

Health Appraisal and the Adverse Childhood Experiences Study: National Implications for Health Care, Cost, and Utilization

Vincent J Felitti, MD, FACP^{1,2}

Perm J 2019;23:18-026

E-pub: 01/04/2019

<https://doi.org/10.7812/TPP/18-026>

ABSTRACT

This article describes the origins of the Division of Health Appraisal in Southern California Permanente Medical Group's San Diego Department of Preventive Medicine, which provided a comprehensive and nontraditional array of preventive medicine services to more than 50,000 members a year. The fusion of Health Appraisal with the Positive Choice risk abatement services provided the origins of the now internationally recognized Adverse Childhood Experiences Study and its major implications for the outcomes and costs of medical care.

The Health Appraisal system fulfilled the medical evaluation and preventive needs of most adult patients outside of the traditional and costly sickness-care system, provided rapid access to medical care, has been medically reliable and appreciated by patients, and demonstrably reduced the cost of medical care while providing each evaluated member with a comprehensive medical record in a specialized database. The unexpected resistance to this concept's further implementation deserves exploration and understanding given the current problems in medical care.

This article will discuss: Health Appraisal development and function; the Health Appraisal process; perspectives on the Health Appraisal product, outcomes, and benefits; and the Positive Choice system that linked Health Appraisal to prevention activities. A proposal for program expansion and the major economic implications of certain Adverse Childhood Experiences Study findings also will be discussed.

INTRODUCTION

"The high cost of medical care" has become a serious problem and stock phrase since the 1990s. This issue has attracted social, political, and economic attention, all of which influence current modes of practice. The relationship between the rapid rise in costs and the emergence of third-party payers has largely been overlooked, perhaps because of the practical appreciation that third-party payers probably are here to stay. Current discussion centers on how much money is spent rather than *why* the money is spent. "Big technology," epitomized by the high price of magnetic resonance imaging equipment, has been cited as an explanation for the high cost of medical care. In contrast, authors of one insightful article¹ argue that a more likely explanation is the heavy use of and sequelae associated with "little technology" such as blood tests and ordinary radiographs. This train of thought leads to several suggestions involving changes in physician reimbursement and education and expanded insurance incentives. Although probably desirable, these changes involve major restructuring and have no short-term effect.

This article describes a local system in the Kaiser Permanente (KP) Medical Care Program's Department of Preventive

Medicine in San Diego, CA, which substantially reduced the cost of certain basic medical services. This department's concept was an outgrowth of the famous KP Multiphasic Clinic in Oakland, CA, which was created by Morris F Collen, MD. Although its original components have been described previously,² few people are familiar with the clinic's history. In San Diego, we were able to advance Dr Collen's impressive biomedical approach into a biopsychosocial approach and integrate patient education and major risk-abatement programs. The lack of understanding regarding these 2 KP systems is unfortunate because both deal with a basic building block of medical practice: The comprehensive medical evaluation, which is often trivialized as "a routine physical." To reduce the enormous cost of medical care, it is useful to have a deeper understanding of the purposes, methods, and ramifications associated with these developments.

BACKGROUND: HEALTH APPRAISAL DEVELOPMENT AND FUNCTION

The KP Medical Care Program is one of the largest private, integrated, prepaid medical systems in the world and was the prototype for health maintenance organizations. In the KP Southern California Region, 4.5 million patients are served in 12 areas, each structured around a large medical center. Although every patient ultimately is cared for in the context of an individual physician-patient relationship, we have found it appropriate to design certain practices that are distinct from those encountered in usual medical practice. This article describes a system that provides standardized, comprehensive medical evaluations to more than 50,000 adult members per year in one area of the Southern California Permanente Medical Group, and the system's noteworthy outcomes.

The San Diego area's Health Appraisal program began in 1975. The purpose of Health Appraisal was to provide affordable, comprehensive adult medical evaluations as a covered Kaiser Foundation Health Plan benefit. Most notably, Health Appraisal ultimately provided comprehensive medical evaluation in a non-traditional fashion to a total of 1.3 million individual members in the San Diego area over a 30-year period. Through this system we created a full, well-organized medical database for each patient, predicated on a detailed biopsychosocial history, extensive laboratory and radiographic studies, and an all-inclusive physical

Author Affiliations

¹ Department of Preventive Medicine, Clairemont Mesa Medical Office, San Diego, CA (retired).

² Department of Medicine, University of California, San Diego.

Corresponding Author

Vincent J Felitti, MD, FACP (vjfmstdca@mac.com)

Keywords: ACE, adverse childhood experiences, biopsychosocial, health care innovation, preventive medicine, obesity

examination. It has been possible to provide this basic component of medical practice at an average staffing cost that is lower than our outpatient Internal Medicine visit cost. The question at issue is whether any of this matters, and to whom.

The adult members of Kaiser Foundation Health Plan who received comprehensive evaluation through Health Appraisal ranged from healthy to chronically and complexly ill. Their average age was 57; approximately half were men. During any 4-year period, 81% of adult members older than age 26 underwent a health appraisal. Most self-selected the process, and about 20% were referred.

THE HEALTH APPRAISAL PROCESS

A comprehensive medical evaluation, or health appraisal, as performed in our Department of Preventive Medicine, was a 2-visit process with visits 2 weeks apart. At the time the initial appointment was made, our appointment system integrated certain age, sex, and risk algorithms for test selection and generated laboratory slips. We maintained an entry delay of 7 to 10 days to allow for postal delivery and completion of the detailed medical history questionnaire that was mailed to each patient's home as the first step of the process. This questionnaire, on which further history-taking was based, included a review of all body systems; psychological questions; a family medical history; a history of past medical, surgical, and psychiatric treatment; a listing of medications; a social history including developmental life experiences during childhood; and questions about the patient's examination-related expectations and needs. The mailing also described the process of the complete evaluation.

Visit 1

At visit 1, each patient was greeted by a receptionist. Their medical history questionnaire was collected, and they received a folder containing their preselected laboratory forms. Six patients were scheduled every 10 minutes. Following the collection of a specimen for urinalysis, patients entered an audiovisual room where they viewed a 13-minute video that described what would happen next; a physician in the video explained the significance of the tests and how to participate in unfamiliar tests like pulmonary function testing and audiometry. The video, which also provided general public health advice on topics such as immunizations and breast self-examination, was a convenient and effective means of providing information and setting mood and expectations. The video created confidence and cooperation at the outset; it was important for us to disseminate information to patients via multiple modalities whenever possible.

After watching the video, each patient was greeted by a health assistant with whom they worked through multiple tests and measurements. These started with measurement of visual acuity followed by tonometry measured on noncontact tonometers (American Optical, Southbridge, MA). Height, weight, temperature, pulse, and blood pressure were measured. Pulmonary function was measured in the same room using a pulmonary function test device (Vitalograph, Lenexa, KS) to measure vital capacity and 1-second forced expiratory volume. Patients older than age 60 years were screened for early dementia with tachistoscope

testing. Patients then proceeded to a room with individual soundproof booths where a 7-minute bilateral, full-spectrum audiogram was run on automatic recording equipment. Each patient then went to a dressing area, disrobed to the waist, and put on a gown to prepare for a chest radiograph and/or mammogram as indicated by the protocol built into the appointment computer system. Four-view mammography was performed on a 10-minute schedule. Patients then entered a small waiting area in which a new health assistant greeted them and escorted them to 1 of 7 adjacent cubicles for a blood draw and 12-lead electrocardiogram. Blood tests included total cholesterol, high-density lipoprotein, creatinine, fasting glucose, VDRL (venereal disease research laboratory) test for syphilis, thyroid-stimulating hormone, and complete blood count.

Through our universal screening program, we discovered that hemochromatosis was much more common than previously thought, and we also included measurement of serum iron and total iron binding capacity for a once-in-a-lifetime screen for this genetic disease.³ The appointment system tracked the completion of iron studies so the tests were not needlessly repeated during future appointments. At this point, patients had completed their first visit, and those older than age 50 years received a packet with 3 hemocult slides to prepare at home and bring in at the second visit. In only 1 hour and 20 minutes, extensive biomedical data were collected. Six or 7 hours over several days would have been required to achieve the identical result if performed elsewhere in the same organization using conventional, nonlinear approaches; labor costs alone would have been much higher.

An assembly line environment is not ideal when working with human beings, but skillful interior design and pleasant, cheerful employees made it possible for patients to warmly accept this approach. Indeed, when 10,000 patients were surveyed via an anonymous questionnaire, "Which part of the entire process makes you most confident?" their overwhelming answer was, "The scientific tests." By front-loading all "the scientific tests," we fortuitously validated everything that came afterward. Interestingly, patients typically do not recognize the importance of the lengthy medical history questionnaire.

During the following week, while laboratory studies were processed, patients' 10-page medical history questionnaires were passed through a digital scanner. "Yes" answers were organized by body system and a printout (generally 2 or 3 pages in length) was generated. A health risk analysis based on the 13 cardiovascular risk factors of the Framingham Study⁴ also was generated and mailed to each patient. This risk analysis is helpful because patients were thereby focused on relevant areas of cardiovascular significance during their second visit. Also, between visits 1 and 2, all women older than age 45 years received an informational mailing on osteoporosis prevention. Similarly, all smokers identified during appointment intake received a nonjudgmental mailing that provided information about our smoking cessation program.

Visit 2

Visit 2 centered on the physician-supervised work of a highly experienced nurse practitioner or physician assistant, each of

whom performed this in-depth process approximately 2300 times per year. “Yes” answers on the medical history questionnaire served to identify areas for further review. The medical history questionnaire is of particular importance because, in all of medicine, there are only 3 sources of diagnostic information: Patient history, physical examination, and laboratory studies. Whereas patients typically assume their diagnosis largely derives from laboratory test findings, experienced physicians have long recognized that about 75% of the time, diagnosis derives from patient history. The traditional process to obtain historical information, however, is time consuming, experience dependent, and laden with interpersonal difficulties such as physicians being “too old”; “too young to understand”; or the wrong sex, race, or ethnicity for comfort. Our ability to obtain a detailed, comprehensive, highly sensitive medical history from more than 1 million patients through initial use of an inert mechanism (a paper-based questionnaire to fill out at home with information refined in the exam room) has been a pleasant surprise.

Our separate work in the Obesity Program,⁵ which led to the Adverse Childhood Experiences (ACE) Study,^{6,7} confirmed the importance of routinely obtaining from adults a developmental history of ordinarily unspoken adverse childhood experiences. This is best *initially* obtained by an inert mechanism (ie, our questionnaire, filled out at home) and later comfortably addressed in the exam room by saying, “I see on the questionnaire that . . . Can you tell me how that has affected you later in your life?” We then listened, period, and implicitly accepted this person who had just told us some of his/her dark secrets. The findings from this work and their effects were unexpected and profound, and later to be described.

After reviewing the medical history questionnaire with the patient, we performed a detailed physical examination including fundoscopy, rectal and pelvic examinations, and a neurologic examination; laboratory results from visit 1 were reviewed with the patient. Predictably, the threat of false positives from screening did not materialize when results were reviewed in the context of a detailed history and physical examination. We believe that diagnostic quandaries typically are attributable to inadequate information rather than inadequate interpretation. The comment commonly attributed to William Osler remains relevant: “More diagnoses are missed by not looking than by not knowing.”

Each nurse practitioner/physician assistant examiner had 12 patient appointments scheduled per 8-hour day. Examiners worked under the guidance of supervisory physicians whose sole function was full-time, on-site supervision. The goal of this second visit was to develop a conclusive categorization of the patient as being well, at risk, or ill. If well, the patient’s evaluation process was complete. If ill, arrangements were made to see the most appropriate type of physician if there was not already an ongoing physician-patient relationship. A patient at risk for common problems was entered into one of our risk-abatement programs.

In addition to accurately describing each patient in the medical record, part of our goal has been for patients to have a general understanding of the nature of their problems and their problems’ significance. To this end, we developed a program to create and

mail a summary letter several days after visit 2. This letter provided a list of diagnoses because, without the ability to describe findings by using proper terms, meaningful understanding is not possible. One or more paragraphs then explained the implications of each diagnosis and its potential treatment. The letters, which are generated by programmed extraction of explanatory paragraphs from a paragraph bank to address each specific diagnoses, cannot be distinguished from individually dictated letters and provide tangible evidence that a patient has not been lost in a large organization. The letters also can be used by patients to share information with other physicians.

The Supervisory Physician

The role of a supervisory physician in this process is the reverse of the traditional physician’s role. In a traditional medical office, the staff exists to support the physician; here, the physician exists to support and supervise the new and expanded function of the staff. The supervisory physician confirms important new diagnostic findings such as valvular heart disease and also clarifies ambiguous or important points in the medical history directly with patients, or might formulate diagnostic strategies with the examiner when a diagnosis was not evident. The physician reassured examiners and patients when necessary.

Although this process might be regarded as creating potential for fragmented care, this was avoided by our sending a copy of our records to the patient’s primary physician. For patients who were well, nothing more needed to be done. Also, substantial biomedical, psychological, and economic benefits accrued for both patients and the organization. For patients who were ill, potential fragmentation was avoided through integration into a larger coherent process. Sir James Spence stated, “The real work of a doctor is not an affair of health centers, or public clinics, or operating theaters, or laboratories, or hospital beds. These techniques have their place in medicine, but they are not Medicine. The essential unit of medical practice is the occasion when, in the intimacy of the consulting room or sick room, a person who is ill seeks the advice of a doctor whom he trusts. This is a consultation and all else in the practice of medicine derives from it.”⁸ Generally, treatment was not initiated during the Health Appraisal process to avoid disrupting the relationship between the patient and his or her ongoing physician.

Perspectives on the Health Appraisal Product

What, then, is the product? This question needs to be addressed from 3 perspectives: The patient’s, the physician’s, and the third-party payer’s (in this instance, KP). Why do people choose to come in for a comprehensive medical evaluation when they do? Internal studies revealed that the major factor is anxiety triggered by some symptom. The concept of planned preventive maintenance motivates only about 20% of patients, typically elderly patients. Most other patients have a specific symptom and seek a complete physical examination. A medical history questionnaire item about patient expectations was helpful in this regard; it frequently indicated the reason behind the visit. We could then narrow the gap between why a patient sees a doctor and why a doctor sees a patient.

Patient Perspective

To a patient, this evaluation may thus represent sickness care. Indeed, the Department of Preventive Medicine served as an entry point to the Medical Group. Although most patients arrived because of a specific symptom or concern and secondarily viewed the visit as preventive, they readily recognized the examination as being of value and as having a high cost in the fee-for-service sector. The health appraisal provided a portal of entry with no threshold barrier, which efficiently and appropriately directed patients on a path within a complex organization. Through the appraisal process, patients fulfilled a natural desire to receive something tangible from an insurance program. Fortunately, we have been able to accommodate this desire in a way that is affordable and mutually beneficial.

Physician Perspective

From a physician's standpoint, Health Appraisal was seen as a case-finding mechanism for disease care. Consequently, the complete medical evaluation, a routine task that may be considered onerous in a prepaid setting (though not necessarily so in a fee-for-service setting), was removed from physicians' responsibilities. Instead, patients with clearly defined medical problems were referred to the most appropriate physicians and arrived with an extensive and well-organized database, improving the efficiency and the effectiveness of their physicians' efforts.

Third-Party Payer and Organizational Perspective

From the third-party payer's standpoint, a prepaid medical system functions in contrast to a typical business in at least 1 key regard: A prepaid medical system must routinely devote its resources to the part of the business that loses money—namely sickness care, and, in particular, hospitalization. This type of system does nothing for the economically essential sector of the population that pays a substantial health care premium but does not use sickness services. This sector is the economic motor of any insurance system but ironically receives little in return. When these well, nonutilizing patients are involved in yearly membership turnover, a loss occurs. This loss is further aggravated by the retention of ill people who cannot obtain other coverage, thus creating a trend in maturing prepaid medical organizations toward a population that becomes increasingly ill. Health Appraisal affordably provides the ability to stabilize turnover in the essential healthy sector by providing these patients with a valued commodity.

From the organization's standpoint, it is desirable to organize passage through the system from the earliest contact to improve the efficiency of utilization and to more fully understand the range and frequency of problems. This level of understanding is more likely to occur when a professional makes these decisions on the basis of comprehensive medical information and not on reports of patient symptoms. This approach can have a measurable effect on secondary costs. Moreover, this type of high-volume operation is a window through which Medical Group functions can be viewed and analyzed when quality assurance studies are desired. For example, it was easy and inexpensive to list every patient who was identified as having a chronic obstructive pulmonary disease diagnosis during the last year.

Validity and Acceptance of Health Appraisal

How do we know if an appraisal is medically reliable? To the degree that experience helps, each of our examiners performed approximately 2300 comprehensive medical evaluations each year. Also, approximately 20% of patients were physician-reviewed with examiners in the course of the day's work, and a 10% random sample of charts was reviewed weekly. Formal and informal physician follow-up is critical to the important and difficult challenge of technical validation. On a yearly basis, each examiner videotaped at least 1 complete history and physical examination for an annual performance review. Perhaps surprisingly, patients are agreeable to participating in the videotaping process. Finally, we reviewed a small sampling of records of hospital admittances to compare the relationships of those findings to those in Health Appraisal.

The summary evaluation by more than 600 physicians in the San Diego area of the Southern California Permanente Medical Group reflected overwhelming acceptance of the Health Appraisal system, in contrast to the conceptual opposition many physicians had when Health Appraisal was in its planning stages. Sometimes people ask if a nurse practitioner or a physician assistant can perform a physical examination as well as a physician. As a categorical question, there are too many variables to make any answer meaningful. It is more meaningful to ask whether this systematic and comprehensive biopsychosocial approach to each patient via a detailed history, physical examination, and laboratory studies is as reliable as a patient's experiences when going to a physician for a "routine physical."

It is worth bearing in mind that an identifiable product was created, yet it is like the proverbial elephant described by 3 blind men, each of whom was palpating a different part of the elephant. The product is perceived differently by the patient, physician, and organization. Each viewpoint is valid but incomplete. If all 3 viewpoints are not appreciated, any preventive medicine operation probably will be regarded with hostility by some acute care physicians as they compete for scarce resources. Thus, the question "How useful is a routine physical?" is more complicated than ordinarily assumed because the vague term, "a routine physical," is a misnomer for the comprehensive biopsychosocial medical evaluation we discuss here. The question also does not ask, "Useful for whom, and to what end?"

OUTCOMES AND BENEFITS

Certain benefits are dependent on a physician's ability to function more effectively when standardized comprehensive medical information is routinely available, just as a medical organization functions more efficiently if a comprehensive electronic medical record is routinely and affordably available for each patient. Although this concept is simple to understand and easy to accept, organized efforts are necessary to ensure the integration and utilization of this new information. In the large, closed system in which we operate, it has been possible to make changes and measurements that would be difficult or unaffordable to implement in a solo practice.

We have identified substantial indicators of benefit beyond simple case findings. An early study of 700 consecutive Health Appraisal patients demonstrated an 11% reduction in their overall

medical utilization for the subsequent year. This result was in contrast to the preliminary fear that, without barriers, open availability of these processes would produce overutilization. We find that accurate patient knowledge regarding their health status reduces demand, whereas uncertainty increases anxiety and demand.

Our experience in a 1979 pilot study of a 1-time contact with a temporary, onsite consultant psychiatrist supports this theory. Of 164 consecutive patients whom the consultant psychiatrist saw for a single diagnostic psychiatric interview, there was a 51% reduction in overall medical utilization the next year. The psychiatric interview was not a prelude to psychiatric referral or psychotherapy. We learned via an anonymous questionnaire that the consultation with the psychiatrist was appreciated by most patients who were involved. This 1-time diagnostic contact reduced anxious utilization by high-utilizer patients who could now reconceptualize the nature of their somatic issues from being disease-related to being the result of nondisease problems. Patients also had the subtle but important experience of sharing “shameful” secrets with someone they respected without being judged.

The Adverse Childhood Experiences Study and Health Appraisal

Our department’s research potential was enormous because of its high volume and standardized comprehensive medical evaluation processes. The San Diego Department of Preventive Medicine, together with Robert F Anda, MD, and the analytic team he assembled at the Centers for Disease Control and Prevention, carried out a major retrospective and 20-year prospective study of 17,337 consecutive adult KP Health Plan members going through Health Appraisal, matching their current health status against 10 categories of common but typically unspoken adverse childhood experiences that occurred approximately 50 years earlier. The links are profound and have led to international studies and trials that are starting to reshape the way primary care is provided in the western world. In brief, the ACE Study revealed an unexpectedly high prevalence of seriously traumatic life experiences during the childhoods of the 17,337 adult KP members. In more than 80 publications, we have illustrated the strong dose-response relationship decades later between traumatic early-life experiences and adult emotional states, social malfunction, biomedical disease, and premature death.^{6,7}

Another example of the research potential of this approach to preventive medicine was demonstrated by an analysis of 135,000 consecutive adults going through Health Appraisal in a 2.5-year period. ACE Study questions relating to traumatic life experiences in childhood had recently been added to the comprehensive medical history questionnaire that patients filled out at home. A major data mining effort revealed that the addition of these trauma-oriented questions, with follow-up in the exam room produced a 35% reduction in outpatient visits and an 11% reduction in Emergency Department visits over the following year compared with that group’s prior year utilization [unpublished data]. We realized that *asking*, initially via an inert mechanism with later followup in the exam room, coupled with *listening* and implicitly *accepting* the person who had just shared his or her dark secrets, is a powerful form of *doing*. The economic implications of this

135,000-patient finding are clearly in the multibillion-dollar range for KP, Medicaid, and other large systems like the Veterans Administration. Interestingly, there has thus far been substantial resistance to further exploration or utilization of our observations, particularly as they relate to the now heavily documented prevalence of childhood sexual abuse and its long-term sequelae. The main issue may be physician discomfort in dealing with subject material like childhood sexual abuse, family violence, etc.

Inpatient and Outpatient Cost Benefits

Health Appraisal also reduced hospitalization rates. Subsequent to our initiation of routine populationwide pulmonary function testing, there was a 40% reduction in the annual number of hospital days per thousand members attributable to chronic lung disease. Health Appraisal’s abnormal pulmonary screening test findings were integrated within the Department of Internal Medicine, so any patient with abnormal findings automatically was referred to the Pulmonary Division for further evaluation. If their abnormal findings were confirmed, they were enrolled in an individualized patient education program or care with a pulmonary specialist. Our Health Appraisal case-finding cost in 1994 to identify a patient with a moderate to severe pulmonary function abnormality was extraordinarily low at \$26 per case. Our first diagnostic contact with patients with advanced chronic obstructive pulmonary disease was now in the office and not the Emergency Department, which in the past had often served as a portal to hospital admission for patients in respiratory failure. Similarly, after analyzing all carcinomas of the colon discovered in 100,000 consecutive patients who completed the health appraisal, we noted a distinct shift toward Duke’s A and B. Conversely, a shift toward Duke’s C and D staging was associated with cases discovered through traditional practice in the Medical Group [unpublished data].

Overall, our low-cost, standardized ability to generate “big data” has barely been exploited. Because of our interest in the genetic disease hemochromatosis, we were able to affordably screen 640,000 consecutive adult patients in a multiyear period and discover 1254 clinically symptomatic but undiagnosed cases.³ Considering that lifetime treatment entails repeated phlebotomy, each of which produces a pint of economically valuable transfusable blood, the screening more than pays for itself.

The Health Appraisal Division of the Department of Preventive Medicine was highly attractive to patients and biomedically and economically productive. Patient acceptance was continually monitored with anonymous questionnaires, and we are convinced that this system operated in a way that was perceived by patients as reflecting human concern while representing the latest in medical technology. In 1998, the total staffing cost to the Medical Group for a 2-visit appraisal was approximately \$100. This was less than the cost of our average internal medicine office visit, yet it provided about 2 hours of patient contact vs 20 minutes. The basis for this low cost is that a certain type of medical work was recognized as being discontinuous and infrequent in individual occurrence but high in total volume. This work was removed from the general medical care system and brought into a parallel system that was designed to handle it and nothing else. The

industrial concepts of batch processing and straight-line production have been essential, though concealed. The integration of artificial intelligence techniques, particularly with our extensive medical history questionnaire in a digital format (if completed at home over the Internet), would offer major opportunities yet to be exploited by any current electronic medical record system.

Another KP member benefit was the experimental, pre-electronic medical record creation of CompuHx, a computer system that we piloted in several examining rooms to provide real-time laser-printed digitized records of all transactions (history, physical examination, laboratory studies, and conclusions). CompuHx enabled us to provide otherwise unaffordable derivative services such as generating patient summary letters, which helped to increase patient understanding of their health status and steps for improvement. The underlying data management also allowed major data abstraction and analysis for research purposes.

LINKS TO PREVENTION: POSITIVE CHOICE

Positive Choice was the risk-abatement division of our Department of Preventive Medicine. The Positive Choice operations were a logical and necessary addition to the Health Appraisal system and had a synergistic effect. These operations provided an effective means for addressing patients who, although symptomatically well, are at increased risk for premature mortality or morbidity. Historically, these patients never fit well into the traditional medical care system and typically were not effectively handled. Positive Choice had several component programs, each of which was available to patients on a fee-for-service but non-profit basis. Unusual within the context of our prepaid program, this method of financial operation was necessary to warrant a sufficient level of motivation among patients entering programs that essentially deal with personal behavior change. The personal effort required to bring about behavior change contrasts with the more passive role of patients seeking traditional medical treatment. The most popular Positive Choice programs (in descending order) were: Weight loss, smoking cessation, stress management, exercise, biofeedback, theatre group, body analysis, and nutrition analysis.

Weight-Loss Program

The weight-loss program was designed to help patients discover the causal underpinnings of their obesity to attain and maintain a desired weight range. Behavior change was attained through long-term participation in weekly, interactive, 2-hour small-group meetings with the same patients. Meetings were coupled with prolonged absolute fasting, a process made possible by the inclusion of a specific supplement (Optifast 70, Sandoz Nutrition, Princeton, NJ) that was essential to prevent death from prolonged absolute fasting. Our counselors in this program typically had a master's degree or PhD in psychology or nutrition and led highly participative weekly groups covering a defined curriculum. The minimum curriculum⁵ for which a patient was admitted took 20 weeks to cover, although longer durations reflected the amount of weight patients wanted to lose. Attendance was mandatory for those who chose to enter the program. In the later years of the program, we saw radical changes take place in the treatment

of obesity—the “impossible” became routine, and the emphasis shifted from major weight loss to the long-term maintenance of reliably attained major weight loss.

One counterintuitive discovery involves the emotional threat that major weight loss poses for many patients, and the fact that obesity provides many people with immediate protective benefits in the sexual, physical, and social realms⁵ despite the associated substantial long-term health risks. These discoveries and their adult relationship to previously unrecognized childhood sexual and other forms of abuse led us to create the ACE Study to ascertain and understand abuse prevalence in a *general* population, and the myriad ways in which these generally unrecognized experiences manifest over time.

The emphasis of our current effort in combatting obesity has been to devise predictors of long-term success so patients who are likely to fail during the program can be treated differently from those who are likely to succeed. Our ability to discriminate between patients with obesity in this manner will likely be as important to their success as the ability to discriminate between patients with different types of infections. We have found that an impaired ability to express oneself assertively (as opposed to aggressively) correlates with a lack of success in behavior change. We also have found that patients who fail in the weight-loss program commonly grew up in an exceptionally dysfunctional family or were sexually abused during childhood.^{9,10} In the latter scenario, obesity is psychologically protective as people desexualize themselves or project an image of power through large size. Much of the difficulty associated with obesity treatment lies in the fact that, in addition to treating a long-term health risk, we are unwittingly attempting to remove a patient's unconscious protective response to unrecognized experiences that often occurred during childhood. The information gleaned from our comprehensive medical history questionnaire, and its resultant effects, illustrates the importance of routinely seeking and gathering such sensitive information from patients.

Major weight loss can occur when prolonged absolute fasting is coupled with psychodynamic group-exploration of obesity's origins. When starting the 20-week program, weekly medical monitoring related to absolute fasting and existing medical problems is initiated by a nurse practitioner working in conjunction with a supervisory physician. Despite the poor medical condition of some of the patients accepted into the program, it is noteworthy that there were no program-related deaths among the 30,000 patients we treated. The most weight lost by 1 person in 1 year was 277 pounds in 51 weeks. The average person completing the program lost 57 pounds in 20 weeks. Fifty percent of those completing the program have kept off two-thirds of their lost weight 18 months after the completion of the program.¹¹

A major effort that necessitates patient time, commitment, and substantial sums of money is beginning to pay off for meaningful numbers of people as we learn more about the psychodynamics underlying eating rather than focusing on teaching people to “eat right.” Moreover, inroads are being made that would not have been possible several years ago. For example, of 320 consecutive patients with type 2 diabetes who completed the program, 71% no longer had diabetes at program completion. Of 500 consecutive

patients with hypertension, 40% were able to discontinue medication, 30% were on reduced doses, and 30% were unchanged. Of 500 consecutive patients with hyperlipidemia, the average cholesterol level was 286 upon entering the program and 204 at program completion. There is every reason to believe that an obese, middle-age person with hypertension, high cholesterol, and adult-onset diabetes can emerge with none of these conditions after 1 therapeutic intervention.

Smoking Cessation Program

The 8-week, group-based smoking cessation program combines a behavioral approach with psychodynamic exploration of the underlying need for nicotine's short-term psychoactive benefits. An interview featuring a typical patient in the smoking program is documented in the videotape, *ACE Score: 6 Pharmacologic Benefits of Nicotine*.¹² The program's components address stress management, exercise, nutrition to prevent weight gain, and the use of Nicorette chewing gum. Among participants, 55% were no longer smoking 1 year after program completion. We found that smokers who experience difficulty quitting are likely to have the same underlying psychodynamics as those in the weight-loss program who have difficulty losing weight or keeping it off. Typically, such public health problems are related to ACEs.

Many of our most difficult public health problems must be understood from an individual rather than group perspective. These problems often represent responses to unacknowledged experiences such as incest, rape, and childhood sexual abuse. For example, the reviled street drug, crystal meth, is the same pharmaceutical compound (methamphetamine) that was introduced in the US in the early 1940s and used as a highly successful prescription antidepressant for more than a decade. Today's risk from crystal meth is posed by use of impure street drugs by those who know nothing about safe dosing. If children are involved, it is clearly easier for parents to revile a "street drug" than to acknowledge that their child is buying antidepressants on the street.

Other Programs

The stress management and biofeedback programs involve opposite approaches to dealing with chronic nervous tension. The stress management program is cognitively based and focuses on helping patients understand how life events can affect them physically or emotionally, and how they might apply certain learned skills to more effectively deal with these experiences. In contrast, the biofeedback program focuses on relaxation training, particularly as it applies to chronic headache and chronic low back pain. This program appeals to less analytically inclined patients who might be unwilling to participate in an introspective approach. These 2 programs are complementary, however. Our analyses of long-term effects indicate that both programs have a meaningful place in medical practice, particularly to address difficult somatic scenarios. The theatre group has been a valuable asset that helps patients discover, through the use of theater training techniques, the unconscious forces that run below the surface and yet control their lives. An insightful quote from Peter Sellars, noted Hollywood director and UCLA professor, is relevant: "The role of theatre, back to the time of the ancient

Greeks, has been to enable people to speak about the otherwise unspeakable." In other words, "Hey! I'm not talking about me. We're talking about what's up there on the stage." An example of our theatre group results can be seen in the video, *Somatization*.¹³

PROPOSAL FOR PROGRAM EXPANSION

A major opportunity exists for any medical care system to adopt the demonstrated advantages of KP San Diego's Department of Preventive Medicine. Those familiar with the department have long felt it provided an unparalleled opportunity to showcase our best features. Our sales and marketing teams in San Diego contend that Health Appraisal and Positive Choice provided a unique marketing advantage not available elsewhere in KP's Southern California Region.

The nature of the department and the experience we have gained by developing it to its fullest state provide the potential to create a nationwide chain of Institutes of Preventive Medicine as the banner under which KP or any large medical care system can present itself. Making these services available to the public on a fee-for-service basis, as we did on a limited scale in San Diego for longer than 3 decades, fosters excellent public relations. However, our greatest potential for economic benefit was demonstrated in the analysis of 135,000 consecutive adults going through Health Appraisal during a 2.5-year period after ACE Study questions on traumatic childhood experiences were added to the adult medical history questionnaire. The dramatic 35% reduction in outpatient visits and 11% reduction in Emergency Department visits during the following year have multibillion-dollar economic implications that are yet to be exploited. Unexpectedly, there has been significant resistance to making the necessary system changes to take advantage of these opportunities.

Change can be threatening. George Engel, the noted American internist-psychiatrist who developed the biopsychosocial concept of medical care wherein health and illness are understood to be consequences of the interplay of biological, psychological, and social factors attracted major interest and discussion with this concept, but a half-century later only minor change in practice has occurred even though the concept is intellectually accepted.¹⁴

Providing these services to our members nationwide would enable KP (or any large medical care system) to uniformly apply similar health care techniques. Once these services are in place, we would have population-based data to plan the health care needs of our 12 million members and provide an accurate picture of the impact of various interventions on the prevalence of health risks. The derived data, when rendered anonymous, have substantial market value to pharmaceutical manufacturers interested in the demographics associated with their products, and to large employers who want to know more about their employees' overall health and functionality. Lastly, such information would enable us to more easily meet the increasingly difficult HEDIS (Healthcare Effectiveness Data and Information Set) requirements.

An alternative would be to recreate the system described herein as an independent, affordable, nationwide system that would reduce medical costs while avoiding threats posed by change to the current style of medical care delivery.

CONCLUSION

Good medical care was defined by Walsh McDermott, MD, in a 1977 speech at Johns Hopkins Hospital as having 3 characteristics. First, it must be accessible; if it is not, then its quality will not matter. Second, it must be technically proficient. And third, it must perform what he termed “a Samaritan function.” Care must be provided to patients with sufficient concern in order to be psychologically acceptable and to facilitate integration between body and soul.

In serving a population of more than 500,000 KP members for more than a quarter of a century in the San Diego area, the Department of Preventive Medicine’s Health Appraisal Division usually maintained an access time of 2 weeks. Its cost was affordable to KP, especially considering the major reduction in outpatient visits. We have presented data to demonstrate the technical proficiency of the department and the strengths and benefits of the concept, and patients attest to its desirability. This systems approach is suitable for replication in any high-volume setting and offers the ideal portal of entry into our large, multispecialty Medical Group. As they pass through this portal, some members will be designated as “well,” which stabilizes the turnover of well members in a prepaid system. Others will be identified as at risk for common causes of mortality or morbidity; many of these patients will be referred to the Positive Choice risk-abatement programs. Some patients will be ill; they will be referred to the most appropriate physician with a comprehensive medical record that was inexpensively compiled. Most patients will have their needs fully met outside the traditional expensive physician-care portions of the organization, and a minority will be identified and swiftly guided to ongoing physician care.

It is difficult, if not painful, to see things in a new light. The events described here involve certain basic changes in primary care medical practice. We have successfully effected change because the changes usually involved changes in staff practice and not physician practice. Physician workload was reduced, yet new physician responsibilities were created. Findings from a comprehensive biopsychosocial medical history might require a physician to understand and address the distant psychodynamic underpinnings of diseases such as cancer being related to immunosuppression caused by unspeakable stressors such as childhood sexual abuse and other traumatic events.

In summary, it is noteworthy that after decades of productive operation, the Health Appraisal Division of the Department of Preventive Medicine was dissolved in 2003, just 2 years after the retirement of its founder. The medical evaluation work was redistributed to primary care, but the Health Appraisal practices have disappeared. This also happened to Dr Collen’s world-famous Multiphasic Clinic in Oakland, CA, which dissolved several years after his retirement. Without question, it is easier to deal with every medical issue as though it were a purely biomedical problem rather than seeking underlying causality.

Because of the ordeals associated with any change in traditional practice, a department such as ours can encounter major pressures if it is not administratively well integrated into a traditional medical clinic. We have shown it is possible to integrate this system

into an existing system of organized medical care in a way that benefits patients, clinicians, and the system. The Health Appraisal Division of our Department of Preventive Medicine introduced advanced medical practice to large numbers of patients at low cost, and served as an avenue through which to identify from large populations people who need physician attention, thus rendering available physicians more productive. Health Appraisal also offered a way to provide preventive medicine on a population basis and support the healthy subset of KP membership which functions as the economic motor to balance the financially draining aspects of any comprehensive medical practice. Our department should be regarded as a force to strengthen medical practice to the advantage of patients, society, and physicians. A nationwide chain of Institutes of Preventive Medicine could allow the KP Medical Care Program to provide a meaningful increase in services while decreasing operating costs. Opportunity awaits! ❖

Disclosure Statement

The author(s) have no conflicts of interest to disclose.

Acknowledgement

Brenda Moss Feinberg, ELS, provided editorial assistance.

How to Cite this Article

Felitti VJ. Health appraisal and the adverse childhood experiences study: National implications for health care, cost, and utilization. *Perm J* 2019;23:18-026. DOI: <https://doi.org/10.7812/TPP/18-026>

References

- Moloney TW, Rogers DE. Medical technology—a different view of the contentious debate over costs. *New Engl J Med* 1979 Dec 27;301(26):1413-9. DOI: <https://doi.org/10.1056/nejm197912273012603>.
- Collen MF, editor. Multiphasic health testing services. New York, NY: John Wiley & Sons Inc; 1978.
- Felitti VJ. Hemochromatosis update. *Perm J* 2004 Winter;8(1):39-44. DOI: <https://doi.org/10.7812/TPP/03-110>.
- Gordon T, Kannel WB. The Framingham Study: An epidemiological investigation of cardiovascular disease. Washington, DC: US Department of Public Health; 1969.
- Felitti VJ, Jakstis K, Pepper V, Ray A. Obesity: Problem, solution, or both? *Perm J* 2010 Spring;14(1):24-30. DOI: <https://doi.org/10.7812/TPP/09-107>.
- Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *Am J Prev Med* 1998 May;14(4):245-58. DOI: [https://doi.org/10.1016/S0749-3797\(98\)00017-8](https://doi.org/10.1016/S0749-3797(98)00017-8).
- Felitti VJ, Anda RF. The lifelong effects of adverse childhood experiences. In: Chadwick DL, Giardino AP, Alexander R, Esernio-Jenssen D, Thackeray J, editors. *Chadwick’s child maltreatment*. 4th ed. Volume 2. Florissant, MO: STM Learning, Inc; 2014 Mar. p 203-16.
- Spence J. *The purpose and practice of medicine*. Oxford, UK: Oxford University Press; 1960. p 273.
- Felitti VJ. Long-term medical consequences of incest, rape, and molestation. *South Med J* 1991 Mar;84(3):328-31. DOI: <https://doi.org/10.1097/00007611-199103000-00008>.
- Felitti VJ. Childhood sexual abuse, depression, and family dysfunction in adult obese patients: A case control study. *South Med J* 1993 Jul;86(7):732-6. DOI: <https://doi.org/10.1097/00007611-199307000-00002>.
- Hovell MF, Koch A, Hofstetter CR, et al. Long-term weight loss maintenance: Assessment of a behavioral and supplemented fasting program. *Am J Public Health* 1988 Jun;78(6):663-6.
- ACE Score: 6—pharmacologic benefits of nicotine [VHS]. San Diego, CA: Southern California Permanente Medical Group Department of Preventive Medicine; 1997.
- Somatization [VHS]. San Diego, CA: Southern California Permanente Medical Group Department of Preventive Medicine; 1996.
- Engel GL. The need for a new medical model: A challenge for biomedicine. *Science* 1977 Apr 8;196(4286):129-36. DOI: <https://doi.org/10.1126/science.847460>.