultant. Develop community-based health promotion services and market to county employers; assess information needs of agency and plan development of computer systems
- 1983 NURSING PROGRAM, UNIVERSITY OF SOUTHERN MAINE, BIDDEFORD, ME
Lecturer. Teach undergraduate biostatistics.
- 1980-1981 KENYA RURAL BLINDNESS PREVENTION PROJECT, NAIROBI, KENYA, (FOR INTERNATIONAL EYE FOUNDATION, BETHESDA, MD)
Health Planner. Develop community-based blindness prevention projects; plan, implement, and analyze field prevalence surveys of eye disease; design ongoing project evaluation format.
- 1979-1980 DEPT. OF COMMUNITY HEALTH, UNIVERSITY OF NAIROBI MEDICAL SCHOOL, NAIROBI, KENYA (SINCLAIR KENNEDY TRAVELING FELLOW)
Research Associate. Assess mechanisms for coordinated nutrition planning in Kenya; evaluate supplementary feeding program for children; teach sections in statistics and research methods.
- 1978-1979 CAMBRIDGE COUNCIL ON AGING, CAMBRIDGE, MA
Consultant. Evaluate City of Cambridge nutrition programs for the elderly, including congregate and home-delivered meals program.
- 1978-1979 DEPT. OF HEALTH POLICY AND MANAGEMENT, HARVARD SCHOOL OF PUBLIC HEALTH, BOSTON, MA
Teaching assistant. Teach sections in introductory biostatistics and quantitative methods for decision making.
- 1978 UNITED WAY OF GREATER PORTLAND AND THE DEPT. OF COMMUNITY MEDICINE, MAINE MEDICAL CENTER, PORTLAND, ME
Consultant. Determine need for hospice services for the terminally ill in Greater Portland, and propose an institutional framework.
- 1974-1977 NEW ENGLAND HOME FOR LITTLE WANDERERS, JAMAICA PLAIN, MA
Child Care Worker. Counselor in treatment center for emotionally disturbed adolescents; lead therapy groups; supervise volunteers.

- 1972-1974 LAB. OF PSYCHO-SOCIAL STUDIES, BOSTON COLLEGE, CHESTNUT HILL, MA
Research Assistant. Analyst on study of health and social impacts of urban relocation; supervise data processing; program computer.
- 1972 LAKE COCHITUATE WATERSHED RESEARCH PROJECT, NATIONAL SCIENCE FOUNDATION GRANT, BOSTON COLLEGE, CHESTNUT HILL, MA
Researcher. Design and administer community attitudes survey as part of multidisciplinary study of watershed pollution.

PUBLICATIONS

- Soumerai SB, Avorn J, Ross-Degnan D, Gortmaker S. Payment restrictions for prescription drugs in Medicaid: Effects on therapy, cost, and equity. N Engl J Med (accepted for publication).
- Tabbara K, and Ross-Degnan D. Blindness in Saudi Arabia. J Am Med Assoc (accepted for publication).
- Tabbara K, and Ross-Degnan D. Trachoma in Saudi Arabia: Results from a national eye examination survey. Archives Ophthalmol (accepted for publication).
- Ross-Degnan D, Schwab L, and Mburu F. Field methodology for ocular surveys in rural Africa. Soc Sci Med 1983; 17(22):1793-1796.
- Whitfield R, Schwab L, Bakker N, Bisley G, and Ross-Degnan D. Cataract and corneal opacity are the main causes of blindness in the Samburu tribe in Kenya. Ophthal Surg 1983; 14(2):139-144.

CURRICULUM VITAE

STEPHEN B. SOUMERAI

Date of Birth:

Place of Birth:

Education:

1974 B.S. University of Massachusetts, Amherst, MA
1979 M.S.P.H. Department of Health Policy and Management, Harvard School
of Public Health, Boston, MA
1983 Sc.D. Department of Health Policy and Management, Harvard School
of Public Health, Boston, MA

Academic Appointments:

1978-1979 Teaching Assistant in Statistics for Health Policy and
Management, Harvard School of Public Health
1979-1981 Associate In Preventive and Social Medicine, Harvard
Medical School
1982- Research Associate, Division on Aging, Harvard Medical
School
1983-1985 Instructor in Social Medicine and Health Policy, Harvard
Medical School
1985- Assistant Professor in Social Medicine and Health Policy,
Harvard Medical School

Professional Positions:

1974-1977 Program Manager, Connecticut Lung Association,
Environmental Health Section
1979-1983 Project Director, Randomized controlled trial of
marketing-based approaches to improve the quality and
economy of drug prescribing
1981-1982 Principal Investigator, Experimental study on employment,
health, and morale in the elderly, Harvard Medical
School
1982-1986 Director of Evaluation and Benefit-Cost Analysis, Blue
Cross research project to reduce inappropriate
in-hospital drug utilization
1983- Associate Director, Harvard Medical School Drug
Information Program
1984- † Principal Investigator, Four-state study funded by Health
Care Financing Administration on the economic and
clinical outcomes of three drug cost-containment
strategies in Medicaid
1985- Associate Director, Program for the Analysis of Clinical
Strategies, Harvard Medical School

Professional Positions (continued):

- 1985- Co-Principal Investigator, Controlled trial of face-to-face education to improve the use of medications in nursing homes, funded by Hartford Foundation
- 1985- Co-Principal Investigator, NCHSR-funded study of methods to improve the appropriateness of blood transfusion decisions
- 1986- Principal Investigator, NCHSR-funded study on economic and quality effects of payment restrictions policies for ineffective drugs

Consulting Positions:

- 1978-1979 Evaluation Consultant, Elderly Services, City of Cambridge, MA
- 1980-1981 Evaluation Consultant, Department of Planning and Community Development, City of Revere, MA
- 1981-1982 Health Services Research Consultant, Veterans Administration, Washington, D.C.
- 1982-1983 Curriculum Planner in Community Medicine, Aga Khan Medical School, Karachi, Pakistan
- 1984-1985 Health Services Research Consultant, Greater New York Blood Program, Studies on geriatric blood donors, reducing inappropriate blood transfusions
- 1985- Economic Analysis Consultant, Greater New York Blood Program, Study on educational/psychosocial support intervention for blood donors testing positive for HTLV-III (AIDS) antibody

Awards and Honors:

- 1976 Environmental Merit Award, U.S. Environmental Protection Agency - For work performed at Connecticut Lung Association
- 1976 Conservation Award, Federated Garden Clubs - For work performed at Connecticut Lung Association
- 1976 Public Education Award, American Lung Association - For work performed at Connecticut Lung Association
- 1977-1979 U.S. Public Health Service Traineeship - Scholarship for graduate work at Harvard University
- 1982 "Best Paper in Session" Award (co-author), Medical Information Section, International Conference on Systems Sciences, Honolulu, Hawaii
- 1982 "Most Outstanding Paper" Award (first author), Massachusetts Gerontological Association - For research on employment, health and morale in the elderly

Memberships in Professional Societies and Committees:

- 1973-1974 University of Massachusetts Health Advisory Board
- 1975-1977 Governor's Environmental Caucus, Hartford, CT
- 1975-1977 Council on Environmental Education, Hartford, CT
- 1982- American Public Health Association
- 1982- The Gerontological Society of America

Memberships in Professional Societies and Committees (continued):

- 1984- National Institutes of Health, Task Force on Information and Education as Determinants of Antibiotic Utilization, Use of Antibiotics Worldwide
1985- Division on Aging, Harvard Medical School

Research Interests:

1. Quality assurance and cost-containment strategies in drug utilization and other clinical decisions.
2. Program evaluation, experimental design, and economic analysis of health services.
3. Employment, health and morale in the elderly.

Teaching Experience:

- 1975-1977 Guest lecturer; Yale University School of Public Health, Southern Connecticut State College; seminars in environmental health/policy for MPH and undergraduate students
- 1976-1977 Field preceptor, Yale University School of Public Health; advised MPH students on public health research projects
- 1978-1979 Developed instructional materials and instructed lab section for Harvard School of Public Health (HSPH) course: "Statistical Methods for Health Policy and Management"
- 1980- Guest lecturer; HSPH Department of Health Policy and Management: doctoral seminar, course on program evaluation/decision analysis; HSPH Department of Behavioral Sciences: course on social and behavioral research methods, course on health promotion methods; Massachusetts General Hospital, Geriatric Unit Seminar; Massachusetts Institute of Technology, Laboratory for Health Care Studies; Suffolk University MPH program: course on health planning; Boston University Medical School; Massachusetts College of Pharmacy: doctoral research seminar, courses on geriatrics and community health; Beth Israel Hospital, Clinical Pharmacy Course (CME); HCHP Institute for Health Research Seminar; University of Maryland School of Pharmacy, faculty seminar, course on methods for drug utilization review; Northeastern University School of Pharmacy.
- Topics of above lectures include: research design/ program evaluation, quality assurance/cost-containment strategies in drug utilization, economic analysis of health programs, relation between work and health status in the elderly, economic and clinical effects of Medicaid service limitations
- 1982-1983 Course developer, Aga Khan Medical College, Karachi, Pakistan: introductory course in community health sciences
- 1982- Supervise Harvard Medical students/research assistants, drug utilization research projects
- 1984

Bibliography:

Original Articles:

1. Avorn JL, Soumerai SB. Demarketing strategies in prescription drug use. *Ann World Assn Med Informatics* 1981; 1:13-16.
2. Avorn JL, Soumerai SB. Use of computer-based Medicaid drug data to analyze and correct inappropriate medication use. *J Med Systems* 1982; 6:377-386.
3. Soumerai SB, Avorn JL. Perceived health, life satisfaction and activity in urban elderly: A controlled study of the impact of part-time work. *J Gerontol* 1983; 38:356-362.
4. Avorn JL, Soumerai SB. Improving drug therapy decisions through educational outreach: A randomized controlled trial of academically-based "detailing." *N Eng J Med* 1983; 308:1457-1463.
5. Soumerai SB, Avorn JL. Efficacy and cost-containment in hospital pharmacotherapy: State of the art and future directions. *Milbank Memorial Fund Quarterly* 1984; 62(3):447-474.
6. Soumerai SB, Avorn JL. Economic and policy analysis of university-based drug "detailing". *Med Care* 1986; 24:313-331.
7. Soumerai SB, Avorn JL. Predictors of physician prescribing change in an experiment to improve medication use (submitted for publication).
8. Avorn J, Soumerai SB, Wessels M, Taylor W, Janousek J, Weiner M. Reduction of irrational antibiotic use through a structured educational order form (submitted for publication).
9. Soumerai SB, Avorn J, Gortmaker S, Hawley S. Effect of U.S. government warnings on propoxyphene use and overdose deaths (submitted for publication).
10. Soumerai SB, Avorn J, Ross-Degnan D, Gortmaker S. Payment restrictions in Medicaid: Effects on therapy, cost, and equity (submitted for publication.)
11. Avorn JL, Soumerai SB. Prevention of improper drug utilization in the long-term care setting (in preparation).
12. Soumerai SB, Avorn JL. Pharmaceutical education experiments in primary care: A critical review (in preparation).
13. Soumerai SB, Avorn JL. Behavioral science lessons from the pharmaceutical company detailer: A case study in changing clinical decisions (in preparation).
14. Soumerai SB, Taylor WC, Avorn J, Wessels M, Maher D. Effect of ongoing printed feedback on inappropriate use of tobramycin in a teaching hospital (in preparation).

Editorials and Commentaries:

1. Avorn JL, Soumerai SB. A new approach to reducing sub-optimal drug use (editorial). J Amer Med Assn 1983; 250:1752-1753.
2. Avorn JL, Soumerai SB. Changing patterns of drug prescription (correspondence). N Engl J Med 1983; 309:1256-1257.
3. Soumerai SB, Avorn JL. Cost containment and physician education (correspondence). J Amer Med Assn 1985;

Research Reports:

1. Soumerai SB (ed). Proceedings of the 1975 Connecticut Conference on Energy. Connecticut Lung Association, East Hartford, 1975.
2. Soumerai SB. Transitions in the lives of Cambridge elderly. Widowhood and retirement: A needs assessment. Working Paper, Cooperative Health Improvement Program, Pub. no. 78-16. Boston: Harvard University, 1978.
3. Ross-Degnan D, Soumerai SB. Final evaluation report of the Cambridge Elderly Hot Lunch Program. City of Cambridge, MA and the Title VII Nutrition Project Council, 1979.

Non-Print Materials:

1. Soumerai SB. "Breathing Connecticut's Air" (sound synchronized and audiovisual program). Boston: U.S. Environmental Protection Agency, Region 1, 1977.

Selected Abstracts:

1. Avorn JL, Soumerai SB. Improving drug utilization in primary care practice. Society for Research and Education in Primary Care Internal Medicine Annual Meeting, Washington, D.C., 1982.
2. Moran A, Soumerai SB. Care of the Aging Veteran: Development of an HSR&D research agenda. American Public Health Association Annual Meeting, Montreal, 1982.
3. Soumerai SB, Avorn JL. Improving physicians' and patients' knowledge of geriatric pharmacology. Gerontological Society of America, San Francisco, 1983.
4. Avorn J, Soumerai SB, Janousek J, Taylor WC. Impact of a structured order form on inappropriate prescribing of antibiotics. American Federation for Clinical Research Annual Meeting, Washington, D.C., 1985.
5. Soumerai SB, Avorn J, Gortmaker S. Effects of a government three-prescription reimbursement limit on cost and access to essential medications by the poor. III World Conference on Clinical Pharmacology and Therapeutics, Stockholm, Sweden, 1986.
6. Soumerai SB, Avorn J, Gortmaker S, Hawley S. Effects of U.S. Food and Drug Administration warnings versus competitive marketing on propoxyphene use and overdose. III World Conference on Clinical Pharmacology and Therapeutics, Stockholm, Sweden, 1986.