"The curriculum in the pre-clinical medical education emphasizes the pathophysiology and diagnosis of disease. Although the importance of this knowledge base is not disputed, recent trends in medical science and medical economics have recognized the importance and cost-effectiveness of primary prevention (i.e. wellness). Perhaps we need to emphasize to our students and our patients (and admit to ourselves) that personal wellness is as important as the science we embrace. The best way to teach and promote wellness may be to practice it. Perhaps it is time to emphasize practicing what we preach¹" (Hash, Robert MD, 2002).

Prevention

Billings-Gagliardi S, Fontneau N, Wolf M, Barrett S, Hademenos G, Mazor K. Educating the next generation of physicians about stroke: Incorporating stroke prevention into the medical school curriculum. *Stroke 2001; 32(12): 2854-2859.*

Background and Purpose: In response to the need to educate physicians about stroke, we have implemented an educational program on stroke prevention for undergraduate medical students within the first-year neuroscience course. This study investigated whether first-year students learned and retained key information about stroke, and used students' feedback both to identify effective curricular components and to explore their attitudes regarding stroke prevention.

Methods: Stroke knowledge and self-assessed confidence in that knowledge before, immediately after, and 8 months after participation in the stroke curriculum were analyzed and compared for 3 classes, using paired t tests and repeated-measures ANOVA. Student feedback about the effectiveness of specific parts of the curriculum and about the importance of stroke prevention was solicited and evaluated.

Results: First-year medical students in 3 classes more than doubled their overall stroke knowledge scores (pretest total mean of 8.2; posttest mean 18.0), and retained significant improvement 8 months later (mean 15.7). Subscores in all 4 areas of stroke knowledge tested significantly increased (P<0.001). Students' confidence in their knowledge of stroke risk factors and warning signs, as well as in their knowledge itself, increased (P<0.001). Each of the 3 cohorts demonstrated similar improvements. Feedback indicated heightened awareness and interest in stroke prevention, which was maintained after completion of the curriculum.

Conclusions: These results demonstrate that when instruction on stroke prevention is incorporated into the first-year curriculum, students learn and retain key information. Because entire classes of medical students are involved, this type of approach has the potential to reach all future physicians and therefore to meaningfully impact future stroke care.

Blue AV, Jackson Barnette J, Ferguson KJ, Garr DR. Evaluation methods for prevention education. *Acad Med 2000;* 75(7): S28-S34.

The knowledge, skills, and attitudes associated with prevention cut across clinical disciplines. Thus, they are often subsets of disciplines not otherwise present in the traditional curriculum (e.g., epidemiology or statistics) or considered the province of many disciplines (e.g., risk reduction or cancer screening). Evaluation of elements of prevention education can often become lost in the myriad other outcomes that are assessed in students, or they are intermingled with other content and skills. This article highlights the value of assessing students' competence in prevention knowledge, skills, and attitudes, provides general guidance for programs interested in

evaluating their prevention instructional efforts, and gives specific examples of possible methods for evaluating prevention education.

Carey C. Integrating prevention into Obstetrics/Gynecology. Acad Med 2000; 75(7): S72-S76.

Obstetricians and gynecologists play an important role in preventive medicine. A great deal of obstetrics and gynecology is dependent on the principles of preventive medicine, such as understanding populations, risk profiling, epidemiology, and statistics as they pertain to screening programs and prevention. Thus, it is reasonable that an ob-gyn clerkship be an integral part of a program to teach preventive medicine in a medical school. This article presents information about formats used to teach preventive medicine in ob-gyn, illustrated by specific programs at medical schools across the country. It also provides information about publications that are useful for designing and creating programs in introduce and/or integrate preventive medicine into ob-gyn clerkships and other parts of the undergraduate medicine curriculum. Obstetricians and gynecologists spend the majority of their time in the office, and most of their patient visits can be classified as preventive medicine visits. Medical students' education needs to reflect that focus. Among other things, ob-gyn must develop training directed toward students who do not intend to become obstetricians. A rotation in ob-gyn may be the only exposure a student has to health care that is specifically for women. Therefore, that clerkship must focus on preventive medicine for women as well as on treatment.

Cashman S, Anderson R, Weisbuch J, Schwarz R, Fulmer H. Carrying out the medicine/public health initiative: The roles of preventive medicine and community-responsive care. *Acad Med* 1999; **74**(5): 473-483.

Leaders in medicine and public health, recognizing the inherent interdependency of these fields, established the Medicine/Public Health Initiative in the mid-1990s as "an evolving forum in which representatives of both sectors can explore their mutual interests in improving health and can define collaborative mechanisms to achieve that goal." The Initiative's participants developed six goals that they and others in medicine and public health across the nation should implement:

- engage the community;
- change that education process;
- create joint research effort by clinical, public health, and preventive medicine investigators;
- develop a shared view of illness between medicine and public health;
- work together to provide health care; and work jointly to develop health care assessment measures.

The authors then report recent efforts, including two in Boston and Dallas, to merge medicine and public health, and state that academic health centers, which are in the process of reshaping themselves, can help themselves as well as the public by embracing their key role in the effort to integrate medicine and public health. In particular, they can expand and strengthen existing training programs in preventive medicine and COPC and add these programs to their curricula.

Cheng TL, Greenberg L, Loeser H, Keller D. **Teaching Prevention in Pediatrics.** *Acad Med* 2000; **75:** 66S-71S.

Pediatrics has attempted to inculcate the "culture of prevention" into practice, both through anticipatory guidance in well-child care and through behavioral interventions in sick care. The effectiveness of many components of well-child care has not been conclusively demonstrated, particularly in health education, counseling, and anticipatory guidance, nor has teaching

prevention in pediatrics been thoroughly evaluated. This article reviews methods of teaching prevention in pediatrics and highlights innovative programs. Teaching programs use the wide range of approaches now common in medical education, in a variety of inpatient and outpatient sites. Programs across the country are trying new approaches to teaching traditional topics or are introducing new topics into their curricula. Examples of specific programs are given, organized by the themes of the programs. The field needs to develop in three major directions. First, there is a need to develop competencies and curricula in prevention issues of contemporary importance, including the new morbidities, cross-cultural issues, cost-effectiveness, quality of care, and practice in managed care and other community settings. Second, further work is needed to redefine competencies, curricula, and programs. Third, there is a need for an accessible clearinghouse, and educational tools need to be disseminated. To be effective, a curriculum for prevention in pediatrics cannot stand alone, but must be part of a vertically and horizontally integrated curricula in prevention teaching across disciplines should be the standard.

Cook RL, Steiner BD, Smith AC, Evans AT, Willis SE, Petrusa ER, Harward DH, Richards BF. Are medical students ready to provide HIV prevention counseling? *Acad Med 1998;* 73(3): 342-346.

Purpose: To determine whether medical students were prepared to assess risk and counsel patients about prevention of HIV infection, and whether HIV-related experience produced better knowledge and counseling skills.

Method: In 1995, students at four North Carolina medical schools interviewed a standardized patient portraying a young woman concerned about HIV infection. The standardized patient recorded whether students asked risk-behavior questions and provided risk- reduction advice. A 21-item questionnaire assessed the students' knowledge of HIV testing and prevention. Students indicated whether they had had experience in educational settings related to HIV or STDs.

Results: 415 students completed both the patient interview and the questionnaire. Many failed to ask the patient about several HIV-risk behaviors. Although nearly all (98%) inquired about condom use, fewer than two thirds asked about the patient's history of STDs, number of sexual partners, or specific sexual practices. Most students advised the patient to use condoms. The average score on the knowledge test was 79%; 70% of students confused anonymous with confidential testing, more than half overestimated the risk of HIV transmission from a needle stick, and nearly one in ten did not know how to use a condom. Educational exposures did not produce significantly better risk assessment, counseling information, or knowledge scores.

Conclusion: A majority of experienced medical students did not assess several important risk factors of a patient concerned about HIV infection, and many would have provided incorrect information related to HIV testing and prevention of infection. Patient contact in traditional clinical settings did not influence prevention knowledge or behavior. More innovative methods are needed to train students in HIV-infection prevention and counseling.

Dube CE, O'Donnell JF, Novack DH. Communication Skills for Preventive Interventions. *Acad Med 2000;* **75:** 45S-54S.

Effective communication relevant to preventive services and practices has at its basis the physician's skills in not only basic history taking and data collection but also relationship building, facilitation, negotiation, and partnership. These skills, fundamental to doctor-patient

communication, are now routinely and systematically taught in many U.S. medical schools. This article defines and examines a communication model for enhancing the provision and adoption of preventive practices in the primary care setting and discusses teaching that model in the medical school context. Within the office visit, broad areas for communication tasks important to providing preventive services are defined as:

- (1) the medical interview and preventive counseling;
- (2) working with patients to change unhealthy behaviors, promote healthy behaviors, and enhance adherence; and
- (3) communication related to office procedures for screening and prevention.

Within each of these areas, communication and counseling skills and approaches are defined, and examples of associated prevention activities are provided. Methods for integrating communication skills for prevention into the medical school curriculum are discussed, and examples at Dartmouth, Brown, and MCP Hahnemann medical schools are presented.

Eckhert N, Bennett N, Grande D, Dandoy S. **Teaching prevention through electives.** *Acad Med* 2000; **75**(7): *S85-S89*.

The Liaison Committee on Medical Education (LCME) accreditation standards affirm that the medical school curriculum should include elective courses to supplement the required courses and provide opportunities for students to pursue individual academic interests. The breadth of opportunities in preventive medicine and population health is extensive as students seek rotations at health departments, rural and urban community health centers, community agencies, occupational health sites, schools, and abroad. A growing number of students choose to participate in MD/MPH dual-degree programs. This article describes four prototypes that foster student learning in preventive medicine; population health, international health, American Medical Student Association opportunities, and public health degree programs.

These four types of electives enable students to participate in the front lines of preventive services through experiential learning in: community and population health both at home and abroad, continuous quality improvement, organization and behavioral change, inter-professional teamwork, and health care policy. For those with particular interests in population health and preventive medicine, an increasing number of medical schools offer dual MD/MPH programs, either in conjunction with schools of public health or in graduate programs in public health.

Frank, E, Rothenberg R, Lewis C; Belodoff B. Correlates of physicians' prevention-related practices. *Arch Fam Med 2000; 9: 359-367.*

Background: Determinants of physicians' prevention-related counseling and screening practices are not well understood. Such determinants are worth knowing because we can then intervene on malleable variables and produce physicians with stronger prevention-related skills. Of the few such variables that have been examined, they have typically only been studied in univariate analyses or in small or otherwise limited populations and have been especially sparsely studied in women physicians.

Objective: To explore the effect of potential counseling- and screening-related variables in 4501 respondents to the Women Physicians' Health Study, a questionnaire-based study of a representative sample of US women MDs.

Results: Being a primary care practitioner and practicing a related health habit oneself were significantly correlated with reporting counseling and screening for all prevention-related variables examined. Current attempts to improve a related habit oneself, ethnicity, region,

practice site, and amount of continuing medical education were sometimes significantly correlated with counseling and screening; most other variable studied (i.e., personal health status, a personal or family history of disease, control of work environment, and career satisfaction) were rarely significantly correlated.

Conclusions: Being a primary care practitioner and having related healthy habits oneself were the most significant correlates of US women physicians' self-reported prevention-related counseling and screening practices. These findings suggest potential new directions for physician training.

Garr DR, Lackland DT, Wilson DB. **Prevention education and evaluation in U.S. medical schools.** *Acad Med 2000;* **75(7)***: S14-S21*.

The Prevention Curriculum Assistance Program (PCAP) was initiated to help U.S. medical schools examine the extent to which they are evaluating the learning of medical students about disease prevention/health promotion. A survey was sent to all 144 allopathic and osteopathic medical schools, with an overall response rate of 68%. The results revealed more emphasis on teaching and evaluating the learning of medical students in the areas of clinical preventive services and quantitative methods, and less emphasis on the community dimensions of medical practice and health services organization and delivery.

Glasser M, Stearns J, McCord R. **Defining a generalist education: An idea whose time is still coming.** *Acad Med 1995; 70(1): S69-S74*.

Generalist education is different from the traditional medical curriculum, as it has developed over the past 40 years. For example, in their training doctors must develop the appropriate skills, knowledge, and attitudes to understand patients' specific expectations, address wellness rather than illness only, be familiar with concepts of clinical epidemiology, concentrate on interpersonal communication, and strive to control costs. The University of Illinois College of Medicine at Rockford was established to provide community-based medical education. Beginning in their second year, all Rockford students have extensive clinical training in one of three community health centers operated by the Department of Family and Community Medicine. Several kinds of evaluation have been conducted to assess the reaction to and impact of this clinical training on the students and faculty, and follow-up studies have tracked the students after graduation. The Rockford experience has shown that the entire curriculum must give uncompromising support for generalist education, all primary care faculty must have a common knowledge base in the theory and practice of generalist medicine, and the shift to generalist education will require shifts in attitude and behavior throughout the academic medicine community at the institution.

Hellman S. Tales of the unnatural: Return from the Dean(d). JAMA 1998; 280(19): 1657-1658.

Holmboe E, ScrantonR, Sumption K, Hawkins R. Effect of medical record audit and feedback on residents' compliance with preventive health care guidelines. *Acad Med 1998;* 73: 901-903.

Purpose: To examine the effect on residents' compliance with preventive health guidelines of an intensive quality-improvement program using medical record audits and individualized feedback.

Method: The before-and-after study was set in a general internal medicine clinic at a military teaching hospital. In 1995, the authors retrospectively reviewed 280 medical records to determine

whether, after the hospital had started an audit-and-feedback program in 1994, residents' compliance rates had risen for preventive health interventions. The study looked at both audited and non-audited interventions.

Results: The residents' compliance rates significantly improved for the audited interventions (tetanus immunizations, breast examination, and rectal examination). They also had higher compliance rates for six of the seven non-audited interventions. CONCLUSIONS: An intensive medical record audit with individualized feedback can produce exceptionally high levels of compliance with preventive care practices among internal medicine residents. Furthermore, the improved compliance is generalizable to other health care measures not directly targeted for audit.

Jung P, Ambrose P. Barriers to learning preventive medicine. Student experiences in undergraduate medical education. *Am J Prev Med 1996*; **12(3)**: 141-142.

During July 26-28, 1995, the AAMC and ATPM sponsored a conference entitled "Prevention in Medical Education for the Year 2000" in Washington, D.C. The purpose of this conference was to identify and develop strategies that strengthen disease prevention and health promotion as integrated components of undergraduate medical education. The conference served as an important point of departure on the debate surrounding this challenging task. Carrying forward the articulated goals will prove a formidable job requiring a concerted effort from many parties.

Katz DL, Haq Nawaz, Ahmadi Ramin, Jekel JF, DeLuca VA, Cashman S, Fulmer HS. An Integrated Residency in Internal and Preventive Medicine. *Acad Med 2000;* 75: 41-49.

The importance of preventive and population-based principles in clinical practice is widely acknowledged. The challenge of imparting these principles in either undergraduate or postgraduate medical education has, however, not been fully met. The necessary skills are provided comprehensively by preventive medicine residency programs, but at the expense of clinical training. Sequential residencies in primary care and preventive medicine, the currently available means of obtaining thorough preparation in both clinical and population-based principles, represent an inefficient, generally unappealing, and non-integrated approach. In response to these concerns, and in an effort to make preventive medicine training appeal to a wider audience, the authors developed and implemented a residency program fully integrating internal and preventive medicine. The program meets, and generally exceeds, the requirements of both specialty boards over a four-year period. The program provides extensive training in clinical, preventive, and public health skills, along with case management and cost-effective care, conferring the MPH degree and leading to dual board eligibility. The model is ideally wed to the demands of the modern health care environment in the United States, is extremely attractive to applicants, and may warrant replication both to train academic and administrative leaders and to raise the standards of preventive and public health practice in primary care.

Kofron PM, Harris IB, McCollister RJ. **Teaching the foundations of preventive medicine in the undergraduate curriculum.** *Acad Med 1994;* **69**: 412b-413b.

McClary AM, Marantz P, Taylor MH. **Preventive Medicine 2000: Changing Contexts and Opportunities.** *Acad Med 2000; 75: 22S-27S.*

The teaching of preventive medicine in the medical school curriculum occurs both in independent and in interdisciplinary courses and units. A survey was conducted to examine the changes in

preventive medicine context, content, and allotted hours that have occurred in the transition from the traditional Flexnerian curriculum to the more interdisciplinary, centrally controlled curriculum. Data on medical school curricula for 1990-91, 1993-94, 1995-96, and 1998-99 were examined for the 126 U.S. and 16 Canadian medical schools.

By 1998-99, 35 schools moving to the new interdisciplinary format had retained preventive medicine teaching as a separate course, although the courses usually had incorporated topics that went beyond the traditional ones. In another 35 schools, preventive medicine hours had been lost in the transition; but in 25 of these new courses it was clear that preventive medicine played a very significant role. It can be assumed that the lost hours were more than replaced as preventive medicine concepts permeated these courses. Of greatest importance were the hallmark courses of the six nontraditional curricula that had designated preventive medicine a major-theme course. However, at ten schools, preventive medicine listings disappeared in the move to nontraditional curricula.

Preventive medicine educators must step forward to use curricular restructuring to expand the role of preventive medicine in the curricula of their institutions, whether in stand-alone or in interdisciplinary courses. The goal, as always, is to provide future physicians with the knowledge and skills they need to provide proper care to their patients.

Nieman LZ, Foxhall LE, Groff J, Cheng L. Applying Practical Preventive Skills in a Preclinical Preceptorship. *Acad Med 2001; 76: 478-483.*

Learning primary care medicine includes learning to apply practical, preventive medicine skills during everyday encounters with patients. The authors relate their experiences with implementing a voluntary, preventive diabetic foot-care program within the Texas Statewide Family Practice Preceptorship Program (TSFPPP). They explain the background of the TSFPPP and their rationale for introducing prevention and selecting diabetic foot care as a first preventive training module. The program's structure, educational materials, and evaluations are described. Of the 158 students and 88 preceptors who were exposed to the program, the authors received evaluations from 86 preceptors and 110 students. Students documented that they had screened and provided foot-care education to 321 diabetic patients. On average, students saved their preceptors 5-10 minutes each time they examined a diabetic patient's feet or provided foot-care education. The students said that the wide variety of preceptors' practices, the time constraints placed upon the preceptors, and the preceptors' own guidelines for the voluntary preceptorship all posed challenges to completing the preventive activities. The preceptors reported that preclinical students could play an important preventive role in their practices; however, to get optimum results from a preventive module, it may be important for students and preceptors to determine which topics are introduced. Using the preceptor's suggestions, the authors are developing a smoking-cessation module.

Pomrehn P, Davis M, Chen DW, Barker W. **Prevention for the 21**st **Century.** *Acad Med 2000;* **75(7):** *S5-S13.*

The generation of medical students now being taught will be practicing into the middle of the next century. They will be expected to provide an expanding array of clinical preventive services and be responsible for the health and well-being of entire populations and communities. Although prevention principles are being taught in many contexts, most medical schools do not have adequate curriculum-tracking systems that allow them to track the delivery of education and training in disease prevention and health promotion. The Bureau of Health Professions of the Health Resources and Services Administration (HRSA) and the Association of Teachers of

Preventive Medicine have worked on several projects that have culminated in the development of a set of core competencies in preventive medicine for undergraduate medical education. In 1997 they convened a task force of medical educators from a broad array of basic science and clinical disciplines representing major U.S. medical teaching societies. The task force reviewed and updated the 1984 Inventory of Knowledge and Skills Relating to Disease Prevention and Health Promotion so that it would be relevant to faculty in diverse specialty areas and could be integrated throughout the medical curriculum. They then created a list of competencies that are essential from the perspective of each discipline and all disciplines. The article gives the context for teaching preventive medicine, presents the core competencies, and serves as the introduction to a supplement to Academic Medicine on teaching preventive medicine throughout the undergraduate medical curriculum.

Rosenberg ML, Fenley MA, Johnson D, Short L. Bridging prevention and practice: public health and family violence. *Acad Med 1997;* 72: 13S-18S.

Public health approaches the primary prevention of family violence by focusing on surveillance, the identification of risk factors, and the development, evaluation, and dissemination of interventions. Physicians and other health care providers are crucial in this process because they are in a unique position to identify at-risk individuals and populations and to implement both broad-based and targeted preventive and intervention initiatives. Incorporating public health principles into medical education and medical practice not only can reduce the severity of this epidemic by strengthening efforts in early detection and expert intervention but also can create effective primary prevention, an important necessary step towards eradicating every disease or condition. This article discusses the role of public health professionals in preventing family and intimate violence. It notes specific findings from public health research, including the cycle of violence and the need to incorporate issues of abuse across the life span, and other factors, into medical education. Addressing family and intimate violence in a caring and sensitive manner is difficult, and incorporating public health principles into medical education and medical practice can forge an effective partnership between medical practitioners and public health professionals. This new partnership represents both an important challenge and a unique opportunity to understand family and intimate violence and thus to develop and evaluate effective short- and long-term solutions.

Shalala DE. The role of the NIH in a national prevention strategy. *Acad Med 1993;* 68(11): 838-839.

Slatt LM, Frasier PY, Strayhorn G, Kowlowitz V. **Prevention practices of family medicine** clerkship preceptors in North Carolina. *Acad Med 2001;* 76(7): 722-726.

Purpose: Before implementing a new prevention curriculum, the authors assessed the prevention practices and attitudes of community family physicians in North Carolina who precepted third-year family medicine clerkship students.

Method: An 18-item questionnaire was mailed to 165 preceptors during the 1995-96 academic year. The questionnaire explored the preceptors' levels of preparation to counsel patients, the types of prevention services they offered, and their levels of success in modifying patients' behaviors. The survey was re-sent to non-respondents.

Results: The response rate was 70% (n = 112); of these 75% were men and 55% had graduated after 1987. Over 60% of the preceptors "almost always" offered services in smoking cessation, exercise, diet and nutrition, and age-specific services (range 62-86%). Over 50% felt "very

prepared" to counsel patients regarding smoking cessation, sexually transmitted diseases, depression, exercise, alcohol use, and age-specific services (range 53-74%). However, the preceptors in this study felt pessimistic about their success in getting patients to change their behaviors. Preceptors who had graduated more recently offered more preventive services for smoking cessation, alcohol use, and illicit drugs than did earlier graduates.

Discussion: Although North Carolina preceptors were pessimistic about their success in changing patients' behaviors regarding prevention, they were confident about their knowledge and skills to provide these services. This information was used to modify a prevention curriculum for third-year medical students.

Stine C, Kohrs FP, Little DN, Kaprielian V, Gatipon BB, Haq C. Integrating Prevention Education into the Medical School Curriculum: The Role of Departments of Family Medicine. *Acad Med 2000; 75: 55S-59S.*

Departments of family medicine--including departments of family and community medicine, departments of family and preventive medicine, and departments of family practice-at U.S. medical schools regularly participate in teaching prevention principles to students, using a variety of formats and methods. Required clinical experiences (i.e., clerkships and preceptorships), required non-clinical courses, and electives frequently include prevention content. Collaborative interdisciplinary clerkships, interdisciplinary non-clinical courses, and courses directed by other departments also enable family medicine faculty to teach prevention principles. This article describes examples of innovative educational programs in which family medicine faculty teach prevention content to medical students. Directions for future educational efforts by family medicine faculty in the prevention area are proposed.

Stein DH, Salive ME. Adequacy of training in preventive medicine and public health: a national survey of residency graduates. *Acad Med 1996;* 71: 375-380.

Purpose: To evaluate training in general preventive medicine and public health, determining which experiences and institutional sponsors best prepare residents for practice and where improvements are most needed.

Method: A 1991 survey of the 1,070 graduates of preventive medicine residencies from 1979 through 1989 asked the graduates to measure the adequacy of their training in preventive medicine topic areas by using a Likert-type scale of 1 (poor) to 4 (excellent). Adequacy was analyzed for variation against practice emphasis during training, training program sponsor, and other variables. The statistical methods included Student's t-test, analysis of variance and linear regression.

Results: A total of 797 graduates (74.5%) responded. The overall mean ratings of adequacy of training were 3.1 (SD, 0.9) for epidemiology, 2.5 (SD, 1.0) for clinical preventive medicine, 2.4 (SD, 0.9) for environmental health, 2.3 (SD, 0.9) for health administration, 2.3 (SD, 0.9) for health education and behavioral sciences, and 2.2 (SD, 0.9) for occupational medicine. Training was rated highest for topics emphasized during practice experiences. Adequacy varied by type of institution sponsoring the residency. Women rated their training as being less adequate than did men in all areas except clinical preventive medicine. The graduates tended ultimately to practice in topic areas emphasized during training.

Conclusion: The graduates' ratings suggest that improvements are most needed in health administration, environment health, health education, and occupational medicine. Potential

improvement strategies include highly focused practice experiences and increased emphasis on training in actual practice settings and community sites.

Yarnall KSH, Pollak KI, Ostbye T, Krause KM, Michener JL. Primary care: Is there enough time for prevention? *Am J Pub Health*; 93(4): 635-641.

Objectives: We sought to determine the amount of time required for a primary care physician to provide recommended preventive services to an average patient panel.

Methods: We used published and estimated times per service to determine the physician time required to provide all services recommended by the US Preventive Services Task Force (USPSTF), at the recommended frequency, to a patient panel of 2500 with an age and sex distribution similar to that of the US population.

Results: To fully satisfy the USPSTF recommendation, 1773 hours of a physician's annual time, or 7.4 hours per working day, is needed for the provision of preventive services.

Conclusions: Time constraints limit the ability of physicians to comply with preventive services recommendations.

Curriculum

Barzansky B, Etzel S. Educational programs in US medical schools, 2000-2001. *JAMA 2001;* 286(9): 1049-1055.

We used data mainly from the 2001-2002 Liaison Committee on Medical Education Annual Medical School Questionnaire, which had a 100% response rate, to describe the status of US medical education programs. In 2001-2002, the number of full-time medical school faculty members was 104 949, a 2.4% increase from 1999-2000. The 34,859 applicants for the class entering in 2001 represented a 9.5% decrease from the number of applicants in 1999-2000. There were 2 applicants for every acceptance, and the academic qualifications of medical students entering in 2001 were unchanged from 1999. Women comprised 47.8% of entering students in 2001, and 13.1% were members of underrepresented minority groups. Of all first-year students, 67% were in-state residents. Most medical schools had mandatory required night call during at least some required clinical clerkships, but only 17 had formal policies on medical student work hours. In 74 schools (60%), medical students were required to pass Steps 1 and 2 of the United States Medical Licensing Examination to advance or graduate.

Bland C, Starnaman S, Wersal L, Moorhead-Rosenberg L, Zonia S, Henry R. Curricular change in medical schools. *Acad Med 2000;* **75(6)**: 575-594.

Society's changing needs, advancing knowledge, and innovations in education require constant changes of medical school curricula. But successful curricular change occurs only through the dedicated efforts of effective change agents. This study systematically searched and synthesized the literature on educational curricular change (at all levels of instruction), as well as organizational change, to provide guidance for those who direct curricular change initiatives in medical schools. The focus was on the process of planning, implementing, and institutionalizing curricular change efforts; thus, only those articles that dealt with examining the change process and articulating the factors that promote or inhibit change efforts were included. In spite of the highly diverse literature reviewed, a consistent set of characteristics emerged as being associated

with successful curricular change. The frequent reappearance of the same characteristics in the varied fields and settings suggests they are robust contributors to successful change. Specifically, the characteristics are in the areas of the organization's mission and goals, history of change in the organization, politics (internal networking, resource allocation, relationship with the external environment), organizational structure, need for change, scope and complexity of the innovation, cooperative climate, participation by the organization's members, communication, human resource development (training, incorporating new members, reward structure), evaluation, performance dip (i.e., the temporary decrease in an organization's performance as a new program is implemented), and leadership. These characteristics are discussed in detail and related specifically to curricular change in medical school settings.

Bligh J. **Tomorrow's doctors: extending the role of public health medicine in medical education.** *Med Education 2002; 36(3): 206-207.*

Curriculum governance can draw much from parallels with clinical governance and the same is true for curriculum evaluation learning from clinical evaluation. An integrated approach to evaluating the processes and effects of medical education appears to have much to offer in terms of feedback to teachers, and more importantly for making the functional links between medical education and health care more effective—and more accountable.

Blumenthal D, Gokhale M, Campbell E, Weissman J. **Preparedness for Clinical Practice.** *JAMA 2001; 286(9): 1027.*

Context: Medical educators are seeking improved measures to assess the clinical competency of residents as they complete their graduate medical education.

Objective: To assess residents' perceptions of their preparedness to provide common clinical services during their last year of graduate medical education.

Design, Setting, and Participants: A 1998 national survey of residents completing their training in 8 specialties (internal medicine, pediatrics, family practice, obstetrics/gynecology, general surgery, orthopedic surgery, psychiatry, and anesthesiology) at academic health centers in the United States. A total of 2626 residents responded (response rate, 65%).

Main Outcome Measures: Residents' reports of their preparedness to perform clinical and nonclinical tasks relevant to their specialties.

Results: Residents in all specialties rated themselves as prepared to manage most of the common conditions they would encounter in their clinical career. However, more than 10% of residents in each specialty reported that they felt unprepared to undertake 1 or more tasks relevant to their disciplines, such as caring for patients with human immunodeficiency virus/acquired immunodeficiency syndrome or substance abuse (family practice) or nursing home patients (internal medicine); performance of spinal surgery (orthopedic surgery) or abdominal aortic aneurysm repair (general surgery); and management of chronic pain (anesthesiology).

Conclusions: Overall, residents in their last year of training at academic health centers rate their clinical preparedness as high. However, opportunities for improvement exist in preparing residents for clinical practice.

Diskmuke SE, McClary AM. Putting it all together: Building a four-year curriculum. *Acad Med* 2000; **75**(): S90-S92.

A four-year curriculum in preventive medicine would require planning, but all the components are already available. This article outlines a four-part plan: develop the desired objectives or competencies; present the basics in years one and two of the curriculum; in years three and four make health promotion/disease prevention (HPDP) and the population perspective relevant to the practice of medicine; and, finally, develop a mechanism to track the curriculum and then improve it. Core competencies have already been developed, through joint activities of the Association of Teachers of Preventive Medicine (ATPM) and the Bureau of the Health Professions of the Health Resources and Services Administration (HRSA), and articles about teaching preventive medicine in multiple disciplines throughout the curriculum are published elsewhere in this supplement. Schools across the United States and Canada have innovative programs in place that can serve as models, and there are feasible approaches to monitoring the programs.

Gebbie K, Rosenstock L, Hernandez M. **Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century.** (Committee on Educating Public Health Professionals for the 21st Century) *IOM;* The National Academics Press, Washington, D.C. 2003.

In a world where health threats range from AIDS and bioterrorism to an epidemic of obesity, the need for an effective public health system is as urgent as it has ever been. An effective public health system is as urgent as it has ever been. An effective public health system requires well-educated public health professionals. Public health professionals receive education and training in a wide range of disciplines, come from a variety of professions, work in many types of settings, and are engaged in numerous kinds of activities, however all public health professionals share a focus on population-level health. The committee developed the following definition, used throughout the report. A public health professional is a person educated in the public health or a related discipline who is employed to improve health through a population focus.

It is also important that public health professional education include not only the long recognized five core components of public health (i.e., epidemiology, biostatistics, environmental health, health services administration, and social and behavioral science), but that it also encompass eight critical new areas: informatics, genomics, communication, cultural competence, community-based participatory research, policy and law, global health, and ethics. Understanding and being able to apply information and computer science technology to public health practice and learning (i.e., public health informatics) are necessary competencies for public health professionals in this information age in which we are vitally dependent upon data. They must also be able to understand and incorporate the needs and perspectives of culturally diverse communities in public health interventions and research, and to understand and be able to influence the policies, laws, and regulations that affect health.

There is a need for high quality health professionals contributing through practice, teaching and research to improved health in communities. This report provides a framework and recommendations for strengthening public health education, research, and practice skills that can be used by the institutions and organizations responsible for educating public health professionals and supporting public health education. Public health professionals' education and preparedness should be of concern to everyone, for it is well-educated public health professionals who will be able to effectively shape the programs and policies needed to improve population health during the coming century. If there is a want for high quality public health professionals, then there must be a willingness to provide the support necessary to educate the professionals.

Hash R. **Practicing what we preach: Are we role models?** *The Journal of Family Practice 2002;* **51(2):** 185.

The curriculum in the preclinical medical education emphasizes the pathophysiology and diagnosis of disease. Although the importance of this knowledge base is not disputed, recent trends in medical science and medical economics have recognized the importance and cost-effectiveness of primary prevention (i.e., wellness). Perhaps we need to emphasize to our students and our patients (and admit to ourselves) that personal wellness is as important as the science we embrace. The best way to teach and promote wellness may be to practice it. Perhaps it is time to emphasize practicing what we preach.

Hughes JM. Confronting Emerging Infectious Diseases: The Importance of Partnerships between Clinical Medicine and Public Health. *Acad Med 2001; 76(10): 1086-1088.*

Infectious diseases are the second leading cause of death worldwide, according to current estimates of the World Health Organization (WHO), and are the leading killers of children under five years of age. In spite of tremendous progress made in the United States during the 20th century in reducing infectious disease deaths, when aggregated, such deaths rank third behind cardiovascular disease and cancer in this country.

As Dr. Jeffrey Koplan, director of the Centers for Disease Control and Prevention (CDC), pointed out in a previous column in this series,¹ the CDC was established as the Communicable Diseases Center in 1946, succeeding an agency that worked on malaria control during World War II. The agency's mission has broadened dramatically during the last 55 years, but prevention and control of infectious diseases nationally and globally remain an important part of its mission.

The National Center for Infectious Diseases was created at the time of the last major CDC reorganization in 1981. At that time the infectious disease components of the Bureau of Epidemiology, the Bureau of Laboratories, and the Bureau of Tropical Diseases were consolidated to form the new Center. Historically, the CDC had worked with state health departments and international organizations such as WHO as one of the principal partners in infectious disease surveillance and control. In part, the 1981 reorganization of the agency represented an attempt to integrate epidemiology and laboratory science more fully to increase the effectiveness of disease surveillance and prevention programs.

Matson C, Davis A, Steinkohl D, Blavo C. How did we make the interdisciplinary generalist curriculum project work? School-level efforts to facilitate success. *Acad Med* 2001; 76(4): *S31-S40*.

This article examines how the schools funded by the Interdisciplinary Generalist Curriculum (IGC) Project handled the process of planning and implementing their proposals; incorporated the IGC requirements as templates for changes in educational programs and organizational infrastructures; and identified key educational and management issues that emerged over time. How collaboration flourished at each IGC school was the central functional ingredient for successful implementation. Shared power and support from the dean were essential for success. The need for excellent channels of communication among all constituencies in the process of curricular change cannot be overemphasized. The most common approach was the addition of the new interdisciplinary clinical curriculum to the existing, usually discipline-based, curriculum,

with attempts to establish integrative horizontal connections among concurrent courses in years one and two. The integration, sequencing, and correlating of basic science and clinical material occupied much of the IGC course directors' time in the early stages. Several approaches were used to help ensure a beneficial initial clinical experience for medical students, while accepting that a uniform experience for all students was not attainable or necessary. Encouraging active learning on the part of students was a goal of IGC schools' planning in and of itself. The splash of establishing interdisciplinary communication structures and greater melding of disciplinary cultures that occurred at and among the IGC schools appeared to lead to ripple effects that were recognized within the first year of planning and early implementation.

Meyer G, Potter A, Gary N. A national survey to define a new core curriculum to prepare physicians for managed care practice. *Acad Med 1997;* **72(8)**: 669-676.

All levels of medical education will require modification to address the challenges in health care practice brought about by managed care. Because preparation for practice in a managed care environment has received insufficient attention, and because the need for change is so great, in 1995 the authors sought information from a variety of sources to serve as a basis for identifying the core curricular components and the staging of these components in the medical education process. This research effort consisted of a survey of 125 U.S. medical school curriculum deans (or equivalent school representatives); four focus groups of managed care practitioners, administrators, educators, and residents; and a survey of a national sample of physicians and medical directors. Findings indicate that almost all the 91 responding school representatives recognized the importance of revising their curricula to meet the managed care challenge and that the majority either had or were developing programs to train students for practice in managed care environments. The focus groups identified a core set of competencies for managed care practice, although numbers differed on whether the classroom or a managed care setting was the best place to teach the components of a new curriculum. Although medical directors and staff physicians differed with respect to the relative levels of importance of these competencies, the findings suggest that before medical school, training should focus on communication and interpersonal skills, information systems, and customer relations; during medical school, on clinical epidemiology, quality assurance, risk management, and decision analysis; during residency, on utilization management, managed care essentials, and multidisciplinary team building; and after residency, on a review of customer relations, communication skills, and utilization management. The authors conclude that a core curriculum and its sequencing can be identified, that the majority of curricular components exist but in s some cases needed to be modified to more clearly relate to managed care practice, and that their findings may provide a useful starting point for making decisions about curricular reform.

Miller N, Sheppard L, Colenda C, Magen J. Why physicians are unprepared to treat patients who have alcohol and drug-related disorders. *Acad Med 2001; 76(5): 410-418.*

Most primary care physicians do not feel competent to treat alcohol- and drug-related disorders. Physicians generally do not like to work with patients with these disorders and do not find treating them rewarding. Despite large numbers of such patients, the diagnosis and treatment of alcohol- and drug-related disorders are generally considered peripheral to or outside medical matters and ultimately outside medical education. There is substantial evidence that physicians fail even to identify a large percentage of patients with these disorders. Essential role models are lacking for future physicians to develop the attitudes and training they need to adequately approach addiction as a treatable medical illness. Faculty development programs in addictive disorders are needed to overcome the stigma, poor attitudes, and deficient skills among physicians who provide education and leadership for medical students and residents. The lack of

parity with other medical disorders gives reimbursement and education for addiction disorders low priority. Medical students and physicians can also be consumers and patients with addiction problems. Their attitudes and abilities to learn about alcohol- and drug-related disorders are impaired without interventions. Curricula lack sufficient instruction and experiences in addiction medicine throughout all years of medical education. Programs that have successfully changed students' attitudes and skills for treatment of addicted patients continue to be exceptional and limited in focus rather than the general practice in U.S. medical schools. The authors review the findings of the literature on these problems, discuss the barriers to educational reform, and propose recommendations for developing an effective medical school curriculum about alcoholand drug-related disorders.

Peters A, Clark-Chlarelli N, Block S. Comparison of Osteopathic and Allopathic medical schools' support for primary care. *Journal of General Internal Medicine 1999;* 14(12): 730-739.

Objective: To contrast prevailing behaviors and attitudes relative to primary care education and practice in osteopathic and allopathic medical schools. DESIGN: Descriptive study using confidential telephone interviews conducted in 1993-94. Analyses compared responses of osteopaths and allopaths, controlling for primary care orientation.

Setting: United States academic health centers. PARTICIPANTS: National stratified probability samples of first-year and fourth-year medical students, postgraduate year 2 residents, and clinical faculty in osteopathic and allopathic medical schools, a sample of allopathic deans, and a census of deans of osteopathic schools (n = 457 osteopaths; n = 2,045 allopaths).

Measurements: Survey items assessed personal characteristics, students' reasons for entering medicine, learners' primary care educational experiences, community support for primary care, and attitudes toward the clinical and academic competence of primary care physicians.

Main Results: Primary care physicians composed a larger fraction of the faculty in osteopathic schools than in allopathic schools. Members of the osteopathic community were significantly more likely than their allopathic peers to describe themselves as socioemotionally oriented rather than techno-scientifically oriented. Osteopathic learners were more likely than allopathic learners to have educational experiences in primary care venues and with primary care faculty, and to receive encouragement from faculty, including specialists, to enter primary care. Attitudes toward the clinical and academic competence of primary care physicians were consistently negative in both communities. Differences between communities were sustained after controlling for primary care orientation.

Conclusions: In comparison with allopathic schools, the cultural practices and educational structures in osteopathic medical schools better support the production of primary care physicians. However, there is a lack of alignment between attitudes and practices in the osteopathic community.

Sachdeva AK. Faculty development and support needed to integrate the learning of prevention in the curricula of medical schools. *Acad Med 2000;* 75(7): *S35-S42.*

Comprehensive coverage of prevention-related topics in the curricula of medical schools is important for the training of future physicians; however, the changes needed in educational programs to include such topics are likely to challenge many institutions. Faculty members are central to the successful adoption of any new curricular paradigm, yet many of the impediments

to change are also likely to be found within the faculty ranks. Achieving major curricular change requires institution leaders to define a new vision and allocate sufficient resources to support faculty efforts. Appropriate steps should be taken to actively involve the faculty early in the process of change and to recruit stakeholders from within the faculty ranks to play prominent roles. The educational models should be based on educationally and scientifically sound underpinnings that will facilitate acceptance of the models by the faculty, and faculty members must be offered appropriate opportunities to develop the skills to successfully implement the models. A school-wide faculty development program should address organizational development, instructional development, and personal development. The expertise needed to design and implement these activities may be secured from within or outside the institution. Individuals who have played key roles in the curricular change process must be rewarded and given appropriate recognition for their contributions. These steps will help in the successful integration of prevention-related topics into the curriculum, which will add a much-needed dimension, resulting in students' being better prepared to address the needs of their patients and the community.

Spencer H. The Changing Field of Academic Public Health. Acad Med 2001; 76: 400-401.

The 29 accredited schools of public health (SPH) are a unique resource for achieving the health of the public in the 21st century. Schools of public health are exceptionally multidisciplinary, with a range of faculty that includes biomedical scientists, social scientists, economists, epidemiologists, biostatisticians, managers, health service researchers, physicians, nurses, veterinarians, and public health practitioners. They have a large research portfolio dedicated to population-based prevention research and offer exceptional capability to bring together multidisciplinary teams of researchers and the community. Schools partner with state and local health agencies in their teaching and practice programs.

Currently there are nine affiliate institutional members of the Association of Schools of Public Health (ASPH) that are on the path to accreditation as SPH. A number of other universities are considering developing schools, probably because of the expanding opportunities in academic public health and interest in population-based medical practice issues in the community. The changing health system, the increased value placed on disease prevention and health promotion, the recognized need for prevention and health services research, and the diversity required of the health workforce all contribute. Most but not all SPH are part of academic health centers

Strayhorn G. Effect of a major curriculum revision on students' perceptions of well-being. *Acad Med 1989;* 64: 25-29.

Method: A study performed in the University of North Carolina SOM determined the impact of a major curriculum revision on students' perceptions of the quality of the medical school learning environment, social supports, and their own mental and social well-being.

Measures:

a. Questionnaire 1:

--99-item assessing four areas: the general quality of the medical school environment, specific stresses, social supports, and students' perceived mental and social well-being.

--34 representative items were taken from the Rothman's Learning Environment Questionnaire, designed to detect changes in the learning environment (detailed on the article).

- b. *Questionnaire 2:*
 - --18-item survey assessing perceived sources of stress, designed by the authors.
- c. Questionnaire 3:

--25-item social support Q, assessed the perceived support that students receive from faculty members, class advisers, fellow students, spouses, friends, and significant others for school-related and personal problems.

d. *Questionnaire 4:*

--Q's adapted from the Rand Health Insurance Questionnaire to assess mental and social well-being. Among the curriculum changes were: increased instruction in seminar and small-group settings to foster time for students to pursue well-stated learning objectives; increased formal teaching in the social and behavioral sciences and humanities; increased faculty involvement with students, including the establishment of mentor relationships between faculty and students; the development of a system to monitor and evaluate students' academic performance, faculty members' instructional strategies, and the overall curriculum; finally, the establishment of an organizational structure that has responsibility and budgetary accountability for the entire medical curriculum.

After the curriculum change, students perceived the overall quality of their learning environment as better than the students surveyed one year before the curriculum change was implemented.

Tresolini CP, Shugars DA. An integrated health care model in medical education: interviews with faculty and administrators. *Acad Med 1994; 69: 231-236.*

Purpose: To broaden the understanding of how medical schools can help students learn an approach to health care that reflects the integration of psychosocial and biomedical factors in health and illness.

Method: A qualitative research design was used, with data collected through document review and semi-structured interviews conducted in the spring and summer of 1992 with 22 faculty and administrators from 17 U.S. and Canadian medical schools. The interviewees represented the following disciplines: internal medicine, family medicine, pediatrics, psychiatry, and preventive/behavioral medicine. An analytic framework was developed, within which the constant comparative method was used on a continuous basis during and after data collection. Category development focused on (1) defining the scope and character of an integrated perspective, (2) delineating various ways to incorporate such a perspective in medical education, and (3) identifying barriers to and facilitative factors for incorporating such a perspective in medical education. Validity was assessed by having the interviewees and three other faculty members review the analyses and preliminary results.

Results: The interviewees' conceptions of an integrated perspective on health care focused on the theoretical need for a broader scientific model and on the practical need for more inclusive approaches to medical practice. The interviewees described patient-level and community-level approaches as equally important. The ideal curricula envisioned by the interviewees were patient-centered, integrated, developmental, and population-based. In addition to naming many barriers to integration (e.g., negative attitudes of faculty and administrators, diffuse organization of medical schools, ignorance of appropriate curriculum design and implementation), the

interviewees identified certain facilitative factors (e.g., strong leaders, faculty development programs, and reform of the faculty reward system).

Conclusion: The interviewees envisioned an integrated model of health care that suggests that medical curricula should address the development of physicians' knowledge, attitudes, and skills regarding physicians' relationships with both patients and community.

Vosti KL, Jacobs CD. Outcome measurement in postgraduate year one of graduates from a medical school with pass/fail grading system. *Acad Med 1999;* **74(5):** 547-549.

Method: 144 first-year resident students who had graduated from a medical school with a pass/fail grading system (Stanford SOM) were assessed to measure their performance. 1st year program directors rated the performance of each student in 11 areas, compared the graduate's clinical preparedness with that of his or her peer group, and rated the accuracy of the dean's letter in presenting the graduate's capabilities.

Graduates from a medical school with a two-interval, pass/fail system successfully matched with strong, highly sought after postgraduate training programs, performed satisfactory to superior manner, and compared favorably to their peer group.

A recent (1996-1997) survey by the AAMC of 128 medical schools in the U.S. revealed that only 5% used two grading intervals to grade students in their required clinical clerkship; 22% three grading; 21% four grading intervals; and 38% five grading intervals. A similar distribution was found for the required basic science courses.

Williams JF, Riegelman RK, Grossman JH. Academic health centers can bridge the gulf between medicine and public health [In Process Citation]. *Acad Med 1999;* 74: 484b-487b.

The authors review why the gulf between clinical medicine and public health has existed since the first schools of public health were established in 1916. They emphasize that academic health centers (AHCs) have the potential to bring together these two perspectives--as well as the health services perspective--to clarify what they offer and to find creative ways to build upon their combined strengths. The authors describe institutional approaches that can be taken to narrow the gulf, with examples from the initiatives of this type that are under way at The George Washington University Medical Center in Washington, D.C. For example, the authors state and discuss in detail that an AHC's medical, public health, and health services institutions should be physically and institutionally close; that collaboration between them requires well-structured interaction; that institutional structures are needed to ensure cooperation when internal competition is likely; and that collaboration is fostered by new opportunities and the potential for new resources. The authors conclude by stating that the future will require that the health education and prevention perspective of public health, the treatment perspective of medicine, and the financial and management perspective of health services be developed and integrated into the work of AHCs, and give examples of specific activities that would be possible with such integration.

Health/Well-Being (Medical Students, Residents, Physicians)

Abramson S, Stein J, Schaufele M, Frates E, Rogan S. **Personal exercise habits and counseling practices of primary care physicians: a national survey.** *Clinical Journal of Sport Medicine* 2000; **10(1):** 40-48.

Objective: Regular physical activity can reduce the incidence and prevalence of many chronic diseases. A vast majority of Americans cite their physician as their primary source of information regarding healthy lifestyle decisions. This study was designed to obtain information about the personal exercise behavior and counseling practices of primary care physicians, to evaluate the relationship between their physicians, to evaluate the relationship between their personal and professional exercise practices, and to determine whether physician specialty is associated with these practices.

Design: A cross-sectional survey was mailed to a randomly selected sample of primary care physicians in the U.S. A questionnaire was used to obtain detailed information on the personal exercise habits, counseling practices, and barriers to counseling of these physicians, regarding both aerobic exercise and strength training.

Participants: 298 primary care physicians, comprising 84 family practitioners, 79 pediatricians, 58 geriatricians, and 77 internists.

Main Outcome Measures: Frequency of physician exercise, exercise counseling, and relationship between these practices.

Results: Physicians who perform aerobic exercise regularly are more likely to counsel their patients on the benefits of these exercises, as are physicians who perform strength training. Pediatricians and geriatricians counsel fewer patients about aerobic exercise than family practitioners and internists. Counseling regarding strength training is less common in all physician groups surveyed, and lowest among pediatricians, of whom 50% did not advise these exercises for any of their patients. Inadequate time was noted by 61% and inadequate knowledge and/or experience by 16% of respondents as the major barriers to counseling regarding aerobic exercise.

Conclusion: Physicians who exercise are more likely to counsel their patients to exercise. Inadequate time and knowledge/experience regarding exercise are the most common barriers to counseling identified. These findings suggest strategies that might increase physician exercise counseling behavior.

Ackerman TF, Wall HP. A programme for treating chemically dependent medical students. *Med Educ* 1994; **28:** 40-46.

Description of the first American programme for chemically dependent medical students. Aid for the Impaired Medical Student (AIMS) Program at the University of Tennessee.

Goals:

To provide *confidential* treatment for chemically dependent MS's. To assure that recovering students are able to resume their education. To protect patients and others from the harm that may be caused by impaired students.

Because the AIMS Program has become familiar service of the College of Medicine, the student body has gained a heightened awareness of the problem of chemical dependency within the medical profession and of their obligations to assist in the alleviation of this problem.

Ball S, Bax A. Self-care in Medical Education: Effectiveness of Health-habits Interventions for First-year Medical Students. *Acad Med 2002;* 77(9): 911-917.

Purpose: To examine changes in health habits (sleep, alcohol, and exercise) and the effects of an educational intervention promoting self-care on the emotional and academic adjustment of first-year medical students.

Method: Fifty-four medical students completed questionnaires that assessed various health habits, alcohol use, depression severity, and areas of life satisfaction at the beginning of the semester, at mid-term, and at finals. Approximately half of the students received written feedback or participated in an educational discussion group at mid-term. Results. The students demonstrated significant changes in health habits, with increases in alcohol consumption and decreases in exercise and socialization. The changes in health habits were predictive of both emotional and academic adjustment, with students who decreased in positive health habits, particularly socialization, being more depressed at finals. The feedback and educational interventions influenced some sleep and exercise behaviors, but the groups did not differ in overall emotional or academic adjustment.

Conclusions: First-year medical students show significant changes in health habits as they adjust to medical school. An educational intervention demonstrated promising effects in changing these patterns, but self-care needs to be further elaborated to address the specific challenges associated with acute adjustment as well as with long-term stressors.

Baldwin PJ. Young doctors' health—II. Health and health behavior. Social Science & Medicine 1997; 45(1): 41-44.

There is little published information on the health of young doctors, apart from a number of studies, which show increased rates of psychiatric symptoms. Nor is there much known of their health behavior. Anecdotal accounts suggest that doctors' own health care is poor, especially in terms of their willingness to consult other doctors. This paper presents data from a longitudinal study of a class cohort of young doctors first interviewed when they were students. Data show that they suffer from frequent minor physical ailments, with women reporting more ailments than men. Despite this, they took less sick leave. Overall, the doctors took very little time off work. Using the GHO-28, with a threshold of 5/6, 30% of doctors fell into the "caseness" category for psychiatric symptoms. This is in keeping with findings elsewhere. From the doctors' own reported health behavior, both in terms of their response to illness over the past year, as well as their predicted response to hypothetical illness, they have developed maladaptive patterns. These include continuing to go to work when unfit, self-prescribing, and consulting friends and colleagues rather than going for a formal consultation. This is seen as inappropriate, especially in cases of mental illness. A third of the young doctors are not registered with a local general practitioner and the majority has no clear idea of the role of the Occupational Health Service. The results are discussed in terms of the need to change attitudes to health care and to develop guidelines, staffing and services to enable doctors to take better care of themselves.

Bortz WM. Health Behavior and experiences of physicians. Results of a survey of Palo Alto Medical Clinic physicians. *Western Journal of Med 1992;* 156(1): 50-1.

The results of a health practice questionnaire submitted to the 152 physician members of the Palo Alto Medical Clinic, 126 that responded, indicate a generally favorable profile of preventive medicine strategies. Physicians generally smoke less, drink about the same, exercise more, and use their seat belts more than the population at large. They also can expect to live longer. These results are compared with those of other physician surveys and surveys of the general public.

Clever LH. Who is sicker: patients—or residents? residents' distress and the care of Patients. Annals of Internal Medicine 2002; 136(5): 391-393.

Despite generations of denial, physicians' feelings matter, Grol and colleagues has shown that frustrations, tensions, and annoyance with time pressures are linked to giving patients short shrift: Physicians may write a plethora of prescriptions yet give a paucity of time to listening and explaining. Conversely, physician satisfaction is associated with patient adherence to medical regimens and patient satisfaction. It is obvious that patients should care if residents—and older physicians, nurses, and other health professionals, for that matter—are depleted and discouraged. Physicians and their families should also care because professional experiences and attitudes can affect home life. Policy-makers should care because the health of our society depends in part on the health and effectiveness of health professionals. Medical educators should worry: The problem is happening on their watch. There is an urgent need to study the relationship among physicians' states of mind, body, and spirit; their professional and personal performance; and outcomes of care. The pioneering works of investigators points toward connections among these areas. There is a need for more research and funding to amplify and confirm them. Even now, there is a need for humane teaching, adequate staffing, and programs that help physicians and other health professionals to stay in top condition. Possibilities for research in this realm are plentiful, as are suggested interventions.

[CMA Policy Summary]. Physician health and well-being. CMAJ-JAMC 1998; 158(9): 1191-1195.

Physicians should strive to manage professional and personal stress to maintain their own health and well-being and to maximize their ability to provide quality health care to their patients. This policy outlines strategies and recommendations that address a range of health and well-being issues throughout the physician life cycle. Implementation requires commitment and action by many individuals and groups, including medical students, residents and practicing physicians; governments, regional authorities and decision-makers in health care facilities; medical school deans, faculty, and undergraduate and postgraduate program directors; and those representing national, provincial and territorial medical organizations.

Cohen JJ. Heeding the plea to deal with resident stress. Annals of Internal Medicine 2002; 136(5): 394-395.

Coombs RH, Virshup BB. Enhancing the psychological health of medical students: the student well-being committee. *Med Educ* 1994; **28**(1): 47-57.

Medical schools' emphasis on technical excellence is sometimes at the expense of social and emotional development.

This paper describes a programme, (est. 1985 in UCLA) orchestrated by a vital Well-Being committee that involves students in a wide range of activities to enhance social and emotional well-being. The following topics are discussed:

- Well-Being Seminars and Discussions
- Support Groups
- Service Opportunities
- Well-Being Publications
- Programs to enhance physical vitality
- Institutional changes to enhance student well-being

The authors illustrate balanced professional development with three overlapping circles each symbolizing an interdependent area of personal competence vital to doctor effectiveness; head (mental discipline), hands (manual skills), heart (effective aspects of patient care).

Collier V, McCue J, Markus A, Smith L. Stress in medical residency: status quo after a decade of reform. *Annals of Internal Medicine 2002; 136(5): 384-390.*

Background: Although curricular reforms have attempted to address sources of stress in medical residency, no recent studies have examined the financial or emotional situations of current medicine residents.

Objective: To question medicine residents about financial status, educational debt, moonlighting, and psychological issues. DESIGN: Survey distributed in a nonrandomized fashion to medicine residents.

Setting: All 415 U.S. medicine residency programs.

Results: According to the questionnaire responses submitted by the 4128 (18%) participating residents, a substantial number of residents had financial and emotional distress that could have interfered with training. The reported educational debt was at least \$50 000 for 1657 (42%) of the respondents and at least \$100 000 for 737 (19%). The monthly disposable income was \$100 or less for 1620 (43%) of the residents, and 637 residents (16%) could not afford safe housing. Among respondents in their 2nd through 5th year of postgraduate training, 2187 (52%) had insufficient funds to purchase books and equipment, and 678 (29%) could not afford the required fees for the American Board of Internal Medicine certifying examination; 2659 (33%) worked as moonlighters, and this percentage increased progressively with increasing educational debt. Four or five depressive symptoms during residency were reported by 1461 (35%) residents. Eight hundred ninety-nine residents (23%) thought they had become less humanistic over the course of their residency training; 2347 (61%) reported becoming more cynical. Female residents were more likely than male residents to report increased cynicism and multiple depressive symptoms. Increased cynicism and depressive symptoms were associated with increasing educational debt.

Conclusions: Despite recent curricular reforms, an alarming number of current medicine residents report depressive symptoms, increasing cynicism, and decreasing humanism, which were associated with increasing educational debt and a need to moonlight for financial survival. Ongoing curricular reform, legislative relief from early loan repayment, and salary increases may be necessary to address these problems.

Cox CC, Cambre KM, Wolf TM, Webster MG, Hooper J. **Trends in number and** administrative characteristics of medical school health promotion programmes. *Med Educ* 2001; **35(2):** 173-174.

Method: Systematic review of survey data gathered in 1988, 1993, and 1997 assessing the existence and characteristics of health promotion programmes for medical students in the U.S. and Canada.

• In an attempt to reduce the risk of physical and psychological problems and to enhance the well-being of medical students, health promotion programmes have been instituted in some U.S. and Canadian medical schools.

- However, over the course of a 10-year period (1988-1997), there has been a significant decline in the number of medical schools offering health promotion programmes for students.
- To ensure the existence of a programme and to increase the likelihood of a dedicated budget (funded by the institution), it is recommended that health promotion directors at medical schools continue to be mindful of the need to implement an effective measurement and evaluation strategy as part of a continuing planning process.

Croen LG, Woesner M, Herman M, Reichgott M. A longitudinal study of substance use and abuse in a single class of medical students. *Acad Med 1997;* **72(5)**: *376-381*.

Purpose: A longitudinal study to ascertain the attitudes toward, and habits of, substance use among a single class of medical students.

Method: A single class from a northeastern medical school was surveyed in both its first year and its third year. The students were asked to report how frequently during the prior year they had used drugs or alcohol, and whether their use of each substance had increased, decreased, or remained the same since entering medical school; to identify any family members with histories of alcohol or drug problems; and to report any incidence during the prior year of ten behaviors associated with substance dependence. The students were also asked to indicate their agreement or disagreement with 11 attitudinal statements. Additional attitudinal items asked the students to identify three major deterrents to the abuse of drugs and alcohol, and what they had done if they had become aware of a classmate with a drug or alcohol problem.

Results: The response rates in the first and second surveys were 96.9% and 81.1%, respectively. Use of licit and illicit substances was comparable to that of chronological peers and prior national studies of medical trainees. Most of the students admitted to using alcohol at least once in the prior year (91.8% and 95%, respectively). In both years marijuana was the illicit drug used most often. In general, a greater percentage of the students reported a decrease rather than an increase in the use of a substance since entering medical school; the primary exception was for wine.

Conclusion: Although there was no evidence that substance use was a major problem, a few of the students appeared to be at risk or drug or alcohol dependence.

Delnevo CD, Abatemarco DJ, Gotsch AR. Health Behaviors and Health Promotion/Disease Prevention: Perceptions of Medical Students. *Am J Preventive* 1996; **12(1)**: 38-43.

Health promotion and disease prevention must be addressed in medical education, and the assessment of future physicians' health preventive perceptions and behaviors is a critical step in the process. We conducted a cross-sectional survey of 512 medical students enrolled during the 1992-1993 academic year. Outcome measures were self-reported health behaviors and ratings of the importance of prevention. Overall, results indicated that the preponderance of respondents are engaging in healthy behaviors; however, some high-risk behaviors, such as drinking and driving and possible binge drinking, were reported by at least 15% of the respondents. Significant differences were detected regarding students' perceptions; a linear decreasing tend was noted with first-year students rating the importance of prevention the highest and fourth-year students rating it the lowest. Additionally, this study attempted to correlate health behaviors with perceptions. Even though this cohort is healthy overall, some students are engaging in behaviors that are not conducive to maintaining a healthy lifestyle. It is important to identify and address negative health behaviors in this population, not only in terms of personal

health, but also in its effect on their interaction with future patient populations. The attrition of interest in prevention during undergraduate medical training is cause for concern; future clinical practice will be strongly motivated by their perceptions. Medical schools should identify health issues and assess preventive health perceptions among students in order to facilitate the adoption of preventive practices by future physicians.

Firth-Cozens J. Interventions to improve physicians' well-being and patient care. *Soc Sci Med* 2001; **52(2):** 215-222.

Method: Longitudinal study which follows-up of 314 medical students over 11 years.

- Deficits in care are frequently found to be associated with stress and with the apparent lack of recognition of psychological problems when they occur in doctors.
- Addresses level and sources of stress, depression, and alcoholism in doctors, and the relationship of these to the care they provide.
- Uses research findings to propose a system of organizational and individual primary and secondary interventions to address these psychological problems.

Firth-Cozens J. Medical student stress. Med Education 2001; 35: 6-7.

Commentaries: Despite two decades of studies describing the high stress levels of medical students, junior doctors and, more recently, consultants, we have very few papers, which compare these groups with others at the same stage of their lives.

- The author comments on various articles published on this specific issue of *Medical Education* and other publications pertaining to stress in medical students.
- One of the articles reviewed found that medical student had similar problems to other health-oriented groups such as nurses, dentists, and pharmacists, but viewed them more intensely.

Frank E, Breyan J, Elon L. Physician disclosure of healthy personal behaviors improves credibility and ability to motivate. *Archives of Family Med 2000;* 9(3): 287-290.

Context: While some studies have shown that physicians with healthy personal habits are especially likely to discuss prevention with their patients, to our knowledge no one has published information testing whether physician credibility and patient motivation to adopt healthier habits are enhanced by physician's disclosures of their own healthy behaviors.

Design: Two brief health education videos about improving diet and exercise were produced and shown to subjects (n1=66, n2=65) in an Emory University general medical clinic waiting room in Atlanta, GA. In one video, the physician revealed an additional half-minute of information about her personal healthy dietary and exercise practices and had a bike helmet and an apple visible on her desk. In the other video, discussion of personal practices and the apple and bike helmet were not included (control video).

Results: Viewers of the physician-disclosure video considered the physician to be generally healthier, somewhat more believable, and more motivating than did viewers of the control video. They also rated this physician to be specifically more believable and motivating regarding exercise

Gaber R, Martin D. Still-Well osteopathic medical student wellness program. JAOA 2002; 102(5): 289-292.

Summaries: In 1991, the Kirksville College of Osteopathic Medicine in Kirksville, MO initiated a wellness program for 1st and 2nd year medical students.

- Based on the concept that to practice and promote preventive medicine, students must: 1. Understand and integrate wellness practices and theory into their own lives.
- With 11 years of experience: Kirksville College offers a wellness program to students that addresses areas of their personal, professional, and physical development of mind, body, and spirit.
- Voluntary student participation has been exceptional and research at KCOM was initiated to determine to what extent the program was working to modify the wellness of its medical students.
- Based on a recent national study: Only 32 (20%) of 141 allopathic and osteopathic medical schools surveyed provided a health promotion program for students.
- "I am my own first patient," theme of the medical student wellness program at KCOM started in 1991 and focuses on mind (emotional, intellectual, and vocational development), body (physical development), and spirit (environmental and spiritual development).
- Initially in 1991, 41 of 290 eligible students voluntarily enrolled in the wellness program.
- Each year afterwards, student involvement had increased, reaching a high point in 1998, when 268 (92%) of 290 of the students voluntarily participated.

Hall FR, Miller MJ. Health policies and procedures for medical students at U.S. medical schools: a progress report. *Med Educ* 1994; **28**: 26-32.

This paper presents the current status (as of 1995) of school health policy at U.S. medical schools and discusses implications for medical students with respect to physical health and occupational risks.

All data was drawn from the database for the Annual School Survey of all U.S. Medical Schools (126) by the Liaison Committee on Medical Education (LCME) for 1990, 1991, and 1992.

!) Present status of U.S. medical school health policy and programmes:

- a. *Health Services:* the variability of health services for medical students led the AAMC to develop guidelines for health services for medical students (AAMC 1992).
 - --Health Insurance
 - --Immunizations
 - --Prevention programmes
- b. Occupational Risks

Chemical Impairment-e.g. AIMS Programme at the University of Tennessee

- --Infectious Diseases
- --Mistreatment
- (2) A Policy Perspective:
 - --Who is responsible?
 - --Who should monitor?
 - --Recommendations

Hash RB, Munna R, Vogel RL, Tedders SH. Medical Student Body Weight and Preclinical Medical Education. *Family Medicine 2001;* **33**(1): 7-8.

A tendency toward excess weight gain by pre-clinical medical students is a phenomenon that is often observed by medical educators and discussed informally, yet it is not well studied in the medical literature. Medical students are immersed in an intense, time-demanding educational process that usually does not emphasize personal wellness issues. The stresses associated with pre-clinical medical education have been well studied. Increased levels of anxiety, depression, negative mood, eating disorders, and declines in social interaction and positive coping styles have been demonstrated. Unhealthy lifestyles and neglect of personal wellness practices may be the result of time demands and psychosocial stress of medical education.

Hooper J, Cox C, Cambre K, Wilburn D, Webster M, Wolf T. **Comparison of the support allopathic and osteopathic medical school health promotion programs for students**. *Am J of Health Promotion 1999*; **13**(3): *171-179*.

Objective: To contrast prevailing behaviors and attitudes relative to primary care education and practice in osteopathic and allopathic medical schools.

Design: Descriptive study using confidential telephone interviews conducted in 1993-94. Analyses compared responses of osteopaths and allopaths, controlling for primary care orientation.

Setting: United States academic health centers.

Participants: National stratified probability samples of first-year and fourth-year medical students, postgraduate year 2 residents, and clinical faculty in osteopathic and allopathic medical schools, a sample of allopathic deans, and a census of deans of osteopathic schools (n = 457 osteopaths; n = 2,045 allopaths).

Measurements: Survey items assessed personal characteristics, students' reasons for entering medicine, learners' primary care educational experiences, community support for primary care, and attitudes toward the clinical and academic competence of primary care physicians.

Main Results: Primary care physicians composed a larger fraction of the faculty in osteopathic schools than in allopathic schools. Members of the osteopathic community were significantly more likely than their allopathic peers to describe themselves as socioemotionally oriented rather than technoscientifically oriented. Osteopathic learners were more likely than allopathic learners to have educational experiences in primary care venues and with primary care faculty, and to receive encouragement from faculty, including specialists, to enter primary care. Attitudes toward the clinical and academic competence of primary care physicians were consistently negative in both communities. Differences between communities were sustained after controlling for primary care orientation.

Conclusions: In comparison with allopathic schools, the cultural practices and educational structures in osteopathic medical schools better support the production of primary care physicians. However, there is a lack of alignment between attitudes and practices in the osteopathic community

Jurkat HB, Reimer C, Schroder K. [Expectations and attitudes of medical students concerning work stress and consequences of their future medical professional]. *Psychother Psychosom and Psychol 2000;* 50(5): 215-221.

In the following cross-sectional study 245 medical students from two different terms (three years apart) were being questioned about work stress and the consequences of their future medical profession. Attitudes and expectations regarding future work stress, work satisfaction, coping strategies, gender specific problems, effects on private life and future quality of life were studied. As expected, students in the upper term were able to judge their professional and private future more realistically. The expectations of the advanced students are more realistic and as a consequence it is likely that a disillusioning process is taking place. The results contribute to a better understanding of the present study situation and well-being of medical students concerning their professional and private future which is also important for teaching and the teaching professionals.

Lee J, Graham A. Students' perception of medical school stress and their evaluation of a wellness elective. *Med Education 2001; 35(7): 652-659.*

Context: Because medical education is known to be demanding and stressful, Case Western Reserve University developed a program, which included a wellness elective which focused on stress reduction and personal wellness.

Objectives: The purpose of this study was to explore students' perceptions of medical school stress and to assess their perspective on the wellness elective.

Subjects: The essays of 60 medical students enrolled in the wellness elective were used.

Methods: The essays were analyzed using qualitative methodology. Results were validated by questionnaires mailed to the students 2 years later.

Results: It was found that the students felt that: (1) wellness issues should be important for physicians; (2) their own well-being had been diminished by the burden of information to be learned in medical school; (3) talking to peers was a useful coping mechanism, and (4) the elective gave permission to engage in wellness activities without additional guilt.

Conclusions: Based on the students' responses, a wellness elective could be a useful addition to the first- or second-year medical curriculum.

Levey R. Sources of stress for residents and recommendation for programs to assist them. *Acad Med 2001;* **76(2)**: 142-150.

Bridging the gap between graduation from medical school and being board eligible in a medical specialty is a lengthy and arduous process. The fact that stress is typical during the residency training period is well-documented in the literature, as are its many situational, professional, and personal sources, which the author reviews: heavy work-load, sleep deprivation, difficult patients, poor learning environments, relocation issues, isolation and social problems, financial concerns, cultural and minority issues, information overload, and career planning issues. Stress can also stem from and exacerbate gender-related issues and problems for significant others, spouses, and family members. The author also describes less commonly documented sources of stress-often overlooked or postponed so long that stresses are inevitable for all concerned. These are associated with residents who perform marginally and in some cases should not have been passed

on from medical school, or who are studying specialties not compatible with their skills and personalities, or who foster severe interpersonal problems on the job. Common effects of stress include anxiety, depression, obsessive-compulsive trends, hostility, and alcohol and substance abuse. To respond to the problems that these many stressors present to residents, the Accreditation Council for Graduate Medical Education (ACGME) requires that all post-medical-school medical training programs make assistance services available for all residents. The author outlines essential elements of an assistance program, states how important such problems can be in saving both residents and their institutions needless difficulties and costs, and presents important issues for the consideration of all involved in residents' training.

Love MB, Davoli GW, Thurman QC. Normative beliefs of health behavior professionals regarding the psychosocial and environmental factors that influence health behavior change related to smoking cessation, regular exercise, and weight loss. *Am Journal of Health Promotion 1996;* **10**(5): 371-379.

Purpose: To examine the degree of consensus among health behavior change professionals regarding the personal and environmental factors they believe most strongly influence health behavior decisions related to smoking cessation, regular exercise, and weight loss.

Design: A factorial survey design was implemented. This method combines the positive elements from simple sample surveys and factorial experiment designs. A total of 44 independent psychosocial and environmental variables are used to randomly construct vignettes, or short stories, to collect dependent variable data.

Subjects: A probability sample of 311 health behavior change professionals was selected from the Society for Public Health Education, Inc., the Society of Behavioral Medicine, and faculty from the 1986 Harvard University Symposium on Health Promotion in the workplace.

Measures: Judgment ratings on the probability that the person described in each vignette would initiate the behavior in question.

Results: Multivariate analysis indicates that the multidimensional model explained approximately one-half of the variance in the judgments across the three health behaviors (smoking cessation, weight loss, and regular exercise).

Conclusions: These data suggest a high degree of consensus among the sample regarding the personal and environmental factors that influence health behavior judgments. Here, the subjects perceive both behavioral intentions and self-efficacy as the most powerful determinants of judgments to initiate weight loss, regular exercise, and smoking cessation.

Myers MF. The Well-Being of physician relationships. West J Med 2001; 174(1): 30-33.

Michael Myers is a psychiatrist and specialist in physician health.

- a. What do we know about healthy relationships?
- b. What are some of the unique challenges to a relationship posed by a career in medicine?
- c. What is the effect of a healthy relationship on physician well-being?
- d. What are some strategies to create and maintain relationship intimacy?
- e. Concept of "wounded healers"—people who have experienced situations such as poverty, hunger, war, forced migration, family heartache, abuse, discrimination, or disease.

Novack DH, Epstein RM, Paulsen RH. Toward creating physician-healers: fostering medical students' self-awareness, personal growth, and well-being. *Acad Med* 1999; 74(5): 516-520.

To restore the "humanism" in medical care, medical education needs to espouse the goal of creating physician-healers. Critical, and often neglected, factors in healing are the personal development and well-being of the healer. Unexamined attitudes and biases and personal stress can interfere with patient care. Personal awareness and well-being can contribute to physicians' using their emotional reactions to patients for their patients' benefit. The authors suggest goals and objectives for medical education that can promote trainees' self-awareness, personal growth, and well-being, and comment on how medical educators might achieve and evaluate these goals and objectives.

Pasnau RO, Stoessel P. Mental health service for medical students. Med Educ 1994; 28: 33-39.

The authors describe the problem of impairment of medical students from the point of view of mental health professionals who have directed a large and successful evaluation and referral service for students suffering from a wide array of stress-related and mental disorders. They outline the nature of the impairment problems, the history of the efforts at their medical school to address these problems, and their recent experience in providing mental health services to students who are referred for evaluation and treatment. Diagnostic data, referral and the implications of mental disorders for medical students are discussed. The authors offer some suggestions for the formation of student well-being committees prior to the implementation of student assistance programs to address the problems of substance abuse.

Peterson DF, Smith CM, Degenhardt BF. Sources of stress in entering osteopathic medical students [abstract No. C18]. *J Am Osteopath Assoc. 1998*; **98**:396.

Stress is high among medical students. We hypothesize that, prior to beginning classes, stress level among new students will be relatively low. All entering freshman in the class of 2001 at Kirksville College of Osteopathic Medicine completed a series of surveys during student orientation prior to the beginning of classes.

Peterson DF, Smith CM, Degenhardt BF. **Health profile of a class of entering osteopathic medical students** [abstract No. C16]. *J Am Osteopath Assoc. 1998*; **98**:396.

This study asks: What is the health history and physical health status of a class of incoming Osteopathic medical students and how does it correlate with their personal lifestyle and physical fitness? All 147 entering freshmen in the class of 2001 at KCOM completed a background questionnaire regarding their personal health during the previous year. A Lifestyle Assessment Questionnaire and a health history and physical examination were obtained during the first two weeks on campus. This article provides a baseline for evaluating the multidimensional effects of medical school training on future physicians.

Peterson DF, Smith CM, Degenhardt BF. Changes in stress for first-year osteopathic medical students at KCOM [abstract No. C13]. J Am Osteopath Assoc. 1999; 99:426.

Ten times during the first year of school, students in the class of 2001 completed a questionnaire with 101 items designed to identify sources of stress in their daily lives. The questionnaires were given approximately every 5 weeks without regard for unique events in the schedule; i.e., orientation week, twice during exam weeks, twice immediately after breaks, and 5 other times. Of

the 140 students who completed the year, only one did not complete the protocol. The result of the study was that generally students felt much less hassled immediately after vacations. The data suggest that, among KCOM students, perceived stress declines throughout the first year of medical school in all areas except academics. However, after peaking early, even academic stress declines to control levels by year's end.

Piko B. Health-related predictors of self-perceived health in a student population: the importance of physical activity. *J Community Health* 2000; **25(2):** 125-137.

The main objective of the present study was to observe and describe the inter-correlations of a number of psychological and health-related variables with special emphasis put on the predictors of self-perception of health using stepwise linear regression analysis. Data were collected in conjunction with a research project of health risk behavior of the student population of Szeged, Hungary. The number of students participating in our sample was 980, the response rate was 70.5% (n=691). A self-administered questionnaire was used as a method of data collection. The findings suggest that psychological well-being plays a central role in determining self-perceived health. The regression analysis revealed that four health-related variables under study contributed significantly to the self-perception of health. These were the following: psychological well-being. physical activity behavior, acute illness episodes and the frequency of psychosomatic symptoms. While some differences were detected between the type and the number of contributing factors among the subgroups by sex and physical activity behavior (i.e., physical activity was far more influential among males and likewise among more active persons) psychological well-being proved to be the strongest predictor. Physical activity behavior correlated positively and the frequency of psychosomatic symptoms negatively with psychological well-being. Moreover the occurrence of harmful habits was positively related both to the frequency of symptoms and physical activity behavior.

Roberts LW, Hardee JT, Franchini G, Stidley CA, Siegler M. Medical students as patients: A pilot study of their health care needs, practices, and concerns. *Acad Med* 1996; **71(11)**: 1225-1232.

Method: A 5-page self-report questionnaire developed for this project. Population: 112 (74%) -2^{nd} and 4th year students from the University of New Mexico.

This study surveyed:

- a. *Health care needs:* health maintenance, infections, depression/stress symptoms, reproductive health, headaches, broken bones/injuries, and other problems such as asthma, skin care, cancer, allergies, and eye care.
- b. *Insurance coverage:* 18 students reported that they had no health insurance, 43 had health insurance offered through medical school, 51 had insurance other than the policies offered through medical school. 75% of the women and 63% of the men were willing to pay "extra" for health insurance that allowed them to obtain outside medical care.
- c. *Concerns about illness and professional vulnerability:* medical students worry about academic jeopardy (e.g. effect in academic standing, contracting HIV), confidentiality, and dual roles (medical trainee/patient); prefer outside care, extensive use of informal diagnosis by attending physicians or housestaff, and are unwilling to notify the medical school administrator of serious symptoms in others.

Constructive implication of the study:

- a. Policy initiatives
- b. Research initiatives
- c. Health care service initiatives

Richards JG. The health and health practices of doctors and their families. *New Zealand Medical Journal 1999;* **112**(1084): 96-99.

Aim: To determine how practicing doctors care for themselves and their families.

Method: A questionnaire was submitted to 500 randomly selected doctors, seeking information on attitudes to diet, alcohol, smoking, screening, immunization, contraception, workload, stress and treatment of self and family.

Results: Many doctors claimed to have a family doctor but relatively few had regular assessments. Most doctors considered their health to be good but many claimed to be working under substantial stress. There is need for more information about the Doctors' Health Advisory Service.

Conclusion: Doctors should pay more attention to their own health. A good case can be made for doctors having regular check-ups performed by a respected general practitioner colleague.

Roberts LW, Warner TD, Lyketsos C, Frank E, Ganzini L, Carter D. **Perceptions of academic vulnerability associated with personal illness: A study of 1,027 students at nine medical schools.** *Compr Psychiatry 2001; 42(1): 1-15.*

About one quarter of the more than 69,000 medical students in this country suffer symptoms of mental illness, including 7% to 18% with substance use disorders. Subjective distress and physical health needs of medical students are also common and have been linked to training stresses. This first large-scale study of medical student health care examined students' physical and mental health concerns and their perceptions of academic vulnerability associated with personal illness. A 7-page, confidential written survey was given to 1,964 students at nine US medical schools in 1996 and 1997. A total of 1,027 students participated (52% response rate). Nearly all (90%) reported needing care for various health concerns, including 47% having at least one mental health or substance-related health issue. A majority of students expressed a preference for health care outside their training institution, largely due to confidentiality concerns, and 90% preferred health insurance allowing off-site care. Students expressed varying levels of concern about academic jeopardy in association with personal illness, with physical health problems such as arthritis causing the least concern and alcohol and drug abuse triggering the most concern. Consistent differences were detected in these views based on respondent's gender, training level, and institution. Most medical students perceive the need for personal health care. Nevertheless, fear of academic reprisal may prevent medical students from seeking necessary care for their health problems during training. This phenomenon may be linked in important but poorly recognized ways to emerging illness and to impairment among medical students and physicians. Women, minority, and clinical students appear more sensitive to the connection between health and academic vulnerability. Constructive implications for medical school curricula, policies, and health care services are discussed.

Rospenda KM, Halpert J, Richman JA. Effects of social support on medical students' performances. Acad Med 1994; 69(6): 496-500.

Background: Stress among medical students has been linked to poor academic performance, while supportive social relationships have been associated with the alleviation of psychological stress. This study examines social support as a potential buffer against stress and hence as a potential strengthener of students' academic performances.

Methods: A cohort of 153 third-year students at the University of Illinois College of Medicine at Chicago was asked in the fall of 1990 to complete a questionnaire assessing role stress (stress involving competing demands between school and social and/or family life), social support, and sources of support (outside or inside medical school). Grades for the five major clerkships through which all the students rotated during their third year were collected from student transcripts. Statistical analyses of the relationships among academic performance, stress, and social support included factor analysis, hierarchical multiple-regression analysis, and Pearson correlation analysis.

Results: Data from 120 students (78% of the cohort) were used for correlation analysis. Of these students, 79 (66%) were men and 41 (34%) were women. Because eight of the questionnaires contained incomplete data, 112 questionnaires (73%) were used for multiple-regression analysis. No buffering effect was found for social support. Rather, social support from outside the medical school explained significant variance in academic performances and in role stress. Higher levels of outside support were associated with poorer clerkship grades for women, but with lower levels of stress for men. Also, total support (outside and inside combined) was negatively related to clerkship grades for the entire sample. CONCLUSION. The results suggest that contrary to the study's hypotheses, social support in general is related to lower levels of academic performance for both men and women, and that the negative effects of support from outside the medical school context may be particularly salient for women. These results are understandable given the nature of medical training, which places great demands on students' time. Therefore, it may be more appropriate for medical schools to promote time-management strategies than support-building interventions, especially for women.

Schreier A, Abramovitch H. American medical students in Israel: stress and coping. *Med Education 1996*; **30(6)**: 445-452.

Medical students studying abroad have to adapt to a new cultural environment in addition to the usual stresses of medical school. This study explored the perceived stress and coping ability of students of the New York State/American Programme, Sackler School of Medicine, Tel Aviv University, who study medicine in Israel but are expected to return to America to practice. Students were surveyed using the Ways of Coping Checklist (WCCL), Appraisal Dimension Scale (ADS) and two instruments specifically designed for the study. The results supported the view that students having difficulty adapting to their new cultural environment also have difficulty at medical school. This pattern is a negative spiral in which anxiety and depression impair cognitive performance, which leads to academic difficulties and emotional distress. Improvements in student social support and primary prevention were implemented as a result of the study. Limitations of the study are discussed.

Background: Medical students studying abroad face the double stress of adjusting to a new cultural environment while at the same time, coping with the usual stresses of medical school. In a previous article, we examined the perceived stress and coping of American medical students studying in Israel.

Aims: The current study was designed to follow up changes in made in response to the original study.

Participants: First year students, NY/American Program, Sackler School of Medicine, Tel Aviv University, Israel.

Methods: Ways of Coping Checklist (WCCL), Appraisal Dimension Scale (ADS) and two instruments specifically designed for the study.

Results: Students' coping with their adjustment to Israel was highly correlated to their adjustment to medical school. There was significant improvement in student mental health and student satisfaction and a corresponding reduction in dysfunctional defense mechanism and a previous pattern of heavy drinking.

Discussion: The results are discussed in terms of improvements in the student support system proposed at the time of the initial study as well as changes in the student body. Limitations and future directions for research are also discussed.

Shanafelt T, Bradley K, Wipf J, Back A. **Burnout and self-reported patient care in an Internal medicine residency program.** *Annals of Internal Medicine 2002;* **136(5):** 358-367.

Background: Burnout is a syndrome of depersonalization, emotional exhaustion, and a sense of low personal accomplishment. Little is known about burnout in residents or its relationship to patient care.

Objective: To determine the prevalence of burnout in medical residents and explore its relationship to self-reported patient care practices.

Design: Cross-sectional study using an anonymous mailed survey.

Setting: University-based residency program in Seattle, Washington.

Participants: 115 internal medicine residents.

Measurements: Burnout was measured by using the Maslach Burnout Inventory and was defined as scores in the high range for medical professionals on the depersonalization or emotional exhaustion subscales. Five questions developed for this study assessed self-reported patient care practices that suggested suboptimal care (for example, "I did not fully discuss treatment options or answer a patient's questions" or "I made...errors that were not due to a lack of knowledge or inexperience"). Depression and at-risk alcohol use were assessed by using validated screening questionnaires.

Results: Of 115 (76%) responding residents, 87 (76%) met the criteria for burnout. Compared with non-burned-out residents, burned-out residents were significantly more likely to self-report providing at least one type of suboptimal patient care at least monthly (53% vs. 21%; P = 0.004). In multivariate analyses, burnout--but not sex, depression, or at-risk alcohol use--was strongly associated with self-report of one or more suboptimal patient care practices at least monthly (odds ratio, 8.3 [95% CI, 2.6 to 26.5]). When each domain of burnout was evaluated separately, only a high score for depersonalization was associated with self-reported suboptimal patient care practices (in a dose-response relationship).

Conclusion: Burnout was common among resident physicians and was associated with selfreported suboptimal patient care practices.

Shapiro SL, Shapiro DE, and Schwartz GER. Stress management in medical education: A review of the literature. *Acad Med 2000;* 75: 748-759.

Purpose: To review systematically clinical studies providing empirical data on stress-management programs in medical training.

Method: The authors searched Medline and PSYCHINFO from 1966 to 1999. Studies were included if they evaluated stress-management programs for medical trainees (medical students, interns, or residents); reported empirical data; and had been conducted at allopathic medical schools.

Results: Although the search yielded over 600 articles discussing the importance of addressing the stress of medical education, only 24 studies reported intervention programs, and only six of those used rigorous scientific method. Results revealed that medical trainees participating in stress-management programs demonstrated (1) improved immunologic functioning, (2) decreases in depression and anxiety, (3) increased spirituality and empathy, (4) enhanced knowledge of alternative therapies for future referrals, (5) improved knowledge of the effects of stress, (6) greater use of positive coping skills, and (7) the ability to resolve role conflicts. Despite these promising results, the studies had many limitations.

Conclusion: The following considerations should be incorporated into future research: (1) rigorous study design, including randomization and control (comparison) groups, (2) measurement of moderator variables to determine which intervention works best for whom, (3) specificity of outcome measures, and (4) follow-up assessment, including effectiveness of future patient care.

Shaw DL, Wedding D, Zeldow P. Mental health and medicine. Love and Work; 165-179.

This chapter discusses various articles on well-being issues.

--"Let us emancipate the student, and give him time and opportunity for the cultivation of his mind, so that in his pupilage he shall not be a puppet in the hands of others, but rather a self-relying and reflecting being." –Sir William Osler

Medicine is a way of life, as well as a profession:

Desirable/Undesirable personality characteristics

-- Type A personality style: Competitiveness, hostility, time urgency, excessive devotion to work. (undesirable)

- a. Effect of medical school on personality.
- b. Medical marriages.
 - --Sources of marital conflict.
 - --Benefits of marriage.
- c. Career satisfaction of physicians.
 - --In 1994, a record number of 43,000 people applied to medical school.

The following topics are discussed:

- a. Specific stressors during the preclinical and clinical years.
- b. Reported stress by gender.
- c. Coping with transitions.

Psychological problems in medical students and physicians.

St. Claire L, Watkins CJ, Billinghurst B. **Differences in meanings of health: and exploratory study of general practitioners and their patients.** *Family Practice 1996;* **13(6):** *511-516.*

Objectives: Many health-related behaviours, particularly non-compliance with medical advice, seem irrational to professionals. 'Health' is a planned goal of health care but the extent to which doctors and patients agree about its meaning is unknown. We hypothesized that general practitioners (GPs) construe health as an absence of disease (medical model) to a greater extent than their patients in general and that asthmatic patients construe health in a manner biased to preserve their self-esteem.

Method: Forty-eight patients with asthma, 48 matched well patients and 34 GPs each gave up to six personal definitions of 'health'. Their definitions were classified into nine categories of meaning.

Results: Results showed significant differences in the ways in which general practitioners and patients defined 'health' (chi-squared between GPs and asthmatics was 98, df = 7, P < 0.0001; chi-squared between GPs and well patients was 85, df = 7, P < 0.0001). As hypothesized, the category of meaning used most by general practitioners was an absence of disease, whereas patients expressed the meaning of health in terms of 'being able', 'taking action' and 'physical well-being'. Support for the second hypothesis, although consistent, was weak.

Conclusions: The way in which differences in beliefs provide a basis for understanding apparently irrational patient behaviors is discussed in the context of social identity theory. Implications for doctor-patient communication and the psychological validity of subjective health status and quality of life measures are also noted.

Toews JA, Lockyer JM, Dobson DJ, Simpson E, Brownell AK, Brenneis F, MacPherson KM, Cohen GS. Analysis of stress levels among medical students, residents, and graduate students at four Canadian schools of medicine. *Acad Med 1997;* **72(11)**: 997-1002.

Purpose: To assess stress in medical students, residents, and graduate science students at four Canadian schools of medicine.

Method: Four schools with different curricula in three different parts of Canada participated in the study: the University of Calgary Faculty of Medicine, the University of Alberta Faculty of Medicine, the Dalhousie University Faculty of Medicine, and the McMaster University Faculty of Health Sciences. All the medical students, residents, and graduate science students at each school were surveyed in 1994-95. The three instruments used were the University of Calgary Stress Questionnaire, the Social Readjustment Rating Scale (SRRS), and the Symptom Checklist-90. Demographic data were compared across all four schools. Analysis of variance was calculated for all test-item scores, utilizing a four (school) by three (program) by two (gender) design, which were all between subject factors. Significant main effects were followed up by using planned comparisons (Newman-Keuls, with a probability level of p < .05). Significant interaction effects were followed up by using an analysis of simple effects.

Results: A total of 1,681 questionnaires were returned as follows: 621 of 1,304 (48%) from the medical students, 645 of 1,495 (43%) from the residents, and 415 of 829 (50%) from the graduate science students. There were significant differences between the three groups in the natures and degrees of stress, with the graduate students reporting higher levels of stress. There were significant gender differences as well, with the women reporting higher levels of stress. Overall, stress levels were found to be mild, based on the University of Calgary Stress Questionnaire and the SRRS. CONCLUSION: This study suggests that medical students and residents experience

stress at levels that appear acceptable, but ongoing monitoring and the provision of appropriate support systems will continue to be important.

Wallace P. Medical students, drugs and alcohol: time for medical schools to take the issue seriously. *Med Educ* 2000; **34:** 86-87.

Excessive alcohol consumption and the use of illicit substances give cause for concern not only because medical student themselves may suffer as a result, but also because of the potential impact on their effectiveness as tomorrow's doctors.

Doctors are recognized to be amongst the highest drinking professional groups.

Medical schools have dual responsibilities toward their students:

- a. To provide an environment in which medical students are encouraged to adopt responsible attitudes to the use of drugs and alcohol.
- *b.* Medical schools must ensure that they provide properly structured educational programmes on tobacco, alcohol, and other drug misuse.

Weir E. Substance abuse among physicians. CMAJ 2000; 162: 1730.

Epidemiology:

The general perception that rates of substance abuse among physicians than among the general public appears to be based more on folklore than on fact. According to studies:

- a. The prevalence of alcoholism and illicit drug use among physicians is likely similar to that in the general population, at about 9%.
- b. However, physicians may be at an increased risk for prescription drug abuse, particularly abuse involving opiates and benzodiapines.

--Addicted physicians find it difficult to seek help since this places their reputation, accreditation, and employment at risk.

Clinical Management:

A comprehensive treatment program for physicians involves:

- a. immediate intervention
- b. evaluation and triage at an appropriate facility
- c. uninterrupted therapy, usually in a residential setting
- d. family involvement
- e. appropriate reentry into practice with comprehensive case management, monitoring, advocacy, and a relapse contingency plan.

Relapse prevention:

The requirement for close follow-up is believed responsible for the high recovery rates of more than 80%.

Deans

Chapman JE. **Reflections on the medical deanship.** Acad Med 1998; **73(6):** 654-656.

In 35 years, being dean of a medical school has changed dramatically. Thirty years ago, the dean's world was still the medical school and its affiliated hospitals, but soon this world was transformed by new emphasis on research (and the resources to conduct it) and the increase of specialty

medicine. The medical school became larger and the affiliated hospital more complex. They consolidated into the modern academic medical center, which then became more diverse and selfcontained and eventually became an island of special expertise and achievement in medicine, the biomedical sciences, and clinical care. Fifteen years, ago, the academic medical center began to be transformed again, this time by its competition with or incorporation into managed care and other health care delivery systems. The medical school dean now operates in an environment far different from that of the 1960s. Deans spend 90% of their time on five major issues: too few resources, isolation and division of activity within the institution, poor management, excessive traditionalism, and too few people with too much to do. In addressing these issues, the dean has several powerful levers, including the appointment and promotion of faculty, appointments to committees and task forces, assignments of budget and space, and controlling the agenda and leading the debate in the institution. Another but less tangible issue is the dean's attitude. Another but less tangible issue is the dean's attitude, which has enormous impact on what happens at the medical school and in its programs. The deanship will continue but in the new context of a health care delivery system-with variations on the same five problems and with the same ten levers available to address them. The responsibility is old; only the context is new.

Daugherty RM. Leading among leaders: the dean in today's medical school. *Acad Med 1998;* 73(6): 649-653.

The magnitude and pace of change in the health care environment demand that medical schools change. Leading in a time of great change is difficult, and it is ironic that just when stability in leadership is most needed, the average tenure of deans is dropping. Indeed, the path to leadership in academic medicine is strewn with inherent ironies, paradoxes, and idiosyncrasies. For example, few people who become leaders in academic medicine aspire to, plan for, or seek training for leadership, yet leadership skills are essential to meet today's complex institutional demands. Also, most medical school deans were once medical students, and were selected and trained to be assertive, independent physicians, not to collaborate. For faculty, the medical school environment traditionally values individual autonomy and rewards individual achievement, not behavior that supports a larger community interest. Yet today's deans must be skilled at collaborative behavior, since they must have a vision for their schools and find ways to offer direction to the faculty and others to realize that vision. The author offers ideas about leadership and its development, and stresses that good leaders must above all curtail their egos in order to do what is best for their institutions. What a dean does as an individual is not nearly as important as what a dean enables others to do. The author also provides a checklist of dean's characteristics and responsibilities to help deans-to-be understand the job and current deans to think about how to succeed and thrive. He concluded by reiterating that the culture of individual faculty success based on individual entrepreneurism is passe. To operate in the new collaborative culture, today's successful dean must meld persuasion with educational statesmanship, always informed by a vision of how the school can prosper and serve.

Graber DR, Bellack JP, Musham C, O'Neil EH. Academic deans' views on curriculum content in medical schools. *Acad Med 1997;* 72(10): 901-907.

Purpose: To determine which of 33 topics academic deans identify as worthy of greater emphasis in medical curricula. Also, to assess the barriers to needed curricular changes.

Method: In March 1996 a questionnaire was developed and mailed to the academic deans of all U.S. schools affiliated with the Association of American Medical Colleges (n = 126) and all schools associated with the American Association of Colleges of Osteopathy (n = 17). There were 46 questions in a five-point Likert-type format (1 = not at all, 5 = to a great extent) and one open-

ended question. The deans were queried as to what extent each of 33 topics (1) was included in medical students' required learning experiences (current emphasis) and (2) should be included in medical students' required learning experiences (ideal emphasis). The deans were also asked to what extent they believed 12 different factors would be barriers to needed curriculum changes in their programs. Primary data analysis focused on simple comparisons of response means and frequencies.

Results: Two separate mailings resulted in the return of 100 questionnaires (70%): 85 from the allopathic schools (67%) and 15 from the osteopathic schools (88%). "Effective patient-provider relationships/communication," "outpatient/ambulatory care," and "health promotion/disease prevention" had the three highest mean ratings for ideal emphasis by the allopathic school deans. "Primary care," "professional values," and "use of electronic information systems" also had high mean rankings for ideal emphasis. "Primary care," "outpatient/ambulatory care," and "health promotion/disease prevention" had the three highest mean ratings for ideal emphasis by the allopathic school deans.

Conclusion: Changes in health care delivery and an increasing generalist orientation are influencing academic deans' perspectives on needed curriculum changes, and there appears to be considerable support for medical school curricula that will foster a broader, more humanistic role for physicians.

Yedidia MJ. Challenges to effective medical school leadership: perspectives of 22 current and former deans. *Acad Med 1998;* 73(6): 631-639.

A persistent decline in the average tenure of medical school deans and a concern about the implications for medical school leadership led the Council of Deans of the Association of American Medical Colleges to commission the 1996-1997 study reported here. The author conducted open-ended interviews with a broad spectrum of 22 current and former deans, selected to achieve an appropriate distribution with regard to key characteristics of their schools and to assure the relevance of the findings to a broad range of settings. His in-depth analysis of the transcribed interviews, using standard qualitative techniques, was designed to illuminate the challenges confronting deans and suggest strategies to address them. The respondents consistently identified two forces in the health care environment that had had profound impacts on their role as deans and that frequently posed conflicts between the clinical and educational enterprises: a decline in the resources available to medical schools following an era of abundance, and unprecedented competition in the clinical arena. Analysis of their accounts of the problems they encountered in managing in this changed environment revealed several underlying sources: imbalance between the breadth of their responsibilities and their authority to manage; lack of clarity in the dean's mandate; inadequate institutional support for pursuing the missions of the school; insufficient attention to identifying requisite expertise and abilities for effective performance on the job as dean; and an anachronistic search process. The respondents offered numerous recommendations for addressing these problems, reflecting optimism about the prospects for purposeful change. While medical schools have unique features among educational institutions, the author concludes that the challenges that deans' face and the strategies proposed for addressing them promise to have substantial relevance for academic leadership in other settings

Health Policy/Promotion

Boelen C. Adapting health care institutions and medical schools to societies' needs. *Acad Med* 1999; **74(8):** *S11-S20.*

Although societies and the priorities of stakeholders within them differ, four universal values regarding health care exist: quality, equity, relevance, and cost-effectiveness. The first two of these values can be viewed as poles of "the dream axis" and the second two as poles of "the reality axis." Medical schools and other stakeholders can pursue optimal patterns of health care most effectively through partnerships with one another. With regard to improving the health care system, medical school perceives the needs of society and reacts accordingly, and a socially accountable school also consults society about priorities and provides evidence of impact of its deeds. A grid for assessing the social accountability of medical schools has been developed. With this grid, a school's activities in education, research, and service are evaluated relative to the four universal values of quality, equity, relevance, and cost-effectiveness of health care; activities also are characterized as "planning," "doing," or "impacting." Assessment can promote greater social accountability of medical schools.

Bredfeldt RC, et.al. Influences upon reported health promotion by family physicians. *Family Practice Research Journal 1990;* **9(2):** 85-94.

Disease prevention and the promotion of healthy life-styles have received increasing attention over the past two decades. The purpose of this study was to determine the current level of health promotional activity as reported by family physicians. In addition, the study addressed various factors, which may influence the level of physician promotion of healthy life-styles. This was accomplished by means of a survey of 815 active members of the American Academy of Family Physicians. A total of 521 questionnaires were returned, providing a 64 percent response rate. The results of this survey indicate that the level of physical personal health activity tends to influence their reported professional promotion of healthy habits. In addition, residency faculty and physicians working form health maintenance organizations were significantly more likely to report offering a higher frequency of health promotional activity than physicians in private practice. Finally, age and family practice residency training appear to have no influence on self-reported physician health promotional activity.

Greenlick MR. Educating physicians for the twenty-first century. *Acad Med 1995;* **70(3)**: 179-185.

The author reviews the fundamental changes that have taken place in the U.S. health care system since 1935, predicts what that system will be like in the early part of the next century, and discusses the implications for academic medicine. Specifically, he maintains that physicians being trained today will practice within the context of large organizations, with payment for care being either by employment-based insurance or by some form of government-subsidized insurance. Care will be delivered across diffuse networks, and most physicians will be paid according to capitation or salary schemes. The role of technology will be high and will revolutionize the health care system, which will be focused on prevention and maintenance of function rather than cure. The success of the system will be measured by its cost-effectiveness and by how well it works to maintain the mental, social, and physical functions of its participants. Finally, the obligation of the physician will be not only to individual patients but also to the populations and communities from which patients come. Training physicians to meet these obligations and to function effectively in the revolutionized system will involve changes in medical education to more appropriately socialize students into the next century's medical culture. The author reviews in detail the various elements of the medical culture that must be addressed by medical education, gives examples of the kinds of changes that must be made, and describes efforts at his school to reinforce across the curriculum the population-based model of clinical practice.

Gunderman RB. Rethinking our basic concepts of health and disease. *Acad Med 1995;* 70(8): 676-683.

Medical students' concerns that their education is not preparing them to be the doctors they could be can be traced in part to inadequacies in the basic concepts of health and disease they are taught, which prevent them from learning how to most effectively meet the challenges and exigencies of patient care. The author proposes an alternative theoretical perspective on the biological foundations of medicine by describing two divergent models of health and disease. The first, reductive isolation represents the dominant theoretical approach to health and disease in contemporary medical education and practice. It emphasizes quantification and measurement and aims to peer beneath variability, subjectivity, and the infinite variety of patients' experiences to something universally definable, measurable, and objective. The second model, ascendant interrelation, takes as its starting point a special and prototypical property of the living organism, metabolism, in which the organism has an identity that transcends the material of which it is made, and in which such characteristics as form, wholeness, self-generation, and integration dominate. Medicine and the teaching of medicine must use both these models; the tools of reductive isolation are necessary but must be applied with a view to the larger and more complex reality of the patient as addressed by ascendant interrelation. Alone, reductive isolation does not offer an adequate perspective on the health of the whole human being, just as the well-functioning of the eye cannot be adequately explained without reference to seeing. In short, patients are more than their diseases; complex factors in their lives must not be overlooked as contributors to their illnesses or keys to healing.(ABSTRACT TRUNCATED AT 250 WORDS)

Jones KV, Hsu-Hage BH. Health promotion projects: skill and attitude learning for medical students. *Med Education 1999;* 33(8): 585-591.

Objectives: The aim of this health promotion project is to introduce students to appropriate skills and attitudes—as well as knowledge about health promotion strategies and methods. As part of this process, standardized procedures have been established to ensure that the projects are scientifically and ethically appropriate and adequately supervised. This project-centered course introduces the discipline of health promotion to third-year medical students at Monash University. It is aimed at introducing students to the range of health promotion concepts, providing them with experience of health promotion activities and involving them in consideration of the scientific, political and ethical issues arising from doctors' participation in health promotion.

Design: As the major learning and assessment component of the unit, students participate in selfselected project groups of three to five students. Each group develops a topic for a health promotion activity in the community, carries out that project and presents the results as a poster as well as a written report.

Setting: Monash University.

Subjects: Third-year medical students.

Results: Sixty percent of each student's mark for the unit is based on the project. The posters produced by the project groups are placed on public display in a major teaching hospital for a week at the end of the unit. Public display of the posters helps each student to appreciate the variety of possible health promotion activities, and to appreciate health promotion as a scientific discipline. It also makes the project findings available to the public.

Conclusions: Student evaluation of the project, and community response to the projects especially the poster display—indicate that the project is both a highly effective learning experience and a health-promoting activity in its own right.

McCurdy L, Goode LD, Inui TS, Daugherty RM, Wilson DE, Wallace AG, Weinstein BM, Copeland EM. Fulfilling the social contract between medical schools and the public. *Acad Med 1997*; **72(12)**: 1063-1070.

To gain a better understanding of the effects of medical schools related to transformations in medical practice, science, and public expectations, the AAMC established the Advisory Panel on the Mission and Organization of Medical Schools in 1994. Recognizing the privileges academic medicine enjoys as well as the power of and the strain on its special relationship with the American public, APMOMS formed the Working Group on Fulfilling the Social Contract. The group focused on the question: What are the roles and responsibilities involved in the social contract between medical schools and various interested communities and constituencies?

The group describes the historical and philosophical reasons supporting the concept of a social contract and asserts that medical schools have individual and collective social contacts with various subsets of the public, referred to as "stakeholders." Obligations derive implicitly from the generous public funding and other benefits medical schools receive. Schools' primary obligation is to improve the nation's health. Educating the next generation of physicians and biomedical scientists in a manner that instills appropriate professional attitudes, values, and skills carries out this obligation most directly.

Pomrehn, et.al. Table 4. Summary of population health educational objectives, medical school objectives project, Association of American Medical Colleges. *Acad Med 1999; 74: 130-141.*

Prior to graduation, a medical student should have demonstrated to the satisfaction of his or her faculty the following:

1. The ability to define and describe a population, its demography, cultural and socioeconomic constitution, circumstances of living, and health status; and to understand how to gather health information about this population.

2. The ability to read critically clinical studies and apply findings to health care decisions involving real patients and panels of patients.

3. An understanding of the implications of local systems of health care (organization, financing, and management) on delivering patient care to specific patients.

4. The ability to incorporate principles of disease prevention and behavioral change appropriate for specific populations of patients within a community.

5. The ability to function effectively as part of a health care team and not the sole deliverer of health care.

6. Respect for cultural and socioeconomic diversity, willingness to work through systems, willingness to work in collaboration with other members of the health care team, and willingness to accept at least partial responsibility for the health of populations.

Sabharwal R. Trends in medical school graduates' perceptions of instruction in populationbased medicine. *AAMC (Analysis In Brief) 2002; 2(1).*

Medical educators and public health experts have been calling on medical schools to enhance their teaching of population-based medicine for the greater part of the past decade. In June 1998,

the Association of American Medical Colleges (AAMC) emphasized the importance of integrating a population health perspective within medical school curricula with its publication of Report II of the Medical Schools Objectives Project (MSOP). The expert panel convened to produce MSOP II specified educational objectives that each medical student should demonstrate to the satisfaction of his or her faculty in relation to population-based medicine:

- The ability to define and describe a population, its demography, cultural and socioeconomic constitution, circumstances of living, and health status, accompanied by the ability to understand how to gather health information about a specific population;
- An understanding of the impact of local systems of health care (e.g., their organization, financing, and management) on delivering care to specific patients; and;
- The ability to incorporate principles of disease prevention and behavior change appropriate for specific populations of patients within a community.

The report also identified three principles that schools should uphold as they design educational activities. These principles are:

- teaching students the practical fundamentals of the core disciplines that underpin the effective application of population health,
- giving students experiences in studying real populations; and
- integrating such instruction and learning into all parts of the medical school curriculum.

Schroeder SA. Understanding health behavior and speaking out on the uninsured: two leadership opportunities. *Acad Med 1999;* **74(11):** 1163-1171.

The author reviews the growth of managed care and its transforming effect on academic medical centers. He then maintains that in this time of fundamental changes and stress, academic medical centers should not only attend to the organization and financing of the clinical enterprise and the enhancement of biomedical research capacity, but also ask how academic medicine can live up to the unique opportunities and responsibilities it has been entrusted with to improve the health of the public, particularly in two neglected areas. First, if the nation does not expand the research agenda to include social and behavioral factors involved in preventable causes of morbidity and mortality, it will fail to maximize the dividends from the generous public investment in research and fail to learn how to promote healthy behavior. Academic medicine can promote such behavior by increasing the science base of prevention and translating into action what is already know, including how to marker that knowledge so the public will respond.

Second, the number of the medically uninsured is increasing; the largest percentage is the working poor. It is becoming more difficult for teaching hospitals to continue providing a third of the nation's uncompensated care. The author shares a variety of statistics about the uninsured and their care, and maintains that academic medicine, which has been entrusted with the health of the public, can declare that the high number of the uninsured is not acceptable and is a dangerous side effect of the U.S. health care system that must be treated. Doing so will also set an example to medical students and trainees that medicine's responsibility is to all Americans.

Wolf TM, Randall HM, Faucett JM. A survey of health promotion programs in U.S. and Canadian medical schools. *Am J Health Promotion 1988; 3(1): 33-36.*

This article describes the health promotion/wellness questionnaire sent in 1986-87 by Louisiana State University Medical School (New Orleans) to all 143 medical schools in the United States

and Canada. The central purposes of the survey were the following: to determine how many schools offered health promotion programs (29), when the programs began (most of them recently), the emphasis of the programs (least emphasized, spiritual well-being; most emphasized, physical well-being), the components of the program (in order of priority, study skills, support groups, time management, aerobics, sports, and financial planning), the funding source (usually, the Office of Student Affairs), and whether the programs have an evaluation component (slightly more than half). Each of the respondents at schools with programs was interested in the creation of a network for the purpose of sharing information.

Wolf TM, HM Randall, & JM Faucett (1990). A health promotion program for medical students: Louisiana State University Medical Center. *Am J of Health Promotion;* **4(3):** 193-202.

At Louisiana State University Medical Center (New Orleans), students are encouraged by this health promotion program "to take responsibility for their own physical and psychological health and well-being, enabling them to cope better with the stressors of medical education and those of later clinical practice." The article describes the health promotion program of 1987-1988, which began with a full day of orientation (attendance voluntary), including a complete nutrition and lifestyle assessment through questionnaires. The students were given their results, and then a diverse program was tailored to the individual student, including information about aerobics, support groups, nutrition, time management, and progressive relaxation/meditation. Evaluation of the program is also discussed, and suggestions are offered to those wishing to set up health promotion programs at their schools.

Substance Abuse

Ackerman TF, Wall HP. A programme for treating chemically dependent medical students. *Med Educ 1994;* **28:** 40-46.

Suicide

The first American programme for chemically dependent medical students at the University of Tennessee, Memphis is described. The goals of the Aid for the Impaired Medical Student (AIMS) Program are to provide confidential treatment for chemically dependent medical students, to assure that recovering students are able to resume their education, and to protect patients and others from the harm that may be caused by impaired students. The AIMS Council, consisting of medical professionals and elected student representatives, administers the Program. The Council oversees the management of cases, including investigation of students who may be impaired, intervention when chemical dependency is suspected, diagnostic evaluation, treatment and aftercare, and post-recovery advocacy for students. The Program's experience includes 18 cases of suspected chemical dependency, with four self-referrals and 14 students referred by third parties. Eleven students have been diagnosed as chemically dependent and have completed treatment programmes. Nine have maintained recovery and eight have graduated. One student subsequently relapsed and committed suicide. Obstacles in programme implementation have involved absence of perceived need, the view that chemically dependent students should be dismissed from school, and reluctance of students to report classmates. Resources have included highly respected student representatives, a supportive administration, assistance of the impaired physicians programme, and medical insurance and professional courtesy to defray costs. Although the number treated has been modest, the AIMS Program is an important vehicle for training students regarding chemical dependency and their professional obligations toward impaired colleagues.

Hays LR, Cheever T, Patel P. Medical student suicide, 1989-1994. Am J Psychiatry 1996; 153: 553-555.

Method: Telephone interviews were conducted with a representative from each U.S. medical school, generally the dean of student affairs, to examine suicide rates for medical students. This article presents descriptive and tabular data that addresses medical student suicide from August 1989 through May 1994.

Sample: 101 out of 126 (80%) U.S. medical schools.

The results demonstrate a lower suicide rate than that found in previous studies and emphasize the need for standardized reporting methods.

However, of interest is that suicide ranked higher (2^{nd}) as a cause of death in the medical student population than in the U.S. population at large.

Since preventive action is possible, attention must be devoted to the emotional development of the physician, as well as the development of his or her medical skills.

Mangus RS, Hawkins CE, Miller MJ. **Tobacco and alcohol use among 1996 medical school graduates.** *JAMA* 1998; **280(13):** 1192-1195.

Method: The purpose of this study is to assess the prevalence of tobacco use and the patterns of alcohol consumption among 1996 graduating medical students using a cross-sectional survey.

Measures:

Questionnaire:

--Developed to assess social and health-related habits and experiences of 4th year medical students.

--Includes sections from the Disease Control and Prevention's Behavioral Risk Factor *Surveillance System Questionnaire:*

--Utilized on 8 US medical schools (4 public, 4 private) with response rates of 61% on public universities and 39% on private universities.

--Although the prevalence of tobacco consumption by physicians has declined over the past half century, the patterns of physician alcohol intake have remained stable or shown a slight increase. --The patterns of alcohol intake for this sample of medical students are similar to those for the age-related general population.

Tyssen R, Vaglum P, Gronvold NT, Ekeberg O. Suicidal ideation among medical students and young physicians: a nationwide and prospective study of prevalence and predictors. *J Affect Disord 2001;* **64(1):** 69-79.

Background: Despite an increased risk of suicide among physicians we lack studies on prevalence and predictors of suicidal ideation among medical students and young doctors.

Method: A prospective study of Norwegian medical students (n=522) re-examined after the first postgraduate year, comprising suicidal thoughts and attempts, perceived study stress, job stress, and personality.

Results: The previous year prevalence of suicidal thoughts was 14% at both points of time. The lifetime prevalence was 43%, while 8% had planned suicide, and 1.4% had attempted suicide. Suicidal ideation in medical school was predicted by lack of control, personality trait, single marital status, negative life events and mental distress (anxiety and depression). In the first postgraduate year, mental distress was the most important predictor, but before controlling for

this variable, job stress, vulnerability (neuroticism), single status, and less working hours were independent predictors. Prospectively, suicidal thoughts and vulnerability as student predicted postgraduate suicidal ideation.

Conclusions: The level of suicidal thoughts was high, but the level of attempts was low. Clinical implications: Preventive efforts should be directed both at the students' abilities to cope with stress and at mental health services for young doctors. LIMITATIONS OF STUDY: The lower response rate at follow-up (57%) may reduce external validity.

Wallace P. Medical students, drugs and alcohol: time for medical schools to take the issue seriously. *Med Educ 2000;* **34(2):** 86-87.

Weir E. Substance abuse among physicians. CMAJ 2000; 162: 1730.

Health/Emotional Impairment

Coombs RH, Perell K, Ruckh JM. **Primary prevention of emotional impairment among medical trainees.** *Acad Med 1990;* **65(9):** 576-581.

"This paper describes a seminar for premedical students aimed at preventing their later disillusionment and distress as medical trainees by fostering realistic expectations and emotional exploration." Relying on open-ended discussions among medical trainees, practitioners, and premedical students, the seminar experience enabled students to enhance their personal wellbeing and to become realistic about their expectations. The seminar was evaluated by its student participants and found to be very useful.

Pasnau RO, Stoessel P. Mental health service for medical students. Med Educ 1994; 28: 33-39.

Method: Assessment of psychological responses to stress of call duty for first and second year pediatric house officers using reliable and well-validated measures administered to 34 house officers who were on call, compared to 27 house officers who were not on call. Baseline Assessment of Psychosocial Adaptation:

- 1. State Trait Anxiety Inventory A-Trait Scale (STAI):
 - --20 item measure designed to assess the personality trait of anxiety.

--4 points from "almost never" to "almost always"

Beck Depression Inventory (BDI):

--21 item version, describing symptoms and attitudes, which are self-rated, rated from 0-3 in terms of intensity.

--Used to estimate general baseline levels of dysphoria.

--Designed to assess depressed mood in psychiatric and non-psychiatric populations. *It was not designed establish diagnosis of major depression*.

The Health Practices Health Care Inventory (HPHCI):

--40 item questionnaire to assess a variety of behaviors related to diet, hygiene, recklessness, exercise, and substance abuse.

--4 point scale from "never" to "most of the time."

The Multidimensional Scale of Perceived Social Support (MSPSS):

--12 item self-report measure of social support

--7 point scale

Primary Outcome Measures:

2. Profile of Mood State scale (POMS):

- --65 item adjective rating scale that assesses mood state
- --5 point scale
- --Sub-divides moods in six subscales:
 - Tension-anxiety Depression-dejection Anger-hostility Vigor-activity Fatigue-inertia Confusion-bewilderment
- 3. STAI A-State Scale:

--20 item questionnaire that assesses the subject's more immediate feelings of anxiety

--4 point continuum

4. Perceived Stress Scale (PSS):

--14 items which require the subject to rate the degree to which their life has been uncontrollable, unpredictable, and overloaded. --Scale 0-4

Overall, state anxiety levels were greater for the on-call house officers. Secondly, the assessment of the relationship of sleep deprivation to house staff's psychological reactions.

Roberts LW, Warner TD, Lyketsos C, Frank E, Ganzini L, Carter D. Perceptions of academic vulnerability associated with personal illness: A study of 1,027 students at nine medical schools. *Compr Psychiatry 2001;* **42(1):** 1-15.

About one quarter of the more than 69,000 medical students in this country suffer symptoms of mental illness, including 7% to 18% with substance use disorders. Subjective distress and physical health needs of medical students are also common and have been linked to training stresses. This first large-scale study of medical student health care examined students' physical and mental health concerns and their perceptions of academic vulnerability associated with personal illness. A 7-page, confidential written survey was given to 1,964 students at nine US medical schools in 1996 and 1997. A total of 1,027 students participated (52% response rate). Nearly all (90%) reported needing care for various health concerns, including 47% having at least one mental health or substance-related health issue. A majority of students expressed a preference for health care outside their training institution, largely due to confidentiality concerns, and 90% preferred health insurance allowing off-site care. Students expressed varying levels of concern about academic jeopardy in association with personal illness, with physical health problems such as arthritis causing the least concern and alcohol and drug abuse triggering the most concern. Consistent differences were detected in these views based on respondent's gender, training level, and institution. Most medical students perceive the need for personal health care. Nevertheless, fear of academic reprisal may prevent medical students from seeking necessary care for their health problems during training. This phenomenon may be linked in important but poorly recognized ways to emerging illness and to impairment among medical students and physicians. Women, minority, and clinical students appear more sensitive to the connection between health and academic vulnerability. Constructive implications for medical school curricula, policies, and health care services are discussed.