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Introduction

In mid-twentieth century, a few pioneers mobilized to develop an independent branch of medical science in CVD epidemiology and preventive cardiology. Along with their ideas, institutions formed to provide guidance and support to the new research. The investigators and the institutions were closely bound from the outset in their mutual need, one for support and the other for viable programs. The researchers' creativity drove the research agenda of the new agencies, and the agencies, in turn, enthusiastically supported the investigators' new undertakings and careers.

CVD prevention research flourished, particularly in the U.S., especially due to the post-war expansion of the National Institutes of Health (NIH) and its funding. NIH was abetted by the new public role of the American Heart Association with its expanded view of community service, research and public policy in prevention. Interest in CVD prevention research also grew in Europe, if not at such a galloping pace, where government and science, scientist and administrator, were more distant and their relations more nuanced.

The early planning and methods conferences called by the new institutions led to a collegial body that enjoyed its emergence as a pioneering scientific community with an international voice.

The National Heart Institute, National Heart Act, and Advisory Heart Council

At midcentury, a few pioneer investigators and a few U.S. institutions (mainly USPHS and AHA) began a concerted effort to deal with the newly recognized epidemic of coronary heart disease and heart attack. European institutions were slower to move in prevention since the focus of medical systems was perforce on reestablishing basic health care and nutrition in recovery from the privations of World War II. It was, nevertheless, the historical force of war that brought rapid advancement of government action in medical research on both sides of the Atlantic.

In the U.S., the new vigor in medical research policy grew directly out of President Franklin Roosevelt's wartime National Defense Research Committee and a cascade of post-war events crucial to our story. Among Roosevelt's "alphabet soup" of new agencies was the Office of Scientific Research and Development established in 1941, with its guiding Committee on Medical Research (CMR), whose composition, like that of the advisory councils of the later National Institutes of Health, included researchers, public health service and military representatives, along with key lay persons.

During World War II, the CMR mobilized medical and scientific personnel to make recommendations on medical problems affecting national defense. It worked with the National Research Council of the National Academy of Sciences to review program needs broadly in medicine, surgery, aviation, physiology, chemistry, and malaria. With its presidential mandate and virtually a blank check, the CMR became responsible, for example, for the lifesaving innovations of penicillin, sulfonamides, gamma globulin, and cortisone (Strickland 1972, 17).

From this positive wartime experience, and in the policy vacuum of the immediate post-war years, the U.S. Public Health Service moved to establish the National Institutes of Health (NIH) as a leading research institution. When none of the armed services sought to acquire CMR's residual wartime contracts, NIH seized the opportunity and secured congressional support. In effect, it won out over the National Research Council and the National Science Foundation. NIH became, and has remained, the leader and the *engine* of medical research nationally and worldwide.

The U.S. National Heart Act, 1948

> *Whereas the Congress hereby finds and declares that the Nation's health is seriously threatened by diseases of the heart and circulation, including high blood pressure, which annually kill over five hundred and eighty-eight thousand of our people and disable approximately seven million eight hundred thousand more. These diseases are the main cause of death in the United States and more than one in every three of our people die from them; and*
>
> *Whereas it is therefore the policy of the United States to provide for research and control relating to diseases of the heart and circulation in a supreme endeavor to develop speedily more effective means of prevention, diagnosis, and treatment of such diseases: Now therefore Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Act may be cited as the 'National Heart Act.'* (U.S. Congress 1948)

The National Heart Act of the U.S. Congress, authorizing establishment of the National Heart Institute, was introduced by Senate stalwarts Styles Bridges, a Republican from New Hampshire, and Claude Pepper, a Democrat from the Florida Panhandle. These authors were even foresighted enough to write provisions into the legislation for those who would plan and carry out the mission:

> *The new law will also create a National Advisory Heart Council, composed of federal medical service representatives and 12 additional members appointed by the Surgeon General with the approval of the Federal Security Administrator* (ibid, 467).

The National Heart Institute and its Advisory Council

The National Heart Institute (NHI) opened in the fall of 1948 with the purpose of supporting clinical, laboratory, and extramural research in CVD. Among its first orders of business, the new agency established support for work in epidemiology by taking jurisdiction over the first major government-supported population study, the Framingham Heart Study, thereby assuring the study's continued focus on epidemiological research rather than on the USPHS originator's primary vision of heart disease control.

Not everyone was comfortable with the decision to reorient the focus of the Framingham Study from one of disease control to a more epidemiological causal focus. National Advisory Heart Council member and Framingham founder. Joseph Mountin, an Assistant Surgeon General of the USPHS, spoke up at the first Council meeting to emphasize his long interest in disease-control. He saw control as "the focal point or nerve center of the total heart program" in the institute (National Advisory Heart Council 1948, 6).

Mountin, former chief malaria-control officer, was forceful in his push for disease-control activities to parallel the new NHI research program. The recently launched Framingham and Newton community projects that he initiated already had revealed that disease control was a touchy subject between the old-line, "downtown" Public Health Service and the new research czars on the Bethesda campus. His concerns may have been the first--but were not the last--expressed in the debate about overlapping disease-control missions of the USPHS, NIH, and CDC, some of which continues to this day

Paul White and the NHI Advisory Council

NIH powers-that-be, including C. J. Van Slyke, the first-appointed director of the Heart Institute, promptly set about forming the Advisory Council that would establish NHI policy and program. When, in a very non-bureaucratic initiative, he invited the nation's leading academic cardiologist, Paul Dudley White of Boston, to be the Council's executive director, White was stunned. At first he quite dismissed the idea, until T. Duckett Jones, White's former hospital resident at Massachusetts General and a leader in Mary Lasker's heart crusade, approached him with the argument that his involvement would, in fact, make the new institute and council critically important organizations. White later wrote how, in July 1948, he was persuaded to change his mind:

> . . . to my surprise I was quickly convinced that [Duckett-Jones] was absolutely right, that it was a duty and an opportunity, a really wonderful opportunity, in which I should become involved.
>
> However, I did not want to go to Washington to live and finally I made an agreement with the Institute people--who were most able, devoted and not at all political--that I would join them and spend about one-third of my time in Washington and also in traveling to other medical

> centers throughout the country, to help establish the work of a new Institute and Council (White 1971, 113).

White thus became executive director of the National Advisory Heart Council for its first four years, and later continued to serve as a member and consultant. "Starting from scratch," he wrote, "the National Heart Institute, with the help of the National Advisory Heart Council, has obtained from Congress increasing allocations of funds . . . The fact of the strong financial support of our work, with our many cardiovascular centers, is one reason why this country is so far ahead of all the rest of the world in this field" (ibid.).

Because of this new federal appointment, White had to resign his post at Massachusetts General Hospital and also retire as clinical professor of medicine at Harvard. He moved out of his historic laboratory in the old Bulfinch building and thereafter, for the rest of his life, worked entirely from his modest Boston "cabinette" at 264 Beacon Street. "PDW's" worldwide reputation as physician to presidents and medical diplomat, and his broad views that had early embraced epidemiology and prevention, coupled with the insights of Felix Moore, already in residence as the Heart Institute's statistician, and those of James Watt, soon to be appointed director of the institute, would have a profound and lasting influence on the orientation and accomplishments of the National Heart Institute and, specifically, on CVD epidemiology and preventive cardiology worldwide.

Historic first NHI Advisory Council meeting

Though he needed no introduction to the group, Paul White was formally introduced in his new role at the Advisory Council's first meeting on September 8, 1948, in Bethesda. Van Slyke explained that White would do the job part-time from his office in Boston and would come to Washington as needed. In the somewhat quaint language of official meetings at the time, little used today, an entry in the minutes read: "The Council unanimously approved a motion that its enthusiastic congratulations be extended to the Surgeon General and to Dr. White for such an arrangement" (National Advisory Heart Council 1948, 6). [Happiness all 'round!]

Surgeon General Leonard Scheele presided over this historic meeting and NIH Director R. E. Dyer emphasized the new Advisory Council's role: "to insure the absolute freedom of scientific research, and further, to review the entire field of research to discover areas for heart research not now covered, and then to stimulate work in those areas" (ibid., 4). He requested that the organization continue the NIH pattern of having various study sections review all cardiovascular grant proposals and make their recommendations through the Council.

Years after his own term of service as director of NHI, James Watt recalled in a personal letter, that for him, working with the National Advisory Heart Council was the most rewarding part of his job. "It took a while for me to realize that these people, all experts on their own home turf, were a bit intimidated by the new environment," he wrote. "I learned that it was up to me to get them to feel at home as quickly as I could if I really wanted their candid opinion" (Watt 1992).

The National Advisory Heart Council succeeded early in its mission to ensure freedom in research and to review and stimulate the field. The rotating roster of Council members worked cooperatively and productively over the years on programs ranging from sickle-cell anemia to multicenter trials, from preventive cardiology training to implantable artificial hearts. Still an active central cog in NHLBI policy-making, the Council operates today, though with less autonomy and initiative than that with which it was endowed and so effectively employed early.

James Watt and early NHI initiatives 1952-1961

"What are they doing appointing a diarrhea doctor to head the Heart Institute?!"
This question, actually posed in somewhat coarser language by the notoriously blunt Louis Katz, noted clinical investigator of Chicago, may have occurred to many in the field upon hearing the news in 1952 that James Watt, a U.S. Public Health Service epidemiologist, had been appointed as the second director of the National Heart Institute (Stamler 2002).
Watt himself acknowledged that his early days with the National Heart Institute were "a bit of a problem for me," explaining:

> I was a regular corps officer in the USPHS and had spent 16 years doing research in infectious diseases, mostly with diarrheal diseases. I really had given no thought to the cardiovascular system since I got out [of] hospital training. One of my friends said it would be real easy for me. All I had to do was shift from an open to a closed circuit (Watt 1992).

But in fact, Watt's appointment was a particularly fortuitous event in the rise of institutions for the care and nourishment of CVD epidemiology, both for the U.S. and worldwide. In fact, he established epidemiology firmly and permanently in the research policy and organizational hierarchy of the National Institutes of Health (NIH) and, throughout his tenure, influenced agencies abroad, including WHO, to do the same.

In his new role, and at an early and opportune moment, Watt served as co-chairman of the planning committee for the Second World Congress of Cardiology to be held in Washington, D.C., in the fall of 1954. He later wrote of that happy coincidence:

> When I went to the first of many meetings, the only person in the room I had ever met was Paul White and I had only met him once. Needless to say, I did a lot of listening and very little talking. On balance though I think it was a stroke of luck to have that [the World Congress] come as the first order of business with so many leaders of the profession. I got to work with them on a common goal with no real problems of competing interests, a matter that was inevitable when one got into priorities on how to spend a limited supply of money (ibid.).

Appointed NHI director during the hectic transition from the Truman to the Eisenhower administration, Watt was given only a weekend to "cut back" the institute's budget. He had to convince quickly his institute colleagues that for him to defend their budgets he needed to understand what the cuts would do to their programs. In the end, he had to both defend them and respond to the administration's need to

hold the line fiscally. In this balancing act, and over the years, Watt came to depend on the likes of Mary Lasker, Paul White, and surgeon Michael DeBakey, to push Congress to appropriate funds beyond the administration's proposals.

Probably Watt's innovation that most affected the course of CVD epidemiology was his creation of the new program area, Biometry and Epidemiology, under William Zukel, to expand the opportunity for population studies. It combined the existing NHI Biometrics Research Branch, the Framingham Heart Study, the Field Epidemiology Research Section, the International Laboratories, and the Geographical Diseases Section.

Watt left a litany of other successes achieved during his tenure at NIH: he saved and strengthened the Framingham Study, set the stage for the CDC Lipid Standardization Laboratory, transposed the idea of Soviet Primate Research Centers to the U.S., and created the administrative structure for the future National Institute on Aging. Under his leadership from 1952 to 1961, NHI became a major international force for epidemiological and prevention-related research in heart and blood vessel diseases, where it remains today.

Early in-house NHI activities

An early initiative of the NHI led to what CVD-prevention researcher Jeremiah Stamler called his first-ever epidemiology paper. Feeling its way with the medical profession, the new institute sent out a letter, to 100 top cardiologists asking them to comment on cardiovascular-disease mortality trends among men and women of different age and ethnic groups in U.S. vital statistics (Stamler 2002). Stamler and the NHI experts, Iwao Moriyama and T. D. Woolsey, synthesized the survey results in a report that helped set the course of discussion and activity for the new institute by highlighting the upward trend in coronary disease death rates; following the lead of the 1940s pioneers they denoted it, now "officially," an "epidemic" (Moriyama, Woolsey, and Stamler 1958).

The ebb and flow of government support of medical research

Over the course of the twenty years following passage of the National Heart Act--fiscal years 1948 to 1968--medical research into heart disease and cancer became a major component of the general welfare and of the federal budget in the U.S. The House of Representatives voted on sixteen occasions during that period to allocate more money for the NIH than the president had requested. The pattern, as historian Strickland described it, was for the House to raise the administration's figure by several million, followed by the Senate raising it some millions more, and then the conferees working out a compromise sum, usually split down the middle between the two houses. In this way, Congressmen Hill and Fogarty raised funding for medical research to heights unprecedented (Strickland 1972).

Paul White, upon his departure from the NHI Advisory Council in 1954, diplomatically summed up this early entente between the National Heart Institute and Congress:

> At the beginning we were strangers to these [Congressional] committees, some of the members of which were rather cold to our pleas, but with the years they have become acquainted with us and especially with the health problems of the country and the magnitude of the threat from heart disease. Steadily they have become themselves more and more cognizant of the medical research and educational needs and have now afforded us a sympathetic, indeed even an enthusiastic, support in our appearances before [both Houses] . . . My experiences have given me a higher regard than I once held for the character, the ability, and the industry of the great majority of our national legislators (National Advisory Heart Council 1954, 2).

White expressed less high regard, however, for the Bureau of the Budget, which habitually cut back congressional appropriations to NIH, in his view, without appreciation for, or care to find out about, the national research and teaching needs.

The early fervor for medical research spiked in 1955, when U.S. President Dwight D. Eisenhower experienced and survived a heart attack, an event that contributed to and helped to elevate the status--and ultimately, the size--of the National Heart Institute and its programs. When HEW Secretary Marion Folsom visited the president as he recuperated in Colorado he found him attended by Paul White. And when Folsom indicated to the stricken president that he wanted to increase the medical research budget by $30 million, Eisenhower was apparently pleased (Strickland 1972, 104).

Despite this sickbed endorsement, Eisenhower eventually came to the conclusion that the government's medical enterprise, much like the "military-industrial complex" he famously criticized as he left the presidency in 1961, had pushed too far, too fast, wielding, perhaps, a similar "unwarranted influence." Others, including members of Congress and the media, also were alarmed, and by 1965, the relationship between the scientists and those who fashioned policy and expected results, though mutually dependent, had become distrustful. Strickland suggested that the strong coalition of citizen lobbyists, physicians, and congressional boosters behind NIH had rolled over everything in its way; the enterprise had come along so rapidly that it had developed systemic troubles (Strickland 1972).

The Senate Appropriations Committee, which earlier waxed enthusiastic that its funding had invigorated the entire field of medical research since World War II, agreed with Eisenhower's assessment that things had gotten out of hand: 'The lack of foresight and imagination displayed by those in the executive branch who are responsible for the grand national strategy of medical research has been reflected not only in wholly inadequate appropriation requests, but in a failure to suggest forms of support realistically adjusted to the needs of modern research'" (ibid., 108).

NIH Director Shannon, too, who had felt that citizen groups were a key factor in the effort, retreated as well. He complained of "their misguided meddling in the internal operations of the research agency, their unfortunate and damaging insistence on trying to move too fast on a range of delicate matters, from development of artificial hearts to field trials for certain drugs." Mary Lasker countered that Shannon's conservatism and ego made him unreceptive to others' ideas, and that he was responsible for slowing progress (ibid., 227-28).

Thus, a general climate of suspicion developed by the mid-1960s. Congressional committees began investigating the yield as well as the "waste and duplication" in federal research programs. The Fountain Committee, chaired by Representative L. H. Fountain of North Carolina, a subcommittee of the House Committee on Government Operations, had been conducting hearings and releasing critical reports on the operations of NIH since 1959. A 1967 article in the journal *Science* summed up the situation: "NIH: Fountain Committee Issues Bitter Attack on Programs." The committee leveled serious charges against NIH for "weak and ineffective central management," for creating a gap between rich and poor universities, for mishandling indirect costs, for lax research administration, and even for failed peer-review and quality of the science supported. The latter charge arose out of the award of a broad institutional grant to the Sloan-Kettering Institute for Cancer Research in New York, when many of its individual grants had been rejected by NIH peer-review. The Fountain Committee felt that Congress, being overzealous in appropriating money for health research, had exceeded the ability of the NIH to keep up with its basic management.

At the same time, in 1968, James Shannon retired as NIH director, President Nixon's views on health were unknown, and the efforts of Mary Lasker and Florence Mahoney were diminished by the loss of friends and allies in Congress and close contacts in the White House. In 1970 both their terms on NIH Advisory Councils expired. Thus, at the end of the 1960s the whole medical-research establishment was troubled. A 1995 review article in the *Research Management Review* concluded:

> Quite apart from the Fountain Committee, the Congress was growing increasingly skeptical toward science. Its concern over the escalating cost of research was reinforced by the perception that the geographic and institutional concentration on federal funds favored relatively few constituencies. Its frustration in trying to understand scientific matters was compounded by the conflicting advice it received from the scientific community itself (Dummer 1995, 3).

Growth and power

Despite the changing scene, the function of the National Heart Institute continued to expand; its name changed twice to encompass the growth: to the National Heart and Lung Institute in 1969, and to the National Heart, Lung, and Blood Institute (NHLBI) in 1976. It came to lead the field in support and innovation for epidemiology and prevention programs and to wield a powerful influence on the adoption of preventive research among the other national institutes of health as well as international agencies.

Subsequent to the period of focus for this story, 1947-72, NHLBI has also presided over a shift of initiative and control of extramural research from the investigator community of academia to the center--in Bethesda. Although this arrangement has had undeniable benefits, with NHLBI serving as a "guiding light" and benefactor in numerous areas of prevention research, by the 1990s, investigators felt constrained by the agency's heavy stewardship (Blackburn 1992). Pioneer trialist Curtis Meinert, of Johns Hopkins, for example, charged in our interview with him that the modern-day NHLBI exerts untoward control over the multicenter trial: "Now they want to design it, they want to run it, and they want to publish it," he said, adding that the new system has "undermined the basic infrastructure" of trial science and has virtually "destroyed" the individual-investigator grant program (Meinert 2002).

Thus, for many in the field, the twenty years *before* Congress pushed the button that put NIH on temporary "pause" in the late 1960s [See Chapter 7.] were a Golden Age of medical and scientific advance in the U.S.--a period when intellectual communities grew and exchanged important ideas and when government institutions provided extraordinary, largely selfless, support.

The USPHS Heart Disease Control Program

Drawing from the oral histories of this website, we learn from William Haskell, who was involved with the project from its earliest days, that the short-lived national Heart Disease Control Program (HDCP) was "urgently needed" at the time of its establishment in the late 1950s, because the National Heart Institute, with its early focus on research rather than service, "didn't have the kind of unit to do interventions and training" (Haskell 2001). James Watt reassigned Sam Fox, a USPHS medical officer on assignment to emergency landing stations for the early space program (NASA), to Washington in 1958 to direct the HDCP, where he served until the program closed.

Fox brought to the job an emphasis on CVD prevention and physical activity at a time "when a lot of people had absolutely no interest" (ibid.). His interest had been piqued during a 1950s assignment to London where he met Jeremy Morris at the new MRC Social Medicine Unit devoted to the role of exercise in coronary disease. Fox turned a similar vision into a national program, strengthened the clinical aspects of the HDCP, and developed financial backing for the program, as he explained to us:

> When we wanted more money we would go to Elliot Corday, who was a cardiologist in Los Angeles [at] Cedars-Sinai . . . a tremendous help to us in the coronary-care effort and got big monies--six million or eight million for coronary-care units and related ambulance services and things like that. We'd go to him and Mike DeBakey and Mary Lasker . . . They were our message carriers to Congress and to the public (Fox 2003).

During the program's run under Fox, the HDCP sponsored studies, reviews, and conferences that put physical activity firmly on the agenda of clinical cardiology, cardiac rehabilitation, and CVD epidemiology. Bringing together the pioneer preventionists who first proposed the concept and design for a multiple-risk-factor prevention trial was one of the HDCP's more important achievements. During their pilot study on physical activity in coronary disease, these investigators concluded that a trial of the *independent* role of exercise in coronary disease prevention was not feasible, due to the modification of many associated risks with greater activity (Taylor, Buskirk, and Remington 1973). "JUMBO" was the result.

Despite its successes--notably the establishment of a government role advancing non-communicable disease control and prevention--the HDCP remained subject, as are all federal agencies, to the priorities and whims of those in power. During the Nixon administration, the HDCP, along with several other programs, was "phased out." The official story at the time claimed a concern about "duplication of entities," particularly those conducting activities similar to programs of the Centers for Disease Control (CDC).

Haskell, one of the principals aboard when the axe fell, acknowledged that some CDC and HDCP programs may have *seemed* to have similar functions, even though all had distinct missions in tobacco, cancer, diabetes, and CVD. The urge to "constrain" government programs he attributed to the economic downturn at the time (Haskell 2001). Fox recalled other specifics, that another bureaucrat "got up at the American Cancer Society meeting and complained publicly that they weren't getting enough money in the Cancer Control Program. Now, you don't do that as a federal employee [whether] commissioned corps, civil servant, or anybody else." Nixon staff "got all steamed up" in response to that public complaint and went out to "cut all the programs" (Fox 2003).

Jerry Stamler told still another version of the politics involved in the HDCP closure: "They were liquidated with the stroke of a pen by Haldeman and Ehrlichman for Nixon. Two Christian Scientists!" He heard that the directors were told to "close down your programs" in "thirty to sixty days," and were given no rationale apart from budgetary. Fox, Stamler said, "was beside himself to preserve the files and not let them get destroyed" (Stamler 2002).

Thus, the nation's first program for the control of heart disease and stroke, with its many ramifications for CVD prevention, died a sudden, unexpected, and painful administrative death. Some of its functions were resurrected in different forms, as in the state-services programs of CDC, and years later in an international policy and action program in the CDC Division of Cardiovascular Health Policy and Research (U.S. Department of Health and Human Services 2003).

Although this early effort to create a direct governmental mechanism for translation of fundamental knowledge into disease-control programs was dissolved, the need for such programs--to include appropriate design for evaluation of their effectiveness--has grown as delivery systems for health care and prevention have proliferated, with little coordination among them.

Centers for Disease Control (CDC): The Vision of Joseph Mountin

The Communicable Disease Center, the first variant of the CDC, arose from the World War II Malaria Control in War Areas Agency and for a time was headed by USPHS officer, Joseph Mountin, known to this history as the founder of the Framingham Study. According to the historian, Elizabeth Etheridge, the new agency was the result of his vision that the nation's public health needs could best be met by centers of excellence: for environmental issues, for emerging problems in health, and for communicable diseases. He also observed that the urgencies of the Korean War and the Cold War required epidemiological intelligence, the seed concept for the later, much-admired CDC Epidemic Intelligence Service (Etheridge, 1992).

According to his memoirist, Hugh Leavell, "Mountin was recognized for his vision and his passion for facts. Never satisfied with the status quo, he sought the reason for things, and he kept asking what the people wanted done about their health. . . Because Mountin's views of health were so dynamic, he not infrequently trod on the toes of those content to look backward rather than forward" (Leavell, 1953, 19).

According to Etheridge, "The CDC was the capstone of Joseph Mountin's effort to supply state and local health units with the support they needed. It was focused on the traditional concern of public health--communicable diseases--but its approach would be different, its mission broader than anything attempted before" (ibid. 18).

Already in 1934, Mountin foresaw what came to be called the epidemiologic transition: "The outstanding factors which will determine the direction of public health activities in the next decades are the general aging of the population, and the increase in chronic diseases" (Etheridge 1992, 20).

Milton Terris, Public Health scholar who worked with Mountin in the American Public Health Association in the late 1940s, characterized thusly his contributions and personality: "Joseph W. Mountin was the foremost public health worker in the United States in the second quarter of this century. A public servant actively engaged in the administration of health services, who used theory and practice to create new programs and new horizons of public health. He was public health personified, concerned with improving the health of the public and finding new and better ways to do so. He was the public health worker for a very simple reason, perhaps too simple for these cynical times --namely, to serve humanity" (Terris 1983, 8)

Terris provides the most colorful anecdote on Mountin: "The story goes that at a conference of the public health establishment, the talk went on and on about coordination, integration," and other impressive phrases like the ones we use today: 'evaluation, comprehensive care,' and the rest. Finally, Mountin couldn't stand it any longer. He stood up, banged his fists on the table, and said: 'You folks can do all the coordinating, integrating, and fornicating you want to do. Give me the money, I'll do the job!'" (Ibid. 9).

On the still-contemporary topic of comprehensive versus categorical public health approaches to disease prevention, Terris explained how, with old-fashioned, Midwestern American realism, he proposed that the two of them should work together for an overall chronic disease program instead of continuing the popular categorical disease approach. Mountin quickly protested, pointing out that, "Members of Congress weren't suffering and dying from 'chronic disease,' but from heart disease, cancer, and stroke" (ibid.).

According to Terris, Mountin was thoroughly modern in his early conviction that the basic approach to chronic disease *must* be prevention, that otherwise chronic disease problems would simply grow larger with time and an aging populace, and that the remarkable declines in morbidity and mortality to mid-century had resulted primarily from social changes, environmental control, immunization, and other public health prevention activities, while treatment services played a secondary role (ibid.).

In July 1946, when Mountin was head of the USPHS Bureau of State Services, the Communicable Disease Center was established in Atlanta as the Bureau's field station. It was through Mountin's connections, while in the Malaria Control Agency, with Emory University and with the head of the Coca

Cola Company, that CDC was established in Atlanta, obtained a near-campus site, and eventually took an active academic role.

Mountin would argue before Congress that if NIH were to be concerned with basic research, CDC would be concerned with service to the states. In fact, CDC left NIH freer to pursue its basic research in chronic diseases. Its formulation would presumably get Mountin "off the back" of NIH by assuming responsibility for applying new knowledge directly to disease control.

In 1948, Mountin became frustrated at the inactivity of the Epidemiology Division at the new CDC, and, after a thorough search, engaged Alexander Langmuir from Johns Hopkins to head Epidemiology, thus assuring the intense and thoughtful pursuit of infectious disease control. As infectious diseases diminished in national urgency by the 1950s, two dramatic events established the further essentiality of CDC. First, was the Cutter Laboratory incident in 1955, when live virus got into the Salk polio vaccine, and the second, in 1957, the epidemic of Asian influenza, after which the CDC's central position and its permanence were assured.

During the '60s, under the Great Society, CDC expanded rapidly and became involved in the world campaign to eradicate smallpox and in such side issues as NASA flights, assuring that no exchange of organisms occurred between Earth and Moon. In 1967, it became the National Communicable Disease Center and a bureau in the Public Health Service. In 1970, it became the Center for Disease Control, and in 1973 an agency of the Public Health Service.

In brief, subsequently, CDC got into political trouble in 1976 with its massive swine flu vaccination for an epidemic that never materialized.

In 1980, the new name became: Centers for Disease Control. Barely had the new name taken hold when AIDS appeared.

In 1990 Congress extended the reach of CDC to promote healthy lifestyles. It seemed to historian Etheridge that "such an extended reach might have surprised even the visionary Joseph Mountin" (Etheridge 1992, xviii).

Eventually, each major unit of CDC became a Center sub-divided into divisions that further sub-divided into branches, so that today, cardiovascular diseases, for example, enjoy the position as a Division for Heart Disease and Stroke Prevention in a National Center for Chronic Disease Prevention and Health Promotion, among the presently named overall, Centers for Disease Control and Prevention; still CDC!

The American Heart Association and its Scientific Council on Epidemiology and Prevention

The American Heart Association (AHA), founded in 1924, was first a club of cardiologists in the American Medical Association nationally, within which a few leaders established local associations for the

"prevention and relief of heart disease" based in New York, Boston, Philadelphia, and Chicago. Bruce Fye, historian of American cardiology, noted that these physicians had a unique vision of the social origins of disease and of preventive strategies, particularly in regard to rheumatic heart disease, the first "preventable heart disease," identified through its relation to streptococcal infection and rheumatic fever. The same group of physicians at that time tended to became active outside the clinic in newer specialties of industrial medicine and cardiac rehabilitation (Fye 1993).

Through the 1940s, the standing national AHA Committee on Policy, which included Boston cardiologist Howard Sprague, became inspired by the internationalist views of Paul White, who wore the mantle of "medical diplomat" as proudly as that of "senior cardiologist." This central committee began to push for the AHA to transform itself from a strictly professional society into a voluntary public organization that would deal with matters concerning the public health, that is, beyond clinical and professional concern.

Soon, according to Sprague, tensions developed in the AHA between two sides; the side he called "expansionists,"--who favored entry of the society into arenas of public health and public education, with lay representation in its functions--versus another side he termed "protractionists," who emphasized strictly the scientific, clinical, and professional aspects of the association. In 1948, when the expansionists had prevailed, the now-public AHA immediately established a scientific council to deal with the association's original mission of scientific matters, its functions being "to review and support research in CVD, plan the annual scientific program, and carry out professional education" (Blackburn and Epstein 1995, 1254).

By the early 1950s, AHA policy opened the door to potential constituent councils to represent specialized parts of the association's interests. This had allowed the founding of separate scientific councils on arteriosclerosis, rheumatic fever, and congenital heart disease; on circulation, high blood pressure, clinical cardiology, and basic science; and on cardiovascular surgery. This seemed a propitious development for epidemiology, at a time when formal population studies in cardiovascular disease omit were getting under way.

Nevertheless, the common wisdom in the AHA was that the strength of the Association and its resources would be diluted by adding further councils. Thus, the idea of a council for epidemiology was discouraged (ibid.).

The tortuous route to 'Council' status

By 1958, the field of prevention research in CVD had a mere AHA committee to its name--the Committee on Epidemiological Studies--established by the Council on Community Service and Education to forward the special activities of its new epidemiologist members. But it lacked the support, representation, influence, and operating budget that came with full council status. That status would be won--eventually--but only after a politically complex and, for the petitioners, painfully slow process.

The campaign for an epidemiology council--described in a 1961 memorandum from Felix Moore, chairman of the Committee on Epidemiological Studies, and AHA President Oglesby "Oley" Paul as "a place within

the American Heart Association structure for those professional groups concerned with the study of populations" (Blackburn and Epstein 1995, 1255)--began with an official proposal at the Committee's January 1960 meeting. But that request and those that followed it during the next four years were alternately ignored, tabled, resisted, and debated.

Arguments *against* the idea, put forth by specialists in other branches of CVD research, included several concerns: that a new council would "attract away" cardiovascular epidemiologists who already were making contributions within established councils, that AHA should not "expand indefinitely," and that the council-status promoters were asking for too much too soon and should be content to "remain small." The process was further bogged down as opponents revised and amended the proposal for status, passed it from one voting body to another, and even subjected it to an opinion poll. Louis Katz, founder of the powerful AHA Arteriosclerosis Council, made a representative "substitute motion," that perhaps the present epidemiology committee should "mature by becoming a Committee of the Central Committee for Medical and Community Program, rather than blossoming out into a Council" (ibid.).

Although those of us lobbying for council status may have doubted the purity of the opposition's motives at the time, this argument proved to have a certain validity. During this booming period of specialization in all areas of medical and scientific research, many were, indeed, "attracted away" from the generalist's broad view of atherosclerosis to focus on aspects of coronary attack rates and risk in populations. To that extent, the Council on Epidemiology's gain would become the Arteriosclerosis Council's loss.

Organizational setbacks notwithstanding, the annual scientific meetings on CVD epidemiology arranged by Oley Paul in Chicago, through the support of a still-anonymous donor, helped foster an intellectual bond among the epidemiologists. And finally, in September of 1964, almost a decade after the field's international "debut" at the World Congress of Cardiology in Washington, D.C., the executive committee of the AHA board of directors voted "to adopt the rules and regulations of the Council on Epidemiology as modified." The official announcement in the AHA *Council Letter*, included the "hope" that the new council would "attract additional epidemiologists to the American Heart Association" (American Heart Association 1964).

The epidemiological group first met as a formal council in October at the 1964 AHA Annual Scientific Sessions in Atlantic City, New Jersey, and there approved its rules and regulations, setting dues at $5 for fellows and $2 for members. In other activities, the newly official body: published a report and editorial in *Circulation* on criteria and methods; designed the AHA Pooling Project and sent a funding proposal for it to the NHI; established the *CVD Newsletter;* submitted its first budget request to AHA headquarters for $9,215 to support two meetings of a fifteen-person executive committee and two meetings of a twelve-person criteria subcommittee, as well as working groups, data collection and processing, an annual conference, and the newsletter.

The new council invited by letter a group of leaders in cardiovascular medicine to join the new council, offering to "grandfather" them in as fellows (American Heart Association 1965, 20). At last, North American cardiovascular prevention science would have its professional "home." The Council was able to move ahead vigorously with annual scientific sessions, methods and training activities, and advocacy for

epidemiological studies and trials (Blackburn and Epstein 1995).

New management at AHA spelled the end of the honeymoon

For nearly a decade, the new epidemiology council, like all AHA scientific councils, enjoyed the organizational support that was coordinated from AHA headquarters in New York City. Among an enthusiastic national staff, Medical Director Campbell "Cam" Moses stood out as a champion of the association's educational and research functions and of its professional volunteers. Moses, who had been an atherosclerosis researcher for many years at the University of Pittsburgh, was hired in 1967, a couple of years after most of the new Council's battles had been won, but he provided needed backing and direction for its activities.

Then, in 1973, at the beginning of a period that otherwise constituted a "great leap forward" for national research and program in epidemiology, the Council's energies were diverted and its spirits dampened as the AHA Board of Directors came under the control of planners whose main concern was budgetary and a shortage of space for the growing national organization. Enticed by offers of tax-spared land in the Texas hinterlands, the Board voted to move AHA headquarters from New York to Dallas. Decisions made during this period seemed guided by the "bottom-line" thinking of the day and by a policy of "management by objective"--the primary objective being to raise money and lobby for CVD research. Thus, the professional education and scientific-exchange activities of the Association would no longer be supported by public funds; the scientific councils would have to become self-supporting. This, along with other policy changes, would result in variable fortunes for the well-heeled clinical and laboratory-science councils compared with the epidemiology council, whose mission was related to the *public* health research and training and whose constituencies were relatively impoverished.

Cam Moses questioned the geographical and philosophical migration taking place in the Association, and he expressed his skepticism in a remark he made at a board meeting in the early 1970s to the lay board chairman of AHA. The chairman had referred to the U.S. space program's competitive contracts to illustrate his concept of proficient enterprise, saying, "Look how they got to the moon!"

"But we knew where the moon was," Moses replied at the time, making the distinction between that cold, hard target and the sometimes intangible causes of heart disease. "That," he said later, "was the moment I lost my job" (Moses 2002). [Vfd. SLR]

Essential association activities continued, largely unaffected by the move, but Moses was sorely missed by AHA council members. For many, warmth and enthusiasm went out of volunteering for AHA undertakings when the tough professional managers moved in and when most activities shifted from the bright stimuli of Manhattan to the colorless plain outside Dallas.

Later Council developments

The AHA Council on Epidemiology, "and Prevention" added to its name and purpose, has since grown in size and influence. Its executive group carries out the Council's affairs, coordinates the Lake Tahoe

Ten-Day Seminar in CVD Epidemiology, publishes a segment in the AHA Council Newsletter, and organizes annual scientific sessions integral to academic CVD epidemiology and to the practice of preventive cardiology.

The parent AHA, along with its committees and other scientific councils, laid the groundwork for research, practice, public recommendations on health and lifestyle, and national policy on health issues at the heart of CVD epidemiology, including diet, smoking, hypertension, physical activity, and the general promotion of health. It has been influential beyond national boundaries, providing a model for the scientific councils established in 1966 by the International Society of Cardiology (now the World Heart Federation) and in 1976 by the European Society of Cardiology.

Past chairs of the AHA Council on Epidemiology and Prevention, gathered at the annual scientific sessions in Anaheim, California, in 1991. Front, left to right: Jeremiah Stamler, Henry Blackburn, Nemat Borhani, Len Cook (AHA Director of Scientific Sessions for four decades), Elizabeth Barrett-Connor, Al Tyroler, Darwin Labarthe. Back: William Castelli, Frederick Epstein, Joseph Doyle, William Kannel (Photo courtesy of Len Cook, American Heart Association, Dallas, TX).

The UK Medical Research Council

Like its American counterparts within the U.S. National Institutes of Health, the British Medical Research Council (MRC), established in 1919, did not become seriously involved with population health research in CVD until several decades after its founding. In 1948, the newly enacted National Health Service Act “for the first time provided decent healthcare for all--and, at a stroke, transformed the lives of millions” (BBC 1998). More specific to our story, the Act provided major support for medical research through the rejuvenated MRC, which included the establishment of research units in social medicine, statistics, chronic diseases, and cardiovascular epidemiology.

The MRC came to embrace epidemiology more formally in the early 1950s with its support of another Doll-Hill project--the now-classic British Doctors Study--which greatly forwarded the design of case-control and prospective investigations and profoundly influenced understanding about tobacco smoking as a cause of both lung cancer and coronary disease (Doll and Hill 1954).

In addition to supporting a broad program in clinical medicine, the MRC of that period conducted what it termed a preventive medicine program, the major component of which was nutrition as it related to deficiency diseases, not to heart-disease prevention. Thomson's definitive MRC history includes, in fact, no discussion of contributions to coronary disease except for the briefest mention of Morris's studies of its possible reversal by "vigorous leisure exercise" (Thomson 1975, 185). Morris's MRC Social Medicine Unit had from its inception in 1948 made cardiovascular diseases the prime subject of prospective studies, including studies of cardiac pathology as well as of the occupational and social epidemiology of coronary disease. His "epidemiology of needs" reflected a political focus on poverty and on the distribution of health and disease that characterized the discipline for which his unit was named--social medicine.

In an essay on Morris's commitment to studying health as a means of bringing about social change, medical anthropologist Dorothy Porter described his contributions as integrating evidence from population studies, on which to base clinical decisions, with the analysis of needs in public health and medical services. Morris and many of his British colleagues at the time his Social Medicine Unit was formed shared "a belief in the analytical power of quantitative methods and the potential political power of epidemiological research to influence policy making." Thus, Porter wrote, "for this generation of peers, social medicine and a needs-driven epidemiology were more or less inter-changeable descriptions of the quantitative, population-based scientific investigation of disease, health and socio-economic inequality aimed at instituting social change" (Porter 2007, 1181).

Jeremy Morris's commitment to social justice endured throughout his life and encompassed issues beyond the public health. In a BBC Radio interview after Morris died in 2009 at age 99, public health historian Virginia Berridge recalled that, even into his 90s, Morris "had a research grant from the Department of Health to research the minimum income which was necessary for healthy living." On the same program, Morris's son David noted that his father "had an absolute passion that opera and theatre and music should be accessible to all" (Bannister 2009).

Morris's unit moved from the central Middlesex Hospital to London Hospital in 1956, and thence to the LSHTM in 1966, with Morris the director throughout. Its members focused on chronic diseases and social medicine issues until the unit was dissolved upon Morris's retirement in 1975, its functions continuing at a lesser pace through his personal enterprise as emeritus professor at the London School.

A parallel MRC effort in Wales under Archie Cochrane

When Archie Cochrane, who also had trained at University College Hospital London, returned from long military and prisoner-of-war experience, he was invited to join the MRC Pneumoconiosis Research

Unit at Cardiff by his former professor, Charles Fletcher, the pioneering pulmonologist. There they began to use whole communities as control and experimental units to test the role of treatment of tuberculosis on the progression of pulmonary fibrosis. In the late 1950s, the MRC Population Laboratory in the Rhonda Fach, an offspring of the Pneumoconiosis Unit and of wartime UK chest disease surveillance, Cochrane initiated studies in cardiovascular disease epidemiology. To these he recruited a bright young faculty of future leading epidemiologists, including William Miall and Ian Higgins, and conducted surveys in and around the Welsh Rhondda Fach River Valley.

In his autobiography, Cochrane spoke of this period of his epidemiological work in Cardiff: "as well as being the happiest, this was very likely the most productive period of my life. I think I showed that we could, very nearly, make measurements in communities with roughly the same known error that one can make in laboratories and use them to test hypotheses" (ibid.). He early saw the opportunities, developed the questions and methods, and then tested them in representative populations, which establish him as a pioneer and founder of CVD epidemiology. In 1960, Cochrane was named "honorary director" of the MRC Epidemiological Research Unit and encouraged a similarly-named MRC unit in Jamaica under Miall, which functioned until Miall returned to Wales in 1970 to lead the MRC Mild Hypertension Trial.

Thus, the MRC established strong units with effective leaders who were given *carte blanche* to conduct their researches. Several focused on CVD. With these units, the MRC attempted to identify salient issues of national public health and then to do something about them.

The London School of Hygiene and Tropical Medicine

The London School of Hygiene and Tropical Medicine (LSHTM), best known as a post-graduate university with a mission of training doctors to treat tropical diseases, also stands out as one of the founding institutions of chronic disease and CVD epidemiology. The origin of the London School goes back to the historic hospital ships *Grampus* and the several later versions of *Dreadnought*, which were offshore facilities of the Seamen's Hospital Society. But it was the International Health Board of the Rockefeller Foundation, engaged with the early school's hematologists in a worldwide battle against hookworm disease, that offered in 1922 to build a new school of public health in London. Under the direction of Andrew Balfour, the 52,000-pound-sterling Rockefeller gift funded construction of the building at Keppel and Gower Street, completed in 1929 and still in use today (Gibson 1995).

Medical statistician, Major Greenwood, was the first LSHTM professor and chair of epidemiology and statistics and served from 1928 to 1945. Fighting for the use of statistical methods in medicine, he was central to the school's evolution, and cemented his legacy by establishing Bradford Hill to succeed him. Much of the subsequent tone and leadership of the LSHTM derived from Hill's scholarship in the design and analysis of surveys, cohort studies, and clinical trials and from his distinguished pedagogy on these topics. Hill's celebrated "guidelines" for arriving at causal inference from statistical associations provided a rock on which epidemiological and public health structures are built.

From the late 1940s, the London School's MRC research units established collaborations in CVD epidemiological pursuits, developing independent researches that had wide implications in the U.K. and abroad. The School worked closely, for example, with faculty of the University of Minnesota Laboratory of Physiological Hygiene on CVD survey methods, survey questionnaires, and the Minnesota Code for classification of electrocardiograms. Joint efforts of the LSHTM and WHO encouraged and gave international credence to the development and use of new, objective, and standard methods for CVD surveys and trials.

Walter Holland, a founding faculty member of the LSHTM curriculum for non-communicable diseases, left the School in the 1960s to take up his own program in epidemiology at St. Thomas's Hospital. There he and his department were early leaders in the epidemiology of respiratory diseases and of hypertension and in methods of blood pressure measurement (Holland and Humerfelt 1964).

In its direction of the WHO Multiple Risk Factor Trial in Industry initiated in 1971, the LSTHM led in the concepts, design, and operation of an early multiple-risk-factor prevention strategy for CHD. Geoffrey Rose, as coordinator of a WHO expert report, played a central role in the synthesis and evolution of a population strategy of CVD prevention that addressed "sick populations" and complemented the medical orientation toward "sick individuals" (World Health Organization 1982).

London School later collaborations and contributions to CVD epidemiology include coordination of InterSalt and InterMap, international field studies of diet, nutrition, and blood pressure (Stamler 1997; Stamler et al. 2003).

The WHO Cardiovascular Disease Unit

"The 1960s were indeed the golden age for research."
— Z. Fejfar

As the first director of the World Health Organization's Cardiovascular Diseases Unit, created in 1959, Czech cardiologist-physiologist Zdenek Fejfar had a unique vantage point from which to make that observation. In an unpublished historical account composed in 1974 shortly after he left the director's post, Fejfar wrote that during the 1960s, the unit's reach grew to include cooperative efforts among more than 100 institutes engaged in the study and control of cardiovascular diseases worldwide (Fejfar 1974).

The idea that WHO should become involved with "cardiovascular activity," he wrote, was proposed by representatives of the Indian government in 1953. This was followed by a series of seminal WHO conferences yielding expert reports on atherosclerosis and ischemic heart disease (1955), classification of atherosclerotic lesions (1957), prevention of rheumatic fever (1958), and classification of hypertension and coronary heart disease for epidemiological studies (1959). But the CVD program was not formally adopted and funded until WHO's World Health Assembly in Minneapolis in 1956, and it was March of 1959 before Fejfar finally was able to open the new CVD unit with a staff of two: himself and a secretary.

By the time of the new unit's first scientific group meeting in 1959 in Geneva, Fejfar wrote, "epidemiology was considered important for international cooperation" (ibid.,1). James Watt, the U.S. NHI director, chaired this meeting--an indication of his active role in the worldwide as well as American development of CVD epidemiology. Members of this expert group, like those of all WHO consulting bodies, were called upon to look beyond their specialties and to address the functional role of WHO internationally, which was to recommend, help organize, and at times coordinate researches rather than to fund or direct them.

Fejfar noted that among the CVD advisory group working to define the mission of the new unit, some members could not help championing researches related to their own interests. British cardiologist Paul Wood, for example, suggested specifically "that WHO should eventually include experimental research on the relation between atherosclerosis and blood lipids, and on the role of thrombogenic factors in atherogenesis and behaviour of the intima." Fejfar concluded that, "We learnt rather quickly that having many good suggestions does not by itself ensure success" (ibid., 2).

Fejfar took responsibility for what he described as a slow start in the activities of his unit, writing, "I had no experience in international work or in epidemiology, and my knowledge about the distribution of major cardiovascular diseases was scanty" (ibid.,11). Of course, most researchers working in the field at the time had an equally shallow knowledge base, but Fejfar was the more eager to see that the methodology for measurement was developed. Just three weeks after assuming his post in Geneva, he attended the 1959 Princeton Conference [See Chapter 9B.], where, he wrote, "the deficiencies in survey methods were much evident. Apart from Ancel Keys's Seven Countries Study, there was no experience of cooperative investigations nor other information about the prevalence of major cardiovascular diseases. When cooperative studies were undertaken, it became necessary for the participants to meet regularly to get to know each other and to improve the quality of their joint work" (ibid.).

Fejfar set as his first task the establishment of "a large circle of cooperating physicians and laboratories throughout the globe"--a network that would facilitate the dissemination of "available knowledge about the problems of cardiovascular diseases and about new developments by WHO." Traditionally, he lamented, this knowledge had been contained in reports that were "more or less buried in ministries of health . . . only a few cardiologists knew of them" (ibid.2).

Consequently, Fejfar forged early a working relationship with the Geneva-based International Society of Cardiology (ISC) (see below), appointing a number of the group's leading cardiologists to a WHO panel of experts. Their series of meetings during the first years of the CVD Unit outlined not only the methodology but "the main features as to how to treat and prevent major CVD," But he wrote, "It became evident that publication of reports only, though written on advice of excellent experts, was insufficient. It was necessary to prove [in] pilot studies how to apply the knowledge in a given country" (ibid.,3).

He went on to insist that the operating modus of WHO would not conflict with regional medical organizations and customs. "Cooperation between outpatient and hospital services and the use of existing structures of health services were the two guiding principles. We never considered to establish special services for cardiac patients *outside* the local structure and organization of health care" (ibid.).

'The world was our laboratory'

"In 1959," Fejfar wrote, "we considered the globe a laboratory where one could find contrasting areas of cardiovascular disease prevalence. The opportunity was to relate the frequency of a disease with different ways of living and in different ethnic groups" (ibid.,4) [SLR cor and vfd] He cited informal studies in places like Kampala, Singapore, and Fiji, for example, which had found that Indian immigrants in these areas apparently had higher morbidity and mortality from ischemic heart diseases than did the natives. The Seven Countries Study became one of the few to successfully carry out such cultural comparisons systematically.

The WHO CVD Unit early took on the coordinating function for a major international test of the cholesterol-lowering hypothesis, the WHO Cooperative Clofibrate Trial, based in the UK and in Prague. Although the study results were mixed--a reduction of non-fatal heart attacks but an increase in deaths from all causes in subjects taking clofibrate--Fejfar felt that the "emotional discussions" in medical journals and at conferences that followed the reporting of the negative trial results "overshadowed the beneficial effect of the drug and the valuable experience of how to conduct, coordinate and evaluate a large-scale preventive trial" (ibid.).

Throughout his tenure as unit chief, Fejfar believed in the original idea and uniqueness of WHO itself, an organization having no legislative authority and limited financial resources. It functioned effectively, nevertheless, by facilitating discussion, coordinating research, advancing methods and ideas, and forwarding projects under its informal international aegis. By 1972, he counted 131 institutes throughout the world that were cooperating with the WHO CVD Unit, including ten in Africa, twenty-two in North and South America, eleven in the Eastern Mediterranean region, seventy-two in the European region, three in Southeast Asia, and thirteen in the Western Pacific regìon. For the researchers engaged in a wide range of surveillance, prevention, and intervention activities in these far-flung sites, "it became customary to say and write 'according to WHO classification (or standardization, or methodology),'" Fejfar wrote, adding that the CVD Unit "enjoyed excellent cooperation with cardiologists and other scientists all over the world. No one ever refused WHO invitations to come to give advice, write a paper or do a study" (ibid., 9).

At a WHO meeting on worldwide cooperative efforts to control cardiovascular diseases, held in Geneva in 1973, epidemiologists and clinicians from nineteen countries evaluated the Unit's fourteen years of work and outlined a program for the rest of the decade, which included "the establishment of nationwide community programmes for comprehensive control of cardiovascular diseases as distinct from a single disease control." Fejfar wrote that the new WHO program would emphasize "early phases of cardiovascular diseases, some of which begin in childhood," and on improvement of cardiovascular health "throughout the life span until old age" (Fejfar 1974, 7,8). These nascent ideas are included today within areas called "primordial prevention" and "life-course epidemiology."

In 1973, at the peak of his international leadership, Fejfar was abruptly recalled to his home institute in Prague, with no explanation of the political reasons for his removal from the international scene. The Soviet-dominated Czech administration was known to take such autocratic actions in part because some Czech citizens had used their international assignments as vehicles for permanent emigration (defection),

causing political embarrassment at home. Fejfar returned home without protest, later expressing regret only that he was unable to follow through with his dream of creating an International Institute similar to the WHO Cancer Research Institute in Lyon. Closing his report, he wrote, "The long-term programme I was prevented from building in later years remained only on paper" (ibid.11).

During the years after his return to the Czech Republic, even after freedom arrived in that country in the late 1980s, Fejfar remained low-key and devoted to his local cardiovascular community, writing books and editorials in Czech, and maintaining his international friendships. He appeared at the 1987 International Conference on Preventive Cardiology in Washington, D.C., but was no longer active on the international scene. He was gracious and generous in providing original documents and a fine collection of historic photographs for the University of Minnesota CVD History Archive.

The WHO Europe Regional Office is established in Copenhagen

The European Office of WHO was founded in 1957 and from its outset, under the direction of Zbenyk Pisa, actively developed community-based programs to study cardiovascular diseases. Its earliest effort was inspired by Jerry Morris, who, as consultant to the unit, decried the absence of valid data on incident coronary events. The pioneering Myocardial Infarction Register Program involved xx units in xx countries involved in the "hot-pursuit" (active concurrent) surveillance of acute coronary events. Not only was much new knowledge gained about the nature of such events and the status of coronary care but also a coterie of younger researchers became experienced in the survey strategies of sample-size estimation, population enumeration and recruitment, hospital chart abstraction, and data management and analysis. Many early participants became leaders in subsequent epidemiological undertakings in Europe, including the massive WHO monitoring program MONICA of the 1980-90s.

Founding and Evolution of International Cardiovascular Societies

The postwar geopolitical division and academic diversity of medical science in Europe encouraged piecemeal, separate, but sometimes also innovative approaches to the new ideas flourishing about CVD research in populations. This contrasted with the more rapid gathering together of pioneer investigators having a commonality of needs in North America. Moreover, institutional initiative and organizational fervor was less intense in Europe. Several stimuli eventually moved the process along, however: social medicine-cardiologist leader Jerry Morris of London was early drafted into WHO working groups on the continent; James Watt, Director of the U.S. NHI from 1952, was particularly influential in policy and planning for CVD research within the fledgling WHO; and from the early 1950s, the influence of Paul White of Boston in international cardiology, joined early by his sidekick in prevention, Ancel Keys of Minnesota, began to stimulate curiosity over epidemiology and prevention researches among the elite of international cardiology. This duo's influence was early and direct in the International Society of Cardiology and soon carried into the newly organized European Society of Cardiology.

International Society of Cardiology (ISC)

Just as the American Heart Association was once a strictly professional society of North American cardiologists, so, too, was the International Society of Cardiology (ISC), founded in 1946, a club for academic cardiologists and senior consultants. Its primary function was to organize a grandiloquent quadrennial World Congress of Cardiology where peer specialists and the academic elite might strut their stuff. Topics of epidemiology and prevention of CVD were nowhere to be found on the agenda of the first congress, held in Paris in 1950, but by the time of the second congress in Washington in 1954, Paul Dudley White and Ancel Keys had claimed an important place for these subjects on the program. With the additional support of James Watt, newly appointed NHI director and the nation's host to the World Congress, White and Keys led the first-ever plenary symposium on CVD epidemiology. The historic discussion was subsequently published as a "little green book" that was not widely circulated (Keys and White 1956).

As co-chairs of the ISC Research Committee during the 1950s and early '60s, White and Keys guided the organization, which was by then a consortium of regional professional societies, to encourage research and formal training in CVD epidemiology among young cardiologists. The two men co-opted other leaders of international cardiology into conferences convened in exotic places such as Mexico City (1962), the Dalmatian coast (1963 and 1968), and Venice (1965) to discuss the design, methods, and overall needs of population research and training for CVD.

During this period, the committee proposed collaborative researches and focused on the development of field methods, formally requesting that WHO prepare a manual on such methods. The resulting book, *Cardiovascular Survey Methods,* was begun in 1964 and finally published in 1968, and reached an international audience (See Chapter). In 1966, along with other international leaders at the World Congress in New Delhi, the Research Committee helped mold the ISC into scientific councils for cardiovascular specialties, *a la* American Heart Association. The council of greatest interest to CVD epidemiology, the ISC Scientific Council on Epidemiology and Prevention, was born there amidst fanfare [see below]. Its cardinal function became the popular International Ten-day Seminars in CVD Epidemiology, launched in 1968 and meeting annually since.

Indian President Sarvepalli Radhakrishnan shaking hands with congress participant and head of the WHO CVD Unit, Zdenek Fejfar. Looking on is cardiologist Vittorio Puddu, President of the ISC.

The ISC Scientific Council on Epidemiology and Prevention is born in New Delhi

A huge, brightly colored tent, festooned with flowing banners and lit by flaming tapers, covered a large area adjacent to the Hotel Ashoka and housed the opening reception and banquet of the World Congress of Cardiology in New Delhi in fall 1966. Steaming tables of saffron rice and roast chicken, endless varieties of legumes and vegetables, and groaning boards of sweets tempted the delegates gathered in the exotic setting. The main organizational business of the congress would include formation of the International Society's eight new scientific councils, including the Council on Epidemiology and Prevention. After twelve years of planning and politicking by White, Keys, and colleagues, the new council was formally charged with the development of standard field methods and criteria, of training programs for researchers, of collaborative population studies and prevention trials, and of public-policy recommendations for CVD prevention.

Thus, the festive opening of the congress was full of promise for the preventionists. Unhappily, in the days immediately following the grand reception, many delegates found themselves ill-adapted to the exotic cuisine and their organizational tasks had to be borne by those few who remained upright and vigorous.

The minutes of the organizational meeting in New Delhi included two ideas forming the framework of the new Council's intent. The first was "recognition that a key strategy in the control of epidemic cardiovascular disease--particularly coronary heart disease--was primary prevention." A second was based on the observation that incidence of these diseases varied greatly among the world's populations, and that "study of the factors related to these differences--that is, epidemiological investigations--could help form the necessary scientific foundation for prevention" (International Society of Cardiology 1966.

After incorporation, the new council's main undertaking was training young investigators in epidemiology, for which it planned the annual International Ten-Day Seminars on Cardiovascular Epidemiology and Prevention, the first of which was held in Makarska, Yugoslavia in 1968.

International Cardiology Foundation (ICF) and International Society and Foundation of Cardiology (ISFC)

In 1969, through the initiative of Paul White and Louis Katz, the International Cardiology Foundation (ICF) was formed and registered in Geneva to raise funds for the scientific and medical programs of the ISC. As sometimes happens among connected organizations with differing roles and goals, tensions developed between the academic leadership of the ISC and the lay leadership of the Foundation. In 1978, after some years of difficult deliberations, peaceable relations were brought about--again, thanks largely to the diplomatic efforts of Paul White--at the Eighth World Congress of Cardiology in Tokyo, when the two groups merged into a single body. The new organization was called the International Society and Foundation of Cardiology (ISFC), and all the regional and national cardiological societies--Asian-Pacific, Inter-American, North American, and European --became members.

From the 1970s, the ISFC Council on Epidemiology became increasingly involved in policy, with members preparing reports on medical and public health strategies of prevention and control of CVD that provided

for studies and programs for both primary and secondary prevention. The Council also played a central role in setting up collaborative researches including the European Multiple Risk Factor Trial in Industry and the MONICA Project of surveillance.

These activities of the ISC in its several configurations were central to the evolution of CVD epidemiology internationally and to the dissemination of concepts and methods of CVD prevention. The International Council on Epidemiology and Prevention became a critical force in CVD prevention research beyond, different from, and independent of academic epidemiology.

In 1998, the ISFC reorganized yet again into the World Heart Federation (WHF), with new officers and constitution and a new focus on influencing government policies. Within the next decade, the WHF dissolved the scientific councils of the ISFC and their professional programs and training seminars. The old councils were cut loose to continue as autonomous organizations. The Council, renamed the International Council of Cardiovascular Epidemiology and Prevention, happily found sources of support for its conferences and for its popular Ten-day Seminars.

In 2001 in Osaka, the International Conference on Preventive Cardiology merged with the World Congress of Cardiology[2] into the WHF International Heart Health Conference, which then promoted a series of authoritative statements to guide governments and non-governmental agencies in promoting cardiovascular health (Farquhar et al 1992).

The European Society of Cardiology (ESC) Working Group on Epidemiology and Prevention. 1976

During the period of energetic institutional and funding growth in the 1950s and '60s, epidemiology and prevention councils and working groups were finding slots on the organizational charts and programs of American cardiological groups, though not always without resistance. European cardiology was more traditional and slower to embrace the idea of prevention. Such was the case with the European Society of Cardiology (ESC), which was founded at the 1950 First World Congress of Cardiology in Paris but did not add an active Working Group on Epidemiology and Prevention until nearly three decades later.

The ESC was formed by members of national cardiac societies during the launching of modern cardiology that accompanied economic recovery in Europe after World War II. The new group's First European Congress of Cardiology was held in London in 1952, and then every fourth year thereafter, with little activity in the intervening years, that is, until the rejuvenating seventh congress was held in Amsterdam in 1976.

The 1976 ESC scientific meeting marked a departure in both style and substance from the society's sleepy first quarter-century--changes brought about largely through the exuberant force of ESC executive board member, Paul Hugenholtz of the Netherlands. Participants in that conference were greeted in elegant continental style with a glittering reception at the Van Gogh Museum. The Congress program featured top-level scientific sessions, a concert of the Amsterdam Concertgebouw orchestra, parades and jazz-band performances, and a banquet held in a replica of an immense medieval Guild Hall.

The Amsterdam Congress became a milestone not only for the ESC, but also for CVD epidemiology in Europe. Paul Hugenholtz, a professor of cardiology at the Rotterdam Thorax center, sought to implement in the ESC the organizational features he admired in the American College of Cardiology and the American Heart Association. To that end, he guided the group in its decision to establish six specialty working groups, among which was the Working Group on Epidemiology and Prevention.

At that 1976 meeting Geoffrey Rose of the London School and Finnish internist Kalevi Pyörälä mobilized a core of some 150 members of the ISFC Council on Epidemiology and Prevention—mainly younger cardiologists and investigators who had matriculated through the Ten-Day Seminars. Their idea was to enhance contacts and collaboration among Europeans involved in prevention research and practice. Enlisting fellow epidemiology stalwarts Fred Epstein of Zurich, Risteard Mulcahy of Dublin, and George Lamm of Budapest, they led an organizational meeting at the Amsterdam Congress, where, after due process, the Working Group was approved by the ESC board and general assembly.

(Henry Blackburn)

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**All interview transcripts are available in abstract form in the CVD history website of the University of Minnesota School of Public Health: http://www.epi.umn.edu/cvdepi/interview_list.asp*