# INSURANCE MEDICINE: FROM EYEBALLING TO THOROUGH CHECK UP

BY

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ABSTRACT

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This is a study of the problematic integration of medical practice in the American insurance industry. The study demonstrates that insurance medicine developed in the insurance industry when the expertise of the medical profession and the techniques of business enterprise were combined. This innovation occurred in the United States when physicians were asked to serve on the board of insurance companies as observers when "the mutuals" were initially organized in the 1840's. The specialty of insurance medicine was the result of improved medical education, the organized professionalization of physicians and the adaptation of the revolutionary medical technology that was invented around the turn of th 20th century. The new scientific inventions were needed, encouraged and financed. This special combination of business and medicine presents a conflict between the goals for business and the service orientation of physicians. This business/medicine relationship is clarified in two case studies. The cases are hypertension and AIDS. The case of

hypertension illustrates the systems that evolved in the insurance industry to define and diagnose elevated blood pressure. The systems that emerged demonstrate how functional the insurance medicine health model can be and how insurance medicine specialists fulfilled two functions; saving money and contributing to improved health in the community. The case of AIDS illustrates how the existing insurance medicine health model adapts to address the unclassified disease of AIDS for which there is no treatment. Since AIDS results in earlier deaths it creates greater risks for the insurance industry. The risks are presently addressed with extensive research and policies of exclusion.

The ongoing negotiations and problems analyzed in this study clarify the business/medicine relationship and the systems that emerge. The systems point to the contributions the insurance industry has made to the community by distributing educational materials and sharing technological data. The problems discussed indicate recommendations that can be applied to present health care debates.

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## DEDICATION

I WOULD LIKE TO DEDICATE THIS DISSERTATION TO MY THREE CHILDREN, GRANDCHILDREN AND MY BROTHER WHO INSPIRED ME TO SET A GOOD ROLE MODEL AS A FAMILY MEMBER AND RESEARCHER.

CONTENTS

# CHAPTER 1

## INTRODUCTION

This research documents and analyzes the practice of insurance medicine in the life insurance industry. Eight mutual life insurance companies were established in the 1840's. These companies are still conducting business today. The contribution that insurance medicine has made to this success has not been documented by Sociologists. This study is the beginning of this inquiry and contribution to Medical Sociology

"The mutuals" were established to service the need for protection of life and property in New York City. In the latter part of the 19th century large numbers of immigrants from Europe entered the United States through N.Y.C. Economic opportunities existed in an environment full of natural resources, open markets and limited government intervention.

Physicians were asked to serve as observers on the boards of directors because it was believed that they could screen out poor risks through observation. This innovative practice of business enterprise and scientific medicine creates certain conflicts and tensions which are continually resolved in coopertative systems within the insurance industry. Medicine is a synthesis of several disciplines. It is a practice of knowledge and attitudes

which helps in the care of the sick. Physicians are expected to service the needs of the ill. A business firm has specific goals which are based on economic rationality. The institutionalized goal is the production of products which can be sold for profit. These cooperative systems which have emerged in the life insurance industry have evolved through the use of scientific medical knowledge and the adaptation of extensive technology.

The tensions between the goals of commercial mutual life insurance companies and the service orientation of health care for the benefit of clients is clarified in the business/medicine relationship developed in two case studies. The case of hypertension illustrates the systems that emerged when physicians became better educated and professionalized through the use of improved revolutionary technology. The case of AIDS is multifactoral, complicated and devastating. The epidemic of AIDS, which has not been defined or diagnosed and for which there is no treatment ends in early death for most of its victims. AIDS has created difficulties in the entire infrastructure of health care, society and the insurance industry as well. The life insurance industry has not been able to create systems in the business/medicine relationship for client/patients who are HIV positive or afflicted with AIDS. Nevertheless, the life insurance

industry and the insurance medicine health model have enabled the industry to conduct extensive testing which is creating a data base and the accumulation of knowledge which is distributed to the community.

This dissertation analyzes the success the insurance industry has had, the contributions it has made to the community and the manner in which it has resolved tensions through cooperative negotiations.

The ideas and concepts behind life insurance were in the minds of men for many centuries. The principles out of which modern insurance stem date back to Roman burial societies, which set aside funds to bury prominent members. In the Middle Ages, the word insurance was derived from the Latin adjective securies and the preposition in and ad. By Chaucer's time, the Saxon verb insurer or ensurer meant "to make certain or secure". Today insurance companies are still trying to secure a contract that will make certain a family remains solvent.

It is generally believed that the first life insurance policy on record was written in 1583 in London. It was a term policy of the equivalent of $2,000 for one year on the life of a man named William Gibbons. The premium was $160 (8% of the face amount) and was paid by the insured. Gibbons died 20 days before the end of the year. The sixteen underwriters tried to contest payment, on the

grounds that a year consisted of 12 months, and a month was legally four weeks or 28 days. By their calculations, death would have occurred nine days after expiration of the insurance policy and thus nothing was due the beneficiaries. The courts decided against this ingenious technical contention and the policy was paid out by the underwriters, who in a spirit of mutuality divided the loss. Thus, more than 400 years ago, this case established in English common law the principle of reasonable and liberal rather than restricted and technical interpretations of policy contracts (Abbott, 1930 :1) . In terms of modern life insurance practice, the Gibbons case suggests that mutuality and cooperation are important. The law of probability did not enter the transaction, for there is no record of any actuarial calculations or medical examintion being made.

Insurance in the Gibbons case was in the form of a wager. Sixteen men bet $2000 against Gibbons' $160 that he would not die within the year. By losing his life and dying within the year Gibbons won his bet. This form of wagering was prevalent in England through the eighteenth century, when it was finally prohibited by statute during the reign of George III. It was not and is not legally acceptable in the United States.

The concept of 'mutual' is very important in modern

life insurance. Note that Gibbons was insured by not one bettor, but by a group of sixteen acting in concert. In a mutual company, the policyholders are the sole proprietors. Under the rules and regulations which they have determined (subject only to government approval). The policyholders share gains and losses of their company.In a stock company, stockholders, like those of any joint stock operation, are the ones who decide the terms of the policies issued and how losses and gains are to be distributed. The broad distinction between mutual and stock companies is that in mutual companies all profits belong to the policyholders, whereas in stock companies the profits belong to the stockholders but are distributed by a board of directors (usually comprised of the holders of the greatest amount of stock). Even though the concept of "mutual life insurance" was understood, even in the 16th century, stock companies prevailed and there were no mutual life insurance companies until the 19th century.

The notion of a law of probability did not appear in any publications until the work of Sir Isaac Newton in the 1600s. The word actuary (from the latin actuarius) meaning recorder or accountant first appears in English in the 1700's. At first the duties of an actuary were clerical only. Great Britain recognized the actuary as a professional by the mid-1700s. Rudimentary actuarial

calculations were introduced into insurance by the Equitable Life Assurance Society of 1762. Great Britain's Institute of Actuaries was founded in London in 1848, but the Actuarial Society of America was not organized until 1889 (Brackenridge, 1985: 8). Even though actuarial techniques existed for a long time, they were not used for insurance purposes until the middle of the 19th century.

The modern business of life insurance and the use of actuaries is of English origin. The actuaries collected statistics of births and deaths, which enabled them to predict the percentage of deaths of large groups over a given period of years. In the beginning, actuaries collected and recorded the events of mortality but did not explain the causes of these events. Thus, in the early days of life insurance, Richard Price, a doctor of divinity and member of the Royal Science Academy, prepared a Table of Mortality for the Equitable Society of London. Causal factors, such as physiology, hygiene, and medicine were neither noticed nor mentioned. Death rates were based upon bills of mortality (Brackenridge, 1985:5).

Life insurance policies have been written in England since 1721. When the companies were first organized as a business, the applicant for life insurance was cross-questioned by the board of directors of the insurance company much in the same fashion as the applicant for a

loan might be examined by the board of directors of a bank or other lending institution. If the applicant appeared to be of good character and health, and could prove financial solvency, the policy would be granted. In these pioneer stages, the phenomenon of educating clients to buy insurance was unknown.

This review indicates that the concepts behind life insurance were understood in the ancient world. Life insurance policies existed, even, in the 16th century. As early as 1762 The Equitable Life Assurance Society in England made use of actuarial calculations. The first American Life Insurance was founded in 1759. Yet it was not until 1840 that "the mutuals" were formed. Eight mutual life insurance companies were formed in the 1840's which are still in existance today. In order to understand why and how these companies were formed it is necessary to review the environmental conditions in New York City at the time as well as the make-up and needs of the population.

NEW YORK CITY IN THE 1840's.

An overview of national expansion in the United States and more specifically in New York City will aid in understanding the "formation of the mutuals".

In 1840, New York City possessed a number of advantages: a remakable site on an unsurpassed harbor, an outlying country of great natural beauty and rich natural

resources, and a forward-looking population. New York in 1840 consisted of what is now the borough of Manhattan.The population was 371,000 inhabitants.(Today the same area has a population of 3 million). Ther center of activity was the old city hall.

Life in 1840 was as crudely protected as property. Even as late as 1857, there was a serious riot between two rival police organizations, one created by the state legislature, the other by the New York City government. The essential departments of city government were in a state of chaos. Many thieves were never aprehended, and murders slipped through unoticed by either police force. Professional fire fighters did not exist. The fire department was a volunteer organization, whose engines were hauled to the sites of fires and pumped by hand. Systematic street cleaning was non-existent, and the winter snows remained in the streets and on the sidewalks until spring melted them. There was no system of public transportation, and the few hackney carriages that operated like the London cabs were beyond the reach of most people. Public health departments had not been established. The average household was supported by one adult male, the father was the sole bread winner. There were many ways a father and sole family supporter could die young and leave his family without any means of support (Abbott:1930). At

the same time, New York City was a modernized economy with banks, securities, markets and other means of channeling private savings. This was conducive to new forms of enterprise.

In addition to the above, the latter part of the 19th century in the United States was a time of great growth. The development of the western territories by large numbers of immigrants and subsequent large increases in population from 1840 to the end of the century was incredible. Many immigrants came to this country fleeing from political and economic upheavals and in search of survival. Some came with skills, many came to be laborers. Many of the immigrants who entered the United States through New York City stayed in N.Y.C. The economic growth meant there were jobs and that all manpower was needed. Suddenly, people had money for survival, for their basic needs and possibly for a life insurance policy. The need for protection was apparent. The immigrants were open to new ideas and did not cling to a traditional past with one type of existance. Every day they experienced a new life in a country with a new form of government which made an open market possible. Owing a life insurance policy could be interpreted as being part of a company or owing a piece of the pie.

LIFE INSURANCE IN THE UNITED STATES

The beginning of life insurance in the United States

illustrates the development of a service that was needed and sought at a particular time in a particular place. Although the first American life insurance company was organized in 1759, it was not until the 1840's that life insurance companies began selling the form of life insurance contracts we know today (Zelizer,1979:1).

Zelizer asserts that the initial opposition to life insurance in the eighteenth century stemmed in part from values that condemned a strictly financial valuation of human life. As attitudes toward death and life changed in the mid-1800's, so also did attitudes toward the idea of life insurance. The fledgling insurance industry adopted these changes and began to acquire a prestige that had been reserved for the church and governing agencies. Theologians, it is argued, had to give way to business men who created a service orientation and who incorporated the new values in the occupational status of agent. Insurance agents were trained to present life insurance contracts (or products)as a service to clients. By the latter part of the 19thcentury, the insurance industry had come to be viewed as the proper agency to protect surviving family members if the head of the family or the principle breadwinner were to die. Possession of an insurance policy was seen as giving the insured and his(and only rarely her) family a sense of control over their lives. The conditions described above

prevailed in addition to weak government controls and no state apparatus for any type of social insurance. The insurance industry grew alongside other needed industries in the country. Zelizer's explanations for the adoption and acceptance of the changes in attitudes that made life insurance possible are valid as an explanation of the change in values that enabled insurance agents to sell life insurance. However, multidimensional views are necessary to explain the unique form of medical practice that was developed within the powerful life insurance industry.

The conditions in N.Y.C.and the U.S.in the middle of the 19th century, highlighted the need for life insurance protection. As indicated above, the state was not able to provide any type of government sponsored life insurance. Benevolent societies at first and than later unions attempted to fill the need with informal protection for workers but did not succeed. The emerging private insurance industry promoted private insurance and sent representatives to Washington to lobby against public coverage. The life insurance industry created products to service the needs of unions and employers. The government did not interfere with restrictive regulations. Thus public policy shaped the goals of these groups with different strategies at various times.The result is a private life insurance industry that has endured for 150

years without strong government intervention at any time (Dobbin:1992).

Historical factors produced alliances which led to unusual strategies in labor and business. These strategies led to different kinds of benefit systems which private insurance companies had experience to deal with.

Dobbin offers an institutional explanation that links public policy to interest groups goals and than in turn to organizational outcomes. Public policy shifts caused unions and business goals to vary over time and those groups popularized private insurance. A group may pursue a single end alternately at the organizational level and than at the political level. The broad institutional context of American industry and state development contributed to union and business preferences for private insurance. American early indsutrial development led to the rise of sophisticated corporate bureacracies. The development of federal bureacracies with respect to insurance has remained slow. Firms and unions experimented with private insurance long before the federal government entered. When the federal government interceded unions did not wish to relinquish control to state. Weak public protection allowed the development of a sophisticated massive insurance industry.

Dobbin and Zelizer offer credible explanations regarding the

position of government and the lack of control over the life insurance industry. A review of the formation of a mutual life insurance company (New York Life) will explain how this was possible at the very onset.

NEW YORK LIFE AS AN EXAMPLE OF THE FORMATION OF A MUTUAL LIFE INSURANCE COMPANY

Cities, Sirjamaki (1964) indicates, are large aggregations of people who are settled densely in limited areas of land. A city such as New York in the 1840's, was an advanced form of human associati-on which enabled heterogenous people to work and live together and achieve a sense of community through centers of commerce, industry, self rule and municipal government. The problems New York City was confronted with at this time were crowded slums, danger to public health and government corruption. At the same time functional changes in the nuclear family had occurred. When the head of the family died the widows and children did not have to rely on the charity and mercy of the community since the resistance to life insurance had been overcome. These were the conditions that inspired Phinny Freeman, a dry goods store owner in the wall street area, to investigate British actuarial methods and the possibility of forming a mutual life insurance company in New York. New York Life was founded in 1845 as the Nautilus Company. Freeman was able to convince twenty

leading political and financial figures to invest $17,900 to start the company. Freeman approached these men through the networking techniques of the day, by speaking to them at their businesses close by or in local taverns. Business organization methods were less complicated and the market was open. At the end of its first year in business, Nautilus Insurance Company had assets of $790,000. This growth could not have been possible without the investment options in the Wall Street area. By the end of its first year, the company was solvent. Had it been necessary, Nautilus could have paid up all the policies in force (Abbott:1930). In the business community of that day, a business could be created and grow within one year to have assests to cover all possibilities and dangers in order to remain in business. Investment options in Wall Street were available and insurance companies were able to accrue profits and make investments which netted them more profits with which to build additional company capital.

Phinny Freeman became the first actuary of N.Y. L. Actuaries began their function in insurance companies by collecting basic demographic statistics of births and deaths. The analysis enabled them to predict the percentage of large groups that would die over a given period of years. The early actuaries collected and recorded the events of mortality, but did not undertake to

explain the causes of the events they recorded. Life insurance contracts could have been created on the basis of actuarial calculations alone. However, it was believed that physicians could eliminate poor risks on the basis of observation of a client. Thus a physician was invited to serve on the board of directors in order to review the available data and observe each client. The limited expertise of physicians did not interfere with their initial role in the Nautilus Life Insurance. It became the function of the medical director and the medical departments that were evnetually formed to provide causes of longevity and of deterioration of the body, of morbidity and of mortality rates. Nevertheless, actuarial departments were formed to correlate the data they collected in order to secure risk and this was the basis of a new phase of expertese for actuaries. This expertese was helpful to the development of insurance medicine. Actuaries were able to develop methods for categorizing large groups of clients according to different variables and health status (eg. age, hereditary diseases, height weight). The development of insurance medicine coincides with the growth of the medical profession and the professionalization of physicians during the latter part of the 19th century. To undestand this development, it is necessary to begin with the initial role of the physician

in life insurance companies.

THE PROFESSIONALIZATION OF PHYSICIANS WITHIN THE LIFE INSURANCE INDUSTRY.

HOW THE PHYSICIANS ENTERED THE INSURANCE INDUSTRY

Brackenridge(1985) noted that the practice of inviting a physician to sit with and advise the director seems to have begun in 1809 by the Pennsylvania Company for the Insurance on Lives. The importance of employing physicians to deal with the selection of risks was appreciated from the beginning of the nineteenth century. This is documented by the Metropolitan Life Insurance Company (Metropolitan Life History, 1960:399). The "mutuals" that were formed between 1840 and 1850 included physicians as members of their boards of directors because it was a practice that had been established in the U.S.

The physician was asked to serve (as already noted) to only select out poor risks through observation. These new companies had to be prudent in order to sell the new product of life insurance. The company had to remain solvent and clients had to survive a reasonably long time after taking out the insurance policy. The medical criteria for selection consisted of the physician's observations plus a basic form to be answered by the prospective client's personal physician. The form consisted of several basic questions; how often he saw the

family physician and why; whether any immediate family members had any life-shortening diseases; if the prospective client had problems with gout, heart, spitting of blood, lungs, viscera, or any than known disease. The personal physician was asked to evaluate the health status of the would-be client, drinking, active or sedentary life style, healthy constitution, indications of circumstances that might shorten the life of the applicant. These inquiries were not based on scientific knowledge or technical investigation. (See "Early Form"in Appendix A). As the volume of business increased, the state of health of the applicants began to assume more importance in the selecting out of poor risks because it became necessary to eliminate clients who presented costly risks to the companies. A system for the medical examinaition of each client became necessary. A certain form was devised. Dr. Mitrium Post is credited with devising the first complete form (in the 1860's) for the standardized medical examination of each client. Post had a good research background and applied it to the needs of the industry. His background in research was recognized and he became the first medical director of Mutual of New York. The form Dr. Post devised was copied by other insurance companies and it is still in use today with variations. The complex technology needed for diagnosis and treatment within the

medical profession today had not been invented at the time. This basic form (which is a part of the insurance medicine health model) has been and continues to be updated as new technology is discovered and used in the diagnosis and treatment of diseases.

Freidson (1972) has suggested an overall theory that will be applied to this research. He contends that the practice of medicine concerns the patient and the doctor in some private interaction and that it is practiced within an organized framework which influences both. This framework stresses that physicians are trained to practice medicine in the interest of the patient. Therefore, the doctor is concerned with keeping the patient well, improving his health and treating his diseases. The patient is expected to adhere to the physician's suggestions and cooperate as much as possible. The doctor is expected to adhere to the professional standards established by his professional organizations.

Freidson (1972) also indicated that the refinement of knowledge and the diagnostic and theraputic tools needed for medical practice becames so extensive and numerous (in the latter part of the 19th century) that physicians had to form their own organizations for control of their practice as well as creating settings for the new technology which individual doctors could not afford. Under these

conditions professionalization developed and specialization grew. The settings that became necessary for the new technology and the new equipment necessitated group practices.

The first physicians who were employed by the insurance industry practiced within the standards of the loosely organized medical profession and the emerging life insurance industry. The client answered all questions and appeared for a face to face interview. The physician made a determination based on available data and observation. The conflicts in the business-medicine relationship had not as yet surfaced. Medical departments (similar to group practices) had not been established.

In order to understand the system that became known as insurance medicine, certain medical knowledge and technology has to be reviewed and discussed.

MEDICAL EDUCATIONM IN THE UNITED STATES IN THE 19th AND 20th CENTURIES AND ITS RELAVANCE TO INSURANCE MEDICINE

Medical education in the U.S. in the nineteenth century was limited. It is important to note, at this point that in 1858, Parliamnet in Great Britain created a single register for all medical practitioners, and established the coordination of medical education throughout the country. American doctors did not achieve this until the early part of the twentieth century for a

number of reasons. The inequalities among doctors in mid-nineteenth century America paralleled inequalities in the class structure. The better trained physicians serviced the wealthier families. Low status families were served by medical practitioners with less training. The social position of the majority of doctors was neither clear nor secure. The doctor earned more than a manual worker and had higher status, but his earnings varied with type of practice. In the mid-1800's, small town doctors looked after their families, tended the farms, pulled teeth, delivered babies, and embalmed the dead. Through all these duties they tried to maintain a front of respectability and professionalism that could not always be achieved. The professional career of a physician had no fixed pattern. Apprenticeships had no standard content (e g.the frontier doctor), and European-trained doctors in the large cities had no interest in establishing American licensing procedures.

These were the conditions when the first convention attempting to set up a medical professional organization was held in New York City in 1846. It did not meet with great success. In the 1870's, 1880's and 1890's the A.M.A. become consolidated and strong, when everyone agreed there should be firm and definite medical licensing. Simmel and Coser (1956) have suggested that when antagonists meet,

they have to negotiate in an arena of similar rules. These negotiations lead to cooperative associations which may not have exsited before the conflict necessitated some negotiative process. This perspective can be applied to the competing medical groups that exsited in the U.S. in the latter part of the 19th century. These groups had to adhere to similar rules and eventually their members became professionals under similar licensing regulations. The changed circumstances in American society had an effect on the AMA as they did on all organizations. At the same time large corporations began to dominate the economic landsacape. Small business owners and independent professionals could not compete effectively. Physicians had little power and even less clout. They needed the AMA and the protection it offered in order to compete with the demands of big business and the union organization of labor. In 1901 and again in 1903 the AMA revised its constitution and adopted a code of ethics to eliminate irregular practitioners. This new stance promoted the expansion of medical colleges (Starr:1982).

Reform of medical education began in 1870. By 1883, John Hopkins University required an undergraduate college degree and a four-year medical program of training for the degree of Doctor of Medicine. It was in this atmosphere that in 1904 the AMA Council on Medical Education began to

standardize the requirements for the national M.D. degree. Abrahm Flexner had a B.A. from John Hopkins. His brother was a protege of William Welch, president of the Rockefeller Institute for Medical Research. Flexner was thus asked by the Carnegie Foundation to conduct an investigation of medical schools. The sponsorship that was important was in the hands upper class foundations. Accompanied by the secretary of the AMA Council on Medical Education, Flexner visited all of the nation's medical schools (Berliner:1972). Medical schools throughout the United States began to close as state licensing became required and higher tuition fees had to be obtained to pay for longer periods of training. Some schools merged, and some misrepresented and were forced into bankruptcy. This was the setting for Flexner's Bulletin Number Four. He reported he standards and economic standing of each school. Flexner's report guided the selection of medical schools until the 1930's when the foundations with money began to dominate. In 1936, the Rockeffeller General Education Board and $91 million, plus money from other foundations determined which institutions would dominate, how they would be run, and what ideas would prevail. This new system increased the cohesiveness of the profession. The new Doctors came mainly from middle and upper-class families, at the time mainly Protestant. (Only a small

percentage of Jews were permitted to enter medical school, only a few rare schools admitted women, and Negroes had to establish their own medical schools at some of the black colleges. The schools for these exceptions were Mr. Sinai School of Medicine in New York, Philadephia's Women's Hospital and the School of Medicine at Howard University). The doctors who came from the new established system were medical doctors who had been carefully screened to represent the proper families with the proper connections in the corporate structure who again could be solicited for life insurance. Kerbo (1983) refers to the corporate class as a group who maintains convergence of economic power, political power and high social status. This perspective can explain the qualifications a physician had to have in order to become a medical director of an insurance company around the turn of the 20th century. Initially, medical directors in insurance companies helped to maintain the criteria that enabled the insurance companies to be part of the corporate structure.

THE PROFESSIONALIZATION OF PHYSICIANS AND THEIR CONTRIBUTION TO THE NEW SPECIALTY OF INSURANCE MEDICINE

By the beginning of the 20th century, the medical profession was making a difference in the health of the general population as a result of public hygiene measures, professional organizations and new technological

developments. The revolutionary changes in technology (eg. ophthalmascope 1851, laryngoscope 1855, sphygmomanometer 1907) combined with the organization of medicine altered the perception of the value of specialized knowledge. Increasing urbanization and concurrent occupational specialization meant that more and more individuals had to rely on the skill and knowledge of others, instead of relying totally on themselves and on their immediate neighbors . The latter part of the 19th century was one of enormous development because of the large immigration of Europeans to the United States. This led to westward expansion and the technological development that was necessary to meet the needs of the new settlers. The telephone was invented in 1870, and the automobile in 1890. Railroads and new roads were built to cross the continent and the centers of population concentration began to appear across the nation. The development of cities made public health a necessity affecting all citizens and all social classes.

Between 1875 and 1900, there was a decline in mortality from certain disease, in particular infant and child mortality from diphtheria, a decline that could be credited to public health regulation and widespread innoculation. Therefore, the interest in social medicine was heightened and public health measures became seen as

even more important. This heightened interest inspired a second set of techological developments for use in the diagnosis of disease. The new insturments such as the vastly improved microscope, X-ray and EKG were all invented around the turn of the 19th century. Data was independent of the physician's evaluation and the patient's subjective report and description. These new inventions also led to more information to form the knowledge base of the basic sciences. All these discoveries and inventions permitted a basis for further development of theraputic and diagnostic techniques.

Research in any society is encouraged by the needs of that society and by the organizational support that guides it within the existing culture. Merton claimed that 17th century English science was fostered by the needs of navigation and a culture that created an organization to support those needs. In 19th century America, there was a need for science to deal with a growing population and growing needs for transportation, communication, and medical care. The system of professional organization changed and accommodated to meet the needs while gaining authority and market power. The same market power was felt by the business organizations that interacted with insurance companies and by the entire insurance industry as well.

Under these conditions professionalization developed and specialization grew. The setting that becaame necessary for the new technology and the new equipment necessitated group practices. Medical departments in insurance companies were organized as group practices.

The Flexner Report, in conjunction with the foundations that sponsored the research, influenced the reorganization of medical education and medical schools in the United States. The initial conflicts between the medical schools and the foundations were resolved when they also became cooperative organizations under similar rules. In this case similar licensing patterns and procedures for all schools were recognized by foundations which approved certain funds. The profession of medicine developed and became more competent through evolving scientific knowledge and revolutionary technological inventions. Because of the extensive education required to master the technological advances, the mediccal profession gained authority and market power. This outgrowth of knowledge from science was furthered through state licensing procedures which required that all physicians learn the new scientific developments. Only a certain state-licensed physician was defined as a legitimate medical practitioner. The services of these physicians were sought eagerly. The medical professionals offered their services to all who needed them, at prices the

medical professional organizations controlled.

The profession of medicine became a choice career, thanks to monopolistic power and selective admissions policies in medical schools. Around the turn of the century, the insurance industry selected its medical directors in the same selective manner. Insurance companies were concerned with the school a physiciasn had graduated from as well as his family background and in turn the connections to other corporations.

From 1900 to 1937, medical education improved until physicians became a top occupational category. Insurance companies eagerly employed the most qualified physicians, with the most advanced techniques, in order to use their scientific knowledge to devise practical technical methods to meet the needs of insurance companies. The medical systems that evolved to meet these needs in insurance companies became known as insurance medicine. These methods for examining insurance clients were taught at Bellevue Hospital in the early 1900's. The specialty of insurance medicine first appears in the lectures at Bellevue Hospital. The companies were happy with the rising profits during this period and the client/patients were pleased with their life insurance contracts.

At the same time as medical education improved, medical technology improved. The medical profession had

to be responsible for training physicians to use the new technology, and for devising a system to train paraprofessionals to help physicians to use the increasing complex technology.

HOW PARAPROFESSIONALS ENTERED THE INSURANCE INDUSTRY

New categories are constantly being added to the system both in response to the demands of technology and to the demands of patient care (Conrad:1981). As indicated, the practice of medicine was changed forever by the revolutionary inventions for diagnosis which appeared in the middle 1800's and early 1900's (X-ray, EKG, Lab. procedures). The use of medical technology to screen clients by the insurance indusry is of particular importance to this research. The technology that was developed in the U.S. during this time (e g. telephone, car) also inspired the technology in the industry regarding methods of data collection and eventually computers.

As long as the exminations and the information submitted, by the medical departments in insurance companies, was useful in keeping the company solvent and operating at a profit the insurance companies retained the system. The system of medical screening which was retained consisted of a medical director, medical examiners in the field who were physicians and a staff to record the findings.

It is important to note that the industry retained physicians to do medical examinations until the 1970's even when nurses and other paramedical personnel were being employed by other health facilities to do some of the same type of masurements. Nevertheless, some brief historical notes will explain why and how paramedical personnel did enter the insurance industry.

Nurses became strongly established as anesthetists before the 1920's and nonphysicians were sometimes originally in charge of X-ray units. In the early stages of development, there were too few doctors trained in these fields to meet the demand. But in these and other areas, physicians ultimately prevailed and other medical personnel became their subordinates (Starr, 1980:221). During the Second World War, it became necessary to use medical technicians or paramedics in the field. These battlefield paramedics could take care of some of the wounded when doctors were unavailable or were needed for more involved work such as surgery. The use of antibiotics became widespread during World War II. These antibiotics could be prescribed and administered by the paramedic, and for a number of infectious diseases which did not necessitate follow-up care. The advent of the antibiotic drugs changed the need for physicians to care directly for each patient. The army technicians contributed ideas and practical

experience for paramedics. The end of the war saw the beginning of programs to train paramedics to help physician specialists. Since the 1940's paramedics have been able to do much of the routine work of primary health care, with physicians devoting their time to more specialized care.

Until the 1970's all medical examinations were conducted by physicians. In the 1970's difficulties arose. There was a shortage of insurance doctors and the volume of business increased. The cost of medical examinations rose. To deal with these difficulties insurance companies began using paramedical organizations to obtain basic underwriting information on certain classes of applicants (Brackenridge, 1985:49).

The use of paramedics in conjunction with the current technology have made it possible for the insurance industry to make use of current medical techniques in order to remain solvent and operate at a profit. At the same time this indicates the flexibility of insurance medicine to adapt to the methods of practice in the profession of medicine at the present time.

## THE ROLE OF RESEARCH WITH RESPECT TO INSURANCE MEDICINE

When the new medical technology appeared in the twentieth century, medical schools became science investigators. The accumulation of knowledge, the stimulation for excellence, and the focus of scientific

achievements were aims that were consistent with the policies of the AMA. The system of professional control by the AMA of the doctors remained fairly stable until two decades after WWII. During the 1960's the federal government began to allocate grants to principal investigators on the faculties of medical schools. These principal investigators who had received grants from the federal government had to meet specific requirements and standards set up by the government funding agencies, and thus drifted from control by the AMA. During this same period, medical shcools began to demand full time administrators to deal with the constant upgrading and increasing complexity of the technological equipment in the field, and the bureacratic organizational structures needed to administer these changes. Even the smaller medical schools began to demand full-time administrators. Thus the power to make decisions in the profession of medicine was decentralized and scattered (Starr, 1982).

In the case of insurance companies, the function of research was different. It is true that medical directors retained and still retain control in medical departments in insurance companies. However, the data the insurance companies collect are under the realm of several departments. The methods used for data collection and ongoing research are part of the business operation, and

remain under the control and supervision of the board of directors. In insurance companies the conflicts within the business/medicine relationship are continuaaly addressed through research procedures. The findings of each department are submitted to the board of directors. The board decides which methods and policies eliminate conflicts while being cost effective. The organization-al analysis in chapter three will illustrate this aspect of the research.

Just as Merton described the inventions in seventeenth century England that had been sponsored by the Royal Science Academy, so too the present research can relate to the inventions fostered during the early part of this century. The insurance companies reviewed and incorporated the procedures dealing with the new technology into their medical examination procedures. The inventions that were revolutionary at the time have become standard practice today. In a sense in America the life insurance industry fostered and improved the new inventions. (eg. The use of the sphygmanometer was further improved when it was put to extensive use for examination of insurance clients). The manner in which the imporvements occurred will be further elaborated in chapter four (The Case of Hypertension).

SUMMARY

The innovative combination of science and business in a period of a certain type of development in this country is what gave the insurance industry the success it has had and continues to have. The "mutuals" were organized at a time when values had changed. The cooperative aspect of the insurance company as a mutual organization filled a need to cover the economic and social conditions that existed. Other cooperatives were also being formed at the time (eg. Brook Farm in New Englalnd, Robert Owens's New Harmony in Indiana). Weak government policy with respect to social insurance of all types encouraged private cooperative enterprises. The cooperative orientation in mutual life insurance companies has inspired on interest in all community organizations dealing with research for many years (eg The representatives that were sent by the insurance industry to cooperate with the aims of The Life Extension Institute and Public Health Agencies).

At the same time, the industry gained valuable, useful and current information for business. The insurance companies had business obligations to fulfill, and in order to do so they devised operational systems and models that were both efficient and cost effective. The insurance medicine model, although similar to other health models, was designed to meet the needs of insurance companies. The manifest goal was to guarantee profits. The latent outcome

was an interest in other health models and other health facilites. This interest indirectly encouraged better health patterns among clients. Medical departments in the insurance industry were established about 1870. The investigation of disease in these separate departments began with questionaire forms that were designed by Dr. M. Post, Mutual of New York's first medical director. The technical inventions that appeared for use in the profession of medicine around 1900 were quickly adapted to the research on disease in insurance medicine. These techniques gave the industry the possibility of eliminating risks more efficiently and establishing premiums that were cost effective.

From the onset, the medical profession offered the industry a process for sorting out risks more efficiently. The technological advances in medicine conincided with economic development that gave the clients the opportunity to participate in the growth of insurance companies. By employing physicians and organizing medical departments, the insurance industry took advantage of current advances in medicine and offered clients a sound life insurance product.

The medical departments in insurance companies were and are organized to meet the demands of the insurance industry and of insurance medicine. Insurance medicine

itself is concerned with the compilation of medical data on all clients as an aid in ascertaining the risk each individual client represents to the company. Once the correct risk factor has been established, the proper premium can be charged. The ever present conflicts between the service orientation in the medical profession (the obligation to treat the patient) and the goals for profit in the insurance industry are continually debated in insurance companies. Those diseases which are amenable to this negotiative process are categorized in terms of severity and risk. This has not occurred in the case of Aids.

At the present time, the companies are involved with extensive testing for the presence of AIDS. Most clients who apply for insurance are tested for HIV and AIDS. The objective is to eliminate all new clients who are HIV positive or have AIDS. The insurance companies claim that they can not afford the risks for these clients because they die sooner. The position of insurance companies at this time is not to issue any policies to clients who are HIV positive. This present policy of exclusion of certain clients illustrates the present adjustment to the conflicts within the business/medicine relationship regarding the unclassified disease of Aids. Chapter five (The Case of Aids) will elaborate the issues and the response to the

epidemic of Aids within the insurance industry.

To ascertain risk and confront the conflicts within the business/medicine relationship the insurance industry created the insurance medicine health model. The specialty of insurance medicine upholds the criteria in the medical profession and adapts to the goals of insurance companies. The concluding chapter of this disseration summarizes the manner in which this endemic conflict is the cause of the continuing evolution of insurance medicine and the insurance medicine health model.

# CHAPTER 2

## METHODOLOGY

Both traditional and non-traditional methods were used in this study. An attempt at qualitative analysis of historical sources as well as a variety of other sources were used to maximize the validity and total methodological effort.

Traditional sociological methods such as focused interviews and structured questionaires were not too applicable for making contact with the work force in the insurance industry. Medical examiners were interested in conducting efficient medical examinations as quickly as possible. Agents were interested in making sales for insurance companies and served to introduce the product and the necessary medical examination only. Medical directors and their staff had duties to perform that require all their attention and the data collected by medical departments was confidential. Office personnel were interested in the completion of their assigned routine tasks as quickly as possible without any type of discussion. The executives in the insurance industry were very cautious about any discussion that might reveal confidential information. Given these limits, the most effective research methods were those that presented themselves in the field and in the process of being a

medical examiner. As a medical examiner for insurance companies I had a unique type of access to information within the industry. Wax (1971) suggested that social scientists might seek the insider's view as a precondition for research. Employment as a medical examiner was my first step into this research. Powdermaker (1966) referred to this process as stepiing in an out of society. Other work experience consists of: seven years in the medical department of the electrical workers union in various capacities, over one year as administrative assistant of the Hypertension Service at Metropolitan Hospital and several years in an X-ray institute, affiliation with several paramedic companies, direction of my own sole proprietorship in the insurance medicine health services field, training as a insurance agent and participation as a program developer in Sociologists In Business which was an experimental section of The American Sociological Association. Prior to entering the insurance industry as a paraprofessional in 1975, I worked with a physician who conducted medical examinations for The Prudential Insurance Company from 1958 to 1961 in Cleveland when only physicians could conduct the medical exams now performed by paraprofessionals.

In order to conduct the research reflected in this dissertation a number of different methodological

techniques were used, in particular: 1. Review of archival materials and pertinent literature, 2. Participant observation, 3. Selected non structured interviews and 4. Analysis of the adaptation of technology in the practice of insurance medicine.

ANALYSIS OF ARCHIVAL MATERIALS AND PERTINENT LITERATURE

The material for the initial phase of the research was in the archives of a number of insurance companies. Earlier this author worked with Sidney Aronson, Professor of Historical Sociology, who helped to develop an undestanding of available sources. Aronson accompanied this author to the library to enhance the research. A review of the literature on the medical examination in insurance companies and at public libraries indicated that sources regarding the medical examination were meagre and only available by special request. Nevertheless, even during the early stages of the development of the insurance medicine health model, the insurance companies expressed an interest in public health and all organiziations interested in longevity. The insurance companies sent representatives to meet with the Life Extension Institute to exchange information about longevity. Limited information was found regarding this exchange of information. Insurance companies expressed an interest in Public Health for the purpose of learning about public health hazards that might

in turn affect the health of clients and the risk they would present to insurance companies. Metropolitan Life Insurance Company sent visiting nurses to the homes of clients to care for clients that were ill (around the turn of the 20th century) with the hope of improving the health of the clients and their continuing business. The information collected from these visits was also carefully considered by insurance companies.

During this period manuals for the medical examination also began to appear. The initial manuals were brief and concerned with palpitation and pulse. This was due to the lack of technology for measurement of symptoms for certain diseases. Some available technology was not incorporated into the practice of insurance medicine until the 1920's. Still, the early manuals indicated that a model was in the process of being developed.

A sociological perspective was applied to historical sources in order to trace the early development of insurance medicine. The applicable literature covered in the process of earning my MA at New York University and completing my course work for my PhD at CUNY was considered as well as the course on Union Health Planning at Cornell University. The literature at the College of Life Insurance was reviewed, in consultation with Paul Attewell (Executive Director of the Department of Sociology at CUNY

Graduate Center) to ascertain its relavency to this research. The literature necessary for maintaining an insurance agent's license was reviewed and applied to the research when relavent. The medical literature concerned with the classified disease of hypertension and the epidemic of AIDS (an unclassified disease) was reviewed. The sociological literature regarding hypertension and AIDS was considered.

PARTICIPANT OBSERVATION

Participant observation in this study refers to the research technique in which the investigator participates as a member of the groups being studied (Reimer, 1979:168). The observations in this study were made under the usual conditions of my duties as a medical examiner while conducting several thousand medical examinations in the field and interacting with other insurance industry employees engaged in their daily work. My role as investigator was at times known and at times not known. The emphasis was on my role as medical examiner. In 1981 the author consulted with Professor Kendall regarding the different roles in participant observation. The field work for this dissertation made use of several research roles in participant observation categorized by Gold(1958); the complete participant role, the observer as participant role and the participant as observer role. Kornblum (1989)

emphasized the importance of being accepted in the community one is researching. He referred to this aspect as gaining trust. The practice of being a medical examiner in the insurance industry allowed the author access to priviledged and confidential information. The careful manner in which this information was used helped to establish credibility and trust for the author through careful consultation with individuals in charge of these sources.

SELECTED NON STRUCTURED INTERVIEWS

The interviews in this study involved some face to face interaction as well as phone interviews. The respondents were selected because of their expertise in particular roles and positions which they occupied in the insurance industry. The author obtained letters through interviews with several archivists in insurance companies, medical directors, vice presidents in insurance companies, owners of health facilities that service the insurance industry and professors at the College of Life Insurance.

The author conducted several thousand paramedic exams over the last ten years. Some were conducted in conjunction with physicians. The medical histories obtained through the use of insurance medical forms and the insurance medicine health model compared favorably with other health models in other facilities.

The information obtained was confidential. However, certain health trends emerged and were applied to this research and to the analysis of the data systems in the insurance industry which mitigate the conflicts in the business/medicine relationship.

ANALYSIS OF THE ADAPTATION OF TECHNOLOGY IN THE PRACTICE OF INSURANCE MEDICINE.

Technologies are bodies of skill, knowledge and procedures for making, using and doing useful things. What needed to be known about technology, for the purpose of this research, is how it was adapated to meet the needs of the insurance industry while mitigating the conflicts in the business/medicine relationship. An analysis was focused on the technological methods used for screening clients. Further analysis indicated the significant characteristics and interconnection between the technology used in the insurance industry and the rest of society.

The technology used in insurance medicine was explained and analyzed throughout the dissertation. The manner in which the insurance companies made use of the sphygmanometer to screen clients with hypertension was explained to indicate how the technology for screening was adapted and how it made a contribution to the profession of medicine at the same time. The present methods utilized for data collection and blood work analysis of clients

being screened for HIV status was carefully examined. Careful attention was given to the coding methods that insure confidentiality for the client and the company while meeting the requirements of government regulations. Separate departments have been created to discuss HIV status with clients. Agents and medical examiners are not involved in this process which is confidential and concerns the client and the company within present governmental policy which allows exclusion of clients who test positive for HIV and are reportable anonymously. The present methods and tests were analyzed to indicate how the technology in use today upholds the goals of the insurance industry, the service orientation of physicians, the welfare of the clients, while maintaining systems to mitigate the business/medicine relationship.

# CHAPTER 3

## THE PRACTICE OF INSURANCE MEDICINE WITHIN THE STRUCTURES OF INSURANCE COMPANIES

### INTRODUCTION

This chapter analyzes certain professionals in the insurance industry and their roles in medical actuarial and underwriting departments. The analysis is concerned with how these professionals contribute to the effectiveness of the insurance medicine model and the specialty of insurance medicine by creating systems that resolve the conflicts that arise between business perogatives and professional services in pricing the health status of patinet/clients.

An insurance company is an organization that utilizes devices for dealing with risk. Risk simply defined is the chance of loss. In the United States there are stock and mutual life insurance companies. About 94% are stock companies and 6% are mutual companies. The insurance medicine health model evolved with the advent of "the mutuals". Therefore, an understanding of the structure of a mutual life insurance company is helpful.

A mutual life insurance company is best analyzed through an organizational context. Parsons (1951) contended that a business firm has specific goals and tasks, is based on economic rationality and production of products is the institutionalized goal. Financial return is both a

necessary condition for survival and a symbol of the firm's success. The overall aim is maximum production at minimal cost. The integrative context of a firm is loyalty and obligation based on self interest. A mutual life insurance company has all of the above attributes. In addition to the above it incorporates the use of medical technology and measurements to eliminate risks that might be costly.

Barnard (1938), referred to organizations as systems of cooperation. He suggested that a coopertative system is a complex of physical, social and biological components. An organization is a system that is subordinate to the larger systems of the society it exists in (eg. government, corporate network) and at the same time embraces subsidiary systems (eg. smaller business firms).

One or two more cooperatvie systems comprise an organization such as an insurance company. Within the organization of the insurance company there are groups of individuals who adapt to group pressures and to certain technology. The activities of these groups are coordinated. The individuals in these groups are interrelated and interact with subordinate and subsidiary systems. The groups of professionals under investigation were in the different departments within a life insurance company. These departments were directly concerned with insurance medicine. The specific individuals were

medical examiners, actuaries and underwriters. These individuals performed certain functions and therefore comprised the key roles. The professionals in these key roles were directly involved with insurance medicine and the insurance medicine health model.

In addition to the above frame of reference, it is important to note that insurance is bought and sold in a market (like a stock exchange). Insurers calculate the odds of loss from specific causes and set appropriate rates to sell coverage that will cover the projected losses. The risk, or estimate of loss, is spread out over many clients so that the adequate cost per client is less. Insurance companies also use premium payments for investments which yield profits. These profits are at times disbursed to clients as dividends.

Insurers continually attempt to calculate odds of loss from specific causes of death (eg. diseases, accidents) and set insurance rates appropiately, so that the coverage can be sold through an insurance contract with premiums that will cover losses. However, risk can be calculated only when information is accurate and all facts are known. In the sale of life insurance contracts. the element of uncertainty (eg. exact time of future death) makes information imperfect. Since the facts obtained from policy applicants will be at times unknown (when death

will occur) and at times imperfect (eg. suicide, lack of adequate health care) the insurer through the organization of the insurance company has to create a contract to cover against all possible losses, both those that are known and those that are uncertain and unknown. In order to understand how facts were gathered and contracts constructed (to secure risk) it was necessary to review the structure of an insurance company with special attention to certain departments.

DEPARTMENTS CONCERNED WITH INSURANCE MEDICINE

An insurance company is organized with a number of different departments and is composed of key actors in different professions and occupations. .(Note diagrams in appendix B)

A mutual life insurance company is supervised by an elected board of directors. This board sets the company's overall policy. The board sets policy to reflect the recommendations and information submitted by underwriting, actuarial and medical departments. The board also considers the recommendations of product design departments, ,marketting departments as well as suggestions made by agents. The various departments are organized to meet the needs of clients as well as to adhere to the legal requirements set by government regulations. When a client agrees to purchase life insurance, he/she completes: (a)

a proposal form and (b) a medical examination.

(a). The proposal or application form consists of questions concerning age, employment, amount and type of insurance policy desired, other policies in effect, state of health, family history, foreign residence, hobbies, military service, employment and lifestyle. In addition to the above information, independent financial reports may be solicited from independent agencies who do this type of investigation. The agency manager or his staff check the information and ascertain which tests are to be included with the medical examination.

(b). The medical examination is administered according to the criteria of the insurance medicine health model. This model includes questions on forms whose responses provide good information about the individual's state of health. These questionaires are administered by medical examiners in client's homes, businesses or other medical offices. In addition to the information obtained from the questionaires, the medical departments have highly developed techniques for testing blood pressure, urine, electrocardiograms to illustrate the condition of the heart and at the present time extensive procedures for testing blood. All of the above tests are ordered as needed and conducted according to specified procedures. All the answers and results of the tests are reviewed by

medical directors and staffs. Underwriting departments also review this information to ascertain the risk each client brings to each company. This evaluation enables the underwriters to issue the proper contract at the best price. The cases that indicate involved health problems and larger sums of money are reviewed by the medical director, chief medical officer, vice president, president and even at times the board of directors.

Kanter (1977) suggested that a corporation is a people producer. People production occurs in all bureacracies. This perspective was applicable to the analysis of the professionals who comprise the key roles in an insurance company connected to the practice of insurance medicine. The key roles of actuaries, physicians and underwriters were viewed in terms of their historical development, their function and the contribution they make to the clients and to the companies. The individuals in these roles were motivated to achieve certain goals for the insurance industry while adhering to the rules established by their respective professions. The dominant goal was the design of life insurance products which would yield profits for the company and a contract that was affordable to the client. Since attention was give to the cost of the service to each client, an effort to maintain a certain service orientation in terms of business was stressed. At the same

time physicians, actuaries and underwriters (within the parameters of their respective professional service orientations) were motivated to create products that would sell well. The professionals were aware that the success of the life insurance companies depends on the number of sales made and the sale in turn determined their salaries.

A more detailed analysis of the professional roles of physicians, actuaries and underwriters follows.

This analysis clarifies the roles and development of insurance medicine and the insurance medicine health model and the manner in which the model dealt with the conflicting needs of the company and the patient/clients.

## THE ACTUARY IN THE MUTUAL LIFE INSURANCE COMPANY

### HISTORICAL BACKGROUND

Actuaries originated in England several centuries ago. They were registrars, recording court clerks or managing stock companies. In the 1700's, they became managers of insurance companies. They established methods for recording statistics regarding longevity. Their methods were copied and applied to business in the 1800's in the United States.

The profession of actuary as it is known today is only one hundred years old. The American Society of Actuaries was founded in 1909. In 1949, the two organizations merged and established the Society of Actuaries (SOA). The SOA is

currently the principal professional organization for actuaries who practice in the fields of employee benefits and life and health insurance.

An actuary is a business professional who combines the skills of a business executive, mathematician, financier and investment manager to solve finanacial and social problems of life insurance clients. In a sense, actuaries design financial programs, which in this study are focused on the life insurance contracts which meet the needs of the client/patient and create profits for the companies.

Actuaries in the insurance industry contribute to the financial solvency of their companies, their clients, and the investments portfolios of each. This function is achieved by applying principles of mathematics to particular problems of insurance. An actuary is a professional who has acquired knowledge and skills through training in courses of a theoretical nature and not by practice alone. The testing for the knowledge an actuary has to possess is conducted at a university. When these tests have been passed, the actuary possesses authority in relation to his/her clients. This authority is carefully insitutionalized by a professional organization that lays down the rules of entry, training and behavior. SOA, the professional organization of actuarial practice established a criterion of knowledge and skill, and at the same time

ensures that adequate fees are paid to actuaries.

The actuary as a professional in the life insurance industry provides a service rather than the production and distribution of goods.

Actuaries develop insurance rates by applying some principles of mathematics to particular problems of insurance. They publish manuals, rate charts and formulas from which mortality and morbidity tables are constructed. Actuaries apply the law of large numbers to insured lives. The law of large numbers states that the greater the number of similar exposures (lives insured) to a given peril (death) the greater will be the predictability of the loss experience. Risk and uncertainty diminish as the number of exposure units increases. Thus, the larger the group insured, the more predictable the loss experience for the group as a whole. The actual rates to be charged for life insurance contracts are determined by the application of the laws of probability to mortality tables and morbidity tables.

MORTALITY TABLES

A mortality table is the instrument by which the probability of living or dying is measured. Actuaries construct tables showing the mortality experience of different groups of people. A mortality table is a scientific assembly of data in a convenient form in order

to show the probability of death or survival over given time periods.

MORBIDITY TABLES

Morbidity is the study of variables in the patterning of disease. Morbidity may be viewed as the prevalance of disease in an area or group. The levels of morbidity (or disease) in a group are explained in terms of morbidity rates (eg. the percentage of a given population suffering from a given illness).

Actuaries in insurance companies study the morbidity rates of almost every disease, as determinants of mortality.

Physicians, on the other hand, investigate variables in the patterning of each disease, looking at factors such as height, weight, blood analysis and urinanalysis. The recorded morbidity experience of insurance clients can indicate which clients will live longer and under what conditions.

Underwriters are concerned with identifying other factors (such as geographic locale, occupation, health care and demographic variables) that may determine the differential morbidity rates within different groups.

Actuaries in insurance companies work in actuarial departments. These departments provide a work structure and organization in the overall system of the insurance

company. The actuaries in the actuarial departments of insurance companies share identity values roles definitions and interests. The data actuaries collect is concerned with actuarial equity as opposed to social equity. Thus, social equity may aim at similar rates for demographically identical men and women (eg. all middle-class clients at age 30 paying x amount of dollars). Actuarial equity, on the other hand, attempts an accurate determination of the expected benefits and costs in order to calculate that premium that will cover the costs of all eventual client benefits. Thus, for example, all middle-class clients of age 30 earning $30,000 per year and free of any disease might pay x amount of dollars, but middle-class clients of age 30 earning $30,000 per year also having hypertension would pay a larger amount, x plus y dollars, because the differential morbidity presupposes differential mortality rates, and thus the probability of paying out benefits after fewer premiums have been paid.

Actuarial equity is important to the insurance industry because each client has to contribute the proper payment to cover his/her estimated costs to the company, and insurance may extend for a long period of time and cannot be cancelled by the company. Key elements involved in pricing life insurance are rate adequacy and rate equity. An adequate rate is one that covers the cost to

the company in the insurance of the given policy. Rate equity is concerned with establishing the proper rate of payment for the particualr client (eg. a client who is ill pays more than a client who is healthy).

The rating or pricing of insurance contracts is in the study area of actuarial science. The actuary constructs tables to which (along with other sources) the underwriter refers. The tables that actuaries construct are constructed from an arbitrary radius (the actuary decides which clients will be entered in which tables) and therefore actuaries use their own formulas and technology to construct insurance tables. These tables are applied to the "experience"of insured lives or to clients who are applying for life insurance. The correlations between different groups of clients at different ages are based on the experience of insured lives and the projected estimates for new clients.

This section has analyzed the development of actuaries and actuarial science with respect to the insurance industry. The insurance industry is aided by the findings of acutarial science in all departments. In order to undestand how the data collected is useful to medical departments, it is necessary to review several aspects of the function of the physisican in the insurance industry.

THE PHYSICIAN IN A MUTUAL COMPANY

HISTORICAL BACKGROUND

Archeological evidence shows medical treatments even as far back as 2000 years ago. Modern Western medicine and medical practitioners or physicians began about 2,500 years ago. Medical ethics were articulated in Rome and Athens. The classical Greek traditions established medicine as a science. Some of these elementary methods appear even today. Knowledge from observation and experimentation was codified and made systematic by Greeks and Romans. Romans established public health measures, health examinations and the first hospitals.

The progress made by the Greeks and Romans was lost during the medieval period when every phase of life was dominated by the church and faith replaced objective evidence. Dogmatic doctrines did not allow experimentation. The Arabs salvaged much codified medical knowledge and preserved it for prosperity.

Around the beginning of the 15th century all scientific endeavors were encourgaed by academicians and a period known as the Renaissance began which continued into the 16th century.

In the 17th and 18th centuries many discoveries (eg microscope, circulation of blood) appeared. However, it was not until the latter part of the 19th century that medicine became scientific and discoveries were put to use

by practicing physicians. Physicians were aided, during this period which has been noted, by the manner in which they were professionalized through better education and professional organizations.

PRESENT FUNCTION OF PHYSICIANS

Disease is a universal phenomenon. Disease as an objective phenomenon (Coe:1970) is characterized by altered functioning of the biological organism or the body. Manifestations of disease may or may not be apparent. Observable and non observable signs are related to a body of knowledge, about human organisms, which physicians have mastered. Illness, on the other hand, is a subjective phenomenon in which individuals (or patients) perceive that they are not well and in some way modify their behavior.

A physician correlates the observable signs of symptoms of disease with the knowledge of human organisms he possesses. At the same time a physician in a patient/practitioner relationship suggests and approves the necessary behavior for the perceived illness which has resulted from the diseased organism.

The physician in the insurance industry is only concerned with disease in individual clients and groups of clients in a physician/client relationship. The physician gathers biological facts,records the facts and compares them with the facts gathered from all of the clients

and the facts gathered by other facilites. The data is submitted to actuarial departments and underwriting departments as an aid in determining longevity and the cost for life insurance products.

Medical departments in insurance companies which began as cooperative practices have been able to continually serve this purpose. The service orientation of "the mutuals" has continually blended with the development of insurance medicine departments and their goal of servicing the needs of clients while maintaining solvency for the company. Physicians employed by the insurance industry have always posssessed accredited medical education. Scientific methods and the use of newer and changing technologies have always been introduced into the companies by physicians. At the same time physicians have been affiliated with professional organizations such as A.M.A., Public Health Agencies, Society of Actuaries, and have been actively involved with the organization they organized known as the Society of Medical Directors. All the professional organizations with which the physicians interacted were influential in fostering specialized medicine. Thus the insurance companies were made aware of the importance of employing specialized physicians who in turn developed the specialty of insurance medicine. The conflicting demands of the needs of the insurance industry

with those of the service orientation (fostered by the medical profession) were addressed at meetings of these organizations. In turn the conflicting views led to the cooperative systems and models developed in the evolution of insurance medicine.

Dr. Mitrium Post was the first medical director of Mutual of New York. His methods for developing the first medical department at M.O.N.Y. will serve as an example of the development of medical departments in insurance companies and the evolution of insurance medicine.

DR. POST AND INSURANCE MEDICINE

Dr. Post was the first medical director of M.O.N.Y. He was asked to serve on the board of directors when the company was first organized as a mutual life insurance company in 1843. He was born in New York City in 1809. Post was graduated from Columbia University in 1828 with his first M.D. degree. He later on graduated from medical school in Philadelphia. His mentor was Dr. Valentine Mott, a prominent physician of the day, who supervised Post's early professional work. In the late 1830's, Post studied with Dr. Baron Louis Broussaie and other eminent men of science. In 1839, Post translated the work of Dr. A. Racibaski on auscultation and percussion (the study and analysis of sound through palpitation). This translation, in addition to his own analysis, attracted the attention

of the leading men of the century. At the inception of M.O.N.Y. in 1843, Post was appointed the company's first medical director.

In its first two years, M.O.N.Y. grew sufficiently for procedures for medical criteria to be established. Beginning in 1845, every applicant was personally examined by Dr. Post, who also personally scrutinized every medical examination conducted by a family physician. His attendance was required at the home office for at least but only one hour each day. In the 1840's one hour a day was sufficient to review all the applications for insurance, and one physician was more than adequate staffing. Medical departments and numerous staff people had not yet become necessary.

In 1849, Post received the title of Medical Examiner, and the munificent salary of $500 per year. His salary increased as business increased, and more of his time was required. Post's duties indicate what he did as medical director and what to some degree is still done by present-day medical directors of insurance companies. Post designed a questionaire form and medical form to cover the basic data necessary for the medical examination. He correlated the facts of the medical examinations with the facts on the insurance company applications (eg. age, income, previous physician's records, work record). Post

had to complile mortality rates in medical departments and had to study the causes of morbidity and mortality among clients. Equally important to the above taks was the arrangement of this information to be presented and understood by insurance company executives. As M.O.N.Y. grew, and more clients had to be screened, Post had to supervise a growing staff of physicians in the field as well as administratvie and clerical staffs in the medical department itself.

By 1869, M.O.N.Y. had 3,500 company examiners divided into regional bodies, each under the direction of a medical referee. At this point examinations were checked by Post or by one of his two assistants.

Post was very much aware of the importance of the questions he asked clients for the gathering of certain facts. He designed the questions to give accurate information about the client's health status. For example, the first form asked such questions as how often the client saw a physician and for what purpose; whether or not the client was aware of any disease he had; whether any members of the client's family had died from specific diseases; how active the client was; and whether of not the client had any of the known contemporary illnesses, such as "bad heart" or "troublesome stomach". The basic ideas of Post's questionaires are still in use today. As more diseases

were defined, diagnosed, and controlled, Post kept revising his questionaire. Other companies followed the same system which still continues today. The evolution of this type of questionaire is possible because the applicants continually supply the data which the insurance companies categorize in order to be cost effective.

The medical data collected on the application forms of clients applying for life insurance from 1840 to the present furnish an interesting approach to the history of the medical profession in the United States. The data illustrates what diseases or physical conditions were considered the greatest curb on longevity at given periods. For instance, in 1867, MONY published one of the first detailed reports (covering 1856 to 1867) on the mortuary experience of the company. Other companies began doing the same type of reports at the same time. From the very beginning, the companies were cautious about insuring all applicants at regular rates. The insurance medical examination remains the most important basis for determining which risks should be accepted and which refused.

By 1899, increasing attention was being paid to the health record of the applicant's family and degenerative diseases in the family history. Questions about diseases that no longer appeared were eliminated. By 1900

it had become evident to the insurance company that medical selection of applicants eliminated those applicants with tuberculosis and heart disease. Therefore, fewer deaths of applicants were caused by those two ailments. However, medical selection did not improve the mortality rate from malaria, and other diseases that could be controlled only with further advances in public health medicine. In point of fact, the MONY life ratio of actual to expected mortality from 1875 to 1906 showed only slight improvement over the ratios from 1856 to 1867. This was due to the lack of public health measures that were necessary to avoid infections that might occur after the issuance of a policy. The statistics collected by MONY (and other companies) for the purpose of securing risk as a manifest function led to the latent function of pointing to the necesssity for public health measures. Therefore, the insurance companies consulted and exchanged information with public health agencies.

Dr. Post's interest in research was instrumental in devising research methods which enabled the insurance companies to remain in the fore front of medical research.

DR. BRANDETH SYMMONDS AND INSURANCE MEDICINE

In 1907, Dr. Brandeth Symmonds became the medical director of MONY. He followed the procedures established by Dr. Post, but became involved with other aspects of

insurance medicine as well. Symmonds became a lecturer at Bellevue Hospital Medical College. He lectured on the different techniques and methods necessary for life insurance examinations. This is the period during which insurance medicine became an established form of medical practice within the professional rubric of medicine. Symmonds published two important papers, "The Influence of Family History on Medical Selection" and "The Influence of Build on Medical Selection". Insurance companies were interested in this type of research. It provided medical students information for learning and it offered young doctors a chance for practice. The concepts behind insurance medicine inspired new and ongoing research. Symmonds and medical directors of other companies began to conduct more extended research on all issues concerning longevity (eg.blood pressure research). Medical examiners used the revolutionary technology (X-rays, EKG's) daily. Data was compiled for use by actuarial and underwriting departments. The data was tabulated and analyzed by each department, and submitted to the board of directors with recommendations and suggestions. The board then issued directives to the underwriting departments to proceed within certain guidelines in underwriting policies . The medical statistics collected by the insurance companies have been helpful in determining the selection policies

used in determining which clients to insure, and how to insure them. All insurance companies have been and remain aware of the importance of utilizing the most advanced methods of assembling and analyzing data on health impairments. The methods for collection of data which were introduced by Post and Symmonds have been even further amplified by other companies. As Brackenridge (1985) ponits out many large companies now employ electronic data processing (EDP) to screen their applications and medical evidence.

THE INSURANCE MEDICINE HEALTH MODEL

Medical statistics are used in medical departments to establish definitions of good health and poor health. The insurance medicine health model incorporates medical statistics in a particular manner. This model also incorporates the medical examination given by a medical examiner within the guidelines of the questions on insurance medical examination forms. These forms indicate the various specific measurements and technological tests to be administered to the potential client. An insurance medical form covers the name of the client, birthdate, social security identification, name of personal physician, a list of diseases with yes or no responses to ascertain whether or not the client has had any of the diseases for which he is or has been treated. The form also asks about

past and present hospitalizations, and the frequency and purpose of visits to all other physicians. There are questions regarding family history, such as ages of parents and siblings and their past or present health status, as well as age and cause of death of any deceased family members. The basic measurements performed by a medical examiner in the field consist of height, weight, pulse, and blood pressure measurements. Certain cases may require the collection of urine, an electrocardiogram and/or the drawing of blood samples. Applicants who have more involved complications regarding health may be required to seek further testing in a physicians's office or in a hospital.

The insurance medicine health model is like other health models (note forms in appendix A and C). The major difference is that the diseases listed and the questions asked are designed to yield infromation that can be applied to policies of selection and risk appraisal.

The results of these tests are analyzed in the medical department. Applicants with certain diseases are grouped together and compared with data on morbidity and mortality of other applicants and other policy holders as well as with data from healthy clients. These medical statistics are also compared with the morbidity and mortality rates documented by the actuarial departments of insurance

companies.

THE INTERACTION OF MEDICAL DEPARTMENTS WITH OTHER DEPARTMENTS

The completed correlations are submitted for review to other company departments. The actuarial departments can use these new results to double check its own calculations and to improve their own data. Medical departments, in insurance companies, also submit their data for review at the meetings of medical directors and at the joint meetings of medical directors and actuaries. The comments and review of these organizations are always wellcomed. The completed studies and analysis are submitted to the board of directors of each company. The boards through the corporate network are also aware of each others findings. It is ultimately the directors of each company who must decide which policies of inclusion or exclusion to adopt.

UNDERWRITING DEPARTMENTS

HISTORICAL REVIEW

Initially the underwriter, in a life insurance company, was a salaried employee. The life insurance companies developed underwriting departments under the direction of the board of directors. The early underwriting depatments had a work force composed of salaried employees who were responsible for checking and compiling the records the applicant submitted from all

sources. These records included an application form, and a statement from his or her personal physician about his character and his financial solvency. If all the records were accurate and within the criteria established by the board of directors, a policy was issued. The policies issued were designed to conform to the general and state legal requirements of a contemporary business contract.

THE PROFESSIONAL DEVELOPMENT OF THE UNDERWRITER

Today, a chartered life underwriter (CLU) can be a professional with a Master of Science Degree in Financial Services. The American College was founded in 1927 by the insurance industry. The curriculum and courses were designed to serve the needs of the life insurance industry. Initially, the certificates granted for completing courses were not considered professional academic degrees. In 1974, however, the college created a Master of Science Financial Services graduate program that has been granted academic accred-itation by the Commission on Higher Education. CLU's toady are professionals experiencing what Montagna (1977) indicated was the status of Accountants. CLU's in todays life insurance industry are recognized as trained professionals. Yet, fewer that 5% of underwriters employed in the life insurance industry have qualified and earned the degree of MSFS. Underwriting departments in insurance companies now employ some of the MSFS holders as

consultants, chief underwriters, or as managers of underwriting departments. The development of the underwriter has been slower than other professionals in the industry. Nevertheless, the professionalization of underwriters indicates the influence of the industry on professionalization of many of its employees.

THE DIRECTIVES AND GOALS OF THE UNDERWRITER

Underwriting departments in today's insurance companies are comprised of a variety of personnel: CLU's, statisticians, agents, computer programmers and secretaries. The underwriting department is given certain directives by the board of directors, which has reviewed the recommendations of agents, marketting data, morbidity and mortality tables, and studies conducted by the medical departments. The underwriting departments are made aware of the products that are available and can be sold in particular markets at the present time. Each application is submitted with medical data to the underwriting department for review. The underwriters decide what contracts can be purchased by each client, according to the established guidelines. In cases where applicants do not meet the established crtieria, each particular case must be reviewed once more by the medical department and possibly a company vice-president. The underwriting departments interact with other departments more than actuarial or

medical departments. Their function is subject to more ongoing negotaitions.

The medical tests performed by medical departments are extremely important at this stage. As already noted, they may have to be reevaluated. The financial criteria that apply to each applicant are diverse and more complicated in today's society. However, the guidelines are based on numbers: an individual may earn so much, pay so much in taxes, save so much, and then have so many dollars with which to buy life insurance. The more money a client has the more products are available. The larger the amount of a policy, the more stringent the medical requirements.

The medical makeup of the applicant differs from case to case. The differences can be categorized. These categories or groups can be studied for the amount of risk they present to the company. In most cases, guidelines established for clients with no health problems can be used for clients with only mild health problems. In extreme cases, the insurance company has systems for dealing with individual problems. It is the medical department in the insurance company that becomes aware of exceptional cases and thus begins to study some of the particular problems. In terms of helath, there are few isolated cases that are totally unique. Exceptional cases usually point to diseases that have not yet been defined, diagnosed or

treated, or to new types of diseases that are occurring as a result of new environmental conditions or changes in generic selection or adverse or damaging psychological factors. The existing systems have to be continually updated to deal with conflicts.

SUMMARY

This chapter presents an analysis of the structure of a mutual life insurance company with special attention to the key roles in actuarial, medical and underwriting departments. These departments are directly involved with insurance medicine and the insurance medicine health model. Insurance medicine is a specialty that evolved in the life insurance industry. The goals of this specialty are to uphold the criteria of the medical profession while serving the needs of insurance clients and the insurance companies.

This combination of business enterprise and professional medicine is problematic at certain times. When medical professionals interact with business entrepeneurs they may meet as antagonists representing different views. One group may represent the physician who must treat a patient with health services at low cost. Another group is concerned with physicians who treat patients who pay a high cost for more extensive services. Several of these physicians may service both types of patients and groups. These patients are also clients in

need of life insurance policies. Some are healthier and some have health problems. Some are poor and can buy limited coverage. Others have the means to purchase more extensive coverage. A system for mitigating these different views and conditions is necessary. The conflicts that arise have to be resolved. Coser (1956) suggested that when antagonists meet they have to negotiate in an arena of similar rules in order to mitigate conflicts. This phenomenon, at times, results in new cooperative systems. In the insurance industry the antagonists met (when "the mutuals" were formed) to negotiate cooperative systems and cooperative associations which did not exist before the conflicts necessitated some negotiations. This process was instrumental in creating systems in the insurance industry which continually mitigate conflicts. These systems are administered by certain key professionals within an insurance company. Insurance companies are organizations that utilize the expertise of actuaries, physicians and underwriters to deal with risk (chance of loss).These medical and business professionals have certain roles in several departments of an insurance company and must adhere to the goals of all companies (maximum production at minimal cost). The roles these individuals have are molded by the criteria of their respective professions as well as the goals of the insurance

companies. Actuaries, physicians and underwriters are interrelated and interact with subordinate and subsidiary systems within the company, with other companies and with society. These individuals adapt to group pressures and certain technology. This chapter has analyzed how these individuals, within their respective goals and departments, create systems which continually evolve to mitigate conflicts.

ACTUARIES

Actuaries were registrars or recorders in business firms. They became managers of insurance companies and established methods for compiling statistics on longevity. These methods were incorporated into "the mutuals" in the middle of the 19th century. Actuaries were professionalized and were employed by the insurance industry during this period. In the process they became professionalized and specialized.

The rating or pricing of insurance contracts is in the study of actuarial science. The tables that actuaries construct are important to physicians who use the insurance medicine health model to determine the health status of the client. These tables are helpful to underwriters. The tables help executives and underwriters to determine what products are best for certain clients at differing prices. The issue of equity for all clients can be problematic.

Social equity suggests that all clients are entitled to some life insurance. Actuarial equity is different because each client has to contribute the proper payment to cover his/her estimated costs to the company. The key elements in actuarial equity are rate adequacy and rate equity. An adequate rate covers the cost to the company for a given product. Rate equity means the proper rate of payment for a particular client (ill clients pays more than healthy clients). The medical profession is concerned with health care for all patients at whatever price they can afford. The insurance industry is concerned with the creation of products that can be paid for (with different limitations) by clients. Actuaries in actuarial departments have the responsibility of analyzing these different needs and constructing tables or systems that can be helpful in mitigating the problenms that arise from the different orientations.

PHYSICIANS

Medical treatments and medical practitioners have existed for 20,000 years. Modern Western Medicine began about 2,500 years ago. However, modern medicine became scientific and professionalized in the latter part of the 19th century.

Physicians observe and do tests to determine observable signs or symptoms of disease. These

observations are correlated with existing scientific and medical knowledge to determine what tests can better ascertain the health status of a client/patients and needs. In the doctor/patient relationship the physicians may approve certain behavior for a patient to alleviate his symptoms and cure his disease. In the practice of insurance medicine the practitioner is concerned with how diseases in individuals can be categorized. The manifestations of diseases are compared with the data gathered from all clients with similar diseases. The aim is to group individuals with certain diseases. These groups are compared with groups of healthy clients in an effort to determine health status and longevity patterns. These comparrisons help to determine the cost of life insurance products. The data compiled by physicians in medical departments helps the insurance industry to determine existing risks.

UNDERWRITERS

Underwriters were originally salaried employees. When the client base increased in all insurance companies underwriters had to learn to deal with voluminous data. In the process of learning how to deal with many facts, they became professionalized, specialized and amenable to bureacratic controls. Even though they became professionalized recently, they now possess somewhat

similar status as actuaries and physicians. The major difference is that the insurance industry controls the education and accreditation procedures for underwriters. To some extent the corporate structures within the insurance industry produced the profession of underwriter today. This status and power enables them to mitigate conflicts between the professional criteria of actuaries and physicians with respect to the business demands of the industry.

The analysis in this chapter demonstrates that actuaries, physicians and underwriters developed as professionals involved with insurance medicine and the insurance medicine health model within the insurance industry. In the process of becoming professionalized, and maintaining professional status, (through the influence of their respective professional organizations, better education, and innovative technology) they have created methods for mitigating the conflicts between professional criteria and business demands.

# CHAPTER 4

## THE CASE OF HYPERTENSION

### HYPERTENSION AND THE PROFESSION OF MEDICINE

### HISTORY

As already indicated in chapter three, the insurance medicine health model is continuously evolving as diseases are diagnosed, treated and controlled. The diseases that appear on medical insurance forms are those that are amenable to some type of procedures established by actuarial, medical and underwriting departments. These procedures deal with the appraisal of risk to the company and premium charge to the insurance client. The insurance medicine health model is applied to selcted populations or groups. The population under consideration in this section is concerned with clients and applicants who have hypertension. In order to proceed with the case of hypertension a brief histoy of the disease will be helpful.

Merton's concept of function and the distinction between (manifest and latent functions) consequences which are intended and recognized by participants in the system and those that are neither intended nor recognized is applicable to the history of hypertension as a disease. The instrumentation for the measurement of blood pressure was the result of experiments that were at times intended for other purposes.

The first recorded experiment dealing with blood pressure appears in the textbook relating to the heart and dates back to 1720. The experiments were conducted by Hale, a clergyman, outside in the yard of his home. Hale was not a physician or particularly interested in medicine. He was interested in knowledge. His research was not directed nor mission oriented. He had no goal in mind and the research was not applied. He wanted to learn more about the flow of fluids.

In December of 1707 he wrote: "I caused a mare to be tied down alive on her back. She was 14 hand high, and 14 years of age, had a fistula on her wirthers, was neither very lean nor yet lusty. Having laid open the left aural artery about 3 inches from her belly, I inserted into a brass whose bore was one sixth of an inch in diameter and to that by means of another brass pipe which was filty adapted to it, I fixed a glass tube of nearly the same diameter which was 9 fl. in length. Then untying the ligature on the artery the blood rose in the tube 8 ft. 3 in. perpendicular above the level of the left ventricle of the heart. But I did not attain to its full height at once, it rushed up about half way in an instant and afterwards gradually at each pulse 12, 8, 6, 4, 2 and sometimes an inch. When it was at its full height it would rise and fall at and after each pulse, 2, 3, or 4 inches, and sometimes it would fall 12 or 14 inches and have 3 for a time. The same vibrations up and down at and after each pulse, as it had when it was at its full height to which it would rise again after 40 or 50 pulses".

He learned how high the blood went up and down with diastole and he saw the effects of deep breathing, struggling and discomfort. He measured the pressure of the great veins, the pulmonary artery, the volume of the cavity of the left and of the right ventricle and the volume of

velocity of blood ejected from the heart during each beat. These results were not correlated in terms of professional medicine or developed for human beings.

It is important to note here that William Harvey (1628) a scientist, had experimented with the circulation of blood and had demonstrated that blood flowed around in a circle, away from the left ventricle and back to the right. Yet Harvey' s, research was not applied until 1812 and not completely recognized until the latter part of the 19th century.

In 1828 a French medical student, Jean Leonard Maxie Poiseuille, popularized the use of a mercury manometer and U-tube. He also was not particularly interested in hypertension. He wanted to measure whether there was really a considerable resistance to flow through a normal aorta from its beginning at the its left ventricle to its end in the lower abdomen.

In 1847, a German physiologist, Carl Ludwig, then Professor of Comparative Anatomy, put a float at top of Poiseuille's mercury column and added a horizontal scribe that recorded blood pressure continuously.

Riva Rocci (1896) a physician in Turin, Italy, learned how to make accurate and reproduceable measurements of human systolic blood pressure with a wide inflatable arm cuff. His goal was to learn more diagnosis and prognosis of

acrdiovascular disease.

Nikolai Korotkoff (1905), a surgeon from Leningrad devised a method to measure both systolic and diastolic pressure in humans. Korotkoff proposed listening to sound instead of feeling a pulse or lack of it.

The experiments conducted for other purposes led to the instrumentation for the measurement of blood pressure. The manifest function of all these experiments was aimed at differing scientific endeavors. The latent function was the path that led to the technical instrumentation that made possible the correct measurement of blood pressure in human beings.

BLOOD PRESSURE MEASUREMENT

Since 1905 and up to the present blood pressure has been defined as follows: Blood pressure is the measurement of how the blood is pumped around the body. The left ventricle pumps about 10 pints of blood into the aorta for distribution around the body in one minute. This quantity of blood is called the cardiac output and it depends upon an adequate blood volume. The return is helped by two factors: a. expansion of the chest, when breathing in which helps to pump the blood into the thorax and b. contraction of the muscles of the limbs which squeezes the veins and forces blood through them.

Each beat of the heart forces blood through the aorta

causing the pressure recorded inside (each artery has the same action) to rise. The highest pressure recorded inside the artery is called the systolic pressure. The norm is 120 millimeters of mercury (mm.Hg) as recorded on a manometer. The arterial wall contains elastic tissues. When blood is pumped into the artery from the heart, the heart wall stretches to accomodate extra fluid. When the ventricle relaxes, the stretched artery walls spring back. During relaxation of the heart the pressure of the blood inside the arteries gradually falls. The lowest level of the blood presure recorded in the artery is the diastolic blood pressure. It is usually about 80 mm.Hg.

The heart decides the level of systolic pressure. Blood does not escape quickly from the arteries because it is prevented from doing so by the small vessels or arterioles which branch off at the end of the arteries. The arterioles provide a peripheral resistance to the blood flow. Therefore, the cardiac output and peripheral resistance determine the blood pressure. The muscle in the walls of the arterioles is supplied by nerves from the sympathetic division of the autonomic nervous system. These nerves take their cues from a collection of nerve cells of the vasomotor center found in the nedulla of the brain. The arterioles are also acted upon by the temperature which causes constriction. Hormones such as

adrenalin also alter the size of the vessels and influence the blood flow and the general arterial blood pressure. Blood pressure varies in each individual and is acted upon by several parts of the body (note appendix D).

The knowledge of all these parts of the body existed in the latter part of the 19th century. Nevertheless an exact diagnosis for hypertension as a disease and a method of treatment could not be devised until the technology for the measurement of blood pressure existed. Approximately 172 years passed from the measurement of blood pressure in a horse to accurate measurement of systolic and diastolic blood pressure in man. An American textbook of medicine, written by Osler in 1919 still had no separate section on hypertension or its treatments.

In the 1920's two important questions with reference to hypertension had not been answered: 1. did hypertensive patients meet with disaster if treated? 2. what was the risk to hypertensive patients if they were treated? Until 1925 physicians believed that elevated blood pressure in certain patients (particularly older patients) was necessary and a normal compensatory change for those type of patients. They also believed that trying to lower the blood pressure in these patients would be harmful. These beliefs were not completely dispelled until the neurosurgeons came on the scene.

TREATMENT OF HYPERTENSION THROUGH NEUROSURGERY 1850-1925

The profession of medicine, in the United States in the middle of the 19th century, was poorly organized. Most of the research in medicine was conducted in Europe at that time. Most of the technology being invented was under the sponsorship of European doctors. The frontier system consisted of training through apprenticeship. The doctors trained in this manner had limited knowledge. They dealt only with diseases they were aware of with treatment that was not too complicated. Patients were treated locally by a family physician or they were referred to a surgeon. If a patient had a severe ailment and money he was sent to one of the big cities for treatment in a medical center where European trained doctors directed procedures. One of the best indicators of health at that time was pain. If a patient had much pain he was taken more seriously. One of the ways to deal with pain was to allow surgeons to operate on those areas which caused pain in order to see what was wrong and in the hope of cutting out or eliminating the source of pain.

The technological innovations, discovered in Europe, were eagerly wellcomed in the United States. The growing industrial complex was able to put the technology to use in growing city hospital centers. The inventions were X-ray, EKG, BP measurement and Laboratory procedures. At the same

time American medical education had undergone major changes and American doctors were being trained in an academic system in universities that required knowledge of the new technology as well as clinical exposure with patients and exposure to European medicine. By 1925, the Mayo Clinic Complex had been established as an ourgrowth of the educational and technological events. This team of neurosurgeons at the Mayo Clinic selected a suitable patient for an experimental surgery . The rationale for a neurological approach to hypertension began with the experiments of a French physiologist and a British physiologist in the latter half of the 19th century Again it is important to note that all these scientists were not involved with research on human hypertension. The two Frech physiologists worked independently of each other. Bernard (1851) observed that cutting the sympathetic nerves to the ear of a rabbit led immediately to increased warmth of that ear, visible dilation of blood vessels of the ear, and the appearnce of new vessels not previously visible. Sequard (1852) reported that galvanism (direct electric current) when applied to the upper portion of the sympathetic nerve trunk, after it has been cut in the neck, (which in itself dilates blood vessels) results after a certain time in the contraction of the vessels of the face and of the ear. The contractions increase slowly

and they resume their normal conditions and even become smaller. Then the temperature and the sensibility diminish in the face and ear and they become in the palsied side the same as in the sound side. When the galvanic current ceases to act, the vessels begin to dilate again and the original phenomena reappears. He concluded that the only direct effect of the section cutting across of the cervical part of the sympathetic nerve is the paralysis and consequently the dilatant of the blood vessels. Another evident conclusion was that the cervical sympathetic nerve send motor nerve fiber to many of the blood vessels of the head.

Thus, these Frech physiologists provided a rational basis for severing vasoconstrictor nerves.

During this same period two British surgeons supplied the anatomical detail for precise and correct surgical procedures on sympathetic nerves. They were Walter Gaskell and John Langley. Gaskell demonstrated that sympathetic nerve cells were conveniently collected in the ganglia outside the bony vertical column (which protected the spinal chord)like a string of beads on either side of the vertebrae.

Langley demonstrated which ganglia sent nerve fibers to which blood vessels.

Consequently, the patient who was selected by the Mayo

Clinic for removal of the lumbar sympathetic ganglia was a person in severe pain who was willing to submit to any procedures that offered any relief. After the surgery the patient felt somewhat better for several months and his blood pressure was lowered. But, his condition did not improve. The important result was that a period of lowered blood pressure did the patient no harm. The other findings were that there was no change in the composition of urine and that the function of the kidney was in no way impaired. This experimental surgery dispelled the notion that lowering blood pressure in certain patients was harmful.

INVESTIGATION AND TREATMENT OF HYPERTENSION 1930 TO THE PRESENT

Once it had been established that lowering the blood pressure did no harm, the control of blood pressure was open to further experimentation. Dr. I. Page investigated and compared the efficiency of renal excretion when blood pressure was high and blood pressure was low. The kidneys have internal regulatory mechanisms which deal with the tissues and the control of blood flow within them. This process of local control of blood flow within tissues is called autoregulation. When this process of autoregulation is impaired and the mechanisms in the kidneys do not act in balance it can have damaging effects. This type of failure in the kidneys can lead to high blood pressure. In

individuals whose kidneys do not adequately excrete sodium when pressures are normal the following occurs: cardiac output, plasma volume increases, and the flow of blood to the tissues increases. These signals initiate the autoregulatory process. As a result the arteriolar bed constricts, peripheral resistance increases and blood pressure becomes elevated. Once autoregulation was understood, experimentation with drug regulation for hypertensive patients was able to begin.

At this point it is important to note that increased neural activity may cause constriction of the efferent arterioles of the kidneys so that the kidney's normal ability to excrete sodium and water under normal arterial pressure is impeded. Therefore, the impaired process of autoregulation in the kidneys could be initiated by inadequate neural activity. In the early 1900's the chemical substances which act in functional union with sympathetic nerve fibers were also being investigated. When neurosurgeons dispelled the notion that lowering blood pressure was harmful, researchers were able to make use of the existing knowledge about chemicals to introduce different drugs to control all the factors leading to elevated blood pressure. It was Dr. Page, and the group of cardiologists and internists he interacted with, that contributed to research efforts that made use of the data

available about nerve fibers and chemicals. Dr. Page clarified the process of autoregulation, by pointing out that the blood flow in tissues has to be balanced. With respect to the kidney, when this balance is impaired it can lead to elevated blood pressure. The research conducted by Dr. Page also helped to highlight the impact of neural activity and chemicals. Once it was understood that nerve endings stimulate the flow of certain chemicals in the body, chemists were able to isolate these chemicals and conduct experiements that led to drug therapy.

The research dealing with chemical substances which was conducted by Oliver (1895) Schafer (1895) and Graz (1920) led to the discovery of epinephrine. The discovery of epinephrine indicated that the nerves influence the heart indirectly through this chemical substance and thus have an effect on blood pressure. This research became more relavant to the study of hypertension as a disease after investigations conducted by Dr. Page, indicated that the nerves liberate specific chemical substances which act in functional union with sympathetic nerve fibers. Stimulation of the central nervous system leads to increased adreneline levels. The adrenoreceptors alpha and beta are located in the arteries, the arterioles and the veins. There are three types of adreneceptors which effect certain organs and elicit certain responses. Alpha has an

effect on the arterial and venous tissues and causes vasoconstrition. Beta-2 has an effect on arterial and venous tissue and the response is vasodialation. Beta-1 has an effect on cardia (heart) tissue and causes the following response: increase in heart rate, increase of speed of blood ejection, increase of myocardial constriction. All of these actions in any imbalance can cause increased cardiac output. This sequence leads to elevated blood pressure. As knowledge of all of the factors connected to elevated blood pressure were discovered and made available, the use of certain drugs to counteract the detrimental effecfs was discovered. (Note appendix D, diagram steps, which illustrate the purpose and use of drugs for drug programs to control hypertension). Since 1940 and up to the present time, industrial chemists have produced many drugs that act to stabilize imbalances in blood flow in the body.

This history has described how a disease was defined, diagnosed and treated. This knowledge was applied to appraise risk of hypertensive clients who applied for life insurance. The following section describes how the knowledge was instrumental in mitigating the conflicts in the business medicine relationship.

HYPERTENSION AND INSURANCE MEDICINE

WHEN AND WHY THE INSURANCE INDUSTRY BECAME INTERESTED IN

HYPERTENSION

There are three types of hypertension; severe, moderate and mild. The practice of insurance medicine in the insurance industry is limited to those aspects of clinical medicine which are amenable to risk selection. Therefore, in the case of hypertension, the insurance companies are concerned with systems that categorize mild and moderate hypertensive patients. Severe hypertensives are treated in hospitals or by private physicians at home. The insurance industry becomes interested in severe hypertensive patients after they have been stabilized. The insurance industry became interested in hypertension after they recognized the fact that it was a major health problem and that it would in turn jeopardize the health of clients. Hypertension had been and is a national and international health problem. Stamler (1974) claimed that 20 to 25 million Americans have hypertension and that even a slight elevation of blood pressure markedly increases the risk of major cardiovascular complications or heart attacks. Stamler also claimed that "morbidity, disability and mortality from hypertensive disease per se is costing the nation over 1.7 billion dollars annually in indirect costs". The insurance companies have always been keenly aware that they must have as few costs as possible. The insurance companies began to group all applicants and

clients with hypertension in the early 1900's when the techniques for the meaurement of blood pressure were being perfected. They began to consider, at this time, all the factors that were involved with the definition, diagnosis and control of hypertension. The data indicated that about 75% of all hypertensive patients had mild or moderate elevation of blood pressure. The other 25% were not considered because many needed hospitalization and more control.

The questions that these facts raised for insurance companies were (a) costs to the company and (b) were applicants with higher blood pressure able to control their elevated blood pressure by complying with given regimens in terms of treatment and life style. In order to deal with all the dimensions of this problem the companies used the insurance medicine health model. This model is used to evaluate all diseases considered by the insurance industry.

The factors considered by the underwriting department are: personal health, an applicant's habits, a family history, occupation, type of build and residence. The sources of information in addition to the insured himself include the application, the agent, the insurance report, the medical examination and the MIB report.

The insurance medicine model is applied to each applicant. The information obtained from the use of this

model is submitted to underwriters. Underwriting, simply stated, is the selection and rating of risks which are offered to an insurer. The process of underwriting is based on the information from certain sources and the process of selection.

THE FACTORS CONSIDERED FOR HYPERTENSIVE CLIENTS

The personal history of each hypertensive client includes information regarding all diseases, illnesses, hospitalizations and medications the client has. Any accidents the client may have had are documented. Special attention is given to the severity of and duration of illnesses.

The clients are questioned regarding their intake of alcohol and addictive drugs.

The family history of each client includes the ages of the mother, the father, brothers and sisters and their respective health statuses. The causes of deaths of all family members is recorded as well.

The occupation of each client is considered. Insurable occupations are classified into broad groups of about the same average claim and within different classes. Cost with appropriate scales of premium rates are applied to each class. Hazardous occupations such as flying are considered as more risky and judged separately.

Clients with extreme weights and heights are rejected

or given special attention.

The residence of a client is considered a risk when it is foreign. Locations in most areas in the United States are evaluated in groups.

OTHER SOURCES OF INFORMATION

An application form which includes questions about age, sex and social security status. The application form is administered by the agent, who represents the insurer, and also includes questions about residence, occupation and health. The agent solicits detailed information regarding the earnings and income of each client. In the case of hypertensive clients careful consideration is given to absentism and length of work day. This information is submitted to the underwriting department as well.

The underwriting department checks all the above information with a central Medical Information Bureau (MIB). MIB is a central clearing house maintained by the insurance industry. All health impairments of all clients within the industry are noted and classified. False statements given by clients result in further investigation or rejection of insurance.

The health status of all clients remains one of the most important indicators of risk to the companies. In the case of hypertension the insurance industry has created an extensive system of checks which is further explained in

the following section.

HOW THE MEDICAL EXAMINATION IS ADMINISTERED AND EVALUATED

The medical examination is administered by a physician or a paramedical person. Both are in a sense employed by the insurance company and must follow the insurance companies guidelines. The need for certain types of examinations depends on the amount of insurance applied for, the age of the client and the required procedures of the company. A medical examination consists of a form specifically designed for the insurance industry which includes certain questions and measurements. (Note appendix C) All medical exams whether conducted by physicians or paramedical personnel include height, weight, chest measurements, a recorded pulse. several blood pressure readings and some type of urine testing. Since 1987, most examinations include some type of blood drawing as well. In cases where there is a history of disease, like hypertension, the applicant must submit to a physician for further testing and more involved tests such as X-rays.

When all the information has been collected, the data must be evaluated and a decision must be reached by the underwriting department as to whether the applicant can be accepted at standard rates, substandard rates or rejected. There are several numerical methods for rating.

A numerical rating system is used by most insurers to

evaluate the total effects of physical condition, build, family history, occupation, and the other factors noted. Rating scales based upon debits and credits for these items have been developed over many years. A standard class may fall between 75 and 125, while numerous substandard classes ( some as high as 500 to 1000 percent of normal mortality) are identified.

An example might be the following:

| | |
|---|---|
| Average person's mortality | 100 % |
| Favorable family history | +10 % |
| Unfavorable family history | -10 % |
| Unfavorable occupation | -20 % |
| Unfavorable build and overweight | +15 % |
| Elevated blood pressure | +35 % |
| Total | 160 % |

The objectives are a system that is easy to administer, understood by the agency force and the public, as well as, equitable between impairments and between classes of insureds. The objective of underwriters is to accept as many clients as possible at standard rates. In order to achieve this objective applicants are divided into groups according to age and state of health. A small minority in any group would be expected to die soon. A certain small percentage would have impairments which although not immediately fatal would shorten the lives of the clients in that particular group. The majority would be normal and would be expected to live a standard number of years (about 70 at the present time). Another very

small minority would be very healthy and expected to live longer (80-90 years). These groups are assigned to certain classes of insureds. The first minority or class of insureds would be rejcted. The second group or class would pay a higher premium. The third or majority group would pay a standard rate calculated according to the mortality experience of the groups in that age range without any impairments. The last or fourth groups might be given a certain discount by certain companies. These are the factors considered when deciding what is equitable between impairments and between classes of insureds.

All the data collected and calculated by the medical departments is submitted to the underwriting departments. The findings of private physicians are considered. The data available from the use of other health models is reviewed to indicate relavancy to data collected in the insurance industry. It is the responsibility of underwriters to review the data and adjust to the existing criteria within the insurance industry.

OTHER HEALTH MODELS

A review of community control of hypertension indicates that several other types of health models are utilized. The information from all these health models is considered by the physicians employed by insurance companies. Some of these physicians may have private

practices and be employed by other clinics where they treat and control hypertensive patients. They are aware of the procedures that are needed to treat hypertension.

They bring this information into the medical department and when it has been properly correlated with the mortality and morbidity experience of other applicants and clients it is submitted to the board for review. When the board agrees that all factors have been considered a procedure for testing and evaluating hypertension is established or redefined and changed. In the early 1900's when physicians were experimenting with the measurement of blood pressure testing and new technology the information from all sources was instrumental in establishing procedures for the industry. At the present time, the comparrisons are helpful to the physicians in their private practice as well.

MEDICAL RESEARCH IN INSURANCE COMPANIES

COMMITTEE ON BLOOD PRESSURE

In order to better understand how the correlations are developed and used in insurance medicine for the disease of hypertension, a brief review of the committee on blood pressure in the insurance industry is necessary. The insurance industry established the committee when they were convinced that elevated blood pressure would cause earlier death. In 1911, when the technology for the measurement of

blood pressure had been refined, a committee on blood pressure was established in the insurance industry by medical directors to investigate the mortality experience of clients with hypertension. At the twenty third annual meeting of medical directors procedures for the measurement of blood pressure were discussed. At the twenty fourth annual meeting all companies were asked to submit the data on the blood pressure of all clients tested. It was clear, that persistantly elevated blood pressure in a group of clients would result in a higher mortality rate for the group.

THE 1914 RESEARCH

At the 24th annual meeting of the Association of Life Insurance Medical Directors of America on December 19, 1914, the report of the committee on the blood pressure test was heard. The report appeared seven years after the investigation had started. The following issues had been considered: should the test be required in all cases? If not, at what ages? For what amounts of insurance? Should both systolic and diastolic pressure be required?. What kind of instrument should be adapted for insurance medicine and recommended to examiners? What should be called for on the application blank? Systolic pressure in mm? Name and make of instrument? Width of cuff or arm-band? How many readings should be made at each examination?. What

directives should be given to the examiner? Position of Applicant? Recordings at the beginning or end of the examination? How many readings to obtain a fair average reading? The limits which call for repeated tests? What is a normal reading (eg. 140/90)?. What special requirements in case of previous urine records? Previous organic or functional cardiac record? Previous syphilitic record? Record of two or more paralysis in the family?

All of the above points had to be dealt with by each insurance company and assimilated into their standard procedures for definition, diagnosis and treatment of blood pressure.

In 1921 the statistical bulletins of the Metropolitan Life Insurance Company began to be pulbished. These bulletins published updated studies regarding blood pressure. In July, 1921, one of the bulletins indicated that high blood pressure was not to any significant degree causally related to hygiene factors, high protein diet, the excessive use of tobacco, infected tonsils or infected dental tissues. However, excessive weight showed a definite relationship to high blood pressure. It was clear that the insurance industry was investigating all factors in this disease.

THE 1925 RESEARCH

In 1925 a report of the Joint Committee on Mortality

of the Association of Life Insurance Medical Directos and The Actuarial Society of American was distributed throughout the industry. Twenty-six companies had participated in this project. Seven hundred and seven thousand perforated cards were obtained. The insurance in force in these companies represented about 3/4 of the total insurance in force in the U.S. and Canada. This study is considered to be a classic example of research in the insurance industry.

The objectives of the investigation were to determine: A. The average systolic, diastolic pressures according to weight, height, and age of client. When each policy was issued for men and women. B. The mortality according to departure from 1. The average diastolic pressure 2. The average systolic pressure, 3. The average pulse and pressure and 4. The combination of these three C. The causes of death in various groups.

It is important to note that during this study the method of taking blood pressure was continually changing and that the data was collected in a short period of about five years. The conclusions briefly stated were as follows:

A. The mortality is lower than the average, when the systolic or diastolic taken by itself, is somewhat below average, but no information is yet available regarding the effect of very low pressures. The average

blood pressure does not, therefore, appear to be the point of lowest mortality.

B. The good effect of a systolic or diastolic pressure slightly below the average is likely to be greater at the younger than at the older ages.

C. The mortality increases rapidly with the increase in blood pressure over the average.

D. Substantial departures from the average blood pressure are less significant in the case of pulse pressure than in the case of either systolic or diastolic pressure.

This study was conducted at the same time that neurosurgeons were conducting experimental surgery in the treatment and control of hypertension. The insurance industry was in the forefront in terms of attempting new research and carefully examining all other research with respect to hypertension.

Merton noted in his dissertaion on "Science in 17th Century England" that there are modes of interplay between society , culture and science. Therefore, science in the 17th century developed from technology and economic interpretation and beyond that from the culture in the existing society.

In the 19th century, in the U.S., there was an interplay between the needs of the growing population and health care. The U.S. was a new country with developing

cultural patterns. The profession of medicine was developing because there were multiple independent discoveries in the use of technology and the practice of medicine. Therefore, the growing population in a prosperous open economic market inspired research and methods for better health care. The insurance industry became aware of the health needs as they investigated the needs for the protection of life and family. The newer culture was also more receptive to methods for self preservation. The application of the technological discoveries to insurance clients led to more experimentation which refined the definition, diagnosis and treatment of hypertension and other diseases. Even though the research in the insurance industry was funded to secure risk and create profits as a manifest function, it did contribute to research in the profession of medicine as a latent function. These intended and unintended consequences have been evident in the past and continue to be evident now.

THE VETERAN'S STUDIES

After World War II the use of drugs for theraputic purposes became widespread as a treatment for all diseases and hypertension as well. This was due, partially, to the success encountered with the use of antibiotics in the field during the war. Another reason was the fact that the experiments in the treatment of hypertension by the

neurosurgeons had opened the path for chemists to experiment with different drugs to control elevated blood pressure. The insurance companies scrutinized these developments through the physicians they employed who used the experiemntal drugs in their private and hospital practices.

Other studies were and are continuously reviewed by insurance companies. An example of the type of studies insurance companies review is the work done by the Veteran's Administration (V.A.).

The Veteran's Administration Cooperative Study Groups on Anti hypertensive Agents (1959 to 1970) dealt with three groups of hypertensive clients with higher diastolic pressures. One group was given placebos, another group was medicated and both groups were compared with normal patients. The results indicated no reduction in pressure in the group with placebos, and marked improvement in patients with adequate drug therapy. After these studies the V.A. was able to be definitive about the value of therapy. These studies highlighted the need for more research regarding clients with milder and borderline hypertension. The insurance industry examined their clients, with this type of hypertension, with a keener awareness.

PROCEEDINGS OF THE SOCIETY OF MEDICAL DIRECTORS REGARDING

HYPERTENSION (1981)

At the 89th annual meeting of medical directors, in 1981, different issues were being discussed. The doctors conducting the meeting pointed out that since 1925 the Association of Medical Directors and the Society of Actuaries had jointly conducted five major intercompany investigations on hypertensives. The unique and important value of these studies is:

1. The patients with mild and moderate hypertension have been free by and large of other impairments.

2. The studies have followed patients from ten to twenty years.

3. As many as four million clients have been followed in the last two investigations.

4. There is ample evidence, at the present time, to suggest that the mortality among insured lives is representative of the mortality among middle class healthy individuals.

5. The insurance companies continually check their results with the results of all other available studies which keeps the research current and valid.

Therefore, the studies conducted by life insurance companies have been and are at times more conclusive than other studies because of the number of participants and the long term controlled follow up.

At the present time, it is possible to set up

diagnostic crtieria to identify clients with all types of hypertension. An adequate regimen of treatment has proved effective and helpful in all cases. At the present time studies are aimed at indicating different levels of drug use and changes in lifestyle. The insurance industry has created systems that update research regarding the case of hypertension continually. The result is a system that secures risk and meets the demands of sound contracts for the clients and profits for the companies. The manifest function of upholding the goals of the companies is met while creating a latent function of encouraging clients to seek better health patterns. The conflicts between the two orientations are continually minimized or eliminated.

UNDERWRITING HYPERTENSION AT THE PRESENT TIME

The history of hypertension as a disease and the review of the research conducted by insurance companies is the basis for the guidelines for underwriting clients with elevated blood pressure at the present time. Hypertension may be defined as high arterial blood pressure. Hypertension is a quantitative deviation of blood pressure relative to certain norms in certain given populations. It varies during each contraction of the heart. The maximum pressure during the contraction of the heart is the systolic range (100 to 149mm of mercury normal range). The minimum contraction of the heart is the diastolic range (60 to 90

mm of mercury normal range). According to various studies blood pressure above 160/95 is considered hypertensive. Blood pressure is a difficult quantity to establish and it varies from population to population, from time to time and within the course of each day. Therefore, various categories of blood pressure readings have been developed for underwriting puposes. Careful judgment is encouraged in each case. The following guidelines apply.

PROCEDURES FOR TESTING APPLICANTS

Blood pressure readings are accepted whether taken from either right or left arm. The blood pressure may be taken from both arms and averaged unless the readings from one arm to the other differ by 20mm or more systolic or 10mm or more diastolic. No readings should be taken in a reclining or standing position or immediately after excercise. The most favorable ratings should be recorded. A debit rating of +10 or more is to be assigned to the applicant if there is a family history of cardiac, circulatory or renal disease, cancer or diabetes. A rating of +10 or higher is to be assigned to applicants who are overweight or who have any other indications of disease themselves.

GUIDELINES FOR DETERMINING THE RANGE OR AVERAGE OF APPLICANTS BLOOD PRESSURE

Preferably, only blood pressure readings obtained within

two years of the application should be used. Older recorded blood pressure readings should be discarded unless there are no reported readings within two years of the application date.

Different averages are considered and are dependent on each case. The averages are: a. 140/90, b. 150/95, c. 160/100. Beyond this there are table of entry averages (within 3 months) and historical averages (3 months to 24 months). Blood pressure readings of the last 2 years are considered exact information for a case under investigation.

Beyond the above crtieria, there are different crtieria for blood pressure rechecks, evaluation of treatment, diseases or conditions which might adversely be affected by hypertension and reconsideration of a given case.

In terms of treatment there is a wide variety of anti-hypertensive therapy medications available which allow adequate control of most hypertensives. There are rules for appraisal of treatment and further reconsideration.

The categories listed above indicate a functional insurance medicine health model for dealing with hypertensives. There are crtieria and rules for the definition, diagnosis and treatment of hypertensives. There is a system in the manual of the medical department

that the underwriting department understands and can adhere to in making a determination for an insurance company. Furthermore, in the last 50 years (although there have been few technological changes in the medical examination for hypertensives) there are many more medications that can and do control hypertensives and are readily available and affordable to clients. THEREFORE, FEW APPLICANTS WITH HYPERTENSION ARE REJECTED. They are merely evaluated according to the criteria above and charged an extra premium which coincides with the severity of the case. If clients adhere to a treatment program and are willing to be reevaluated by the insurance company, the company may lower even the initial premium.

This system works in favor of the client while upholding the goals of the company. At the same time the system has been designed to uphold the most current and serviceable criteria in the medical profession.

ANALYSIS

The experiemtns conducted by Harvey (1628), Hale (1720), Poisuille (1828), Ludwig (1847), Rocci (1896) and Korotkoff (1905), indicate that sufficient knowledge existed as far back , as the 17th century, about the causes of high blood pressure and some of the technology necessary for the diagnostic techniques needed to measure blood pressure. Yet, the refinement for today's knowledge, with

respect to hypertension, did not begin to occur until the beginnning of the 20th century. Merton's thesis that there is an interplay between society, culture and science is applicable to this case. Science, in the 17th century, developed from that existing culture, technology and economy. The Royal Academy of Science encouraged the research to meet the needs.

In the 20th century,in the U.S., there was the same type of interplay between the needs of the growing population and health care. At the same time there were developing professional organizations, with funds, that encouraged the inventions and technology to service these needs.

Freidson (1972) offers another explanation for this case. He indicated that diagnostic tools became so numerous, in the latter part of the 19th century, that physicians had to form their own professional organizations for control of their practice as well as for creation of settings for the new technology which individual doctors could not afford, service or maintain. At this time professionalization developed and specialization grew. The settings that became necessary for the new technology and the new equipment necessitated group practices. Medical departments in insurance companies became group practices and in the process they created the specialty of insurance medicine.

The medical profession had given a great deal of attention to hypertension because it was a disease that was and is painful to patients for many years. In addition to discomfort, it had debilitating consequences which resulted in earlier deaths. These factors were costly to patients, their families and employers. The history in this chapter demonstrates how hypertension was defined, diagnosed and eventually treated through planned and unplanned research, experimental surgery and drug therapy. The research was sponsored by the organizations that represented the scientists and physicians who were aware of the problems. The aim of the medical profession was and is an attempt to cure and control all hypertensive patients. The medical practitioners maintain a service orientation. They are concerned with what is best for the patient and what will alleviate his symptoms.

The insurance companies have given much attention to hypertension because it has been and is a disease that has caused and causes many problems in terms of morbidity and mortality. Client/patients who are ill can not pay their premiums and may die sooner. The insurance industry became actively involved with the definition, diagnosis and therapy of hypertension when the measurement for blood pressure had been refined. Blood pressure, when measured and averaged, is a good indicator of poor or good health.

Medical departments, in the insurance industry, established procedures which enabled them to make the best use of new scientific knowledge and measurement techniques. The numerical rating system used by insurers became and still is very functional in the case of hypertension. It offers the client a good life insurance product at a fair price and encourages the hypertensive client to seek the best health regimens. This has been due to the fact that blood pressure can be measured, client/patients can be grouped and studied, and the harmful causes of hypertension can be categorized. The insurance companies were and are able to eliminate those clients that present too much risk. The manifest function of physicians, employed by insurance companies, was to eliminate clients who present too much risk to the company. The latent function was to encourage patients to better their health status so that they could be reevaluated and obtain insurance products. Physicians were thus able to fulfill the goals of the industry and secondly to maintain a service orientation to the clients as patients. In this manner the conflicts in the business medicine relationshp were eliminated.

The research the insurance industry has and is able to conduct has been instrumental in dealing with conflicts and risk. The number of clients which supply the database is very large and subject to control by one industry. At the

same time the insurance industry has to adhere to governmental regulations, other professional health agencies, and other private and public enterprises. All these negotiations although antagonistic, at times, lead to coopertavie systems. Coser (1956) suggested that when antagonists meet they negotiate in an arena of similar criteria and rules. These negotiations, which might not have occurred prior to the conflicts, lead to cooperative systems. This type of cooperative process exists in the insurance industry. The systems that have evolved have aided the industry to excercise a great deal of expertise in designing products that service the needs of many clients. The industry has developed methods for addressing the conflicts that occur when any disease has to be defined, diagnosed and treated.

The insurance companies began their research on hypetension when the committee for blood pressure measurement was established in 1907. The first report of this committee appeared in 1914. During those years, as well as today, physicians employed by the insurance companies were and are considering all the research being conducted with regard to hypertension. (eg. Presently Kern (1983) and Rafter (1987) are placing emphasis on the fact that more research should be conducted on stress factors in hypertensive client/patients). By July of 1921

Metropolitan Life Insurance Company was publishing reports on the effects of overweight hypertensive clients. By 1925, when the surgery at the Mayo Clinic proved that lowering blood pressure was not harmful, the insurance companies were able to launch their first landmark research on hypertension. In 1925 the report of the Joint Committee on Mortality of the Association of Life Insurance Medical Directors and the Actuarial Society of America distributed a report in which 26 companies had participated. The insurance in force in these companies at the time represented 3/4 of the total insurance in force in the U.S. and Canada. This report is now considered a classic example of research in insurance medicine. The importance of this initial research is that it established a process of ongoing research in insurance medicine which is sponsored by the insurance companies with the approval of the medical profession and governmental regulatory agencies. The findings are instructive to public and private agencies.

The insurance medicine health model is functional in the case of hypertension. The tests conducted by the insurance companies on applicants with hypertension do conform to the recognized criteria in the medical profession for the definition, diagnosis and treatment of hypertension. In addition, to the above criteria, the

guidelines established by the industry are even more stringent because they have to be cost effective. The data recorded by insurance companies on all clients with hypertension has been compared with other studies to make sure it is valid and continues to be valid. The ongoing research in the insurance industry with respect to hypertension clearly indicates a functional insurance medicine health model for hypertensive clients.

The existing insurance medicine health model which evolved so successfully for the case of hypertension has not functioned so well in the case of Aids. Aids is a disease that has reached epidemic proportions in our society. All health agencies are encoutering difficulties with the definition, diagnosis and control of Aids. The insurance medicine heath model is presently undergoing changes in order to deal with the multiple problems presented by Aids. The insurance medicine health model and its application to the case of Aids is presented in the next chapter.

# CHAPTER 5

# THE CASE OF AIDS

## THE CURRENT HISTORY OF AIDS

### INTRODUCTION AND DEFINITION

The epidemic of AIDS can be viewed as a social problem. Aids is a disease that affects a significant number of people and is the source of great difficulty, risk and unhappiness. Many people who do not have the disease, are also aware of the problem they are in agreement that the difficulties should be addressed and ameliorated.

The case of AIDS has become a social problem because all concerned groups are in rational communication with one another. But, because these groups have different interests and values the resolution of the problem is impaired.

Social factors underly private and public attitudes toward individual health patterns and public and private health programs. A sociologist can identify these factors and suggest ways of introducing better individual life styles and proposals for addressing public and private support for such programs.

Acquired Immune Deficiency Syndrome (AIDS) is a complicated disorder of the body's defense system. It has surfaced within the last fifteen years and it may be the most complicated disorder medical science has encountered. Aids is caused by the human immuno-deficiency virus (HIV).

The virus may exist in the human body for years and can be spread to other people even before any symptoms appear in the person who is spreading the disease. A person with HIV can and ususally does develop AIDS which is fatal.

AIDS is a disease that involves the immune system. AIDS is also a syndrome or a constellation of conditions that are often seen together and which may have a common underlying cause. The definition or classification for the disease of AIDS has not as yet been completed. (Note appendix F for present definitions). The extensive damage that this disease imposes can be noted in the diagrams of (Appendix E ).

THE MULTIPLE PROBLEMS THE CASE OF AIDS PRESENTS

The case of AIDS presents new tensions and conflicts for the entire society as well as the insurance industry. The problems that have surfaced have forced us all to refocus attention on the foundations of health care. The present systems for health care affect the entire health care infrastructure and consequently the system of insurance medicine. Aids is not just another chronic disease (like other cancers). It can be and often is a combination of cancers that requires all the procedures for care as other cancers in addition to many other extended services (hospitals, nursing care, home attendants and hospices). New questions arise regarding AIDS facilities.

Should AIDS patients be integrated with other patients? Should separate health care facilities be instituted? (eg. specilized hospitals for AIDS patients similar to tuberculosis hospitals). Insurance medicine specialists have to examine the hospitalizations of all clients when they determine the health status of each client. Even though, they are not directly concerned with the treatment of any given client, the result of and effects of treatment, of any given client, are important in the evaluation of his health status. The testing procedures, which include reporting to CDC for infected persons, have ramifications socially and occupationally which do not exist for other diseases. A new model of consent and cooperation is needed for all. The possibility for mandatory testing in all facilities is indicated because it could reduce occupational hazzards, achieve the earliest possible clinical benefit for patients, introduce wider use of HIV tests for the benefit of physicians in defining, diagnosing and possible treatment.

The relationship between research, treatment and cost is complicated for all health care settings. AIDS raises additional tensions between private insurers, employers and government. The central present issues are, who has the obligation to provide what services to whom under what conditions and at whose expense.

The cost of treating AIDS patients is so high that most AIDS patients need government assistance as the disease progresses to its final stages. The only programs that exist for this type of aid are Medicare and Medicaid. The criteria for younger patients to receive Medicare involves a difficult process of documentation. In order to receive Medicaid at all ages you have to spend down to poverty. The patients that are entitled to these services are not considered good clients for life insurance by the insurance industry because they present too much risk in terms of health status and the ability to pay premiums. Programs administered by the government may represent the possible beginning of universal health care which highlights the issues of entitlement and universal access to health care and the important question of who will shoulder the largest proportion of health care costs for AIDS patients? The insurance industry reviews these programs in order to better understand how medical services are financed. The life insurance industry is specifically concerned with the use of a medical examination to screen out poor risks as oppossed to the health insurance industry which is concerned with screening for the purpose of pricing the health care of each client. However, the same medical examination is used to screen for health insurance and life insurance. In the case of AIDS, the life

insurance industry, is spending millions of dollars in testing procedures which will enable them to screen out a good number of clients who are HIV positive and those who have AIDS.

Health services in the U.S. are also a commodity subject to market fluctuations. No one can predict what policy for paying the costs of AIDS will be over the next few years. The costs of treating patients with AIDS is high and incomparable with the costs of other diseases. The life insurance industry is not able to devise systems for clients who are HIV positive or have AIDS at the present time. The business/medicine relationship in this case is presently undergoing change. . The pattern of the market place plays a larger role today in the practice of medicine. As economic organizations have changed so has the role of professional values in the enterprise of health care. Patients demand informed consent. There is increasing malpractice litigation. The government and third party payers restrict theraputic perogatives and testing procedures. The growth of "for profit" medicine (cosmetic surgery) is acceptable to some. Doctors who are employees of hospitals and HMO's have experienced the deprofessionalization of medicine and are, therefore, subject to different roles with differing service orientations (Gostin, 1990). Some of the physicians

employed in and practicing in the above settings are also employed by the insurance industry. All these changes, have had an impact on the practice of insurance medicine. Insurance medicine is a licensed and recognized specialty within the profession of medicine. Insurance medicine physicians are employed by the insurance industry to service the goals of the industry. Physicians in the medical departments of insurance companies mitigate the conflicts (through systems that comply with professional medicine) between the goals of business (maximum production for profit) and the service orientation of the medical profession (to service the needs of patients). Physicians, who practice in other facilities and have licenses to practice other specialties, are also employed by the insurance industry. These physicians have multiple roles and differing service orientations. Health services today are delivered by many types of facilities. Each facility has its goals. The service orientation of physicians (known in tha past) is undergoing a newer transformation of medicine. The epidemic of AIDS has highlighted the need for the present type of transformation. This transformation has an impact on the practice of insurance medicine within the life insurance industry. The physicians, in the life insurance industry, have no obligation to treat and follow up client/patients

with AIDS. Therefore, insurance medicine physicians, have to consider all the above factors but they do not have to devise systems which include all the factors at this time.

The insurance industry became interested in AIDS when they realized the complications and epidemic proportions of this disease. The industry quickly understood that AIDS would cost the insurance industry billions of dollars in premature death claims from the its complications before it is brought under control. Therefore, the insurance industry concluded that the best policy was to reject all new clients who are HIV positive and all those that have AIDS.

There are no known tests which will diagnose the disease. There is no test to predict whether an individual will succumb to AIDS in the future. There are a number of tests and physical symptoms which taken together confirm a diagnosis of AIDS according to present definitions. These tests are the basis for the policy of exclusion.

In terms of the business/medicine relationship the insurance industry had adhered to policies of exclusion for clients who test positive for HIV and AIDS. This is the only cost effective position the industry feels they can maintain at the present time. The practice of 'cherry-picking' (picking the best clients for profits) is again being upheld. In the case of AIDS an entire group of

clients is being screened out. This type of exclusion, is carefully scrutinized by all members of groups who are interested in combatting the epidemic of AIDS. There are controversies between the values of these differing groups which have created 'the politics of AIDS'.

The critics of the policy of exclusion for clients who test positive for HIV and AIDS maintain that this is an unfair practice on the part of the insurance industry. In addition to tests for the presence of HIV and AIDS critics maintatin that persons seeking life insurance are asked questions about sexual orientation. There have also been allegations that some insurers redline certain geopgraphic areas or occupations that they believe are associated with a greater than average risk of developing AIDS and refuse to provide life insurance coverage to applicants who fall into these categories (Gostin, 1990:213). The practice of "cherry picking" has been criticized by several types of adversaries as an unfair practice engaged in by insurance companies. Bartlett (1990) indicated that "There have been allegations that some insurers redline certain geographic areas or occupations that they believe are associated with a greater than average risk of contra-cting AIDS and refuse to provide coverage to applicants who fall into these categories". Starr (1993) indicates that "many insurers are plainly threatened by the growth of integrated

health plans" which can provide health screening and coverage to all types of client/patients and prefer voluntary plans which enable them to continue to 'cherry-pick' the best risks for the best profits.

The life insurance industry has been able to defend itself against these allegations as a private industry under government regulations. The industry screens all client/patients on an individual basis and reserves the right to exclude all clients who may cause excessive costs. The industry, through government regulations, is able to establish guidelines for screening all clients.

Insurance doctors have created systems to deal with the epidemic of AIDS that suggest avoidance tactics. Gay activists who want and are able to buy life insurance have protested the use of blood tests to determine whether they are HIV positive as a discriminatory practice because of their life style. I have (as a medical examiner) had to eplain to gay clients that they were being tested like all other clients on the basis of health status, age and amount. (Note appendix C for forms used to screen all clients).

The practice of "cherry picking" has always been defended by the insurance industry as their perogative in a private industry to service clients who offer the best profits.

The industry has always maintained that they have the right not to insure those individuals who are engaged in dangerous occupations (certain pilot types) and individuals who engage in dangerous sports (such as excessive scuba diving). If these individuals (or any other group of high risk individuals are concentrated in a certain geographic area) they are screened out on an individual basis after interview and testing.

The practice of insurance medicine specialists is conducted in the interest of the companies and what they can pass on to the clients. The insurance companies feel they have a defense for this position. The industry is continually conducting research to uphold this position.

THE TASK FORCE IN 1985

It became evident to all executives that in order to address the problems that AIDS creates for the entire society and the insurance industry there was a need for more detailed data. All epidemiological models used by all health facilities were reviewed and it became evident that a new model was necessary. The known and recognized testing procedures for the HIV virus and the presence of AIDS indicated that more extensive blood work and extended laboratories were needed. The necessary government clearance was obtained. In 1985, Senator Joseph Bruno, Chairman of the New York State Senate Insurance Committee

argued that insurers should be allowed to use the antibody test for underwriting purposes. Senator Bruno stated the following position, "Underwriting considerations for AIDS must be consistant with the underwriting considerations applied to other diseases. An insurer has an obligation to each of its policyholders, as well as to all of its policyholders, to place each individual in the proper risk category. To assess properly what risk an applicant for life and health insurance represents, an underwriter must gather all relavant medical information based on the most comprehensive test information available. The two step ELISA-Western Blot Series test used by insurers is recognized by some medical authorities as indicating actual infection with HIV by detecting antibodies to the virus in "999 cases out of 1,000", hence the sequence is believed to be 99.9 percent acurate. If insurers are not allowed to use the best tools available to implement traditional underwriting procedures, the result will be low-risk individuals subsidizing insureds who are high risk.The life insurance industry recognizes its responsibility to do its part to insure that our citizens receive the medical care they need. But the insurance industry can not provide for the overwhelming health care costs associated with AIDS alone, nor can they disregard the principles on which private insurance is founded".

Therefore, "Insurers propose to use the ELISA-ELISA Western Blot Protocol recommended by the CDC as described earlier in the report. They point out: 1. that the Centers for Disease Control has concluded that those testing positive to the ELISA-ELISA Western Blot Series should be considered both infected and infective; 2. that the Chief Epidemiologist of the State of Wisconsin has found the repetitive Elisa test confirmed by the Western Blot to be reliable for detecting HIV antibody and mortality for those infected with HIV and 3. that the three-test protocol compares favorably in terms of accuracy to other tests used in medical screening, diagnosis and insurance underwriting". The industry was thus allowed by government to screen out certain clients.

After the use of these procedures was cleared, the discussion to extend blood work was begun. In order to deal with the issue of consent by each individual client for the extended blood work separate departments were initiated in each insurance company. These departments became responsible for maintaining confidentiality of records which had to be reported to CDC anonymously. The life insurance companies, began in 1985, to try to screen out three types of potentially costly clients. First, individuals who did not test positive for exposure (such as single males, aged 20, and 49). Secondly,

individuals who did test positive for the AIDS virus, of whom a large perecentage were statistically likely to develop AIDS within the next five to seven years. Third, individuals who know they had AIDS and were applying for extra life insurance coverage or larger amounts while trying to conceal their true medical condition. This early investigation indicated that existing actuarial tables used to set rates were not adequate in the case of AIDS. The industry did not have adequate knowledge about the epidemic of AIDS which would enable the actuaries to construct new tables. The insurance industry through the National Association of Insurance Commissioners responded by establishing a task force to study AIDS and its ramifications. The task force included scientists, political analysts, economists and public health officials.

It was decided, at this time, that all clients who had been insured prior to 1985 would not have their insurance cancelled even if they had become HIV positive or had AIDS. It became clear, to the industry at this time, that new tactics and methods were needed to avoid issuing insurance to new clients who were HIV positive or had AIDS. All new clients testing negative for HIV and AIDS were issued new insurance policies according to the guidelines descrbied in chapters three and four. Although, all the problems that this epidemic presents were considered, the emphasis of the

life insurance executives within the task force was on the problems that this epidemic presents to the life insurance industry.

THE AD HOC COMMITTEE ON AIDS (1987)

In order to deal with the multiple problems created by the AIDS epidemic the industry instituted the ad hoc AIDS committee.

1. MAKE UP

In April, 1987, the Chairman of the Medical Section of the American Council of Life Insurance (ACLI) decided to create an ad hoc AIDS committee. Invitations to join this committee were extended to those medical directors that had demonstrated a special interest in AIDS. The first meeting was held June 7, 1987. The organizational set up consisted of three sub-committees. These committees were concerned with public and governmental relations, testing and education. Dr. Donald C. Chambers (Vice President and Chief Medical Director of Lincoln National Life Insurance Company) served as initial chairman of the AIDS Committee. The sub committees were headed by Dr. Bob Gleeson of Northwestern Mutual (Public and Governmental Relations), Dr. Dick Bailey of Prudential (Testing) and Dr. Bart Ruggiere (Mutual Benefit) and Dr. Tom Bug (London Life) to share the responsibilities for the Education Committee.

2. GOALS

The AIDS committee was set up to assist the ACLI to deal with legislative and regulatory issues. The committee would identify, debate and deliver consensus and professional opinions on important medical issues (such as reliability of tests). The committee was also responsible for asessment of educational efforts within the industry as well as outside the industry.

3. PURPOSE

a. The committee was to be based in a place or state where a regional network of medical directors would be available to testify or communicate on the AIDS or risk classification issues. Associated with these guidelines references would be developed which would assist medical directors in testifying before regulatory legislative bodies and/or communication with the media.

b. Provisions for the submission of pertinent information and citations on AIDS to the ACLI for publication (such as a Medical Section Report). Submission of educational materials to the editor of the Journal of Insurance Medicine.

c. The members would serve as medical advisors and consultants to the ACLI staff for whatever AIDS related work they are doing. (eg. New epidemiological models).

d. The members would fully explore and better understand the tests that insurers are using to explore the

related matters of confidentiality and counseling.

e. The formation of work groups to develop a model for informed consent forms.

f. The formation of a liason group to work with all other groups with the AIDS issues so as to maximize support and minimize overlap.

The AIDS committee has, through the expertise of its members, been able to provide a balanced output of information which has served the industry well and has contributed a great deal of information to all other interested industries and organizations.

Memebers of the AIDS committee have worked with many epidemiologists concerned with the epidemic of AIDS. It has become clear to all that the epidemiological models in use by private industry and the government are designed to cover the very ill and the elderly. A new model to cover the younger members of the population who become ill with AIDS and die younger is needed.

The committee is attempting to compile a meaningful mortaltiy experience for the case of AIDS. Up to now, mortality cohorts have been compiled about every ten years. The limits for AIDS are still being debated.

The above information is crucial to all who must deal with an epidemic of this magnitude.

In order to better understand how and why an epidemic

is studied by the life insurance industry, some exposure to the study of epidemiology is necessary.

The importance of the first contribution the AIDS committee has made will be explained in the following section.

THE EPIDEMIOLOGY OF AIDS

THE SUTDY OF EPIDEMIOLOGY

Epidemiology is the study of diseases occurring in the human populations. The primary units of conern are groups of persons not separate individuals. The groups is the unit of analysis and this method is applicable to insurance medicine. Epidemiology is organized in tripartite terms. They are the agent, the environment and the host. HIV is the etiologic agent of AIDS. HIV is a retrovirus designated human immunodeficiency virus. In the case of AIDS, it is occurring in all environments and under all social conditions. Analysis of the host (which deals with constitutional factors in terms of development of disease and damage) is difficult to establish because a person with the HIV infection has an impaired ability to fight any other diseases and succumbs to several diseases at the same time.

Epidemiology describes and compares groups in quantitative and qualitative interests. The insurance industry is interested in the quantitative and qualitative

data that can be applied to the risk involved in considering clients with HIV infection. The insurance industry (through the adhoc committee) is conducting a prospective investigation of AIDS by testing most new clients for the presence of HIV and AIDS. The correlations for this type of research in the industry have not been established as yet.

THE MORTALITY EXPERIENCE OF AIDS

The insurance industry is concerned with the spread of HIV infection in the insured population of the United States. The first aim is to predict the mortality of those who test positive for HIV. The industry is now investigating the implications of immune deficiency for life insurance underwriting and pricing with statistics that will project its long term impact on insurance company solvency. Longevity prospects among HIV infected applicants is not good. The mortality patterns of such populations bears no meaningful relationship to standard mortality in the general population nor to that of insured lives. Clough (1987) stated that "From the time that fully developed AIDS is diagnosed, life expectancy is about 2.1 years. Mortality takes an extremely high toll, leaving fewer than one survivor in twenty after eight years". The life expectancy among some patients is higher and there are some survivors now that live up to 15 years according to

more recent research. However, the research is still in an experimentlal stage.

At the levels projected by this analysis, related deaths from existing business in force could exceed 10% of the life insurance industry's total claims for industry and group coverages by the mid 1990's. The cost of not screening new applicants for HIV infection could be disastrous for the insurance industry because it might have to payout in death claims money that would exceed profits and costs of products. The focus of the insurance industry is the insured population in the aggregate and consequently on the solvency of the insurance industry.

WHY THE EPIDEMIOLOGY OF AIDS IS DIFFERENT

The epidemiology of AIDS is different from that of any other disease on record. HIV infection by itself gives its victims no warning signs. The latency period before symptoms become apparent in any individual can be very long (up to 15 years in some cases). This means that larger numbers of the population can be infected before the impact of their disabilities and deaths are known. Identifying the numbers in the silent phase of those who are infected is the first difficult phase of the epidemiology of AIDS.

The committee began its retrospective investigation with data from the surgeon general's office and from the CDC. The percent of cases of AIDS reported was compared

with the reported cases of AIDS clients in the insurance industry. The industry had data on policy holders or clients who had been tested. The CDC had limited information, initially, because different states had different laws governing the confidentiality of patients and their diseases. The surgeon general's office, initially, had data on the population that had surfaced with AIDS in the early stages of the epidemic. (This population was composed of active homosexuals, drug users and welfare clients). The life styles of these individuals made the acquisition of any disease easier.

It became evident to the committee that more meaningful statistics and data were necessary for evaluation. The insurance epidemiological model was constructed with the above data because that was all that was available several years ago. It was constructed to leave room open for the possibility of further refinement at any stage as more information became available. As a result the model changes as more data becomes available from other sources and other studies. Most of the data that is available on AIDS is concerned with symptoms and mode of death. The data that is available is still in experimental stages. Gostin (1990) claims that there is a 40% chance that an infant will become infected with his Mother's lethal infection of AIDS. Medical news in 1994

indicates that there has been some recent experimentation with respect to genetic altering so that babies are not born with impaired immune systems. All treatment , in the case of AIDS, is still considered to be experimental because it is not a completely classified disase.

WHY THE EPIDEMIC OF AIDS DOES NOT TOTALLY FIT THE CLASSICAL HEALTH MODELS FOR OTHER EPIDEMICS.

As indicated above, the data available on AIDS has been composed of studies directed at the prevalance of AIDS and subsequent deaths in certain populations. These have been the visible groups whose latency period has expired, so to speak. These groups have had constitutions and life styles that are more susceptible to infection.

More recent statistics indicate that AIDS is spreading among teenagers and the heterosexual populations. Some of these individuals also have life styles that allow more intimate exposure to other individuals with AIDS or latent undetected infection. There may be an organic disposition towards impaired immune systems which make certain individuals more vulnerable to all diseases.

All previously reported epidemics had a short latency period. It was only a matter of weeks or months from infection to manifestations. Epidemics within recent history (eg. influenza, bubonic plague) spread rapidly and large numbers of the population were dead within a

relatively short time. Those who were not infected with the disease were immune. Those who did became infected and sick were dead in a very short time. The bubonic plague or black death occurred in the 14th century. It killed about one quarter of the population in Europe but it was over in that century. The projections for AIDS, at the present time, are projected into the next century. The influenza epidemic of 1918-1919 claimed almost 550,000 victims in the U.S., but it ran its course in less than one year. A new strain of influenza (presently) can be diagnosed through apparent symptoms, measured and controlled within weeks. HIV infection , on the other hand, gives its victims no warning signs. By the time the symptoms appear there are limited methods for control in terms of cure and reversal. How to identify those that are infected or those that may be infected is the first and most difficult phase of this epidemic.

PRESENT DEVELOPMENT OF MODELS FOR THE CASE OF AIDS

The models being developed, through the ad hoc committee, are like those that have been used for other epidemics. Therefore, fitting a new epidemic to a traditional model is a practice that must be viewed with caution. All health facilities are experiencing the same difficulties. Models in existance have concentrated on the causes of illness among the chronically ill and the

elderly. AIDS is a disease that causes many deaths among a younger population.

Epidemiologists use many types of models to trace an infectious disease. Models of the micro variety are based on detailed assumptions about factors that deal with the frequency of those activities which expose people to infection. They consider the probability of transmission from an infected to an uninfected person and the average duration of infection. Macro models make broad assumtions as to population aggragates instead of considering transmission on a person to person basis. (eg. There were 100 deaths in the midtown area attributed to AIDS in the last month). Middle range models deal with the spread of the disease in such groups and involve comparrisons within such groups. (eg. Of the 100 deaths in the midtown area described above 20 were men and 5 were women working in AIDS clinics). The insurance industry considers all models and utilizes those that can focus on the insured population in the aggragate.

Presently, the insurance industry is considering the entire spectrum of models. Most new clients are being tested and compared with all available data. The focus the industry has in mind is to determine the progression of HIV infection to AIDS and the subsequent number of deaths. The concern is with the mortality experience and the projected

cost to the insurance industry in death claims.

These underwriting and financial challenges must be met with new methods for evluation and control. In a free market economy certain conditions must exist for a risk to be measureable. The actuarial soundness of an insurance policy are:

1. The risk must exist in sufficiently large numbers in the population to enable underwriters to establish a class in which each member has a similar and prior likelihood of incurring a claim.

2. The likelihood of any one member incurring a claim must be random and relatively small within an intitial time period so tha premium levels can be kept to a small fraction of the amount insured.

3. The members of an insured class should have no influence over the occurrence of a claim. On the basis of the above criteria, and because the insurance industry has been allowed (through government approval) to test all clients for the purpose of exclusion, insurance companies have concluded that their present policy of exclusion is the best course now. The overall policy of insuring the healthies clients possible has been profitable and allowed because of little government intervention. In the case of AIDS it is being allowed with government approval.

HOW TECHNOLOGY WAS ADAPTED TO COPE WITH EXTENSIVE BLOOD

TESTING IN THE INSURANCE INDSUTRY.

The most important contributior. that the ad hoc committee on AIDS has made, for the medical departments of the life insurance industry, has been in the design and execution of massive blood testing.

The tests developed to detect antibody to HIV virus were first used on a broad scale in blood banking. They have caused a great deal of controversy. There is uncertainty about the significance of quality and accuracy. Also there are issues of privacy, communal health, social discrimination, coersion and liberty. In this case there is a need for counseling about the significance of the test for individuals and for others. There is an added concern regarding the confidentiality of the counseling. Questions regarding the use of HIV antibody tests center on the technological aspects as well as the legal and ethical aspects. CDC guidelines are implemented by government agencies with enforcement procedures. There are also federal agency standards and industry guidelines for testing blood. AIDS has given rise to concerns about potential liability of health care institutions and health care professionals. Each state has regulations and standards with respect to infection control. National guidelines for control of the AIDS epidemic concerns the entire population. The life insurance industry is concerned

with the roles of voluntarism in clients and informed consent regarding a certain type of process and testing. In order to remain solvent, the insurance industry, through the recommendations of the ad hoc Committee has insituted procedures for testing practically all applicants who apply for insurance.

Attention has been given to informed consent forms and procedures with a. respect to a clients autonomy and privacy in law, b. complicance with accepted clinical standards for blood work and c. counseling and education to maintain the ethical integrity of each client. All national and state requirements which are reviewed by the ad hoc committee are adhered to in blood work collection and analysis.

All medical personnel adhere to established national guidelines for health services through directives which are issued by the industry for certain types of procedures. However, the life insurance industry has no obligation to provide extended health care services to clients with AIDS or the HIV virus. In order to deal with the limitations that this type of health service sets, the industry has set up a separate department which disseminates educational materials and is available for questions and explanations.

Disclosure of private medical information to doctors, clinics, hsopitals, public health facilities and agencies,

and insurance companies is part of modern medical practice even when the disclosure may reflect unfavorably on the character of the patient. Dickens (1990) suggests that disclosures designed or sought to serve financial interests fall outside the power or privilege to warn. However, in the case of AIDS, insurance companies who are protecting financial interests must also report to government.

Medical personnel employed in the industry have had to institute a new department and new systems to deal with the duty to warn the government and inform the client/patient about the reasons for rejection of life insurance. The ad hoc committee on AIDS is continually reviewing and analyzing the above standards and implementing them within the industry whenever possible. After certain standards are met, the committee spends most of its time reviewing the procedures for blood work necessary to screen out clients with HIV and AIDS.

BLOOD TESTING PRIOR TO 1985

Prior to 1985, the insurance industry had been conducting blood testing for applicants who were buying larger amounts of insurance (eg. insurance policies of $250.000). The industry had procedures that consisted of a complete blood chemistry profile. Such a profile included tests for:

1. Calcium indicating glandular or bone disorders.
2. Glucose the warning sign of diabetes.
3. Blood Urea Nitrogen indicative of kidney and heart disease.
4. Uric acid indicating kidney stones and kidney diseases.
5. Cholesterol levels which contribute to strokes and heart attacks.
6. Total protein levels which indicate physical and emotional stress.
7. Albumin (a Protein) in urine which indicates kidney disease.
8. Biliburin which indicates liver disease and possible destruction of red blood cells.
9. Transaminase (SGOT) which indicates heart attack or liver damage.

Please note (appendix F ) which indicates the numerous tests that are available for diagnosis of diseases. These tests are continually reviewed for their usefullness by the ad hoc committee.

The blood chemistry profile was submitted to certain laboratories used by the insurance industry. The laboratories used were those that coulld offer the most efficient methods at the lowest prices. The results were returned to the insurance companies through the mail.

If the results of the blood chemistry profile of a certain client did not indicate any disase a policy for high amounts could be issued at a low premium. If certain diseases appeared, a client, could be charged adjusted higher premiums for each disease (eg. hypertension).

This type of health screening has also been used in the medical profession to detect problems quickly in order to determine the proper treatment and cure. These

laboratory tests are also used for repeated verification and to track dangerous side effects and the proper level of medication. The insurance industry uses the results of these tests to ascertain risk in each client and each disease according to established criteria.

BLOOD TESTING AFTER 1987

The importance and problems of extensive blood work was apparent to the industry when they reviewed all the information that was available. Through the ad hoc committee they began to establish procedures to deal with the problems of collection and analysis of blood samples.

The procedure for the collection of blood samples was more complicated at first in some respects and less complicated in other respects. A blood profile was ordered by an agent, or underwriter if a client was applying for policies that had a face amount of $250.000 or higher. The blood profile was ordered because the information submitted indicated diseases(eg. blood pressure of 160/100 which had to be controlled with medications and frequent follow-ups). Not too many clients purchased so much insurance.

The blood profile consisted of a prepackaged kit which included a request information slip, five different tubes with different chemicals for the purpose of conducting different tests. Blood was drawn in each tube and a urine

sample was submitted as well. The enclosed kit was streamlined and designed to fit in a brief case until it was mailed. Most examiners (between 1975 and 1985) only had to draw blood about five to ten times per month.

In 1987, routine testing began to be required for all clients applying for $50.000 (face amount) or more of life insurance. Many examiners had to begin drawing 20 to 30 samples per week. This type of blood screening was being conducted throughout the industry and across the U.S. At first the laboratories could not return results for two weeks because of back-up. In the process about 20% of the samples were lost or contaminated. As time went on the insurance laboratories expanded and began to use more automated equipment and more efficient methods for data collection and recording. The insurance laboratories in an attempt to meet the needs of insurers devised methods that were more efficient.

One of the first changes was a change in packaging. The original package was 7 1/2 inches in length , 6 1/4 inches in width and 1 34 inches in depth. This package was made of lightweight thin cardboard and contained a styrofoam tray with one request slip and five tubes. The first change was a styrofoam package which measured 4 1/2 inches across, 4 inches in depth and 5 inches in height. This new package was mailed in a heavy paper envelope. At

first only one request slip was needed. Now four request slips with additional information are necessary. Today the heavier styrofoam package is used with one or two tubes for blood and two urine containers. Bar codes are placed on each item. Many samples can be analyzed quickly and the results are sent by fax to each company as soon as they are completed. (For more detailed explanations of blood work please note appendix G and H ). Many more tests are derived from each sample as more knowledge about AIDS becomes available ( note appendix F for more detailed explanation of how difficult and extensive blood work can be).

The procedures for some of this work have become more simplified. Some of the work has become more complicated. In this manner the insurance industry is collecting massive data banks that can be useful to all health services facilities. The costs of these tests amount to millions of dollars. The costs are covered by all clients.

The most significant changes that the insurance industry has been able to make with respect to the case of AIDS have been changes in the technology for the collection and analysis of blood samples. The insurance industry has begun to refer to the 1980's as 'the AIDS decade'. The 1990's are becoming noted for the second decade of a growing epidemic.

ANALYSIS

This chapter suggests some of the conflicts and tensions that the epidemic of AIDS presents to the entire society and indicates the manner in which the life insurance industry has attempted to resolve some of the problems. AIDS has not as yet been completely defined,therefore, dagnosis of the disease varies. AIDS is believed to be irreversible and there is no knowledge for treatment at the present time.

AIDS is a social problem for the entire society because of its devastating effects on so many of its victims and the consequences that are felt by the groups of individuals who are responsible for these AIDS patients. The practice of insurance medicine is under the scrutinity of all groups concerned with AIDS as are all other health facilities. The life insurance industry has had to address the AIDS epidemic in order to survive as a business. In order to deal with survival the life insurance industry has instituted systems which screen out all client/patients who are HIV positive and all who have AIDS. This exclusionary practice has been criticized by several groups. The life insurance industry has defended itself by claiming they have the right to protect their own interests as a private industry. The role and service orientation of insurance

physicians is being redefined and questioned. Do all physicians have an obligation to treat all AIDS patients when the complications from AIDS present a need for multiple and varied services which must be cleared through government standards? (eg Not all facilities and doctors have clearance to test and treat AIDS patients).

Insurance medicine specialists who are trained to service client/patients in the interest of the goals of the industry have no obligation to treat. At the present time, since knowledge is limited, physicians are not able to devise systems (such as those for hypertension) which encourage and help a client/patient to seek better life styles and improvement.

The questions that arise regarding informed consent, counseling and privacy are addressed through a special Medical Department for AIDS. This is a change in the structural set up of insurance companies. Other changes could possibly follow. Prior to the AIDS epidemic the records of all clients were kept confidential and within the industry. Clients with AIDS and HIV infection must be reported to CDC. This could be the beginning of a new model of informed consent and more government intervention for the life insurance industry.

Disclosure of private medical information to insurance companies has been a part of modern medical practice.

However, the life insurance industry, has attempted to maintain confidentiality regarding the records of applicants and insureds. This position has changed because mandatory reporting to the CDC is necessary. The epidemic of AIDS has made it necessary for the life insurance industry to share its information with government agencies. This change has weakenend the power of the industry to mitigate the conflicts of the business/medicine relationship within the industry. The ad hoc Committee has served an important function regarding the problems this epidemic presents to the industry. Through careful attention to the epidemiology of AIDS the committee was able to establish the limitations that exist for the life insurance industry. The committee has acknowledged that a meaningful model for the case of AIDS does not exist. Previous models in use, by all health facilities, have been constructed considering the problems of the chronically ill and the elderly. Now, a new model is needed which considers the young with AIDS who die sooner. The same epidemiological models are in use by all health facilities. Consequently, the research being conducted in epidemiology by the insurance industry is valuable for all health facilities.

The most important function the committee has had to establish has been testing procedures for the presence of

HIV and AIDS. These procedures are the same for life insurance and for health insurance. This disseration is concerned with health services in the sale of life insurance. An important question that arises presently is the justified position of screening out all clients who test positive for HIV and AIDS. Up to now, the life insurance industry has justified its position as a private industry entitled to make profit. This justification has been achieved in part because of insurance medicine specialists who have conducted research to justify this position. However, if a cure were found would the life insurance industry lose more by not having insured such a large group of younger people who are normally a major profit source for the industry? Would the public image of insurance companies be enhanced if all AIDS patients could be insured? Would the profit margin increase under these circumstances?

Is it realistic for the life insurance industry to screen out so many people as oppossed to devising systems that could include this population for limited amounts of life insurance. If Health Security becomes a program, like Medicare and Medicaid, the health insurance industry would have to sell some type of health insurance to all. The systems that the insurance industry would have to devise would meet government standards, implementation and

possibly make subsidies from the government necessary. This type of a system would impact on all health services delivered in the insurance industry. It is possible that the life insurance industry would be encouraged to devise a system for life insurance for all which would be subsidized by government.

Although, the life insurance indusry has and can justify its position of 'cherry-picking', it is possible to consider other options in differing circumstances.

The changes in the health care system which have been highlighted by the AIDS epidemic, are also reshaping the political outlook of the medical profession (Starr, 1993). In the nineteenth century doctors supported a stronger role in government to insure licensing procedures. They became devoted to laissez faire when their incomes rose. Presently, difficulties in the delivery of health services have surfaced. The physicians are once again reverting toward more state control. The profession seems to be divided in this current transformation of medicine which creates more difficulties concerning the social problem of AIDS. The division among physicians is apparent in those practitioners who work for insurance companies and other facilities at the same time. These doctors are experiencing role conflicts which indicate how difficult this present transformation is.

Insurance medicine specialists are directing extensive testing for all client/patients for the presence of HIV and AIDS. The copious data is being correlated to serve the industry and its educational efforts within. Nevertheless, there may be other ways to make use of this extensive data to serve the interests of better individual health care for all. A more informative data base can be created for use by the medical profession to service private and public health programs. A sociological perspective can be helpful in identifying the social factors that underly the attitudes and support for AIDS and all health problems.

The life insurance industry, in conjunction with insurance medicine specialists, has created meaningful systems for massive screening in the case of AIDS. These systems have served the goals of the industry and contributed knowledge for use in the medical profession and the entire society.

In terms of the business/medicine relationship the industry has not been able to create a functional model for the case of AIDS. The industry has created systems that uphold the goals of the industry and maintain a certain profit level. The insurance companies have survived the devastating effects of the epidemic of AIDS at the present time. The best interests of an entire groups of clients have not been served. However, a new insurance medicine

health model is emerging which may serve the best interests of all client/patients. The insurance medicine health model can , once again, be viewed as a system which can serve as a base for negotiations for health models that adapt to the current needs of all client/patients. In the case of AIDS, all the conflicts within the business/medicine relationship can not be resolved at the present time because little knowledge exists about this disease.

# CHAPTER 6

# CONCLUSION

## SUMMATION

This study has investigated the historical background that inspired the formation of "the mutuals" and the innovative practice of insurance medicine. The practice of insurance medicine through the insurance medicine health model was analyzed to explain how the conflicts in the business/medicine relationship are mitigated and resolved.

The concepts and principles out of which modern life insurance stem date back through Roman times and the middle ages. There was always a concern with how certain members of society would be buried and how their families would survive after them. The need to take care of surviving family members existed and continues to exist. Zelizer (1979) has suggested that the value structure in society had to change before people became receptive to the concept of life insurance for all. This explanation is valid for the needed change in values but it does not explain how professional physicians entered the life insurance industry and established the practice of insurance medicine. Social factors underly attitudes towards health patterns. Health problems are related to political, economic and social conditions. An analysis of these factors from a sociological perspective explains the

innovative practice of insurance medicine.

Modern life insurance began with actuarial calculations as a basis in Great Britain. This expertise was incorporated into the formation of "the mutuals". In the 1840's eight mutual life insurance companies were formed. Most of them are still in existance today which suggests that the need for life insurance is still being met by private insurance companies.

"The mutuals" were organized in New York City in the wall street area. This was and is a major center for commerce in the United States. In the middle of the 19th century, in N.Y.C., business networking was easy. Business associates could be approached for discussion on the streets and local taverns or in their offices without appointments. There was employment for all who wished to work and there were possibilities for even newer jobs in growing industries. Most immigrants from Europe entered through N.Y.C. and they were open to all new ideas. At the same time government institutions were weak and there were no laws to cover social insurance of any type. Life and property were crudely protected and the need to provide for destitute families after the death of the breadwinner (in most cases the father) was apparent. Private insurance companies had an open market with no government interference.

HOW THE METHODOLOGY IN THIS STUDY GUIDED THE RESEARCH

The review of the literature in Sociology indicated that there was no analysis of the practice of insurance medicine. The review of the literature in the archives of insurance companies and in the reference departments of the public library and the College of Life Insurance indicated that such a practice existed and was developed over a period of time. The available sources indicated that an insurance medicine health model evolved within the insurance industry.

The numerous interviews conducted by this author as a medical examiner and in interaction with medical staffs in several insurance companies also indicated that no one was aware of any type of analysis with respect to insurance medicine.

My personal experience with the use of medical technology in the medical profession and in the insurance industry indicated the adaptation of technology in the developement and use of the insurance medicine health model. The lack of awareness about the development of this model pointed out the need for this research.

The local physician, in the 1800's, was a member of the business community. He socialized at the local taverns as did all business men. Physicians were asked to serve on the respective boards of directors of each company. They

were asked to serve as observers because it was felt that they could select out poor risks through observation. In a sense the insurance physician became an employee of the insurance industry before revolutionary technology had been invented.

Medical departments in the insurance industry were not organized until the 1870's. These departments were organized to institute and review methods for classification of disease which would shed light on the longevity of clients. During this same period of time, the profession of medicine was becoming more professionalized through extended scientific education. The pursuit of scientific investigation led to technological inventions which would in time aid with the definition, diagnosis and treatment of diseases. Insurance physicians incorporated these advanced techniques and scientific knowledge into systems that sorted out risks more efficiently. These insurance physicians saved money for the insurance companies and contributed knowledge to all other health facilities and institutions.

The medical departments were organized to meet the demands of the insurance industry. The development of research conducted by these departments, under the auspices of the physicians who were directly influenced and controlled by the medical professional establishment, led

to the specialty of insurance medicine.

Insurance medicine is concerned with the review of medical data collected from all clients. This data helps to ascertain the risk factor each client represents to each company. The correct risk factor establishes the proper premium.

Insurance medicine is practiced through the insurance medicine health model. This health model, although similar to other health models, is a unique model created by the insurance industry. This model was designed to confront the conflicts within the business/medicine relationship. The conflicts exist because the needs of the insurance industry to categorize and establish a monetary value on each disease are continually in conflict with the service orientation of the medical pofessionals who are trained with a service orientation and an obligations to treat all patients at any cost. The systems that arise out of this endemic conflict contribute to the practice of insurance medicine and the continuing evolution of the insurance medicine health model.

Coser (1956) suggested that when antagonists meet, they have to negotiate in an arena of similar rules. The negotiations that follow result in cooperative systems which did not exist before the conflicts were addressed and negotiated. In order to better understand how the practice

of insurance medicine mitigates the business/medicine relationship in the insurance industry, an investigation of the key roles in the practice of insurance medicine was conducted.

THE KEY ROLES CONNECTED TO THE PRACTICE OF INSURANCE MEDICINE.

An analysis of the structure of insurance companies indicated that insurance companies function like other corporations and are connected to the corporate network. This network is committed to its own self interests. Corporations are organized for self preservation. Therefore, they produce work roles for certain people which will enhance their position. The roles of actuaries, physicians and underwriters are directly connected to the practice of insurance medicine and they serve the needs of insurance companies.

Actuaries and actuarial departments were part of the structure from the time of the formation of"the mutuals". The role of the actuary was well defined. As the life insurance industry grew actuaries became more professionalized and specialized. Actuaries formed their own professional organizations to further their status. (eg, Society of Actuaries). In the process they developed a separate section of the SOA for the specific practice of actuarial science within the insurance industry. Actuarial

science and the role of actuary are an essential component and practice of insurance companies. The data actuaries generate indicates longevity and the risk factor of each client. This knowledge helps to create a system for negotiation which mitigates conflicts with other departments such as medical departments.

The profession of medicine existed for several centuries before physicians were asked to enter the insurance industry as observers. The same physicians who were hired to perform this service for insurance companies maintained other private practices and hospital staff connections. In the insurance industry the role of physicians was altered. The physician was asked to collect data using techniques adapted to the needs of the insurance industry. The symptoms of diseases are compared with the data gathered from all clients. The definition of disease is based on the medical criteria in use in the medical profession. However, the definitions are altered to meet the needs of the insurance industry within the practice of insurance medicine. In this practice individuals are grouped together and compared with healthy groups for the purpose of determining the cost of insurance for diseased clients. Each disease is categorized in terms of the risk it presents to the companies. Medical departments under the direction of physicians create systems that mitigate

the conflicts between the insurability of clients and the service orientation of physicians which is to treat clients and make them as well as possible. Physicians have been able to create these systems by practicing medicine in multiple roles.

Underwriters were salaried employees of the insurance industry. In the process of dealing with information gathered from many clients, physicians and actuaries, they became professionalized within the industry. They have become professionalized recently. The important difference is that the insurance industry controls the education and accreditation procedures for underwriters. The corporate structure within the insurance industry produced the role and profession of underwriter.

The underwriter, within the underwriting department, is completely under the auspices of the insurance industry. The underwriters now institute systems that mitigate the conflicts between the actuarial departments and the medical departments. The conflicts are between the absolute numerical data the actuaries generate and the systems for examination and re-examination of the health status of each client under the direction of the medical departments. These conflicts became evident in the research conducted on the cases of hypertension and AIDS.

THE CASE OF HYPERTENSION

Hypertension has been extensively researched in the medical profession and in the insurance industry. The attention given to this disease was due to the fact that it caused pain. Pain is an indicator of some type of poor health. The insurance industry became actively interested in this case when the data indicated that clients with hypertension develop complications which lead to an inability to work and earlier death.

The experimentation for the measurement of blood pressure was in process from the 15th to the 20th centuries. The refinement of this knowledge did not occur until the 20th century. The insurance industry began active research in hypertension when the measurement of blood pressure had reached a point of refinement that could be used to determine risk.

Merton's thesis about science in the 17th century is applicable to science in the 20th century. Merton's thesis suggested that there is an interplay between society, culture and science. In the 17th century science developed from; the needs for instrumentation for navigation, the existing culture, technology and economy. The Royal Academy of Science was in a position to encourage and guide the needed research.

Around the turn of the 20th century, there was the same interplay between society, culture and science. In

the 20th century (in the U.S.) there was a need for health care to service the growing population. The need for health care for all was acknowledged by the wealthy foundations and corporations in the early 1900's. The insurance industry had the funds and the self interest to guide the research in hypertension and other diseases. This industry was able to conduct research which led to the classification of this disease.

Freidson (1972) offered another explanation which is also applicable to this disease. He indicated that diagnostic tools became so numerous in the latter part of the 19th century, that physicians had to form their own professional organizations for control of their practice as well as for the creation of new settings which individual doctors could not afford. These conditions in turn inspired professionalization and specialization. Medical departments in insurance companies were suitable settings for the new technology which was funded by the insurance companies. The manifest function of insurance companies was to determine the risk of each client with hypertension. The latent function was a contribution to medical research which contributed to the treatment of hypertension. The conflicts between the orientation of the medical profession (to treat every patient) and the business demands of the insurance industry (to avoid excessive costs) were

mitigated by the systems created in medical departments. The systems made use of costly technology which insurance companies could afford. The physicians in medical departments were able to categorize the different stages in hypetensive client/patients. The categories enabled the insurance industry to establish a price for each hypertensive client/patient. The goals of the insurance industry were upheld and an indirect contribution to health care surfaced.

The case of hypertension illustrates the extensive research the insurance industry was able to conduct and the refinement of the insurance medicine health model as a functional model for the insurance industry. The manifest function of categorizing and establishing premiums for hypertensive clients was achieved. The latent function was the ability of the industry to integrate the expertise of the than powerful medical profession in such a way that they served the goals of the industry while maintaining good professional practice outside of the industry. At the same time they made a contribution to public health and preventive medicine.

THE CASE OF AIDS

In contrast to the case of hypertension, which has been so well documented and researched and is an excellent example of a classified, treatable disease which

illustrates how efficient and functional the insurance health model can be, the insurance industry is now investigating the disease of AIDS which has reached epidemic proportions. AIDS is under investigation by the insurance industry for several reasons.

The epidemic of AIDS is a social problem for the entire society because of the devastating effects on AIDS patients and all individuals concerned with the resolution of this problem. The life insurance industry has had to address this problem in order to remain solvent. The insurance industry became interested in the case of AIDS when death claims indicated that clients with AIDS were dying younger. The causes of HIV and AIDS are multifactoral and contribute to the onset of many diseases over many parts of the body. Most clients who became afflicted with AIDS died early. The industry realized quickly that the losses in death claims would exceed the profit margin. The industry became interested in the testing procedures that were known for AIDS even though they were experimental because that was the only knowledge that was available. The known tests for the presence of HIV and AIDS were blood tests which were extensive, complicated and costly. In order to assess the costs and complications of testing a task force was created by the industry in 1985 which utilized the expertese of several

types of experts and professional people.

To deal with these complications the insurance industry instituted a Committee on AIDS (1987)which was set up to investigate all the problems this case presents. The goals of the Committee on AIDS were: (a) to investigate the epidemiology of AIDS, (b) establish the proper testing procedures for testing clients for the presence of HIV and AIDS, (c) collect all available information on AIDS and (d) the asessment of educational efforts within the industry as well as outside the industry.

Since the epidemic of AIDS is different from that of any other disease, the epidemiological models in use in the insurance industry do not fit this case. The retrospective research indicates that a noticeably larger percentage of clients with AIDS die sooner. The prospective investigation indicates that the industry would not remain solvent if they insured all clients with HIV and AIDS at the present time.

The insurance industry has not compiled meaningful experience patterns regarding this case. Therefore, there are no systems for categorizing risk. However, retrospective and current active investigation are being conducted to establish the proper models for the definition and diagnosis of this case. The insurance industry is investing millions of dollars in this pursuit in the hope

of discovering better defining and diagnostic procedures for the case of AIDS so that systems for insurability of such clients can be established.

In terms of the business/medicine relationship the insurance industry has adhered to policies of exclusion for clients who test positive for HIV and AIDS. This is the only cost effective position the industry feels they can maintain at the present time. The practice of 'cherry-picking' (picking the best clients) is again being upheld. In the case of AIDS an entire group of clients is being screened out. This policy is under the scrutinity of all groups concerned with AIDS. The insurance industry has a defense. They claim this exclusionary policy is necessary to remain solvent.

The case of AIDS presents new tensions and conflicts for the entire society as well as the insurance industry. The HIV epidemic has forced us all to refocus attention on the present foundations of health care. This epidemic affects the entire health care system and consequently the system of insurance medicine. AIDS is not just another chronic disease (like other cancers). AIDS can be a combination of cancers that requires all the procedures for care as other cancers in addition to many other extended services (hospital, nursing care and hospice care). The known testing procedures, which include reporting to CDC

for infected persons, have ramifications socially and occupationally which do not exist for other diseases. A new model of consent and cooperation is needed for all. The possibility for mandatory testing in all facilities is indicated because it could reduce occupational hazzards, achieve the earliest possible clinical benefit for patients, introduce wider use of HIV tests for the benefit of physicians in defining and diagnosing and treating AIDS and more tests could achieve greater accuracy as well as a route to better tests.

This is a maturing epidemic entering the second decade. The cost of the necessary services has caused problems in all facilities that care for AIDS patients. AIDS patients need a full spectrum of services from tertiary care, home health care, nursing care and hospice care. The questions these problems and costs raise for all are: Should AIDS patients be integrated with other patients? Should separate health care facilities be instituted? (eg. tuberculosis hospitals, mental retardation hospitals)

The relationship between research, treatment and cost is complicated for all health care settings. The epidemic of AIDS raises more tensions between private insurers, employers and government. The central present issues are, who has the obligation to provide what services to whom

under what conditions and at whose expense. The life insurance industry is not obligated to provide treatment. In the case of AIDS, the central concern is with testing and cost to screen out clients who might die younger and incur extra costs.

Another very significant issue is the service orientation of doctors. Most doctors who are employed as insurance medicine specialists also work in other types of medical practices. In some of these setting doctors are required to uphold the service orientation. This orientation imposes an obligation to treat all patients and to try to make them healthy again. In the case of AIDS not all doctors have government clearance to test and treat for this disease. In the insurance industry doctors are asked to investigate only. The service orientation is again being altered. As Starr(1990) indicates this may be part of the new transformation of medicine.

As a result of these changes, some doctors are hoping for more state controls and more meaningful direction. When the industry was established in the middle of the 19th century physicians sought government intervention for licensure. When they became professionalized and consolidated they wanted no government interference. Now the case of AIDS has made physicians aware of the inadequacies of the infrastructure of health care and they

realize that government interference may be necessary.

The cost of treating AIDS patients is so high that most AIDS patients need government assistance as the disease progresses to its final stages. The only programs that exist for this type of aid are Medicare and Medicaid. In a certain manner these programs also represent the possible beginning of universal health care.

The AIDS epidemic has highlighted the issues of entitlement and universal access to health care. These issues raise the important question of who will shoulder the largest proportion of health care costs for AIDS patients? Health care in the U.S. is also a commodity subject to market fluctuations. No one can predict what policy for paying the costs of AIDS will be over the next few years. The costs of treating patients with AIDS is high and incomparable with other costs and other diseases.

People with AIDS face many types of social and economic discrimination. Loss of job, access to some schools, no health or life insurance, no coordinated health care and sometimes no place to live. The limited programs that exist for the poor are poor programs in every aspect.

Aids patients need a variety of services such as; crisis intervention, identification of third-party payment resources, social security benefits and other entitlements, housing and transportation to medical care, social and

psychological counseling for patients and caregivers, home care, day care , child care, legal services, financial planning and assistance in determining eligibility for Medicare and Medicaid.

Medicare was desgined to provide health care coverage to the elderly retired population and disabled persons with certain work history requirements. People who have worked and contributed to social security are eligible for Medicare when they become ill with a chronic disease that disables them to work. Previouly employed people with AIDS are technically eligible for Medicare. However, the eligibility process for Medicare is complicated and lengthy. "To become eligible for Medicare as the result of disability , a person must first apply for and receive Social Security Disability Income (SSDI) cash benefits. But SSDI benefits do not begin until five months after a person is disabled. Further, disabled persons must receive SSDI for two years before they are eligible for Medicare coverage. As a result of this delay of twenty-nine months from the determination of disability to the availalbility of Medicare coverage, it is estimated that Medicare covers only about 1 percent of health care costs associated with AIDS"(Gostin:1990:218).

Persons with AIDS "spend down" to poverty in order to be eligible for Medicaid. The extent to which Medicaid

provides protection to AIDS patients varies from state to state. The characteristics of AIDS pulations vary from state to state. The variations are due to differences in drug users, homosexuals with AIDS, different eligibility for Medicaid in different states and AIDS patient who still have some income. Some AIDS patients find themselves in limbo: ineligible for Medicaid, two years away from Medicare coverage and unable to obtain private health insurance.

The epidemiology for Medicare and Medicaid is the same as the epidemiology used by insurance companies. Existing epidemiological models claim that chronic degenerative diseases are the major causes of deaths and most deaths occur in old age. Aids changes this epidemiological pattern because the young die quickly. AIDS may make necessary a new model that will eventually benefit all.

All these complications and problems make it more difficult for data to be collected in a systematic manner. Therefore, we do not have a clear picture which would aid the process of defining, diagnosing and treating all patients with AIDS.

Early public comments about the high costs of treating persons with AIDS were made by hospital and insurance executives. For insurance executives calculations of profit, deficit and loss are central issues. Therefore,

the industry has been spending millions of dollars in testing and research during the first decade of the AIDS epidemic. The manifest function has been to screen out clients who would create excessive losses. The latent function has once again placed the insurance industry in the forefront of research regarding a disease that has yet to be completely defined diagnosed and treated.

Executives in insurance companies have sought government intervention in this case. The government has responded by allowing the private life insurance industry to test and screen out clients with AIDS who would be too costly. However, this entire group of clients has had to be reported (annonymously) to CDC. This present involvement with government clearance and reporting to government agencies has placed the industry in a position of having to examine new models and alternatives for patient/clients with AIDS.

The newest innovation for the entire society as well as the insurance industry is President's Clinton's Health Secutiry Act. In his address to the Congress in 1993, he indicated that we have the most developed health technology in the world. We spend more than any other country on health care. Yet we have a high rate of incidence of AIDS. The inadequacies in the present health care system have become more apparent through the epidemic of AIDS. Reform

to improve health care services is needed and imperative.

THE HEALTH SECURITY ACT

Health reform will begin when every American citizen and legal resident will receive a Health Security card. The card will guarantee a comprehensive package of benefits that can never be taken away. Everyone will have a choice of at least three, and in most communities many more health plans. The Health Security Act establishes a national framework to achieve the goals of reform by spelling out standards and the comprehensive benefits that every Americam must receive. The plan does not prescribe how to deliver care or organize services. It leaves those decisions to consumers, doctors, nurses, hospitals and managers of health plans.

From 1940 to 1970 employment based insurance and public programs expanded to reach more people and offer more benefits. Since 1980, however, the number of Americans lacking health insurance has steadily increased. In addition American health care is hampered by paperwork and large bureacratic organizations with high administrative costs. This has resulted in confusion, complexity and increasing costs.

Between 1980 and 1992 American health care rose form 10% of Gross Domestic Product (GDP) to 14%. If we do nothing it will rise to 20% in 2000.

The decreased quality of health care is also due to neglect in preventative care and no clear sense or direction about what health care works best and what treatments are necessary and should be made available. Patients have declining choices regarding health care because plans are sometimes picked by employers and they lose coverage when they change jobs.

Doctors have engaged in defensive medical care to avoid law suits. The cost of drugs has been high and out of reach for patients. Insurance companies have searched for the healthiest clients and eliminated clients who need health care.

The delay in needed reform has contributed to the rise of costs and inadequate health care.

The Health Security Act is guided by six principles. Security, simplicity, savings, quality, choice and responsibility. Comprehensive care will be made available to all. Preventive care and needed drugs will be more available and less costly. Insurance companies will not be able to deny anyone coverage or impose "lifetime limits". Health plans will compete to offer the best care at the best price. The plan strengthens buying clout for the consumer by bringing the consumer and the providers into "health alliances". Administrative costs will be lowered. There will be limits on how much premiums can rise. Health

care fraud will be punishable. Responsibility for the plan will be shared by all. There will be shared information regarding the best treatment. Frivolous malpractice suits will be eliminated. Spending will be closely monitored through competition and access to plans which are interchangeable. Everyone able to pay will pay something. Everyone will be enrolled. Prices for services will vary among plans. However, each plan will charge everyone the same price for the guaranteed comprehensive benefits package.

Employers and insurance companies won't decide every detail of each plan. The consumer will decide and choose between the best service and the network of doctors and hospitals (or HMO's).

Plans will be evaluated by certain government standards and through alliances of consumers and local employers. Most providers will organize into "networks" or groups of doctors, nurses and hospitals and will coordinate care of patients and control of costs.

Each person will be covered for himself. No business will pay more than 7.9% of payroll for health insurance. All plans will have limits on charges. Everyone will pay according to ability to pay.

The private market or health sector will deliver health care. The health insurance act recognizes that some

direction from government is needed to achieve a universal pattern of care for everyone. The HSA seeks to build on what works best in the American economy and alter what is dysfuntional. Each state can alter health reform (within guidelines) according to its own needs.

Particular emphasis will be placed on keeping people healthy, and no unnecessary or inappropriate services such as private rooms. For extended and priviledged services there will be supplemental plans.

Disadvantaged patients in rural and urban areas will be allowed discounts so that care will be available. Incentives to attract health care providers to these areas will be combined in national health service corps with federal grants.

The government will invest in increased research (more research on Aids) with emphasis on "outcome research". Medical education will emphasize the need for family physicians and primary care. The number of specialists will be controlled according to need. All health care facilities will be known and available to all. Access to these facilities will be made available. Data collection will be simplified and correlated more efficiently. Public health strategies will place emphasis on issues that plague entire populations.

The HSA makes recommendations for the insurance

industry as it does for all facilities involved in health care. The need for reform is clearly indicated. The case of AIDS has highlighted this need more that any other disease on record. All reform measures passed by congress impact on the insurance industry. The changes that will occur remain to be seen.

The HSA and other reform bills in health care have not completely addressed the important question of who will pay. This dissertation has investigated health care services in the sale of life insurance with emphasis on conflict resolution and cost. The difficulties, in the case of AIDS, have not been resolved by society or by the life insurance industry. The research completed to date points to certain conclusions and recommendations.

CONCLUSION

The life insurance industry, as we know it today, began with the formation of eight mutual life insurance companies in the 1840's. They appeared because there was no government apparatus to provide any type of social insurance and the need to protect life and property was crucial to all. These companies, which are still in business today, began with actuarial calculations that had been established in Great Britian. In the United States, values had changed regarding the need to protect families and poroperty after the death of the sole bread

winner. During the same period of time there was a prosperous economy with growing industries and a large number of immigrants who were receptive to new ideas in a new country.

The practice of employing physicians as observers to screen out clients who were ill and who would present extra costs to companies was begun in the U.S. The interplay between society, culture and economy in the U.S., in the latter part of the 19th century, was conducive to this new type of enterprise. This enterprise encouraged by professional organizations produced innovative technology to observe and screen out clients.

The insurance companies were and are a successful enterprise with large sums of money that can be invested in insurance medical departments. These departments continually devise systems to deal with the business/medicine relationship and the ongoing conflicts.

The analysis of the cases of hypertension and AIDS indicates that an insurance medicine health model has evolved to establish the practice of insurance medicine. This practice continually resolves and addresses the conflicts in the above delicate relationship. The case of hypertension indicated that the knowledge and technology available around the turn of the 20th century was adequate to define, diagnose and treat hypertension. Hypertensive

client/patients were categorized and the proper life insurance products for them were created which upheld professional standards and the goals of the industry.
The case of AIDS is a disease which has not been defined, diagnosed or treated. AIDS is an epidemic which requires more knowledge, the use of extensive technology and many types of health care and services. The industry has not been able to resolve the many conflicts and tensions that AIDS raises. Nevertheless, the insurance medicine health model has devised a system for testing that involves the use of very extensive technology. The AIDS epidemic has made all aware of the inadequacies in all health care facilities. The insurance industry also became aware of how inadequate their systems were for coping with AIDS. The data derived from the extensive testing highlights the present conflicts within the insurance industry and some of the needed changes.

The HSA proposes changes that will impact on health services in the entire society as well as the insurance industry. The consumer will choose between fee for service plans, networks of doctors,nurses and hospitals, HMO's and other types of facilities which will evolve. An important distinction is health care as an entitlement of every citizen. Around the turn of the 20th century health care was acknowledged by the wealthy foundations and

corporations as a charitable enterprise (somewhat like good public relations) for those who could not afford it. Until now health care has been a market product for those who could afford it with limited programs for the elderly and indigent. The HSA changes the concepts and the delivery of health care.

This dissertation investigated the insurance medicine health model in the sale of life insurance. Although life insurance is calculated differently than health insurance (eg, when will a person die as oppossed to when and how sick will he get) the same health model is used to screen out both types of clients. Insurance companies have competed not on basis of price and quality but by excluding ill clients. The individual client has been powerless to negotiate for his individual case or situation. In group life and some group health insurance cases the limitations have been lifted. In these cases the group has been large enough and the premiums high enough to cover costs and secure the profit margin. If consumers will comprise large enough groups the industry will be able to sell their standard life insurance products. The life insurance industry is able to sell life insurance to 90% of individual applicants. It sells to 100% of applicants in larger groups.

If the HSA outlaws discriminatory insurance practices

by searching for healthier people only, insurance companies will have to enroll all individuals who apply at standard issue and the standard prices. In order to insure all the insurance medicine health model will have to eliminate preexisting conditions and lifetime limits. If the groups of applicants are large enough the industry may be able to do it. If the number of AIDS patient in these groups exceeds certain limits the industry will not remain solvent. Will the proposed government subsidies be adequate for the industry to remain solvent?

The most problematic issue to the insurance industry in the sale of life insurance has been how to balance costs and the conflicts regarding cost that each disease presents.

Hypertension became a treatable disease. The industry and the medical profession were able to devise conflict resolutions with government approval and a life insurance product that was adequate for each hypertensive client and able to produce a profit for the companies.

The HSA is a proposal that indicates that the costs of health care will be borne collectively according to ability to pay by all citizens. In the Insurance industry, to some extent, the healthiest clients who live longer offset the losses of those who die younger. However, in the case of AIDS all die younger. Will the government subsidize life

insurance products for all AIDS clients who wish to buy life insurance? The life insurance industry has to consider these distinctions carefully.

If compelled to sell life insurance to all what system of medical screening will the industry be allowed to practice. It is evident that the industry has to become more involved through insurance medicine doctors in research, preventive care and treatment in the case of AIDS as well as other devastating diseases.

The Clinton plan or any reform plan will mean major changes to the insurance industry. The alliances will perform the function of insurance brokers. Open enrollment, competition and community rating will force the insurance companies who have engaged in "cherry picking" to adapt to new systems.The larger companies who have invested in managed care with extensive programs for many clients may benefit because of the expertise they have gained. For some alliances managing costs may not be necessary. For other alliances the expertise can be valuable.

Some insurers favor insurance market reform. They are oppossed to the alliances as what they perceive to be needed government bureacracies. The insurance companies have their own bureacracies in existance for many years in negotiations with government. The insurers are aware that the alliances present much stronger buyers. The alliances

will deter "cherry picking". These considerations suggest certain recommendations.

RECOMMENDATIONS

The insurance industry has to be more inclusive and devise systems that include the disadvantaged and very ill. The industry has invested millions in research and testing to deal with the problems that the AIDS epidemic presents. A policy of making life insurance available to all may become necessary. Such a policy necessitates greater involvement by the industry in research, preventive care and treatment.

The government has to be made more aware of the expertise the industry has gained. This expertise can be helpful to government and the manner in which they propose to monitor all health care facilities.

There is not enough documentation on the fact that each disease presents different problems with different costs. 90% of all people need primary care that could be dispensed in walk in clinics with inexpensive technology. The industry has systems for health screening that make 90% of applicants available for life insurance through cost effective methods.

The present reform porposals indicate that the insurance companies will remain alternative to certain alliances and part of other alliances. What is not clear

is what alliances will come out on top. Nevertheless, the systems the insurance industry has created over 160 years have to be considered more carefully by all health professionals and government agencies dealing with health care today. Insurance medicine has contributed to the definition and diagnosis of most diseases. The insurance industry has been active in public health and has always been willing to share vital information with others regarding diseases. In the case of AIDS, the insurance industry has conducted more extensive research than other health facilities and has borne the costs. The insurance industry has eagerly disseminated many educational materials for the control of AIDS to the public. Systems exist for understanding the varying costs of each disease. The questions of who will pay health care costs have not been completely cleared as yet. More extensive detailed examination of the systems in the insurance industry may be helpful.

The innovative practice of employing physicians to secure risk in insurance companies has created the specialty of insurance medicine. The practice of insurance medicine has become recognized because of the successful negotiations that mitigate the conflicts between the service orientation of the physicians and the goals of the insurance industry. At the present time the conflicts that

arise, in the case of AIDS, have not been resolved. However, the systems for negotiation within the industry offer an arena from which to begin to establish the costs and responsibilites for caring for AIDS patients as well as diagnostic and cost solutions for other diseases.

# APPENDIX A

Prior to 1849, New York Life was known as the Nautilus Mutual Life Insurance

THE NAUTILUS (MUTUAL LIFE) INSURANCE COMPANY OF NEW YORK.

*Questions to be answered by the Physician of the Party applying for Insurance.*

| | |
|---|---|
| 1. How long have you known [illegible] Have you been in the habit of seeing him frequently, and giving him Medical attendance, and for what diseases? | Eight years. A very few times. Has been troubled once or twice with Dyspepsia |
| 2. Has the party's family, to your knowledge, been afflicted with Pulmonary Complaints, or any other disease that tends to shorten life? | Mother died at 45 years of age. Mother living now at the age of 75. |
| 3. Has he at any time, to your knowledge, been afflicted with Insanity, Gout, Epilepsy, Palsy, Disease of the Heart, Aneurism, Rupture, Spitting of Blood, Affection of the Lungs, or other Viscera, or with any organic Disease? | No |
| 4. Do you believe that he is now in good health? | Yes |
| 5. Is he sober and temperate? | Yes |
| 6. Is he accustomed to much exercise or to be sedentary? | Pretty active, exercise free |
| 7. Do you believe that he possesses a healthy constitution? | Yes |
| 8. Are you aware of any particular circumstances tending to shorten his life? | No |

Signed, [illegible]

Dated, May 17 1845.

PAGE

Initial Form

APPENDIX B

DIAGRAM 1

A FUNCTIONAL VIEW OF AN INSURANCE COMPANY

THE INSURER PRODUCER

BOARD OF DIRECTORS

UNDERWRITING, RATING, REINSURANCE

OTHER SERVICES AND INVESTMENTS

ACTAURIES PRODUCT DESIGN LOSS PAYMENTS MEDICAL DEPARTMENT

LEGAL DEPARTMENT

INSURANCE REGULATION

THE NEEDS OF THE INSURED (CUSTOMER)

This diagram is a graphic overview of an insurance company. The diagram also relates to the marketting process of agents. The contribution of agents is the most important aspect of sales and has been researched by Zelizer (1979). The contribution of the medical examiner is important to insurance medicine and this research.

DIAGRAM 2

THE INSURANCE COMPANY

THE BOARD OF DIRECTORS

PRESIDENT

VICE PRESIDENT

UNDERWRITING DEPARTMENT

ACTUARIAL DEPARTMENT MEDICAL DEPARTMENT

The insurer performs all functions listed at the second level of the chart above. The functions are guided by legal departments and the needs of the insured. Diagrams 1 and 2 relate to chapters 2,3 and 4. Diagram 2 explains the present level of this research.

# APPENDIX C

PARA-MED.

☐ NEW YORK LIFE INSURANCE COMPANY
☐ NEW YORK LIFE INSURANCE AND ANNUITY CORPORATION (A Delaware Corp.)
51 Madison Avenue, New York, N.Y. 10010

Policy Number (if known)?

Answers to the Paramedical Examiner, forming Part II of Application for Insurance. Complete this form in private.

a. Full Name of Person Examined? ..... b. Date of Birth? Mo:.... Day:.... Yr:.... c. Soc. Sec. or Soc. Ins. No.? .....

2. Personal Physician (If none, or if not consulted in last 5 yrs., so state.) a. Name? ..... b. Address and Phone No.? ..... c. Last consulted: Date? ..... Reason? ..... d. Treatment: Type? ..... Medication? .....

Give the following information, so far as known, for the person being examined. If "Yes" to any question, give full details in Question 11.

| 3. In last 10 years, has such person been treated or diagnosed by a member of the medical profession, for: | Yes | No | |
|---|---|---|---|
| a. heart trouble, angina, stroke, murmur or irregular pulse? | ☐ | ☐ | a |
| b. diabetes or elevated blood sugar? | ☐ | ☐ | b |
| c. chronic bronchitis, emphysema, asthma or other lung disorder? | ☐ | ☐ | c |
| d. cancer, tumor, lymphoma; lupus or collagen disorder; rheumatoid arthritis or muscular disease? | ☐ | ☐ | d |
| e. pancreatitis; urine sugar; hepatitis, cirrhosis or liver trouble? | ☐ | ☐ | e |
| f. AIDS, AIDS-related complex (ARC), or other immune deficiency? | ☐ | ☐ | f |
| g. elevated blood pressure; thrombophlebitis, embolism or other circulatory disorder; kidney disease; albumin or blood in urine? | ☐ | ☐ | g |
| h. ulcerative colitis, ileitis or other chronic intestinal disorder? | ☐ | ☐ | h |
| i. seizures, dizziness or fainting; other nervous system disorder? | ☐ | ☐ | i |
| j. anemia, thyroid or other blood or gland disorder? | ☐ | ☐ | j |
| k. ulcer; hernia; varicose veins; gall bladder disorder; kidney stones? | ☐ | ☐ | k |
| l. back, spine, joint or bone disorder; eye, ear or skin disorder? | ☐ | ☐ | l |
| m. (if a male) disorder of prostate or reproductive organs? (if a female) disorder of pelvic organs, breasts, menses or pregnancy, or is she now pregnant? | ☐ | ☐ | m |
| 4. Is any such person now taking prescription medication? | ☐ | ☐ | |

| 5. In last 2 years, has any such person had any of the following: | Yes | No | |
|---|---|---|---|
| a. unexplained weight loss or swollen glands; recurring diarrhea, fever or infection; persistent cough, pneumonia, or thrush? | ☐ | ☐ | a |
| b. chest discomfort, edema, transient visual loss, muscle weakness, shortness of breath, or internal bleeding? | ☐ | ☐ | b |
| 6. In last 10 years, has any such person been counselled, treated or hospitalized for any psychiatric, emotional or mental health condition, or for the use of alcohol or drugs? | ☐ | ☐ | |
| 7. Other than as stated, has any such person during past 2 years had a. treatment or surgery in a hospital or other facility? | ☐ | ☐ | a |
| b. an electrocardiogram, x-ray or other diagnostic test (excl. HIV tests), or an examination for checkup or other purpose? | ☐ | ☐ | b |
| c. advice about any treatment, surgery or diagnostic testing (excl. HIV tests) which was not completed? | ☐ | ☐ | c |
| 8. Has any such person, for physical or mental health reasons, ever received disability benefits, compensation or pension; or been rejected for, or discharged from, military service? | ☐ | ☐ | |
| 9. Any history of angina, heart trouble or stroke before age 60 among natural parents, brothers or sisters of any such person? If "Yes", give relationship, age at onset and subsequent history. | ☐ | ☐ | |
| 10. Has such person smoked any cigarettes in the past 12 months? | ☐ | ☐ | |

11. GIVE FULL DETAILS FOR EACH "YES" ANSWER IN QUESTIONS 3-10

| a. Ques. No. | b. Reason — nature and severity of condition? (Include frequency, treatment, medication, surgery and results.) | c. Onset? Mo. Yr. | d. Recovery? Mo. Yr. | e. Names and Addresses of Physicians, Hospitals or Medical Facilities? |
|---|---|---|---|---|
| | | | | |

103. Measurements *(in normal heel shoes, clothed)*

a. Height .....Ft..... In. Did you measure? Yes ☐ No ☐

b. Weight.....Lbs. Did you weigh? .. Yes ☐ No ☐

104. Blood Pressure. *Take a second reading at the end of the examination. Report all observations. (Do not complete if examinee is under age 12.)*

| | 1st Reading | 2nd Reading |
|---|---|---|
| a. Systolic: | ..... mm. | ..... mm. |
| b. Diastolic: | ..... mm. | ..... mm. |

105. Pulse. *(Do not complete if examinee is under age 12.)*

a. Pulse rate at rest.....Per/Min.

b. Any pulse irregularity? ..... Yes ☐ No ☐

*If yes, obtain electrocardiogram.*

106. Urinalysis. *(Do not complete if examinee is under age 12.)*

Albumin..... Sugar..... Occult Blood .....

**Do not send** *for further analysis* **unless** *there is a positive finding. If sent, check second block in Question 109.*

| 107. | Yes | No | |
|---|---|---|---|
| a. Is there any history or indication of the person examined having smoked cigarettes? | ☐ | ☐ | |
| b. Is there any history or indication of drug or alcohol abuse by the person examined? | ☐ | ☐ | |

*If "Yes" to a. or b., give details in Question 110.*

108. Did you observe any indication of physical or mental impairment not indicated on the reverse side? Yes ☐ No ☐

109. Special Tests. *(Complete as requested, or as required by "Yes" answers to Question 3 on reverse side.)*

*☐ Blood and urine kit forwarded to lab. (Include G.O. Code and name, date of birth and soc. sec. or ins. no. of person examined.)
☐ Urine forwarded because of positive finding. (Include G.O. Code and name, date of birth and soc. sec. or ins. no. of person examined.)
**☐ ECG attached; **☐ ECG scheduled

*Required if "Yes" answer to Question 3e on reverse side. **Required if "Yes" answer to Question 3a, 3b or 3g on reverse side.

Dated at _____ on _____, 19____

I certify I have truly and accurately recorded all answers given to me.

_____
*Signature of person examined*

Witnessed by _____
Signature & title of person completing Questionnaire

_____
Signature of Parent or Guardian, if person examined is under 14 years 6 months

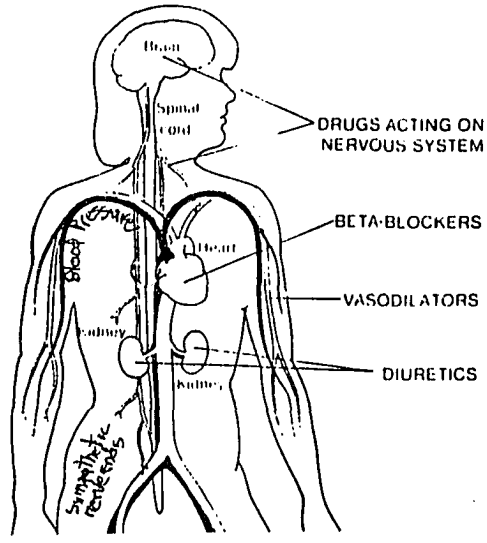
988-540 9885401

Present Form Needed

# APPENDIX D

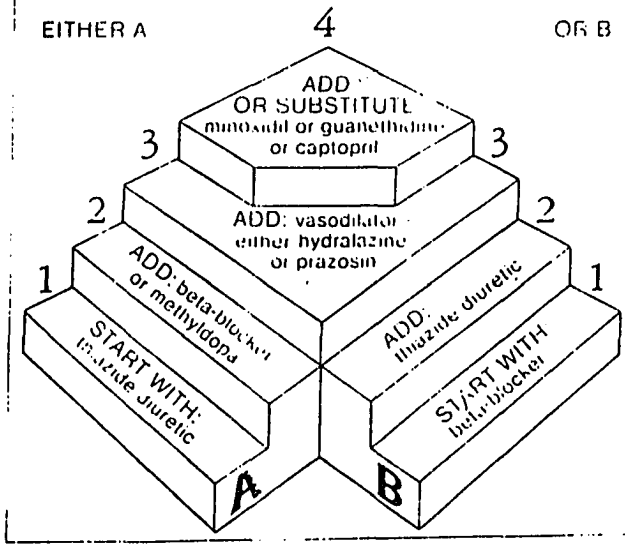
Diuretics act on the kidneys. Vasodilators relax blood vessels. The main action of beta-blockers is to slow the heart. Drugs acting on the nervous system affect the brain and the ends of the sympathetic nerves.

Sites of action of blood-pressure-lowering drugs




Parts of the body that impact on hypertension

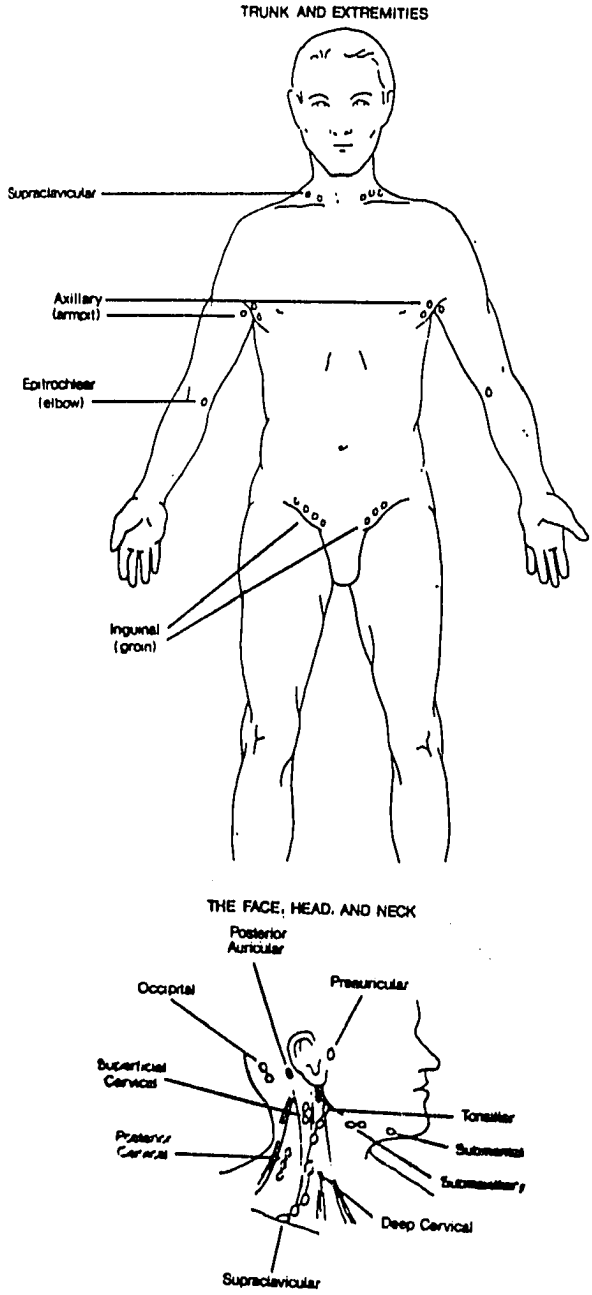
Alternative stepped-care drug programmes




Depending on the patient's circumstances the doctor might recommend either programme A or B. Failure to control blood pressure leads to the next step. It is most often controlled at step 2. Steps 2 and 3 in B are sometimes reversed.

# APPENDIX E

## THE LYMPH NODES




The many different parts of the body that have an impact on AIDS patients.

## APPENDIX F

AIDS is a disease that involves the immune system. The immune system protects us from challenges by foreign substances or agents which produce disease. AIDS is also a syndrome or a constellation of conditions that are often seen together and which may have a common underlying cause. The following is a definition of AIDS in 1983:

> A person considered to be infected "must be under sixty years of age and have not other reason to be immune suppressed. This means that they are otherwise free of serious illness before manifesting the symptoms of AIDS and that they were not born with a hereditary defect of the immune system. Individuals with a prior history of cancer, or those, who received immune suppressing drugs (after organ transplantation, for instance) are not covered by this definition. Further excluded are apeople who suffer from common infections like rheumatic fever, strep throat or influenza, as well as those who develop relatively common malignancies, such as cancers of the lung, breast, or intestines" (Mayer:1983).

The 1993 revised classification system for HIV infection system for HIV infection and expanded AIDS surveillance case definition for adolescents and adults includes all adolescent and adults with HIV infection who have laboratory evidence of severe infection and of severe immunosuppression. (C.D.C.:1993)

Severe immunosuppression is defined as an absolute CD4+ lymphocyte count if less than 200/mm3, or a CD4+ percent of lymphocytes less than 14 if the absolute count is not available. The expanded AIDS surveillance case definition also includes persons with

clinical conditions listed in the 1987 case definition.

LIST OF CONDITIONS IN THE 1987 AIDS SURVEILLANCE CASE DEFINITION

Cadidiasis of bronchi, trachea, or lungs
Candidiasis, esophageal
Coccidiococcosis, disseminated or extrapulmonary
Cryptococosis, extrapulmonay
Cryptpsporifiosis, (>1 month duration)
Cytomegalovirus disease (other than liver, spleen or nodes)
Cytimegalovirus (with loss of vision)
HIV encephalopathy
Herpes simplex: chronic ulcer(s) (> 1 month duration): or broncitis, pneumonitis, or esophagitis
Histoplamosis, disseminated or extrapulmonary
Isosporiasis, chronic instestinal (> 1 month duration)
Kaposis's sarcoma
Lymphoma, Burkitt's (or equivalent term)
Lymphoma, immunoblastic (or equivalent term)
Lymphoma, primary in brain
Mycobacterium avium complex or M.kansasij, disseminated or extrapulmonary
Mycobacterium, other species or unidentified species, disseminated or extrapulmonary
Pneumocystis carinii pneumonia
Progressive multifocal leukoencephalopathy
Salmonella septicemia, recurrent
Toxoplasmosis of brain
Wasting syndrome due to HIV

The symptoms of the above diseases manifest themselves as follows. Prominant lymph nodes in the neck. armpits or groin. A thick persistant whitish coating on the tongue or in the throat with soreness. Blistering reddened swollen itchy skin. Extreme weight loss. persistent fever. Brusing and bleeding from orifice. Profound fatigue. Loss of memory. Persistent and recurrent pain, localized and diffuse. (Appendix E, p.191) illustrates the many parts of the body that can be affected by the

disease of AIDS. The complications that arise are fatal.

CURRENT BLOOD TESTS TO DETERMINE THE PRESENCE OF HIV AND AIDS

There are no known tests, at the present time, that determine the presence of HIV itself. At this time, the most widely recommended test sequence for the presence of HIV antibodies is the ELISA-ELISA Western Blot Protocol. These tests are an enzyme-linked immuno sorbant assay test which was developed to screen the nation's blood supply. CDC has concluded that those testing positive to the ELISA-Western Blot Series should be considered both infected and infective.

The available testing for other diseases is extensive and complicated as well. However, in the case of AIDS, the exact testing procedures to define and diagnose AIDS have not been established as yet.

All the knowledge available from these tests is being correlated to ascertain how a combination can be used to accurately indicate HIV presence and the conditions that lead to ARC (early stages of HIV) or full blown AIDS.

The blood series include 5 different kinds of studies All these tests are used to determine the presence of HIV and AIDS. Other laboratory tests are also used to verify blood tests. Extensive urine testing is also analyzed to

indicate and confirm the presence of HIV and AIDS. A brief description of all these tests follows.

A. BLOOD TESTS

1. Hematology which is the study of blood includes, red blood count (RBC). a. Low RBC suggests that a person may have anemia which could be corrected with proper diet. b. White blood count (WBC) usually indicates some type of infection which requires investigation because the HIV dstroys the crucially important white blood cells known as T Lymphocytes which normally serve to fight off infection. c. Differential count is used to determine different types of white blood cells. Abnormal cells can be analyzed under a microscope. d. Coagulation studies which include PTT (partial Thromboplastin time)used to detect bleeding disorders such as hempophilia. e. Platelet count which is used to determine the number of platelets(blood cells vital to clotting).

2. Blood chemistry which is the study of substances carried by the blood. A blood chemistry may include some of the following tests:

a. High sugar which is an indication of diabetes which can be controlled and in some cases treated

b. Cholesterol levels which may clog blood

arteries which can be controlled with diet and excercise.

3. Serology is the study of antigen-antibody reaction in the blood. Some of these tests include:

a. Blood type which should be known before transfusion can take place. These blood groups are determined by the presence of certain proteing in in the blood. b. Premarital tests which are symptomless and show no indication of venereal disease. c. RH factor indication of venereal disease which isa test used in early pregnancy to detect and deal with damaging incompatibilities mother's and baby's blood.

4. Blood chemistry profile which is an automatic study conducted by an automated machine on one blood sample to determine abnormalities in areas such as calcium balance proteins balance carbon dioxide balance as well as other balances in the body.

5. Enzyme studies which are serial studies which tabulate the rise of certain enzymes in the body. These enzyme studies are used to confirm certain diagnosis such as heart attacks.

B. OTHER LABORATORY STUDIES

1. Pap test which consists of cells being rubbed from a woman's cervix and examined under a microscope

for cancer and other abnormalities.

2. Throat tests which consist of throat culture cells from the throat being placed on a culture medium (slide) to allow bacteria to be grown and identified.

3. Biopsy which is a tissue sample which can be used to determine cancer, fungal growth and infections.

4. Spinal tap which is an examination of the spinal fluid which may indicate brain tumor and other infections in the brain.

5. Stool samples which are examined to determine evidence of parasites or occult hidden blood in feces due to cancer in the bowel.

6. Sputum tests which are examined to reveal infections of the lungs and tuberculosis.

7. Gastric juice test in which a stomach tube or pump is used to collect samples which reveal acid content and may indicate the presence of ulcers.

8. Bone marrow tests in which small quantities of marrow are withdrawn from the hip bone and examined microscopically to determine unusual blood disorders and some types of anemia.

C. URINE TESTING

A basic urinalysis includes tests for the following:

a.Sugar which may indicate diabetes, b. Protein a test which shows albumin (a protein) which

indicates kidney disease of a cerain type. c. Blood cells in urine which may mean infection of the urinary tract, tumor, kidney stones and injury. d. Mineral testing which indicates imbalances in the mineral content in the body.

Urine tests are also used to detect chemicals such as: a. Poisons (lead or mercury), b. Drugs such as aspirin overdose, heroin and othernarcotics c. Hormones which indicate pregnancy, d. Enzymes which are proteins made by the body and indicate abnormal levels in glandular disorders, e. Bacteria/yeast or other organisms which are examined under a microscope to determine infections in the urinary tract.

All of the above tests have been helpful in diagnosing and treating other illnesses. In the case of AIDS they are still experimental.

**COMPANY**

INSURANCE COMPANY FULL NAME (Include City/State of Home Office) 88 3355219

CO: _____

CITY: _____ STATE: _____

**DATA**

| INDIVIDUAL | GROUP |
|---|---|
| ☐ LIFE | ☐ LIFE |
| ☐ HEALTH | ☐ HEALTH |
| ☐ DISABILITY | ☐ DISABILITY |

AMOUNT OF INSURANCE APPLIED FOR: _____

INS. AGENCY _____ CITY _____ STATE _____

PENDING # _____

**APPLICANT**

LAST NAME

FIRST NAME MIDDLE INITIAL

APPLICANTS RESIDENCE: CITY STATE

DATE OF BIRTH MO DAY YR ☐ MALE ☐ FEMALE

DATE OF LAST FOOD/DRINK MO DAY YR TIME OF LAST FOOD _____ AM PM

DATE BLOOD WAS DRAWN MO DAY YR TIME DRAWN _____ AM PM

**EXAMINER**

NAME: _____

ADDRESS: _____

CITY/STATE: _____

HORL COPY

EXAMINER: PLEASE MAIL URINE SPECIMEN WITH KIT

**HORL will perform some or all of these tests (if permitted by law) based on standing instructions from the insurance company specified above.**

| | |
|---|---|
| Blood Profile | T-Cell Count & Ratio |
| Hemoglobin A1c | Apolipoprotein |
| Full Drug Screen | CBC |
| Cocaine Screen | Nicotine |

HIV (HTLVIII) Antibody Screen

**AUTHORIZATION**

## APPLICANT MUST READ AND SIGN AUTHORIZATION

I hereby authorize the examiner to withdraw blood from me by needle from a vein and Home Office Reference Laboratory, Inc. of Lenexa, Kansas to perform blood and urine tests as may be necessary to underwrite my application for insurance coverage. These may include, but are not limited to, tests for cholesterol and related blood lipids, diabetes, liver or kidney disorders, infection by the AIDS virus (where permitted by law), immune disorders, or the presence of medications, drugs, nicotine, or their metabolites.

Without a court order or a written authorization from me, these results will be made known only to the insurance company, its insurance affiliates and/or its reinsurers (if involved in the underwriting process) and possibly the MIB, Inc. in the manner described in the prenotice which was given to me as part of the application process. These organizations and HORL will be the only ones maintaining this information in any type of file or data bank except as required by law.

Signature of Applicant _____ Date _____

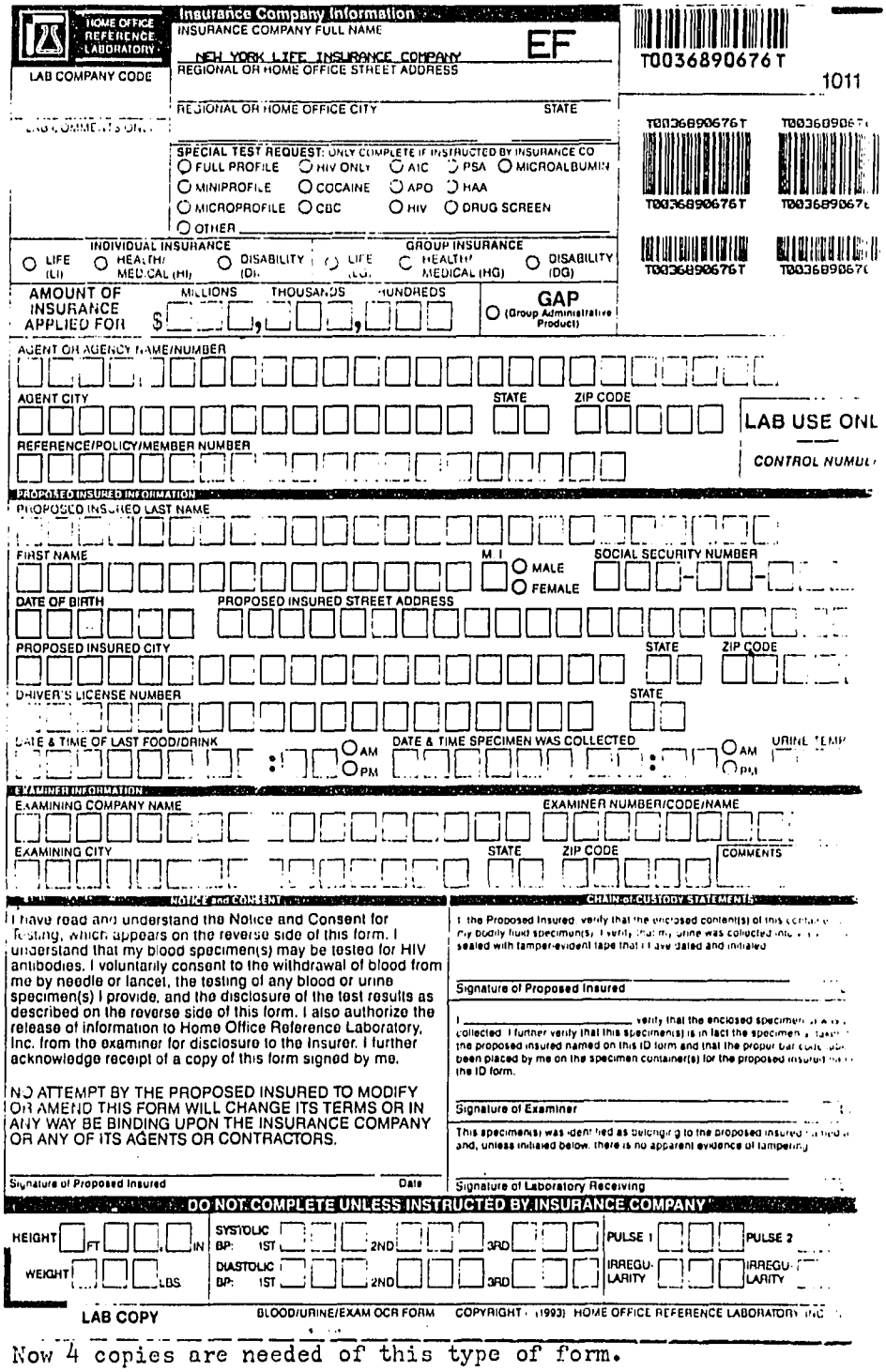
WH - HORL CN - Insurance Co. PK - Examiner GD - Applicant

FORM # BP-100 Rev 6-1-88

Only one of these copies was needed.

# APPENDIX H

HOME OFFICE REFERENCE LABORATORY, INC.



HOME OFFICE REFERENCE LABORATORY

LAB COMPANY CODE

**Insurance Company Information**

INSURANCE COMPANY FULL NAME

NEW YORK LIFE INSURANCE COMPANY EF

REGIONAL OR HOME OFFICE STREET ADDRESS

REGIONAL OR HOME OFFICE CITY STATE

T0036890676T

1011

SPECIAL TEST REQUEST: ONLY COMPLETE IF INSTRUCTED BY INSURANCE CO

○ FULL PROFILE ○ HIV ONLY ○ AIC ○ PSA ○ MICROALBUMIN
○ MINIPROFILE ○ COCAINE ○ APO ○ HAA
○ MICROPROFILE ○ CBC ○ HIV ○ DRUG SCREEN
○ OTHER

INDIVIDUAL INSURANCE: ○ LIFE (LI) ○ HEALTH/MEDICAL (HI) ○ DISABILITY (DI)

GROUP INSURANCE: ○ LIFE (LG) ○ HEALTH/MEDICAL (HG) ○ DISABILITY (DG)

AMOUNT OF INSURANCE APPLIED FOR $ MILLIONS , THOUSANDS , HUNDREDS

○ GAP (Group Administrative Product)

AGENT OR AGENCY NAME/NUMBER

AGENT CITY STATE ZIP CODE

LAB USE ONL

REFERENCE/POLICY/MEMBER NUMBER

CONTROL NUMBE

**PROPOSED INSURED INFORMATION**

PROPOSED INSURED LAST NAME

FIRST NAME M.I. ○ MALE ○ FEMALE SOCIAL SECURITY NUMBER

DATE OF BIRTH PROPOSED INSURED STREET ADDRESS

PROPOSED INSURED CITY STATE ZIP CODE

DRIVER'S LICENSE NUMBER STATE

DATE & TIME OF LAST FOOD/DRINK ○ AM ○ PM DATE & TIME SPECIMEN WAS COLLECTED ○ AM ○ PM URINE TEMP

**EXAMINER INFORMATION**

EXAMINING COMPANY NAME EXAMINER NUMBER/CODE/NAME

EXAMINING CITY STATE ZIP CODE COMMENTS

**NOTICE and CONSENT**

I have read and understand the Notice and Consent for Testing, which appears on the reverse side of this form. I understand that my blood specimen(s) may be tested for HIV antibodies. I voluntarily consent to the withdrawal of blood from me by needle or lancet, the testing of any blood or urine specimen(s) I provide, and the disclosure of the test results as described on the reverse side of this form. I also authorize the release of information to Home Office Reference Laboratory, Inc. from the examiner for disclosure to the insurer. I further acknowledge receipt of a copy of this form signed by me.

NO ATTEMPT BY THE PROPOSED INSURED TO MODIFY OR AMEND THIS FORM WILL CHANGE ITS TERMS OR IN ANY WAY BE BINDING UPON THE INSURANCE COMPANY OR ANY OF ITS AGENTS OR CONTRACTORS.

Signature of Proposed Insured Date

**CHAIN-of-CUSTODY STATEMENTS**

I, the Proposed Insured, verify that the enclosed content(s) of this container is my bodily fluid specimen(s). I verify that my urine was collected into a container sealed with tamper-evident tape that I have dated and initialed.

Signature of Proposed Insured

I _____ verify that the enclosed specimen(s) was collected. I further verify that this specimen(s) is in fact the specimen from the proposed insured named on this ID form and that the proper bar code label has been placed by me on the specimen container(s) for the proposed insured named on the ID form.

Signature of Examiner

This specimen(s) was identified as belonging to the proposed insured named and, unless initialed below, there is no apparent evidence of tampering.

Signature of Laboratory Receiving

**DO NOT COMPLETE UNLESS INSTRUCTED BY INSURANCE COMPANY**

HEIGHT FT IN WEIGHT LBS.

SYSTOLIC BP: 1ST 2ND 3RD DIASTOLIC BP: 1ST 2ND 3RD

PULSE 1 PULSE 2 IRREGULARITY IRREGULARITY

LAB COPY BLOOD/URINE/EXAM OCR FORM COPYRIGHT © (1993) HOME OFFICE REFERENCE LABORATORY, INC.

Please print in capital letters and numbers like this: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0 1 2 3 4 5 6 7 8 9

Now 4 copies are needed of this type of form.

BIBLIOGRAPHY

Abbott, Lawrence F., The Story of Nylic: A History of the Origin and Development of the New York Life Insurance Company from 1845 to 1929, New York Life Insurance Company, New York, 1930.

Alba, Richard D., Taking Stock of Network Analysis: A Decade's Results, Cornell University, First Draft, 1980

Alford, Robert R., The Political Economy of Health Care: Dynamics Without Change, A Warner Modular Publication, 1973, 1-38.

American Health Consultants, Common Sense About AIDS, Atlanta, Georgia, 1995.

Barnard, Chester I.,Organizations As Systems of Cooperation A Sociological Reader of Complex Organizations, Second Edition, Editor Etzioni, Amitati, Holt, Rinehart and Winston Inc., 1969.

Barnes, J.A., Social Networks, University of Cambridge, An Addison-Wesley Module in Anthropology, Module 26, 1972, 1-29.

Becker, H.S., Geer, B., Hughes, Everet C., and Stauss, A. Boys in White: Student Culture in Medical School, University of Chicago Press, Chicago, Ill., 1961.

Bensman, Joseph, Hans Gerth's Contribution to American Sociology, Politics, Character and Culture: Perspectives From Hans Gerth, Greenwood Press, Westpot Conn., 1982, 221-267.

Berg, Paul, The Test: Undestanding HIV Antibody Testing, Gay Men's Health Crisis, Inc. 1989.

Berliner, Howard, A System of Scientific Medicine: Philanthropic Foundations in the Flexner Era, Travistock Publications, N.Y. 1985.

Black, K. Jr., Huebner, S.S., Life Insurance, Eighth Edition, Meredith, N.Y. 1972.

Blau, Peter M., The Dynamics of Bureacracy, University of Chicago Press, Chicago, Ill., 1955.

Bloom, Samuel W., The Dcotor Patient Relationship: A Sociological Interpretation, The Free Press, 1977.

Borkman, T., et al., Keeping Hypertension Patients in Long Term Follow-up, Tape, Merck, Sharp and Dohme Inc. West Point, Pa.1974.

Boyle, Edwin, Biological Patterns in Hypertension by Race, Sex, Body Weight and Skin Color, Journal of the American Medical Association, 1970, 159-178.

Brackenridge, R.D.C. , Medical Aspects of Life Assurance, Staples Press, London, 1962.

Buley, C.R., The Equitable Life Assurance Society of the United States, Meredith Publishing Co., N.Y. 1967.

Carey, H.L., Lewis, A.B., Consumers Shopping Guide for Life Insurance, State of New York Insurance Department, 1980.

Caris, Timothy N., Understanding Hypertension: Causes and Treatments, Warner Books, 1986.

Clark, Mils H., The Life Insurance Examiner, Milwaukee, Wisconsin, 1900.

Clinton, William, Health Security Act: The President's Report to the American People, Touchtone, N.Y., 1993

The Chartered Life Underwriter, The American Society of Chartered Life Underwriters, New York, 1976.

Coe, Rodney M., Sociology of Medicine, McGraw Hill, 1970.

Coleman, James, Katz, E., Menzel, H., The Diffusion of an Innovation Among Physicians, Sociometry, 1957.

Comroe, Julius H., Exploring the Heart: Discoveries in Heart Disease and High Blood Pressure, Norton, New York, 1983.

Conrad, Peter, Kern, Rochelle, The Sociology of Health and Illness, St. Martin's Press, New York, 1981.

Coser, Lewis, The Foundations of Social Conflict, Free Press, Glencoe, Ill., 1956.

Crozier, Michel, The Bureacratic Phenomena: The Dynamics of Modern Society, Atherton Press, 1966.

Davis, Kingsley, Moore, Wilbert E., Some Principles of Stratification: The Sociological Perspective, Little Brown

and Company, 1968.

Denzin, Norman, K. The Research Act: A Theoretical Introduction to Sociological Methods, Aldine Publishing Company, Chicago, 1970.

Dobbin, Frank R., The Origins of Private Social Insurance: Public Policy and Fringe Benefits in America, 1920-1950, American Journal of Sociology, Volume 97, Number 5, March, 1992, 1416-1447.

Durkheim Emile, The Rules of the Sociological Method, The Free Press, 1982.

Durkheim, Emile, The Elementary Forms of the Religious Life, The Free Press, 1965.

Erbe, William, Gregariousness, Group Membership and the Flow of Information, University of Chicago, American Journal of Sociology, 1962, 502-516.

Etzioni, Amitai, A Sociological Reader of Complex Organizations, Holt, Rinehart and Winston, Inc. 1969.

Faris, Rober E.L., Handbook of Modern Sociology, Rand McNally, Chicago, 1964.

Fisk, Eugene, Life Saving As a Function of Life Insurance, Life extension Institute Inc., 1914.

Flexner, Abraham, Handbook of Medical Sociology, Prentice Hall Inc., Englewood Cliffs, New Jersey, 1972.

Fox, Renee C., Is There a New Medical Student: A Comparative View of Medical Sociolization in the 1950's and the 1970's

Freeman, H.E. Levine, S., Reeder, L.G., Handbook of Medical Sociology, Prentice Hall Inc., Englewood Cliffs, New Jersey, 1972.

Freidson, Eliot, Medical Work in America: Essays on Health Care, Yale University Press, New Haven Conn., 1989

Freidson, Eliot, Professional Dominance: The Social Structure of Medical Care, Atherton Press, 1970.

Freidson, Eliot, Professional Dominance and the Ordering of Health Services: Some Consequences, St. Martin's Press, 1981.

Friedman, Gary D., Primer in Epidemiology, McGraw Hill, New York, 1980.

Glascow, J.P., MacLaren, Patterson J., Medical Insurance Examination: Modern Methods and Rating of Lives, London University, London, 1927.

Goedert, James J., Aids Update, Assignment of Life Insurance, Medical Directors of American, Volume LXXI, 1987.

Gold, R., Roles in Sociological Field Observation, Issues in Participant Observation, McCall and Simmons, 1958, 217-233.

Goode, William J., The Dynamics of Modern Society, Atherton Press, New York, 1966.

Goldthorpe, John H., Lockwood, David, Bechhofer, Frank and Platt, Jennifer, The Affluent Worker and the Thesis of Embourgeoisement, Little Brown and Company, Boston, New York 1945.

Gostin, Lawrence O., Aids and theHealth Care System, Yale University, 1990.

Gottschalk, Louis, Kluckhon, Clyde, Angell, Robert, The Use of Personal Documents in History, Anthropology and Sociology, Social Science Research Council, 1945.

Gould, J., Kolb, W.L., A Dictionary of the Social Sciences, The Free Press, New York, 1964.

Gregg, D.W. Vane, L.B., Life and Health Insurance Handbook, Dow, Jon Irwin Inc. New York, 1973.

Haller, J.S., Outcasts From Evolution, University of Illinois Press, Chicago, Illinois, 1971.

Hansell, David A., Legal Answers About Aids, Gay Men's Health Crisis, Inc. 1989.

Harnes, J.R., The Correct Way to Underwrite Hypertension, Association of Life Insurance Medical Directors of America, Volume 60, 1976, 235-240.

Homans, George C., Social Behavior: Its Elementary Forms, Harcourt, Brace andWorld, Inc. 1961.

Hooker, Richard, Aetna Life Insurance Company: It's First Hundred Years, New York, 1956.

Howland, M.A., Weisman, R.S., The Pharmacology of Hypertension, Physician Asssistant Health Practitioner, New York, 1980.

Hughes, Everett C., Thorne, Barrie, DeBaggis, A., Gurin, A., Williams, David, Education for the Profession of Medicine, Law, Theology and Social Welfare, McGrawmHill, New York, 1973.

Kadushin, Charles, Frontiers of Research in Network Theory and Method, Center for Social Research CUNY Graduate Center, 1979.

Kadushin, Charles, Notes on Expectations of Reward in N-Person Networks, CUNY Graduate Center, 1980.

Kanel, W.B., et al, The Framingham Study, JAMA, Vol.214, No.2, 1970.

Kanter, Rosabeth M., Men and Women of the Corporation, Basic Books Inc., 1977.

Kasteler, J., Kane, R.I., Olsen, D.M., Thetfore. C., Issues Underlying Prevalence of Doctor Shopping Behavior, Journal of Health and Social Behavior, Volume 17, Number 4, 1976, 328-338.

Kendall, Patricia L., Reader, George C., Contributions of Sociology to Medicine, Handbook of Medical Sociology, Prentice-Hall Inc., 1972.

Kerbo, Harold R., Social Stratification and Inequality: Class Conflict in the United States, McGraw-Hill, New York, 1983.

Kornblum, William, Blue Collar Community, University of Chicago Press, Chicago, 1974.

Kornblum, William, In the Field: Readings on the Field Research, Praeger, New York, 1989.

Larson, Magali S., The Rise of Professionalism, University of California Press, 1977.

Lazarfeld, P.F., Sewell, W.H., Wilensky, H.L., The Uses of Sociology, Basic Books Inc., 1967.

Levan, J.R., A Treatise on Medical Education for Life Insurance, Fell and Company, Pa., 1885.

Leyerle, Betty, Moving and Shaking American Medicine: The Structure of a Socioeconomic Transformation, Greenwood Press, 1984.

Life Extension Institute, Prolonging Life as Function of Life Insurance, The Life Extension Institute, New York, 1919.

Liste, Thomas D., Medical Examination for Life Insurance, E. Arnold and Company, London, 1921.

Mass, Lawrence, Medical Answers About Aids, Gay Men's Health Crisis, Inc., 1989.

Mayer, Ken, M.D., Pizer, Hank, The Aids Fact Book, Bantam, 1983.

Mead, George H., The Genesis of the Self and Social Control, The Sociological Perspective, Little Brown and Company, 1968.

McCall, George J., Simmons, J.L., Issues in Participant Observation, Addison-Wesley Publishing Co., Mass., 1969.

McCormack, Thomas P., The Aids Benefit Handbook: Everything You Need to Know to Get Social Security Welfare, Medicaid, Medicare, Food Stamps, Housing, Drugs and Other Benefits, New York Senate Majority Task Force on Aids, 1987.

McKinlay, John B., Toward the Proletarianization of Physicians: Professionals as Workers, Charles Derber, Editor, Professionals As Workers in Advanced Capitalism, Boston Mass., G.K.Hall,1982.

Mechanic, David, Medical Sociology, The Free Press, 1978.

Merck, Sharp and Dohme, The Hypertension Handbook, Merck and Co. Inc., 1974.

Merton, Robert K., Social Theory and Social Structure, The Free Press, Glencoe, Illinois, 1957.

Merton, Robert K., Science and Economy in 17th Century England, Bruges, 1938.

Metropolitan Life Insurance Company Statistical Bulletins, Metropolitan Life Insurance Company, New York, 1970 to

1980.

Metropolitan Life Insurance Modules: Professional Sales Development, New York, 1976.

Metropolitan Life Insurance Company: Seventy Five Years of Life Insurance, Metropolitan Life Insurance Company, 1943.

Miller, S.M., Riesman, Frank, The Working Class Subculture: A New View, Readings in Introductory Sociology, MacMillan Company, New York, 1967.

Montagna, Paul, Occupations and Society: Toward the Sociology of the Labor Market, John Wiley and Sons, 1977.

Navarro, Vicente, Social Policy Issues: An Explanation of the Composition, Nature and Functions of the Present Health Sector of the United States, Bulletin of New York Academy of Sciences, January, 1975.

New York Life, A Company on the Move, New York Life Insurance Company, Volume 7, Number 4, New York 1980.

New York Life, Policyowners Report, New York Life Insurance Company, New York, 1980.

New York City Department of Health, Aids Surveillance Update, Office of Aids Surveillance, New York, October, 1993.

Oursher W., May E. C., The Prudential, A Story of Human Security, Doubleday, New York, 1950.

Parson, T., Essays in Sociological Theory, The free Press, Glencoe, Ill., 1954

Parsons, T., The Structure of Social Action, The Free Press, Glencoe, Ill., 1951.

Parsons. T., Action Theory and the Human Condition, The Free Press, Glencoe, Ill., 1978.

Petersen, William, Readings in Population, Macmillan, New York, 1972.

Petersen, William, Population, Macmillan , London, Great Britiain, 1969.

Pollack, J.E., Chisholm J., Medical Handbook of Life Assurance, Institute of Actuaries, London, 1985.

Powdermaker, Hortense, The Way of an Anthropologist, W.W.Norton, New York, 1966.

Prudential Insurance Company of America, Information and Suggestions for Medical Examiners, Newark, N.J., 1897.

Ramsey, Murray E.M.D., Practical Life Insurance Exminations, J..B. Lippincott Co., New York, 1908.

Reimer, J.W., Hard Hats The World of Construction Workers, Sage Publications, California and London, 1979.

Ritzer, George, Man and His Work: Conflict and Change, Meredith Corporation, 1972.

Rogers, E.M., Kincaid, D.L. Communication Networks: Towards New Paradigm for Research, The Free Press, 1981.

Rosen, George, Preventive Medicine in the United States 1900 to 1975: Trends and Interpretations, Prodist, New York, 1977.

Rubinow, I.M., M.D., Social Insurance and the Medical Profession, The Journal of the American Medical Association, Volume LXIV, 1915.

Schwartz, M., Mintz, B.,The Power Structure of American Business, University of Chicago Press, 1985.

Sirjamaki, John, Cities: The Sociology of Cities, Random House, 1964.

Smith, Kline and Beecham, What Everyone Should Know About Lab Tests, Channing L. Bete Co. Inc., 1978.

Stamler, Jeremiah M.D., et al., The Hypertension Handbook, Merck and Co. Inc., West Point, Pa., 1974.

Starr, Paul, The Logic of Health Care Reform: Why and How the President's Plan Will Work, Penguin Books, 1994.

Starr, Paul, The Social Transformation of American Medicine, Basic Books, 1982.

Steven, Rosemary, American Medicine and the Public Interest, Yale University Press, 1978.

Stillman, C.F., The Life Insurance Examiner: A Practical Treatise Upon Medical Examinations for Life Insurance, The

specator Co., 1890.

Strauss, A.L., Glaser, B.G., The Discovery of Grounded Theory: Strategies for Qualitative Research, Aldine Publishing Co. Chicago, 1967.

Symonds, Brandeth A.M., M.D., Life Insurance Examinations: A Manual for the Medical Examiner and for All Interested in Life Insurance, The Knickerbocker Press, New York, 1904.

Tumin, Melvin, Business as a Social System, The Dynamics of Modern Society, Atherton Press, 1966.

Underwood, Kenneth, The Human Shape of Work: The Business Executive, Berger, Peter L., Editor, G. K. Hall, Boston, Mass. 1982.

U.S. Department of Health and Human Services: HIV/AIDS Surveillance Report, Volume5, Number 4, Atlanta, Georgia, 1993.

U.S. Department of Health and Human Services, Revised Classification System for HIV Infection and Expanded Aids Surveillance: Case Definition for Adolescents and Adults, Atlanta, Ga., 1992

Veblen, Thorstein, The Theory of Business Enterprise, Transactions Books, New Brunswick, N.J., 1978.

Waitzkin, Howard B., The Second Sickness, The Free Press, 1983.

Waggoner, Leland T., The Story of Home Life Insurance Company, New York University, New York, 1972.

Wax, Rosalie H., Doing Field Work: Warnings and Advise, University of Chicago, Chicago, Ill., 1971.

Webb, E.J., Campbell, D.Y., Schwartz, R.D., Sechrest, L., Unobstrusive Measures: Nonreactive Research in the Social Sciences, Rand McNally and Co., Chicago, 1973.

Weber, Max, Bureacracy, Essays in Sociology, H.H. Gerth and C.W.Mills, Editors, Oxford University Press, 1946.

Weber, Max, The Protestant Ethic and the Spirit of Capitalism, Charles Scribner and Sons, New York, 1958.

Whyte, William F., Street Corner Society, University of Chicago Press, Chicago, 1955.

Zelditch, Morris Jr., Some Methodological Problems in Field Studies,

Zelizer, Viviana A.R.,Morals and Markets: The Development of Life Insurance in the United States, Columbia University Press, New York, London, 1979.