

Policy approach to nutrition and physical activity education in health care professional training^{1–4}

Matthew D Levy, Lisel Loy, and Laura Y Zatz

ABSTRACT

Nutrition and physical activity are key risk factors for a host of today's most prevalent and costly chronic conditions, such as obesity and diabetes; yet, health care providers are not adequately trained to educate patients on the components of a healthy lifestyle. The purpose of this article is to underscore the need for improved nutrition and physical activity training among health care professionals and to explore opportunities for how policy can help support a shift in training. We first identify key barriers to sufficient training in nutrition and physical activity. Then, we provide an overview of how recent changes in the government and institutional policy environment are supporting a shift toward prevention in our health care system and creating an even greater need for improved training of health care professionals in nutrition and physical activity. Last, we outline recommendations for additional policy changes that could drive enhanced training for health care professionals and recommend future directions in research.

Am J Clin Nutr 2014;99(suppl):1194S–201S.

INTRODUCTION

In a 2012 study, the cost of medical care for obesity-related illnesses was estimated at \$190 billion annually (1). This number is more than twice the amount of the recent government sequester (\$85 billion), yet we have done little to tackle this growing problem. Indeed, approximately three-quarters of the \$2.7 trillion in annual health care spending in the United States is for chronic diseases (2), and a 2002 study found that obese individuals had a 67% higher chance of suffering from conditions such as diabetes compared with similar normal-weight individuals (3). With nearly 1 in 5 children under the age of 6 y considered either overweight or obese, this problem is not going away without individual and collective action from all sectors, including health care professionals (4). We need our health care professionals on the front line, helping to educate patients on the components of a healthy lifestyle. Currently, however, most health care professionals are not equipped to play that role.

In 1998, the NIH released the first federal obesity clinical guidelines, which underscored the importance of the physician's role and recommended that health care professionals discuss weight control with their obese patients (5). The most recent clinical guidelines from the American Heart Association, the American College of Cardiology, and the Obesity Society continue to recommend that physicians counsel overweight and obese patients on the health risks associated with excess weight and the benefits of lifestyle changes; the treatment algorithm also instructs physicians to determine appropriate weight-loss

goals for patients, assess patient readiness to change, and prescribe additional lifestyle interventions as needed, including calorie-restricted diets and intensive counseling (6). As the Bipartisan Policy Center noted in a recent report, “[p]rofessionals throughout the healthcare system are uniquely positioned to inform and motivate Americans on the subject of nutrition and physical activity. Americans see medical professionals...as a trusted source of information.” (7) Several studies have shown that physician counseling on weight loss increases the likelihood that patients will attempt weight loss (8), increase physical activity (9, 10), improve diet (11), and lose weight (12).

Despite these guidelines and research, our current system of longitudinal training, education, and reimbursement is not currently aligned to ensure that health care professionals have the incentive and expertise to deliver messages with a consistent effect on outcomes related to weight, nutrition, and physical activity. Their knowledge of nutrition and physical activity guidelines, their understanding of how to deliver the messages (eg, motivational interviewing), and their familiarity with complementary health care and community resources for patients are inconsistent (7). The consensus among medical organizations and experts is that nutrition and physical activity education at all levels of health training (undergraduate, postgraduate, fellowship, licensing, and continuing education) is uneven at best and often inadequate. The most recent survey of accredited medical schools showed that most curricula fall short of the 1985 National Academy of Science recommendation of at least 25 h of nutrition education. On average, medical schools included only 19.6 h of nutrition instruction, and 30 schools provided <13 h of instruction (13). Many medical school students and practicing physicians feel ill-equipped to address obesity with patients and believe additional training is needed (14–17). As noted in a 2010

¹ From the Division of Community Pediatrics, Department of Pediatrics, Medstar Georgetown University Hospital, Washington, DC (MDL), and the Bipartisan Policy Center, Washington, DC (LL and LYZ).

² Presented at the conference “Nutrition Education in Training Medical and Other Health Care Professionals,” held in Bethesda, MD, 10–11 September 2012.

³ Funding for the conference and the costs of the supplement was provided by the NIH; the National Heart, Lung, and Blood Institute; and the ASN. No specific grant was provided.

⁴ Address correspondence to MD Levy, 2 PHC, Medstar Georgetown University Hospital, 3800 Reservoir Road, NW, Washington, DC 20007. E-mail: mdl2@gunet.georgetown.edu.

First published online March 19, 2014; doi: 10.3945/ajcn.113.073544.

Lancet Commission report, “Professional education has not kept pace with [the health care delivery challenges] largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates” (18).

Work focused on this view that the health profession can and should act to shift attention from acute care to prevention is not new (19). There have been attempts to engage the medical community in changing the paradigm; for example, the Nutrition Academic Awards, which were designed to engage the health profession, medical schools in particular, in better nutrition education. Although this was successful in funded locations, it did not spur the medical community at large to act. Several reasons could account for this, but a key contributor is likely the lack of sufficient external incentives to support systemic change. As the Bipartisan Policy Center observed, the behavioral drivers of change, such as current reimbursement policies and board certification, do not provide sufficient motivation to change training more broadly (7).

The purpose of this article is to underscore the need for improved nutrition and physical activity training among health care professionals and to explore opportunities for policy changes that can help support a more systemic shift in training. Although the article focuses on physician training, the need applies more broadly to the training of other health providers as well, including nurses, physician assistants, pharmacists, and others; that discussion is beyond the scope of this analysis. We first identify key barriers to sufficient training for physicians in nutrition and physical activity. Then, we provide an overview of how recent changes in the government and institutional policy environment are supporting a shift toward prevention in our health care system and creating an even greater need for improved training of health care professionals in nutrition and physical activity. We then describe a few indications of early, limited shifts in physician training. Last, we outline recommendations for additional policy changes that could drive enhanced training for health care professionals and recommend future directions in research. This article is intended as a supplement to the article by Kris-Etherton et al, published elsewhere in this supplement issue, which evaluates the present status of nutrition and physical activity education and training for health care professionals.

BARRIERS TO NUTRITION AND PHYSICAL ACTIVITY EDUCATION AND TRAINING

It is well known that the medical school curriculum is crowded with requirements, and making space and time for new or different material, including nutrition and physical activity education, is challenging. There are several identifiable barriers to incorporating more nutrition and physical activity education throughout the training continuum. First, there have been a limited number of champions advocating for such changes in health care professional schools (20). Within a landscape of ever-crowded curricula, a passionate dean or professor is often essential to protecting or expanding nutrition and physical activity offerings, but the presence and engagement of such champions vary widely among schools.

Second, although there are >13 fellowship training programs and board certifications from organizations such as the American Board of Physician Nutrition Specialists and the American Board of Obesity Medicine, these are not accredited by the

American Board of Medical Specialties (ABMS)⁵. Because the ABMS is the principal certification body for the profession, it drives most subspecialty training; without an accredited subspecialty, medical professionals may be less likely to seek advanced training in these areas (21, 22).

Third, because nutrition has limited penetration into the curriculum of medical schools, well below the 25-h minimum recommended by the National Academy of Science in 1985 (23) or the 37–44 h recommended by the American Society of Clinical Nutrition in 1989 (now the ASN) (24), there is limited incentive to expand the testing of nutrition on the US Medical Licensing Examination beyond those questions added in step 1 as part of a review by Liaison Committee on Medical Education and the National Heart, Lung, and Blood Institute during the Nutrition Academic Award. If this content is not being tested on examinations, medical schools have less incentive to teach this material and students have less incentive to demand greater instruction, perhaps at the expense of other topics.

Fourth, within the clinical setting, because there is limited reimbursement for nutrition counseling as a separate visit, nutrition counseling often must compete for time within a single visit attempting to deal with multiple complicated issues related to chronic disease management. This seems counterintuitive because of the significant contribution of nutrition and physical activity to the prevention of chronic disease.

Last, physicians often do not sufficiently coordinate with other health care professionals such as nutritionists, and there is disagreement over the appropriate role of various providers in delivering such information. In fact, the 2010 *Lancet* report observed that “Laudable efforts to address these deficiencies have mostly floundered, partly because of the so-called tribalism of the professions” (18).

SHIFTS IN THE POLICY LANDSCAPE

Despite these barriers, over the past several years, action from multiple sectors has begun to force the health care profession to rethink its strategies in nutrition and physical activity education, training, and practice. Public policy and institutional practices are shifting toward an increased emphasis on primary prevention, creating a greater need for health care professionals who are trained to deliver effective counseling and care to patients. Some would suggest that the fight against the obesity epidemic is beginning to develop into what could be considered a public health social movement with the confluence of an increased knowledge base from the provider, public health, and policy community; the development of a social strategy involving multiple stakeholders and venues; and greater political will to drive change (25, 26). Whatever its characterization, the multifactorial roots of this epidemic demand an intervention strategy that includes all sectors related to the health of our nation. The following section outlines select examples of policy changes from federal and state government, health insurers, and nonprofits to increase the emphasis

⁵Abbreviations used: AAP, American Academy of Pediatrics; ABMS, American Board of Medical Specialties; ACA, Patient Protection and Affordable Care Act; CHNA, Community Health Needs Assessment; HITECH, Health Information Technology for Economic and Clinical Health.

on prevention and drive greater emphasis on improved health care professional training to support this effort.

Federal and state policies

As discussed above, although there are multiple stakeholders critical to driving change, the federal government, as the largest health care payer through Medicaid, Medicare, and TRICARE, has been critical to this movement. There are at least 2 recent laws that will profoundly influence the incentives of providers to increase their knowledge and training to provide additional nutritional counseling to their patients: the Patient Protection and Affordable Care Act of 2010 (ACA) and the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.

ACA

The ACA reaches into all sectors of health care, and although an exhaustive discussion of its effects is beyond the scope of this piece, several provisions in the law will have a significant influence on provider engagement in the obesity epidemic. In particular, under section 1115A of the Social Security Act (as added by section 3021 of the ACA), Congress created the Center for Medicare and Medicaid Innovation for the purpose of testing “innovative payment and service delivery models to reduce program expenditures ... while preserving or enhancing the quality of care” for those individuals who receive Medicare, Medicaid, or Children’s Health Insurance Program benefits (27). Areas that fall under the Center for Medicare and Medicaid Innovation are as follows: Accountable Care Organizations, bundled payments for care improvement, initiatives focused on the Medicaid and Children’s Health Insurance Program population including the prevention of chronic disease, initiatives to speed the adoption of best practices, and others (28). Although not all of these programs are directed toward obesity, all are directed toward improved care models focused on the triple aim: better health care for individuals, better population health, and lower costs (29). Because the principal drivers of chronic disease, increased cost, and poor population health are nutrition, physical activity, and smoking behaviors, many of the areas under the direction of the Center for Medicare and Medicaid Innovation are closely related to the obesity epidemic. One example of a directly funded initiative is the Medicaid Incentives for the Prevention of Chronic Diseases model. State initiatives “must address one or more of the following prevention goals: tobacco cessation, controlling or reducing weight, lowering cholesterol, lowering blood pressure, and avoiding the onset of diabetes or in the case of a diabetic, improving the management of the condition” (28). At least 6 states have programs related to obesity and the associated chronic illnesses of diabetes and hypertension (28).

Other parts of the ACA, titles IV and V in particular, may have a profound influence on changing the paradigm in medical education toward primary care and the prevention of chronic disease. Title IV, “Prevention of Chronic Disease and Improving Public Health,” serves to elevate the prominence of prevention in health care and link health care to public health. It is designed to direct “the creation of a national prevention and health promotion strategy that incorporates the most effective and achievable methods to improve the health status of Americans and reduce the incidence of preventable illness and disability in the United States. The Act empowers families by giving them

tools to find the best science-based nutrition information, and it makes prevention and screenings a priority...” (27). Title IV includes the Prevention and Public Health Fund, a new interagency federal council to set national prevention and health promotion strategies, calorie labeling on chain restaurant menus, and many Medicare and Medicaid funding strategies to focus on prevention and the adoption of healthier lifestyles. Title V, “Health Care Workforce,” directly affects our future providers by supporting the expansion and upgrade of the US health care workforce to better meet the needs of the US population, especially in the primary care sector. With the new emphasis on expanding the primary care workforce, we have the opportunity to reshape training to more effectively meet the growing burden of diet-related chronic disease.

Another ACA provision may encourage hospitals to use their community benefit spending to expand their chronic disease prevention and treatment efforts. To retain its not-for-profit 501 (c)(3) status, a hospital must ensure that this community benefit spending is responsive to the needs of the community it serves. To this end, the ACA requires hospitals to conduct a Community Health Needs Assessment (CHNA) at least every 3 y and to adopt an “implementation strategy” that addresses the prioritized needs identified in the assessment (30). The CHNA must include “input from people who represent the broad interests of the community served by the hospital facility, including those with special knowledge of or expertise in public health” (27). Given the high prevalence of obesity and related chronic diseases across the United States, it is not surprising that many CHNAs have identified obesity and related chronic diseases as key priorities. For example, the Cleveland Clinic, the North Carolina Baptist Hospital, and Seattle Children’s Hospital are a few examples of those nonprofit hospitals that plan to address obesity through their community benefit spending (31–33).

Last, the ACA created new financial incentives for providers to deliver nutrition education to patients, in the form of a new Medicare wellness benefit. In a 1999 study, less than half of obese persons who had visited a physician in the past year for a routine checkup reported receiving advice to lose weight (8). With this new Medicare benefit, there is reason to hope this number will increase among eligible Medicare beneficiaries, who can now receive free obesity screening and counseling by primary care providers in settings such as physicians’ offices. For a beneficiary who screens positive for obesity [with a BMI (in kg/m^2) ≥ 30], the benefit includes one face-to-face counseling visit each week for 1 mo and one face-to-face counseling visit every other week for 5 additional months. The beneficiary may receive one face-to-face counseling visit every month for an additional 6 mo (for a total of 12 mo of counseling) if he or she has achieved a weight reduction of at least 6.6 pounds (or 3 kg) during the first 6 mo of counseling (34).

Although this new Medicare reimbursement is an important step toward increasing the number of providers who conduct more comprehensive obesity counseling sessions with their patients, many providers seem to lack the knowledge, skills, and confidence to effectively counsel their patients on these issues. A 2012 study from Bleich et al (35) found that although “PCPs [primary care providers] who completed medical school more recently reported feeling more successful helping obese patients lose weight, these successful providers are still a minority... [and] ... Regardless of when PCPs completed medical school, they overwhelmingly supported additional training and practice-

based changes to help them improve their obesity care.” Other studies support this notion that many providers feel ill-equipped to give patients effective advice (36, 37).

HITECH Act of 2009

The second piece of relevant federal legislation, the HITECH Act of 2009, is responsible for the implementation of Meaningful Use standards in health information technology. By developing a defined set of measures, Medicare and Medicaid are incentivizing providers to adopt a certified electronic record to capture data that can assist providers in improving care delivery and health. Several of these measures—weight assessment and counseling for children and adolescents, including BMI, and adult weight screening and follow-up—are directly related to obesity (38). By mandating these process and outcomes measurements as part of a pay-for-performance system, Centers for Medicare and Medicaid Services has created financial incentives for behavior change and potential innovation points in care delivery and training. In theory, these measures will encourage more health care providers to address nutrition and physical activity issues with their patients and create even greater support for provider training on these topics; as noted above, however, most providers “generally feel unprepared to care for obese patients” or discuss these issues in a clinical setting (35). It is important to ensure that process measures, in particular, are fulfilled in a meaningful way that positively affects patient outcomes, rather than just “checking the box.” Although these measures are based on current standards of care, expert consensus, and the best evidence-based practice, the measures are evolving as new practice guidelines are developed. More research is needed to identify the most effective strategies for carrying out these processes and improving patient outcomes.

States

State governments are also looking for innovative ways to cut health care costs while keeping their populations healthy, particularly among state employees and Medicaid beneficiaries. Many have experimented with creative solutions to address obesity and chronic disease. One approach is to expand access to and better integrate clinical and community-based preventive care. Before the ACA, Vermont, under the leadership of Governor Jim Douglas, developed the Vermont Blueprint for Health, which was launched to address the increasing cost of care associated with chronic illness by “promoting health maintenance, prevention, and care coordination and management” (39). Vermont received a Medicaid waiver to use a portion of Medicaid dollars for preventive care, including new benefits such as the Chronic Care Management Program and reimbursement incentives to improve chronic care management. Early results are promising (40). Other states have experimented with other programs and policies to address chronic disease, and with funding from the federal government as outlined above, many now have more resources to try new innovative ideas.

Insurers, public-private partnerships, and nonprofits

The private sector, including the insurance industry, has also taken up the clarion call in looking for ways to curb costs and keep their covered lives healthier. For example, UnitedHealth

Group and the Young Men’s Christian Association collaborated with the CDC around diabetes prevention in overweight or obese patients. As an alternative strategy to traditional provider reimbursement, the UnitedHealth Group developed a model to pay the Young Men’s Christian Association’s lay health educators on the basis of outcomes measures. This program has shown promise in reducing diabetes risk in prediabetics (41). Launched in 2009, the Alliance for a Healthier Generation developed a different reimbursement initiative, the Healthier Generation Benefit, in which participating insurers and employers agree to cover 4 annual visits to a primary care provider and 4 annual visits to a registered dietitian for children ages 3 to 18 y. Currently, 56,000 providers are in networks that offer the benefit. One key challenge, however, has been finding providers adequately trained to provide the services (7, 42).

Another important public-private initiative is the Million Hearts Campaign. This program, launched in 2011 by the Department of Health and Human Services, the American Heart Association, and other key partners, aims to prevent 1 million heart attacks and strokes over 5 y. Currently, cardiovascular disease costs Americans \$313 billion every year in medical costs and lost productivity (43). The goals of the Million Hearts Campaign are as follows: 1) to empower Americans to make healthy choices such as preventing tobacco use and reducing sodium and *trans* fat consumption and 2) to improve care for people who need treatment by encouraging a targeted focus on the “ABCS” (Aspirin for people at risk, Blood pressure control, Cholesterol management and Smoking cessation), which address the major risk factors for cardiovascular disease and can help to prevent heart attacks and strokes. This tangible evidence-based prevention campaign serves as a coordinated population-focused driver of change. It is also an excellent educational opportunity for providers to link individual health, population health, and cost reduction in an outcomes-driven strategy (44).

Nonprofit organizations, including philanthropies and think tanks, have also recognized the potential cost savings and health improvements from reducing the burden of diet-related disease and have turned their attention and resources to this growing epidemic; Trust for America’s Health, The Robert Wood Johnson Foundation, the Partnership for a Healthier America, the Pew Charitable Trusts, the Nemours Foundation, and others have been instrumental in raising awareness and bringing thought leaders together, many of whom are from the health care professional community (45).

EARLY SHIFTS IN PROVIDER TRAINING

Although other sectors have put resources and energy toward addressing this crisis, the health profession as a whole (including physicians, nurses, pharmacists, dentists, and others) has taken limited steps to address this epidemic through educational programming for students, residents, and licensed providers. In 2007, the Association of American Medical Colleges published its overweight and obesity education recommendations in its Medical School Objectives Project designed to address their conclusion that “future physicians must be better informed about the science of weight regulation and be prepared to work effectively with increasing populations of overweight and obese patients to decrease their health risks. Equally important, they must understand their roles in working with all patients to help

prevent unhealthy weight gain” (46). The American Medical Association has developed its own “Weigh What Matters” program and in a recent report stated “the universal importance of weight management, including prevention of overweight and obesity, should be emphasized in medical school curriculum” (47). These are positive steps toward acknowledgment of the current training gap and the importance of obesity training, but they now need to be translated into action and incorporated into medical school curricula.

Some medical schools have responded by adding required or elective courses and clinical training and self-assessment opportunities. The Boston University School of Medicine, the Feinberg School of Medicine at Northwestern University, and the University of Colorado–Denver are a few examples (48–50). In newly established medical schools, “basic changes in the academic structure of medical education are emerging as the new schools forego developing separate basic science departments and the full array of clinical departments present in most existing schools” (51). The University of South Carolina School of Medicine–Greenville is one example of a new medical school that is building a curriculum that “is an integrated blend of interactive experiences from classroom to bedside that are designed to foster and enhance the acquisition of essential knowledge, communication, diagnostic and problem solving skills, and lead to application, critical thinking and patient care” (52). Online modules such as the University of North Carolina’s Nutrition in Medicine program are also being used to varying degrees in many medical schools and some residency programs across the country. Recently, this curriculum showed a short-term effect that “improved the skills of OBGYN [obstetrics/gynecology] residents” in nutrition counseling (53).

For residents and practicing physicians, the American Academy of Family Physicians has created its own Recommended Curriculum Guidelines for Family Medicine Residents (54) and the American Academy of Pediatrics (AAP) has created an Institute for Healthy Childhood Weight to provide “pediatricians, families and communities with evidence based resources to help prevent and treat childhood obesity” (55). These initiatives acknowledge the importance of obesity education for providers; but, to date, there are few documented data with regard to uptake among practicing physicians. Effective, broad-scale implementation of these guidelines and use of these resources to shift both physician knowledge base and practice will likely require shifts in existing incentives.

With the recent vote by the American Medical Association’s House of Delegates to change the classification of obesity from a disorder to a disease (56, 57), there is an underlying recognition that obesity is a complicated issue that requires urgent attention. Although the measure typically used to define obesity, BMI, is not an absolute indication of this new disease, recognizing obesity as a disease serves to highlight its critical nature so that we can truly begin to focus resources, research, and energy into solving one of our nation’s most pressing issues.

RECOMMENDATIONS FOR THE PROVIDER COMMUNITY

Although addressing the obesity epidemic requires a multi-pronged approach, the health provider community, which includes physicians, nurse practitioners, nurses, dietitians,

pharmacists, dentists, and others, has the opportunity to play a major role in inspiring and implementing change within their training and approach to patient care. Although this article focuses on medical education, other health professionals face similar challenges and opportunities with respect to nutrition and physical activity. Highlighted here are 3 recommendations that can improve training and, consequently, the ability to prevent, diagnose, counsel, treat, and refer patients with respect to nutrition- and physical activity–related health concerns.

- 1) The provider community and those that influence its training, including deans, educators, and administrators, must use the existing knowledge base to realign the education and training of health care professional students and residents by looking at outcomes-driven education and develop effective longitudinal educational interprofessional strategies that align individual health with population health (18). Efforts should include medical, nursing, dental, pharmacy, and other health care professional training programs.
- 2) To ensure the continued existence of a growing body of experts to better understand, research, and train all health care professionals in the nutrition and physical activity needs of our growing population, we need to develop standard fellowship training programs in nutrition and physical activity as related to both prevention and chronic disease management. These fellowships should be specialty-specific and eligible for ABMS and other parallel certifications. For example, we could revisit the establishment of clinical nutrition as a new medical board or subboard. The American Board of Nutrition sought to do this in the 1990s; however, the ABMS and the American Board of Internal Medicine declined the petition in a close vote. “The petition was declined on a very narrow vote because of 2 principal deficiencies: the number of candidates taking the ABN [American Board of Nutrition] examination each year was too small (in the range of 15–30 compared with a general ABMS minimum of 200) and clinical nutrition fellowship programs were not sufficiently standardized” (58). Given the increasing interest in the field and greater patient need, it seems worth reconsidering this issue.
- 3) Finally, there is an important opportunity to better align multiple areas of provider incentives, such as reimbursement, credentialing, licensure, periodicity schedules, and others, with the desired outcomes of better individual and population health and lower health care costs. The growing pressure on providers to achieve better patient outcomes through the implementation of value-based purchasing, meaningful use, and pay-for-performance programs will support such a shift. As outlined above, we are beginning to see other sectors support the shift toward prevention. However, there are also existing platforms in our medical system, which, if enhanced, could have a significant impact on provider behavior.

The AAP Bright Futures “Periodicity Schedule” is one example that was created to support physicians in providing evidence-based care in pediatrics. With small additional changes, it could yield significant results. Developed through evidence-based collaboration spearheaded by the AAP, the Bright Futures Periodicity Schedule is the definitive standard of pediatric well–

child and preventive care. As of 23 September 2010, the ACA required that all nongrandfathered health insurance plans cover pediatric well-child visits, including a physical examination, immunizations, hearing and vision screenings, developmental and behavioral screenings, and anticipatory guidance, in accordance with the Bright Futures Periodicity Schedule, without cost-sharing (59). Unfortunately, although the Periodicity Schedule has components of a nutritional assessment such as BMI and dyslipidemia screening, there is no explicit area designated as nutrition and physical activity assessments on the schedule. Currently, nutrition is part of anticipatory guidance, the counseling that pediatric providers offer during the visit, and most pediatric providers do engage in nutrition and physical activity anticipatory guidance with their patients to varying degrees. However, because of the inconsistency in nutrition and physical activity education in both medical and residency education, there is great variability in the quality of counseling provided to patients. Pediatric providers are expected to address nutrition with patients but are not given sufficient training or incentives to do so effectively.

Because both the ACA and most state Medicaid programs follow this schedule for required elements of a well-child examination, a small change to this schedule could yield big dividends in the form of reimbursement for nutritional assessments for providers. This, in turn, could drive demand for better nutrition education and expanded research into best practices. We have already begun to see this with the requirements and reimbursement for Developmental and Autism Screenings under the "Development and Behavioral Assessments" section of the schedule. Moving forward, the extensive information published in the Bright Futures Nutrition book can be used as a starting guide, but more research is needed (60). Ultimately, this small change could lead providers to engage in better counseling and ultimately better patient health.

Without a doubt, the provider community can accelerate changes in their own training by working collaboratively with other sector stakeholders, including federal and state government, insurers, nonprofits, and public health advocates, to influence and advocate for certification organizations, payers, licensing boards, and continuing medical education systems to realign their requirements to reflect the demands of 21st century health challenges.

FUTURE DIRECTIONS FOR RESEARCH

Although there is a growing body of research that has begun to examine obesity counseling, prevention, and treatment strategies in medicine, more research is needed to assess the impact of existing programs on provider behavior and to better understand the most effective strategies and tools to manage diet- and physical activity-related health.

For example, a large 2010 systematic literature review conducted for the US Preventive Services Task Force found that "Medium [31–360 min of contact] to high intensity [>360 min of contact] dietary behavioral counseling, with or without physical activity counseling, resulted in small but statistically significant improvement in adiposity, blood pressure, and cholesterol level, as well as moderate to large changes in self-reported dietary and physical activity behaviors." Low-intensity counseling (<30 min of contact) had mixed results, but the report suggested that it had a moderate effect on an increase in fruit and vegetable intake and a decrease in fat intake. The report concluded, how-

ever, that "more trials [were] needed to evaluate low-intensity counseling interventions that could be more readily implemented in primary care or medium-intensity interventions that could be referred to from primary care" (61).

Future research should also examine how interprofessional training (working across sectors in a team-based approach) can be incorporated to improve patient outcomes in these areas (62), including better understanding of which components of obesity care would be best addressed by various health professionals (eg, primary care providers compared with nutritionists) or even lay health coaches. Studies show that physician counseling alone yields less weight loss than interventions combined with supplementary education and follow-up from nurses, physician assistants, nutritionists, or trained lifestyle coaches. This is likely attributable to much shorter exposure with physician counseling compared with auxiliary counselors (12, 63). Other clinic- and community-based education and support are important complements to physicians' advice.

CONCLUSIONS

There is broad recognition of the urgent need to address our costly chronic disease epidemic, but there is disagreement over exactly how to do so. As our understanding of how to treat obesity evolves, however, it becomes clearer that all sectors will need to play a role and that health care providers must be better equipped with the knowledge and expertise to be effective partners in health. Improved education and training will enable providers to better inform and motivate patients around nutrition and physical activity behaviors, refer them to ancillary health services (eg, nutritionists, dietitians), and connect them to community-based resources to support desired behavioral changes. This article begins to highlight some examples of policy attempts to create an environment more conducive to addressing obesity in health care and to identify some recommendations to accelerate progress in improving provider training.

It is clear that the time is ripe for change in how the provider community learns about and addresses nutrition and physical activity with patients. Although federal and state governments, health insurers, nonprofits, and the health profession recognize the complex nature of the obesity crisis and its significance to individual patients, our population as a whole, and the competitiveness and success of our nation, our effectiveness in addressing nutrition and physical activity in the health profession has not yet risen to the level that this epidemic requires. In addition, the behavioral drivers that support the health profession in addressing these issues fall far short of what is needed to move the needle sufficiently. Health care professionals should demand improved education and training in nutrition and physical activity and the reshaping of our training institutions to provide needed knowledge, skills, and competencies. We must also better align incentives to support the attainment and practice of these competencies. Health care providers alone cannot turn the tide on this epidemic, but they are uniquely situated to have a significant impact on patient motivation and outcomes. Combined with a supportive physical and social environment, obesity counseling can lead patients to improve their diet and increase their physical activity. The health care profession must seize on this moment to play its part in reversing this growing crisis.

The authors' responsibilities were as follows—MDL, LL, and LYZ: wrote the manuscript; and MDL: had primary responsibility for final content. All authors read and approved the final manuscript. None of the authors declared a conflict of interest.

REFERENCES

- Cawley J, Meyerhoefer C. The medical care costs of obesity: an instrumental variables approach. *J Health Econ* 2012;31:219–30.
- National Center for Chronic Disease Prevention and Health Promotion. Chronic diseases: the power to prevent, the call to control: at a glance. Version current 2009. Available from: <http://www.cdc.gov/chronicdisease/resources/publications/aag/pdf/chronic.pdf> (cited 14 November 2013).
- Sturm R, Wells KB. The effects of obesity, smoking, and problem drinking on chronic medical problems and health care costs. *Health Aff* 2002;21:245–53.
- Ogden C, Carroll M. Prevalence of obesity among children and adolescents: United States, trends 1963-1965 through 2007-2008. CDC. Version current 2010. Available from: http://www.cdc.gov/nchs/data/hestat/obesity_child_07_08/obesity_child_07_08.htm (cited 14 November 2013).
- National Institutes of Health; US Department of Health and Human Services. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults: the evidence report. Bethesda, MD: National Heart, Lung and Blood Institute, 1998.
- Jensen MD, Ryan DH, Apovian CM, Ard JD, Comuzzie AG, Donato K, Hu FB, Hubbard VS, Jakicic JM, Kushner RF, et al. 2013 AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society. *Circulation* [serial online] 2013. Available from: <http://circ.ahajournals.org/content/early/2013/11/11/01.cir.0000437739.71477.ee> (cited 13 November 2013).
- Bipartisan Policy Center. Lots to lose: how America's health and obesity crisis threatens our economic future. Washington, DC: Bipartisan Policy Center Nutrition and Physical Activity Initiative, 2012.
- Galuska DA, Will JC, Serdula MK, Ford ES. Are health care professionals advising obese patients to lose weight? *JAMA* 1999;282:1576–8.
- Lewis BS, Lynch WD. The effect of physician advice on exercise behavior. *Prev Med*. 1993;22:110–21.
- Swinburn BA, Walter LG, Arroll B, Tilyard MW, Russell DG. The Green Prescription Study. *Am J Public Health* 1998;88:288–91.
- Pignone MP, Ammerman A, Fernandez L, Orleans TC, Pender N, Woolf S, Lohr KN, Sutton S. Counseling to promote a healthy diet in adults: a summary of the evidence for the U.S. Preventive Services Task Force. *Am J Prev Med* 2003;24:75–92.
- Ockene IS, Herbert JF, Ockene JK, Saperia GM, Stanek E, Nicolosi R, Merriam PA, Hurlley TG. Effect of physician-delivered nutrition counseling training and an office-support program on saturated fat intake, weight, and serum lipid measurements in a hyperlipidemic population Worcester Area Trial for Counseling in Hyperlipidemia (WATCH). *Arch Intern Med* 1999;159:725–31.
- Adams KM, Kohlmeier M, Zeisel SH. Nutrition education in U.S. medical schools: latest update of a national survey. *Acad Med* 2010;85:1537–42.
- Jay M, Kalet A, Ark T, McMaken M, Messito MJ, Richter R, Schlair S, Sherman S, Zabar S, Gillespie C. Physicians' attitudes about obesity and their associations with competency and specialty: a cross-sectional study. *BMC Health Serv Res* 2009;9:106.
- Block JP, DeSalvo KB, Fisher WP. Are physicians equipped to address the obesity epidemic? Knowledge and attitudes of internal medicine residents. *Prev Med* 2003;36:669–75.
- Ferrante JM, Piasecki AK, Ohman-Strickland PA, Crabtree BF. Family physicians' practices and attitudes regarding care of extremely obese patients. *Obesity* (Silver Spring) 2009;17:1710–6.
- Davis NJ, Shishodia H, Wylie-Rosett J. Resident physician attitudes and competence about obesity treatment: need for improved education. *Med Educ Online* 2008;13:5.
- Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, Fineberg H, Garcia P, Ke Y, Kelley P, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet* 2010;376:1923–58.
- Davis CH. The report to Congress on the appropriate federal role in assuring access by medical students, residents, and practicing physicians to adequate training in nutrition. *Public Health Rep* 1994;109:824–6.
- Intersociety Professional Nutrition Education Consortium. Bringing physician nutrition specialists into the mainstream: rationale for the Intersociety Professional Nutrition Education Consortium. *Am J Clin Nutr* 1998;68:894–8.
- American Board of Obesity Medicine. Homepage. Available from: <http://abom.org/> (cited 17 March 2013).
- Committee on Nutrition in Medical Education; Food and Nutrition Board; Council on Life Sciences; National Research Council. Nutrition education in U.S. medical schools. Washington, DC: The National Academies Press, 1985.
- American Board of Physician Nutrition Specialists. Fellowship programs. Available from: https://www.nutritioncare.org/ABPNS/Physician_Nutrition_Specialist/Clinical_Nutrition_Fellowship_Programs/Fellowship_Programs/Fellowship_Programs/ (cited 17 March 2013).
- Weinsier RL, Boker JR, Brooks CM, Kushner RF, Visek WJ, Mark DA, Lopez-S A, Anderson MS, Block K. Priorities for nutrition content in a medical school curriculum: a national consensus of medical educators. *Am J Clin Nutr* 1989;50:707–12.
- Klein JD, Dietz W. Childhood obesity: the new tobacco. *Health Aff* (Millwood) 2010;29:388–92.
- Atwood K, Colditz GA, Kawachi I. From public health science to prevention policy: placing science in its social and political contexts. *Am J Public Health* 1997;87:1603–6.
- US Department of Health and Human Services. Full text of the Affordable Care Act. Version current 17 March 2013. Available from: <http://www.hhs.gov/healthcare/rights/law/index.html> (cited 17 March 2013).
- Center for Medicare and Medicaid Innovation. Homepage. Available from: <http://innovation.cms.gov> (cited 14 November 2013).
- Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff* (Millwood) 2008;27:759–69.
- US Surgeon General. Community benefit issue brief. Available from: <http://www.surgeongeneral.gov/initiatives/prevention/advisorygrp/gw-community-benefit-issue-brief.pdf> (cited 17 March 2013).
- Cleveland Clinic. 2013 Community Health Needs Assessment—Cleveland Clinic main campus. Available from: <http://my.clevelandclinic.org/Documents/About-Cleveland-Clinic/chna/2013-chna-main-campus-complete.pdf> (cited 13 November 2013).
- Wake Forest Baptist Medical Center. North Carolina Baptist Hospital Community Health Needs Assessment. Available from: [http://www.wakehealth.edu/uploadedFiles/User_Content/AboutUs/Facts_and_Figures/NCBH%20CHNA%20IRS501\(r\)_final.pdf](http://www.wakehealth.edu/uploadedFiles/User_Content/AboutUs/Facts_and_Figures/NCBH%20CHNA%20IRS501(r)_final.pdf) (cited 13 November 2013).
- Seattle Children's Hospital. Community Health Needs Assessment. Available from: <http://www.seattlechildrens.org/about/community-health-assessment/> (cited 13 November 2013).
- Centers for Medicare and Medicaid Services. Press releases: Medicare covers screening and counseling for obesity. Version current 29 November 2011. Available from: <http://www.cms.gov/apps/media/press/release.asp?Counter=4189&intNumPerPage=10&checkDate=&checkKey=&srchType=1&numDays=3500&sr> (cited 14 November 2013).
- Bleich SN, Bennett WL, Gudzone KA, Cooper LA. National survey of US primary care physicians' perspectives about causes of obesity and solutions to improve care. *BMJ Open* 2012;2:e001871.
- Vetter ML, Herring SJ, Sood M, Shah NR, Kalet AL. What do resident physicians know about nutrition? An evaluation of attitudes, self-perceived proficiency and knowledge. *J Am Coll Nutr* 2008;27:287–98.
- Jay M, Gillespie C, Tavinder A, Richter R, McMacken M, Zabar S, Paik S, Messito MJ, Lee H, Kalet A. Do internists, pediatricians, and psychiatrists feel competent in obesity care? *J Gen Intern Med* 2008;23:1066–70.
- Centers for Medicare and Medicaid Services. Medicare and Medicaid EHR Incentive Program: EHR Incentive Program meaningful use stage 1 requirements overview. Available from: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html (cited 17 March 2013).
- Vermont Department of Health Access. Vermont Blueprint for Health, 2010 annual report. Williston, VT: Department of Vermont Health Access, 2011. Available from: http://hcr.vermont.gov/sites/hcr/files/final_annual_report_01_26_11.pdf (cited 13 March 2013).
- Vermont Department of Health Access. Vermont Blueprint for Health, 2012 annual report. Williston, VT: Department of Vermont Health

- Access, 2013. Available from: http://hcr.vermont.gov/sites/hcr/files/Blueprint/Blueprint%20for%20Health%202012%20Annual%20Report%20%202014_13_FINAL.pdf (cited 13 March 2013).
41. Ackermann RT, Finch EA, Brizendine E, Zhou H, Marrero DG. Translating the diabetes prevention program into the community: the DEPLOY pilot study. *Am J Prev Med* 2008;35:357–63.
 42. Alliance for a Healthier Generation. Homepage. Available from: <https://www.healthiergeneration.org/> (cited 17 March 2013).
 43. Centers for Disease Control and Prevention. About heart disease & stroke: consequences & costs. Available from: <http://millionhearts.hhs.gov/abouthds/cost-consequences.html> (cited 13 November 2013).
 44. Department of Health and Human Services. New public-private sector initiative aims to prevent 1 million heart attacks and strokes in five years. Press release, 13 September 2011. Available from: millionhearts.hhs.gov/docs/Million_Hearts_Press_Release.pdf (cited 10 March 2014).
 45. Trust for America's Health. F as in fat: how obesity threatens America's future. Issue report 2012. Available from: <http://healthyamericans.org/assets/files/TFAH2012FasInFatFnIRv.pdf> (cited 20 March 2013).
 46. Association of American Medical Colleges. Contemporary issues in medicine: the prevention and treatment of overweight and obesity. Washington, DC: Medical School Objectives Project, 2007.
 47. American Medical Association. Weigh what matters: physicians guide. Available from: <http://www.ama-assn.org/resources/weighwhatmatters/docs/ama-physicians-guide.pdf> (cited 17 March 2013).
 48. Lenders C, Gorman K, Milch H, Decker A, Harvey N, Stanfield L, Lim-Miller A, Salge-Blake J, Judd L, Levine S. A novel nutrition medicine education model: the Boston University experience. *Adv Nutr* 2013;4:1–7.
 49. Kushner RF, Kessler S, McGaghie W. Using behavior change plans to improve medical student self-care. *Acad Med* 2011;86:901–6.
 50. Krebs NF, Primak LE. Comprehensive integration of nutrition into medical training. *Am J Clin Nutr* 2006;83(suppl):945S–50S.
 51. Whitcomb M. New and developing medical schools: motivating factors, major challenges, planning strategies. Josiah Macy, Jr Foundation School of Public Health and Health Services. Washington, DC: George Washington University, 2009.
 52. University of South Carolina School of Medicine–Greenville. MD program. Available from: <http://greenvillemed.sc.edu/md.shtml> (cited 17 November 2013).
 53. Kaplan BS, Karkowsky CE, Kohlmeier M, Dayal A, Chazotte C, Landsberger E. Nutrition in medicine: effectiveness of a Web-based curriculum for obstetrics and gynecology residents. *FASEB J* 2013;27:47.7.
 54. American Academy of Family Physicians. Recommended curriculum guidelines for family medicine residents: nutrition. Reprint no. 275. Available from: http://www.aafp.org/dam/AAFP/documents/medical_education_residency/program_directors/Reprint275_Nutrition.pdf (cited 14 November 2013).
 55. PR Newswire. American Academy of Pediatrics launches institute to battle childhood obesity. Version current 20 October 2012. Available from: <http://www.prnewswire.com/news-releases/american-academy-of-pediatrics-launches-institute-to-battle-childhood-obesity-175016361.html> (cited 17 March 2013).
 56. American Medical Association. AMA adopts new policies on second day of voting at annual meeting. Available from: <http://www.ama-assn.org/ama/pub/news/news/2013/2013-06-18-new-ama-policies-annual-meeting.page> (cited 29 June 2013).
 57. American Medical Association. AMA policy finder: H-440.842 Recognition of Obesity as a Disease. Available from: <https://ssl3.ama-assn.org/apps/ecommm/PolicyFinderForm.pl?site=www.ama-assn.org&uri=%2fama1%2fpub%2fupload%2fmm%2fPolicyFinder%2fpolicyfiles%2fHnE%2fH-440.842.htm> (cited 13 November 2013).
 58. Heimbürger DC, McClave SA, Gramlich LM, Merritt R. The Intersociety Professional Nutrition Education Consortium and American Board of Physician Nutrition Specialists: what have we learned? *JPEN J Parenter Enteral Nutr* 2010;34:21S–9S.
 59. American Academy of Pediatrics. Health reform and the AAP: what the new law means for children and pediatricians. Available from: <http://www.aap.org/en-us/advocacy-and-policy/federal-advocacy/Documents/ACAImplementationFactSheets.pdf> (cited 29 June 2013).
 60. Holt K, Wooldridge N, Story M, Sofka D. Bright Futures nutrition. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics, 2011.
 61. Lin JS, O'Connor E, Whitlock EP, Beil TL. Behavioral counseling to promote physical activity and a healthful diet to prevent cardiovascular disease in adults: a systematic review for the U.S. Preventive Services Task Force. *Ann Intern Med* 2010;153(11):736–50.
 62. Interprofessional Education Collaborative Expert Panel. Core competencies for interprofessional collaborative practice: report of an expert panel. Washington, DC: Interprofessional Education Collaborative, 2011.
 63. Tsai AG, Wadden TA. Treatment of obesity in primary care practice in the United States: a systematic review. *J Gen Intern Med* 2009;24:1073–9.