Editorial Comments ■

To Morris F. Collen: Happy Ninetieth!

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Dr. Morris F. Collen

Dr. Morris F. Collen credits his mother with having endowed him with an auspicious birthday: 11–12–13, one that might have put him on a track toward exceptional numeracy. But looking back from the perspective of his ninetieth birthday, that endowment certainly amounted to much, much more. We may be tempted to claim Dr. Collen for us as one of the fathers of medical informatics, but that would diminish his true phenomenal legacy. Dr. Collen is a statesmanlike leader who reshaped modern health care in a fundamental way. He is a world-class scientist, an advisor to American presidents,

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and a profound humanist, who started out as an exemplary clinician. Dr. Collen's qualities put him from the start in the midst of an environment rife with innovation and opportunity, and marked by other giants.

He started out as a clinician in 1942 when he was selected by Dr. Sidney Garfield, a surgeon, to join him as an internist in his group practice—right after Dr. Collen had completed his residency in internal medicine at Los Angeles County Hospital. Since the thirties, Dr. Garfield had provided health care to large concentrations of industrial workers at remote work sites, including the Colorado River Aqueduct, a project providing water to Los Angeles, and the Hoover Dam on the Columbia River between Washington and Oregon. For this, Garfield had established a then-novel group practice, as well as an even more revolutionary prepayment health plan. This was provided mainly for workers in the employment of Henry J. Kaiser, a prominent industrialist and touted as the father of modern shipbuilding. Henry Kaiser built over 1,500 cargo ships, known as “Liberty Ships” during World War II, created scores of companies involved in public works, such as the construction of dams, tunnels, and roads, and left his mark on the automobile industry with the Kaiser automobiles. Working with Dr. Garfield, Henry Kaiser is credited with creating one of the first comprehensive prepaid health plans for both office and hospital care. This health plan was extended in the forties to include not only all health problems of the workers beyond industrial accidents, but also the workers' families. This led to the establishment of Kaiser Permanente in the post-World War II period, when the health plan began accepting public members. The name, Permanente, was first applied by Henry Kaiser to his Sand and Gravel Plant built along the Permanente Creek located near San Jose, California. Kaiser's wife Bess liked the name, Permanente, a Spanish term meaning ever-flowing; and he applied it to several of his companies.

Beyond the health plan, a comprehensive infrastructure of hospitals had been created in the Bay Area near San Francisco, and near Portland, Oregon. In 1953, what had been known as the Permanente Foundation Health Plan and Hospitals was renamed for Kaiser. Garfield's original medical group, which had also taken the name Permanente, chose to keep that name as a sign of its independence within the overall Kaiser Permanente medical care program, which was structured as a mutually exclusive contractual partnership between the medical group and the health plan and hospitals. During the sixties, the membership of Kaiser Permanente had reached two million in California. Since then other Permanente Medical groups have been established across the United States. The membership of Kaiser Permanente is now at 8.4 million. It employs 11,000 physicians and 128,000 employees in 29 medical centers and 423 medical offices.

Dr. Collen soon rose to the positions of Medical Director of the West Bay Division and Physician in Chief, San Francisco. He became a member of the Executive Committee of The Permanente Medical Group, on which he served for 30 years, for 24 consecutive years as its chairman. Together with Dr. Garfield and Dr. Cecil Cutting, the first Executive Director of The Permanente Medical Group, Dr. Collen is credited with inventing the Permanente culture, a unique collaborative practice style of the Permanente Medical Groups, which today is known as Permanente Medicine. With Dr. Collen among its leaders, Kaiser Permanente was reorganized in the 1950s to clarify the independence of the medical group from the health plan and to carefully define a highly integrated contractual partnership of medicine and management.

One of the hallmarks of Dr. Collen is his ability to grasp complex issues, approach them in a holistic systematic manner, and come up with simple effective solutions. This ability was undoubtedly furthered by his achievement of a degree in electrical engineering before engaging in medical studies. As an internist in the forties, he approached the care for pneumococcal lobar pneumonia in a systematic manner, developing and publishing treatment protocols that would nowadays be called clinical practice guidelines—a major improvement to dealing with this devastating condition of the pre-penicillin era that was endemic in the closed quarters of the World War II shipyards and the associated worker housing projects.

In the fifties, the need to gain efficiencies in health care led Dr. Collen, in conjunction with Dr. Garfield, to further re-engineer health care delivery in their environment. Together they pursued a grand scheme of converting acute care into disease prevention, and beyond that to health maintenance. This led him to introduce a fundamentally new tool, which recently had become available to businesses, into health care—the computer. Dr. Robert Pearl, current medical director and CEO of The Permanente Medical Group, says Dr. Collen “understood more than three decades ago that the computer would be as important to health care as the stethoscope was in the past.”

Again, his uncanny ability to get to the core of an issue and to devise simple, effective, and practical solutions marked his approaches. He used computers to track his members' health status, and to run comprehensive periodic health checkups on healthy plan members. This “multi-phasic screening” approach, introduced during the fifties and early sixties and delivered in the streamlined architectural environment of a multi-phasic health screening center, included physical examinations, comprehensive laboratory tests, electrophysiology tests, radiographs, and an automated self-administered medical history. The latter is a particularly illustrative example of his ingenuity and sense for simple solutions: test subjects were presented with a stack of punched cards, on which questions were printed and encoded. They were asked to sort these cards into two boxes, depending on whether their answer to the question was “yes” or “no.” The questions answered with “yes” were then printed for review by a professional, together with the other test results.

Within a decade, Dr. Collen accumulated several millions of health checkup data sets on more than a million subjects, creating in the process not only a prototype electronic health

record, but also a phenomenal and unique basis for research, and this despite the immaturity of the technology available in the fifties and sixties.

His original and comprehensive deployment of computers enabled work on the selection of valid, predictive indicators, the development of person-specific ranges for the assessment of laboratory results, the establishment of the foundations for comprehensive hospital information systems, and the advancement of methods for systems evaluation for meticulous assessment of the economic efficiency and medical effectiveness of such systems. For the pursuit of the scientific aspects of his work, Dr. Collen founded the Medical Methods Research Division (now known as the Division of Research) within Kaiser Permanente in Oakland, to which he added the Division of Technology Assessment in 1979 that he directed until his retirement in 1983, at age 70. This Division of Research has evolved into one of the largest medical research facilities outside a university with 400 employees, an annual budget of more than \$30,000,000 and a cumulative contribution of over 1,200 peer-reviewed articles to the medical literature.

By the time of his “retirement,” Dr. Collen listed some 150 publications in his scientific output and had held appointments at multiple first-class universities, including Johns Hopkins and Stanford. He had served on the Institute of Medicine of the National Academy of Sciences of the United States, and in many capacities on many committees of the National Library of Medicine.

His papers include close to 30 publications on clinical conditions, including treatment and epidemiology of pneumonia and diabetes, from the forties through the sixties. The first paper on “Screening in a Group Practice Prepaid Medical Care Plan” appeared in 1955.¹ This theme of multi-phasic screening, automated medical diagnosis, health surveillance, and preventive medicine was then the subject of some 20 publications into the seventies. At this time, the emphasis shifted to electronic medical records, and hospital and health information systems. This includes a book on *Hospital Information Systems*² and a book on *Multiphasic Health Testing Services*,³ both of which have become classics.

Since his official “retirement,” Dr. Collen has continued to assume leadership in many respects, including, but not limited to, medical informatics. He had served as Chair for the Scientific Program Committee of the third International Congress on Medical Informatics, MedInfo '80 in Tokyo. He contributed “a personal historical review of health care information systems” to the book *A History of Medical Informatics* edited by Blum and Duncan.⁴ He has edited with Marion Ball a book, *Aspects of the Computer-based Patient Record*,⁵ and wrote his own book, *A History of Medical Informatics in the United States 1950–1990*.⁶ He is currently working on a complement to this book, which concentrates on the history of the development of ancillary information systems in health. Dr. Collen's ability to cut through to the heart of the matter, to treat complex issues comprehensively but succinctly and understandably, is particularly well illustrated by a series of articles which appeared in 1999/2000 in *M.D. Computing*.^{7–13} This series of lucid short articles, almost vignettes, are a comprehensive and up-to-date review of such key issues in health informatics as the approaches to

programming, operating systems, and use of the Internet and World Wide Web, and would do credit to many much younger colleagues. Today, his publication record stands at over 190 scientific articles and five books.

Dr. Collen accomplishes much of his current work at the National Library of Medicine (NLM) in Bethesda, Maryland, where he regularly spends his days as Scholar in Residence. But he also serves the NLM in other ways. Some years ago, he agreed to join the Literature Selection Technical Review Committee. This committee recommends the selection of new journals to be indexed by the NLM, and from time to time reviews the holdings of entire areas, such as pediatrics or genetics, to determine whether the collections are adequate. After serving on this work-intensive committee for three years, he agreed to chair it for two. He is also chair of the NLM Biomedical Imaging and Bioengineering Working Group.

Dr. Collen is Director Emeritus of the Division of Research, Kaiser Permanente Medical Care Program, in Oakland, California, to which he serves as consultant two days a week. He also is Chair of the Scientific Program Committee of the International Conference of Health Promotion, organized by the International Health Evaluation Association (IHEA), to happen in October 2003 in Atlanta, Georgia. He serves on numerous editorial boards of scientific journals, such as *Methods of Information in Medicine* and *International Journal of Biomedical Computing*.

Dr. Collen's awards and distinctions are too numerous to list in this summary. They include his nomination as Johns Hopkins University Centennial Scholar in 1976, election as a Distinguished Practitioner of Medicine of the National Academies of Practice in 1983, the Computers in Health Care Pioneer Award, the International Health Evaluation Lifetime Achievement Award in 1992, and the Shigeaki Hinohara Award for Preventive Medicine, bestowed on him in Japan in 2001. A particularly interesting award is the "Cummings Psyche Award," which he received from the Nicholas and Dorothy Cummings Foundation in 2002 for introducing psychotherapy as an integral part of primary care in the fifties and sixties—another testimony to his holistic approach.

In a way, Dr. Collen is a meta award winner. There are two awards given regularly to others in his name. One is the Morris F. Collen Medal, which is considered the "Nobel Prize of Medical Informatics." It has been awarded by the American College of Medical Informatics since 1993 to exceptional achievers in medical informatics. Recipients include Dr. Donald A. B. Lindberg, Director of the National Library of Medicine, Dr. Jean Raoul Scherrer, creator of the Diogenes hospital information system of the University Hospital in Geneva, Switzerland, and Dr. Marion Ball, former President of the International Medical Informatics Association (IMIA) and pioneer in, among others, nursing informatics. Dr. Collen received the medal in his name on the occasion of its inauguration in 1993. Ten years later, in 2003, The Permanente Medical Group created the Permanente Morris F. Collen Award for Research, another award in his name, which is given to prominent medical researchers.

In light of his demanding activities and obligations, it is remarkable that Dr. Collen is also a devout family man. He

delights in the fact that all of his four children are in health-related professions, his son Arnold as professor of psychology at Saybrook University, his son Barry as a teacher and licensed art therapist at a Waldorf School, his daughter Roberta as a medical doctor specializing in pediatric endocrinology, and his son Randall as a licensed family therapist. With his children, every year he spends a holiday in May in Yosemite National Park, his corner of paradise. His late wife Bobbie worked for a long time alongside him as Director of Health Education in the Permanente Medical Group in Oakland. Her loss in 1996, after fighting with her a long battle with Parkinson's disease, confronted him with depression. But he learned to cope with it: He greets every day with an emphatic, "This is going to be a great day!" He says he has been happy in the last two years since he met Jewel Wallach, a widow, who he says has a wonderful New York sense of humor, besides being very intelligent, and a devoted counselor for caregivers of patients with Parkinson's disease; and who now accompanies him regularly to dinner and theater, and on some of his travels.

Dr. David Lawrence, former CEO of Kaiser Foundation, sums Dr. Collen up as "a phenomenal personality, a very large presence, a man who I enjoyed debating and arguing with, and who I enjoyed consulting for help." "Very high intelligence, combined with a strong will, and the ability to lead" is the take of the Executive Director of the Permanente Federation, Dr. Francis J. Crosson on Dr. Collen. "...And what seems to be most amazing to all people is that it does not seem to have dimmed at all."

In 1986, when asked by an interviewer for his vision of health informatics in the year 2010, Dr. Collen quipped, "Well, I look forward to being around in 2010." Well, so are we! Happy birthday, Dr. Collen! May there be many more great days ahead for you!

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