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Implications of Informatics on Health Problems in Mexico

Since 1983, the American British Cowdray Hospital has been a Resource Sharing Affiliate by contract with the Baylor Health Care System. This arrangement provides for the sharing of clinical and administrative expertise between the two institutions for broadening the scope and quality of services available for patient care. Baylor University Medical Center was the site of the first International Informatics Access Conference (IIA '87) held on March 17-22, 1987, and sponsored by the Baylor Research Foundation. Eighty-three individuals from 20 countries congregated to study and discuss, from a biomedical viewpoint, the philosophical, political, educational, and clinical implications of using computer technologies. Recently Baylor established a new position of Vice President for International Services; Mr. Lawrence V. Meagher, Jr., was appointed to this position.

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Computer and information technologies must be assessed from a biomedical point of view to optimize the use of automated integration of health care information in addressing health problems. This paper describes international informatics access issues and how the use of these technologies can affect current and future health care problems in Mexico.

Health problems result from many interacting factors involving the patient, the environment, and the pathological agent. These three components are affected by genetics, tradition, politics, economy, demography, medical services, epidemiology, history, geography, science, technology, and education. To understand our present and predict our future, we must review history (1).

Historical Perspective

Medicine has a story parallel to humanity. In the beginning, medical attention was given from one person (the tribal priest) to another (the patient) in a very simple and direct form, generally on an empiric basis. Various herbs and religious rituals were used for patient treatment. Today, medicine is highly scientific and sophisticated, and involves multidisciplinary groups that give both direct and indirect attention to the patient.

During the 15th century, important health changes among the pre-Hispanic population resulted from the discovery of the Americas and the conquest of the natives. The traumas of war and new diseases (e.g., pox, measles, cholera, typhus) introduced by the invaders have been estimated to have reduced the indian population to 30% in less than 80 years. Life expectancy during that period was less than 30 years. After the submission of the native cultures, the Roman Catholic Church took charge of the medical care of the population through "ecclesiastic hospitals."

Advances in European medical sciences during the 17th, 18th, and 19th centuries (e.g., invention of the microscope, A. Leeuwenhoek, 1673; vaccines, E. Jenner, 1797; stethoscope, R. Laënnec, 1816; biochemistry, C. Bernard, 1849; cellular pathology, R. Virchow, 1858; genetics, G. Mendel, 1866; antiseptics, J. Lister, 1866; bacteriology, L. Pasteur and R. Koch, 1895–1910) created a technological gap for newly formed countries spawned by revolutions and independence. That technological gap still exists in some countries and is difficult to close.

During the 20th century, we can clearly appreciate that health does not depend solely upon the improved quality of hospitals created in the larger cities of the Third World. These institutions are advanced, multidisciplinary, highly technological medical centers—many of them resemble the best hospitals of Europe and the United States. More important to good health care are higher education, good nutrition, a clean environment, and better economic conditions.

Alvin Toffler, author of *The Third Wave* (2), teaches in a very clear way that we all evolve from an agricultural, to an industrial, and finally to a technological society. Total humanity is

living simultaneously in the three eras. This philosophy has implications for each aspect we wish to approach—demography, economy, environment, pathology, and of course, education. First World countries are moving rapidly toward the technological society, while the Third World "developing countries" are moving slowly from the agricultural to the industrial era. The differences in their movements are increasing and the gap is getting wider. Mexican data (Secretaria de Industria y Comercio) in *Tables 1 and 2*, and *Figures 1 and 2* illustrate how progress and evolution have increased the lifespan of our population but have not solved our problems (3).

Current demography in Mexico includes better life expectancy and birth control programs. Mortality has been greatly reduced as a result of many factors. Pathology reveals a decrease in infectious diseases as well as advances in the treatment of degenerative diseases (i.e., coronary heart disease and diabetes). An increase in accidents is typical of an industrial society. Unfortunately, the economy, the for-

Table 1. Mexican General Demographic Indicators, 1900–1980. (Data x 1000)

Year	Deaths	Births	Increment	Life Expectancy
1900	33.7	36.6	2.9	30
1910	33.4	32.1	-1.3	30
1920	25.3	31.4	6.1	35
1930	26.6	49.4	22.8	40
1940	23.2	44.3	21.1	45
1950	16.2	45.5	29.3	50
1960	11.2	44.6	33.4	60
1970	9.9	43.4	33.5	65
1980	7.4	42.2	34.8	68

From Soberon G, Kumate J, Laguna J: *La Salud en Mexico: Testimonios 1988*. Biblioteca de la Salud, Mexico D.F., 1988, pp 23–69.

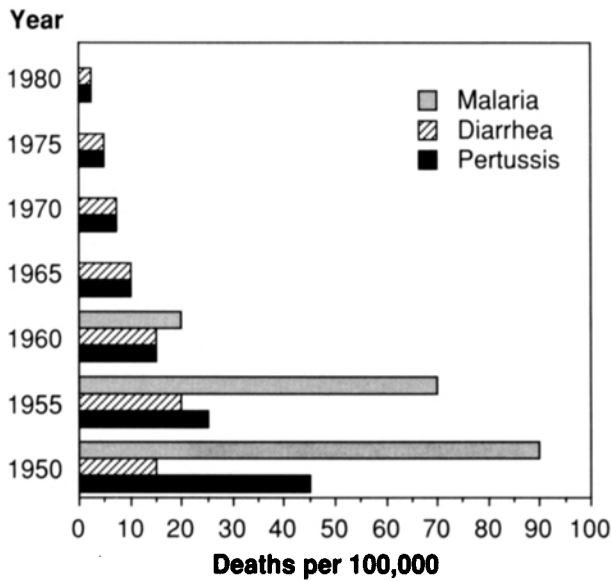


Figure 1. Decreasing causes of death in Mexico, 1950–1980. From Soberon G, Kumate J, Laguna J: *La Salud en Mexico: Testimonios 1988*. Biblioteca de la Salud, Mexico D.F., 1988, pp 23–69.

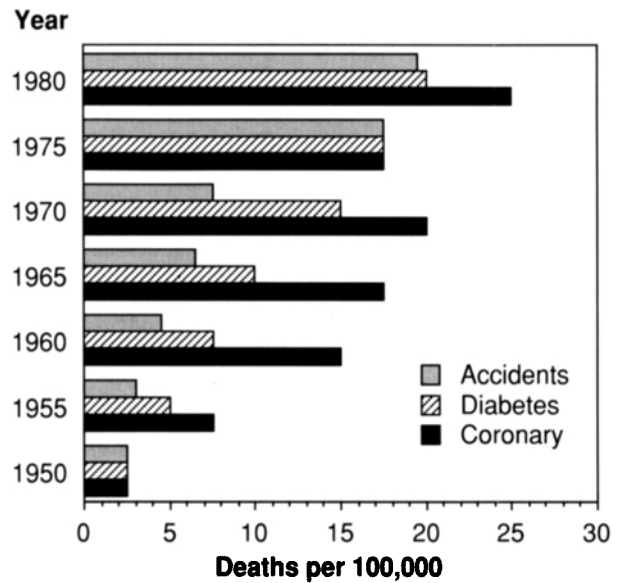


Figure 2. Increasing causes of death in Mexico, 1950–1980. From Soberon G, Kumate J, Laguna J: *La Salud en Mexico: Testimonios 1988*. Biblioteca de la Salud, Mexico D.F., 1988, pp 23–69.

Table 2. Health Expenses and Net Intern (National) Product in Mexico, 1978–1986.

Year	Percent Assigned for Health Expenses
1978	2.25
1979	2.15
1980	2.15
1981	2.20
1982	2.25
1983	1.80
1984	1.80
1985	1.65
1986	1.55

From Soberon G, Kumate J, Laguna J: *La Salud en Mexico: Testimonios 1988*. Biblioteca de la Salud, Mexico D.F., 1988, pp 23–69.

eign debt, and the ensuing financial crisis have reduced health expenditures in the past ten years, with an uncalculated impact on health care that will extend into the next century.

What Are the Implications of Informatics in Dealing with Health Problems?

Informatics was defined by the French Academy in 1966 as “the science of systematic and effective treatment, especially by automated machines, of information seen as the medium for human knowledge and for communication in technical, economic, and social contexts” (4).

The basic tools of informatics are: hardware (personal computers, modems, telephone lines, radio waves, fiberoptics, networks, satellites, macrocomputers, printers, etc.) and software (electronic mail, bulletin boards, data bases, spreadsheets, and synchronic and asynchronic conferences) for use with hardware. The use of informatics focuses on reducing the gaps be-

tween theory and practice, needs and resources, and technology and philosophy. Health is affected positively on three levels—medical care, medical education, and medical research.

Medical care

The time has passed when one doctor could attend and solve one patient’s problems. Modern medicine is practiced by multidisciplinary groups. Informatics cannot solve problems by itself, but it can aid in accessing resources to information on drugs, vaccines, and medical

procedures. Good decisions are based upon accurate information. The multidirectional communication processes available with computers can help in the decision-making process (Figure 3) (5).

Education

Computers are unable to transmit experience, knowledge, wisdom, or philosophy. However, they are valuable tools for transmitting basic levels of information. Although the sharing of information is necessary for educa-

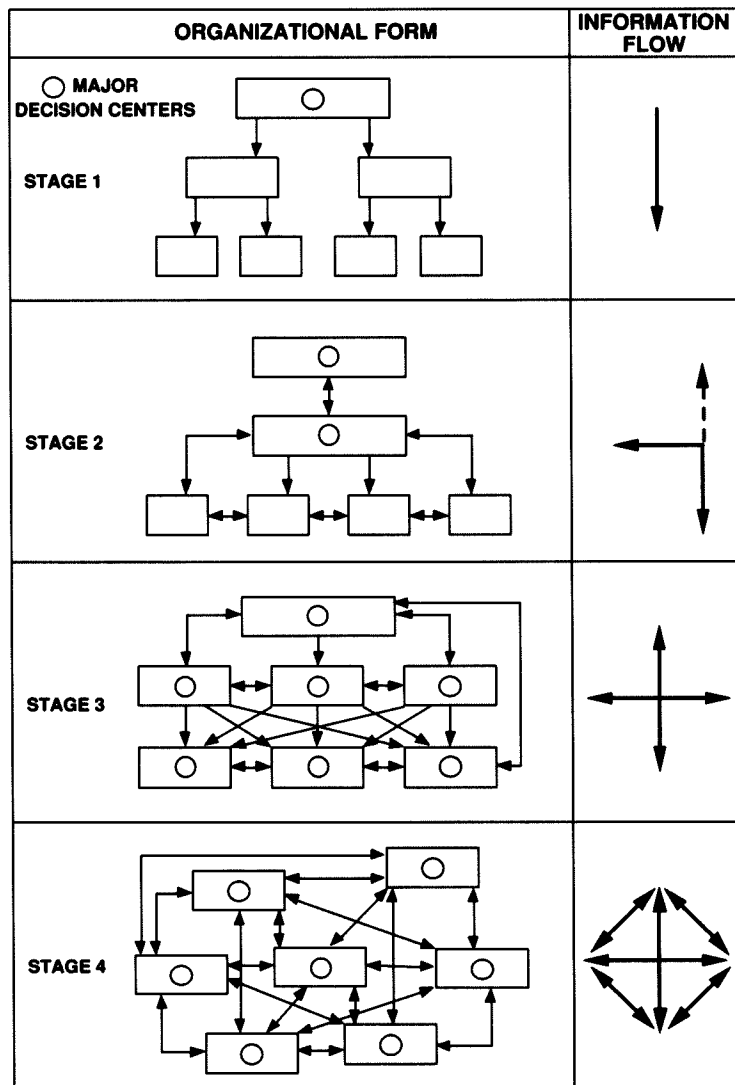


Figure 3. Effects of information technology on corporate organization. Used with permission from Magda McHale, Center for Integrative Studies, State University of New York, Buffalo, New York (5).

tion, the cost of accessing centralized data bases or acquiring medical journals and books makes these resources less available in Third World countries.

Research

Basic and epidemiological research potential can be realized through the accuracy and speed of informatics. Multi-national, multi-disciplinary scientific groups with a common interest can now exchange data. Worldwide health problems such as the spread of AIDS (acquired immunodeficiency syndrome) prove the need for sharing medical research information.

How Can Informatics Be Used to Deal with Health Problems in Mexico?

The following are suggestions for using information technologies to improve health care in Mexico:

- Using informatics extensively as a tool to exchange information through data bases such as MEDLINE and National Institutes of Health in the United States and other advanced countries
- Seeking expert medical consultation with physicians in other areas to enhance patient care
- Reducing conference travel costs and time by linking groups of experts via communications networks
- Exploring ways to use informatics technology for connecting health care personnel in rural and remote areas of Mexico with knowledgeable experts located in metropolitan areas

We must try to achieve parallel development between technology and human evolution. As technology produces sophisticated machines and instruments, human beings must adapt. This development has been called "co-evolution," setting forth a fundamental concept that the human component should never be diminished. The Mexican health care community must experiment with and promote the use of various informatics technologies to achieve quality health care for all.

REFERENCES

1. Toffler A: *Future Shock*. New York City, Random House, 1970.
2. Toffler A: *The Third Wave*. New York City, Morrow, 1972.
3. Soberon G, Kumate J, Laguna J: *La Salud en Mexico: Testimonios 1988*. Biblioteca de la Salud, Mexico, D.F., 1988, pp 23-69.
4. Machiraju N Rao, ed: *International Informatics Access '87* (special issue). *Tele-matics and Informatics* 4: 163-238.
5. McHale J: Information technology: some critical implications for decision makers. In The Conference Board, eds: *The Changing Information Environment: A Selective Topography*. Boulder, Westview Press, 1972.