Leveraging Action to Support Dissemination of Pregnancy Weight Gain Guidelines: Workshop Summary

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Anne Brown Rodgers and Ann L. Yaktine, Rapporteurs; Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines; Board on Children, Youth, and Families; Food and Nutrition Board; Institute of Medicine; National Research Council

Leveraging Action to Support Dissemination of the Pregnancy Weight Gain Guidelines

Workshop Summary

Committee on Implementation
of the IOM Pregnancy Weight Gain Guidelines

Board on Children, Youth, and Families
Food and Nutrition Board

Anne Brown Rodgers and Ann L. Yaktine, *Rapporteurs*

INSTITUTE OF MEDICINE AND
NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

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LINDA BEARINGER, Center for Adolescent Nursing Leadership, School of Nursing, University of Minnesota
SARAH S. BROWN, The National Campaign to Prevent Teen and Unwanted Pregnancy
PATRICK M. CATALANO, Department of Obstetrics and Gynecology, Case Western Reserve University
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ANNA MARIA SIEGA-RIZ, Department of Epidemiology, School of Public Health, University of North Carolina, Chapel Hill

IOM Staff

ANN L. YAKTINE, Senior Program Officer
KAREN CAMPION, Research Assistant
WENDY KEENAN, Program Associate

[1] Institute of Medicine planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published workshop summary rests with the workshop rapporteurs and the institution.

REVIEWERS

This workshop summary has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published workshop summary as sound as possible and to ensure that the workshop summary meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this workshop summary:

Lisa Bodnar, Department of Epidemiology, University of Pittsburgh
Patrick M. Catalano, Department of Obstetrics and Gynecology, Case Western Reserve University
Susan Gennaro, William F. Connell School of Nursing, Boston College
Patricia C. MacNeil, Center for Nutrition Policy and Promotion, U.S. Department of Agriculture
Andrea Sharma, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention
Catherine Spong, Pregnancy and Perinatology Branch, Eunice Kennedy Shriver National Institute of Child Health and Human Development

Although the reviewers listed above have provided many constructive comments and suggestions, they did not see the final draft of the workshop summary before its release. The review of this workshop summary was overseen by **Nancy E. Adler,** University of California, San Francisco. Appointed by the Institute of Medicine, she was responsible for making certain that an independent examination of this workshop summary was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this workshop summary rests entirely with the rapporteurs and the institution.

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Introduction[1]

BACKGROUND AND CHARGE TO THE COMMITTEE

Since 1990, when the last guidelines for weight gain during pregnancy were issued, the average body weight of women entering their childbearing years has increased considerably, with a greater percentage of these women now classified as overweight or obese. Women of childbearing age are also more likely to have chronic conditions such as high blood pressure or diabetes and to be at risk for poor maternal and child health outcomes. All of these factors increase the likelihood of poor pregnancy outcomes for women and their infants. In light of this situation and the resulting need to address the changing lifestyle and demographic factors that affect weight gain during pregnancy, in 2009 the Institute of Medicine (IOM) and the National Research Council (NRC) released the report *Weight Gain During Pregnancy: Reexamining the Guidelines*. That report recommended a set of revised pregnancy weight gain guidelines directed at four different categories of women: normal weight, underweight, overweight, and obese.

The 2009 report also identified evidence that preconception counseling and certain practices, such as charting weight gain trends during pregnancy, can lead to risk-reducing behaviors as well as to improved

[1] The planning committee's role was limited to planning the workshop, and the workshop summary has been prepared by the workshop rapporteurs as a factual summary of what occurred at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the Institute of Medicine, and they should not be construed as reflecting any group consensus.

choices concerning nutrition and physical activity. However, many women still do not receive adequate pre- or post-conception advice about weight and about pregnancy weight gain.

Among the barriers to women maintaining more appropriate weight during pregnancy are that many women and even health professionals remain unaware of the recommended pregnancy weight guidelines and that even those women who are aware of the guidelines may find it difficult to obtain informed guidance that can help them achieve those guidelines. Developing information resources that are evidence-based and easy to use could help health professionals as well as community leaders in their efforts to assist women achieve a healthy pre-pregnancy weight and to gain within recommended ranges during pregnancy. Although dissemination materials were developed following the publication of the earlier 1990 IOM pregnancy weight gain guidelines, those materials are no longer adequate to address the challenges faced by women today.

Therefore, in response to the need to enhance the dissemination of the revised pregnancy weight gain guidelines in the 2009 report, the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA) of the Department of Health and Human Services asked the IOM and the NRC to develop a series of information resources to support guidance based on the recommendations of that report. The information resources were to be aimed at three major audiences: health care providers, public health agencies, and community-based organizations and women's groups. The project team, which worked with the sponsoring organizations, was asked to identify up to five key partnership groups within each audience that could collaborate in the creation of a core set of materials (an "information toolbox") which were to include print, electronic, and possibly video resources. In addition, a planning committee was asked to organize a workshop to present the toolbox of resource materials and to discuss other issues related to ensuring a wide dissemination of the pregnancy weight gain guidelines (see Appendix D for the pregnancy weight gain guidelines dissemination Statement of Task).

On March 1, 2013, the IOM and the NRC convened a 1-day workshop, in Washington, DC, to engage interested stakeholders, organizations, and federal agencies in a discussion of issues related to encouraging behavior change that would reflect the updated guidelines on weight gain during pregnancy. The workshop, Leveraging Action to Support Dissemination of Pregnancy Weight Gain Guidelines, was attended by health professionals; women's health organizations and associations; providers from the Special Supplemental Program for Women, Infants,

and Children (WIC); representatives from other federal agencies, including the Center for Nutrition Policy and Promotion and the National Institute of Food and Agriculture, both within the U.S. Department of Agriculture, and the National Institutes of Health; and a number of individuals who joined by webcast.

The workshop featured conceptual products as well as products developed for dissemination, panel discussions on ways to facilitate and support behavior change to achieve healthy weight pre- and post-pregnancy, a town hall discussion on how to put the weight gain guidelines into action, and a presentation on innovative ways to reach women and implement change. This document summarizes the keynote address and the various presentations and discussions from the workshop, highlighting issues raised by presenters and attendees.

Dr. Kathleen Rasmussen, professor of nutrition in the Division of Nutritional Sciences at Cornell University and chair of the IOM Committee on Implementation of the IOM Pregnancy Weight Guidelines, opened the workshop. She welcomed those participating in person as well as those participating over the Internet, and she introduced the two keynote speakers, Michael Lu and Jeanne Conry. Lu is currently the associate administrator of MCHB/HRSA. His experience includes maternal and child health research, practice, and policy. An obstetrician by training, Lu is recognized for his research on racial and ethnic disparities in birth outcomes. Lu was a member of the Committee to Reexamine IOM Pregnancy Weight guidelines, which in 2009 produced the most recent guidelines on appropriate weight gain during pregnancy.

Conry is associate physician-in-chief at the Kaiser Permanente Medical Group in Sacramento-Roseville, California. She also is the president-elect of the American Congress of Obstetricians and Gynecologists. Conry's clinical interests include well-women health care and preconception health care. She currently oversees health and wellness activities, focusing on the health and well-being of Kaiser members and employees and members of the Sacramento community through focused wellness activities.

2

Keynote Addresses

MICHAEL LU, HEALTH RESOURCES AND SERVICES ADMINISTRATION

In 2007 the Institute of Medicine (IOM) convened a Committee to Reexamine IOM Pregnancy Weight Guidelines. The catalyst for the committee's work was the recognition that the circumstances surrounding pregnancy weight gain had changed radically from when the IOM's first pregnancy weight gain guidelines were released in 1990. At that time the primary concern was preventing low birth weight. In 2007, however, the United States was experiencing an obesity epidemic, and pregnancy weight gain was seen as potentially a major driver of the weight gain occurring among women of childbearing age.

The average weight of American women has been increasing for a long time, but the increase has been particularly pronounced since 1990. Over the past 20 years, the percentage of American women of childbearing age who are overweight or obese has nearly doubled. Today, more than half are overweight, and about one-third are obese (see Figure 2-1).

Thus, more American women are entering pregnancy overweight or obese than ever before. In addition, the proportion of women who gain too much weight during pregnancy also has increased since 1990. Today, 1 in 5 American women gain more than 40 pounds during pregnancy, with the largest increase seen among non-Hispanic white women.

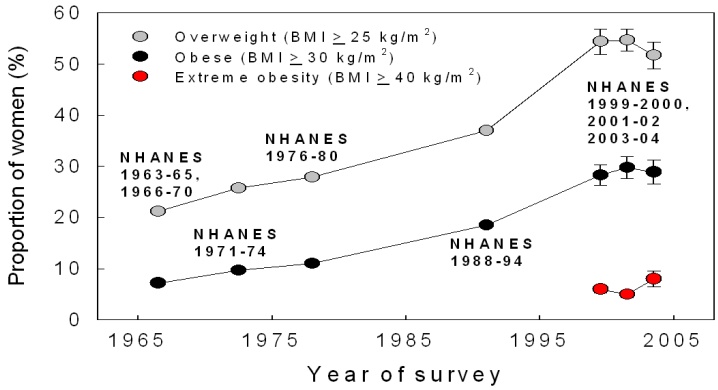


FIGURE 2-1 Prevalence of overweight, obesity, and extreme obesity among U.S. women 20–39 years old (ages 20–35 through NHANES 1988–1994), 1963–2004.
NOTE: BMI = body mass index; NHANES = National Health and Nutrition Examination Survey.
SOURCE: Lu, 2013.

This trend is particularly troubling among women who enter pregnancy overweight or obese. Today, nearly two-thirds of women who are overweight and nearly half of women who are obese gain more than the recommended amount of weight during pregnancy. This is important because the more weight a pregnant woman gains during pregnancy, the more weight she will retain postpartum. This is true for retention of 10 to 20 pounds beyond 6 months postpartum. It also is true for women of all races and ethnicities and all levels of pre-pregnancy body mass index (BMI). Women who gain above the guidelines tend not to return to their pre-pregnancy weight. Overweight and obese women who gain within the guidelines are more able to maintain a postpartum weight that is at or below their pre-pregnancy weight.

Excessive gestational weight gain has consequences for both mother and child. Mothers with a high gestational weight gain are at an increased risk both of cesarean delivery and of postpartum weight retention (see Figure 2-2). The child's birth weight is strongly associated with the mother's gestational weight gain; that is, mothers with a lower gestational weight gain are more likely to give birth to babies who are small for their gestational age, while mothers with a higher gestational weight gain generally give birth to children who are large for their gestational age. Some evidence supports an association between gestational weight gain and preterm birth, with a lower gestational

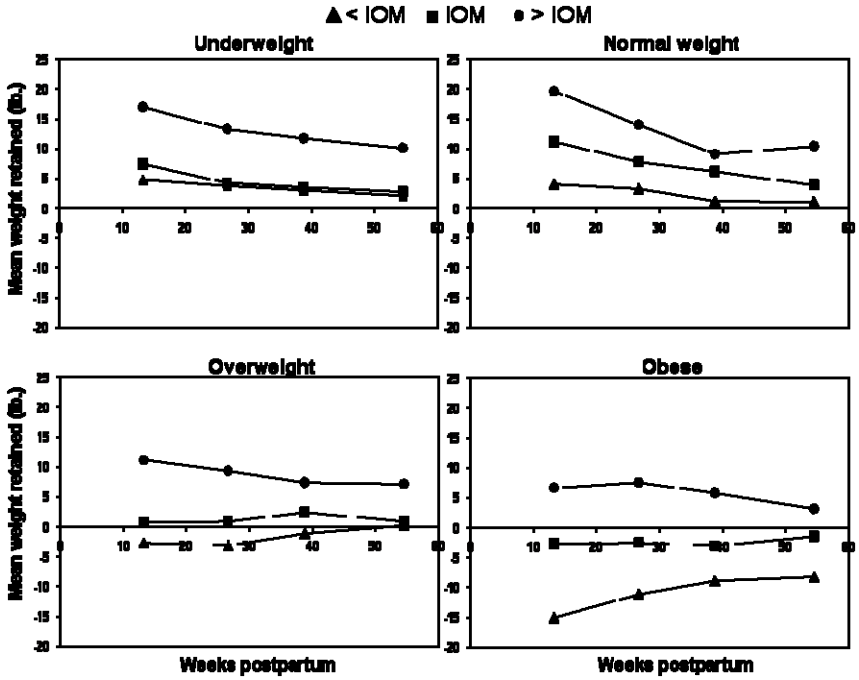


FIGURE 2-2 The greater the gestational weight gain, the greater the postpartum weight retention.
SOURCE: Lu, 2013.

weight gain associated with preterm birth among underweight women and, to a lesser extent, normal-weight women as well.

Excessive gestational weight gain and its co-morbidities (e.g., increased blood pressure) also have implications for childhood obesity. In particular, a number of studies have found that a higher weight gain by the mother during pregnancy is associated with childhood obesity in her offspring. The association between high maternal systolic blood pressure and higher weight in children years later could indicate that pre-pregnancy BMI has some effect on fetal developmental programming (Wen et al., 2011).

This evidence suggested a framework for the approach used by the committee tasked with revising the 1990 guidelines. Those earlier guidelines had no upper limit for the amount of weight that obese women should gain during pregnancy, recommending only that obese women should

gain at least 15 pounds. The committee examined a number of analyses that looked at the trade-offs between the outcomes associated with lower versus higher gestational weight gain, including a study that recommended weight loss for class III obese women. Other analyses found that the risk of the infant being small for gestational age (SGA) goes down as the mother's gestational weight gain goes up. For overweight and obese women, the absolute risk of SGA does not change as weight gain increases. By contrast, in women of all pre-pregnancy BMI categories, greater weight gains during pregnancy are associated with greater weight retention after birth.

The 2009 guidelines look quite similar to the old guidelines, with two major exceptions. First, the new guidelines use the World Health Organization BMI categories, so women no longer change their BMI categories when they become pregnant. Second, the committee recommended a pregnancy weight gain of between 11 and 20 pounds for obese women instead of recommending a weight gain of at least 15 pounds with no upper limit. It should be noted that the recommended weight gain range for obese women was derived from data for women with a BMI between 30 and 35. There were insufficient data to create recommendations specifically for heavier classes of obese women, and further research may suggest that lower gain might be desirable for these heavier women.

Finally, the guidelines are not modified for short stature, young age, racial or ethnic subgroups, primiparity, or smoking, and they include some provisional recommendations on the rate of weight gain and on twin pregnancies that are based on limited data.

The 2009 guidelines emphasize two priorities for future action: (1) help women gain within the guidelines and (2) help women achieve a healthy weight before pregnancy and get back to a healthier weight after pregnancy.

Concerning "gain within the guidelines," the committee recognized that the guidelines were not going to be easy to follow. About 1 in 5 pregnant women gains more than 40 pounds during pregnancy. Data from the Pregnancy Risk Assessment Monitoring System show that overweight and obese women gain on average about 10 pounds more than the midpoint of their recommended range and that more than half—and probably closer to two-thirds—of overweight and obese women gain more than the upper limit of their recommended range. Getting them to gain within the IOM guidelines will be a major challenge.

As for helping women achieve a healthy weight before pregnancy and get back to a healthier weight after pregnancy, achieving this goal

will require a radical change in the care of women of childbearing age, not only during pregnancy but also before pregnancy, between pregnancies, and beyond pregnancy.

A number of federal agencies are already taking action consistent with these two priorities. Since 2005 the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA), along with other partners, have led a movement to improve preconception health and health care in the United States. The Office of Minority Health has already launched a campaign to promote women's preconception health through peer education in minority communities. The Centers for Medicare & Medicaid Services recently convened an expert panel on interconception care, and the Food and Nutrition Service at the U.S. Department of Agriculture has launched a project on the role of improving periconception nutrition.

The federal action that is likely to have the greatest impact on women's health care is the Patient Protection and Affordable Care Act (ACA). The act puts an end to the discriminatory practice of charging women higher premiums because of their gender. It also prohibits the practice of denying coverage for pre-existing conditions, such as breast cancer or having had a cesarean section, and lifetime limits on benefits are no longer allowed. These provisions are expected to expand access to health care for millions of women with chronic conditions. Through Medicaid expansion and subsidies for women who lack employer-sponsored health insurance, the ACA is designed to expand access to health care coverage for nearly 90 million previously uninsured women.

The implementation of the ACA provisions on clinical preventive services for women means that an additional 47 million women will have the opportunity to gain access to preventive health services, including coverage for gestational diabetes, intimate partner violence, HIV screening and counseling, counseling on sexually transmitted infections, human papillomavirus DNA testing, Food and Drug Administration–approved contraceptive products, and breastfeeding support. Well-women visits, including preconception and interconception care also are included, which provides an extraordinary opportunity to improve women's health not only during pregnancy but also before pregnancy, between pregnancies, and beyond pregnancy.

JEANNE CONRY, KAISER PERMANENTE MEDICAL GROUP AND PRESIDENT-ELECT OF THE AMERICAN CONGRESS OF OBSTETRICIANS AND GYNECOLOGISTS

Most women try to conceive at least once, and many women have more than one pregnancy, and of those women who get pregnant, many experience complications during their pregnancies. As a result, pregnancy is a time when clinicians have various opportunities to talk with women about a range of health issues, including the importance of achieving and maintaining a healthy weight.

As an organization that represents 56,000 physicians and the women they serve, the American Congress of Obstetricians and Gynecologists (ACOG) has a key role to play in helping women gain weight appropriately during pregnancy. ACOG has powerful tools for educating clinicians, such as its well-known evidence-based guidelines for care and its webinars, meetings, online learning opportunities, newsletter, and journal. It also partners with the American Board of Obstetricians and Gynecologists, which provides an opportunity to incorporate new information, including the new IOM pregnancy weight gain guidelines, into the annual tests that obstetricians and gynecologists (OB-GYNs) must take to maintain their board certification.

The goal of reproductive health care is to produce healthy women, healthy mothers, and healthy babies, but the United States is currently comparable to a third-world country in terms of maternal mortality. In some states, maternal mortality has tripled in the past decade. In California, huge racial disparities exist; for example, an African American woman is four times more likely to die from a pregnancy-related cause than a white woman. Many factors are related to maternal mortality, with obesity and the preconception health of the woman being significant components.

The National Maternal Health Initiative of the Department of Health and Human Services is focused on improving the health of women once they become pregnant. However, because 50 percent of pregnancies are unplanned, it is critically important for health care providers to help non-pregnant women be healthy at all times over their reproductive lives. All physicians, no matter their specialty (e.g., internists, family physicians, or neurologists), should collaborate in goal-directed conversations with women about their overall health and their reproductive goals, and these conversations should be ongoing, for a woman may have very different reproductive goals at age 18 than at 25 or 32.

Conry offered an example from her own medical group to illustrate the importance of sharing information among health care providers and

of discussing reproductive goals in the context of overall health care decision making. In an effort to determine how to improve the care of women with diabetes, the medical group's staff obtained the names of every woman with diabetes in the medical group, determined what medications each was taking, and assessed each woman's hemoglobin A1C as an indication of her blood sugar control over the previous 3 months. The names and accompanying information were sent to the women's gynecologists, with the suggestion that they review what forms of contraception the women were using. This information influenced contraception decisions for a number of women in the practice.

It is critical for women to begin pregnancy at a healthy weight, Conry said, but as the data indicate, this is not happening. OB-GYNs have a powerful advantage because they have a captive audience during pregnancy and the postpartum period. They can then work with women and focus on the message that weight gain during pregnancy can affect not only the pregnancy but the woman's health throughout the rest of her life. However, conversations about weight can often be difficult. Patients may be reluctant to acknowledge that obesity is an issue for them, and clinicians may find it difficult to present information and discuss issues in a non-judgmental way. Despite these difficulties, however, education and counseling can provide a critical foundation for women as they make decisions about their health over the short and the long term (see Box 2-1).

A key aspect of educating and counseling patients is to pick a few strong messages and be consistent and relentless in giving them to all patients. The value of exercise should be one of the messages. Conry said that she talks about the frequency, intensity, and timing of exercise with each of her patients. The Kaiser Permanente Medical Group has a walking group of 6,000 people in the Roseville, California, area that receives messages on walking and information about events. A physician walks with the group every Wednesday because it is important for the walkers to see that physicians believe that walking and exercise and healthy choices are important. A second important message is that not all behavioral changes have to be major changes. Changing behaviors in small increments is often a more successful strategy.

To reinforce these messages, Conry and the physicians in the Kaiser Permanente Medical Group use two prescription pads. One is a walking prescription (see Figure 2-3), which physicians use to note expectations and goals for each patient. Each pregnant patient also receives a prescription on appropriate weight gain with tips (see Figure 2-4).

BOX 2-1
The Power of Goal-Directed Counseling and Motivation

During her first pregnancy, one of Conry's patients, age 22, gained 60 pounds. She lost 10 pounds after the pregnancy, but then gained another 60 pounds during her second pregnancy 2.5 years later, for a total weight gain of 110 pounds. During the two pregnancies, she and Conry had many discussions about her weight gain.

The following year, the patient came for an appointment, and she had lost all of the weight. She explained that she had had an experience that finally gave her the motivation she needed to put all that she had learned from Conry into practice. She said, "I went in to Kmart to buy some toys for the kids. I went past the women's section, and I thought, 'I'm going to try on a pair of pants.' I went in and tried on elastic-waistband pants. I looked at myself in the mirror and said, 'Oh, my. I'm 30 years old and I'm wearing elastic-waistband pants. This cannot be.'"

The next morning, the patient got up 15 minutes before her children, got the treadmill out of the garage, and started walking. Over the course of a month, she progressed to half an hour. The following month she was walking an hour a day. Within a year she had set—and achieved—a goal of running a marathon.

The key to the change was that the patient found a powerful motivation, which allowed her to put into action what she had learned from Conry. Conry concluded the story by expressing the belief that many women put their children first, but helping them understand that putting themselves up a notch higher to improve their health does not displace the children. Rather, it is actually an investment in their children.

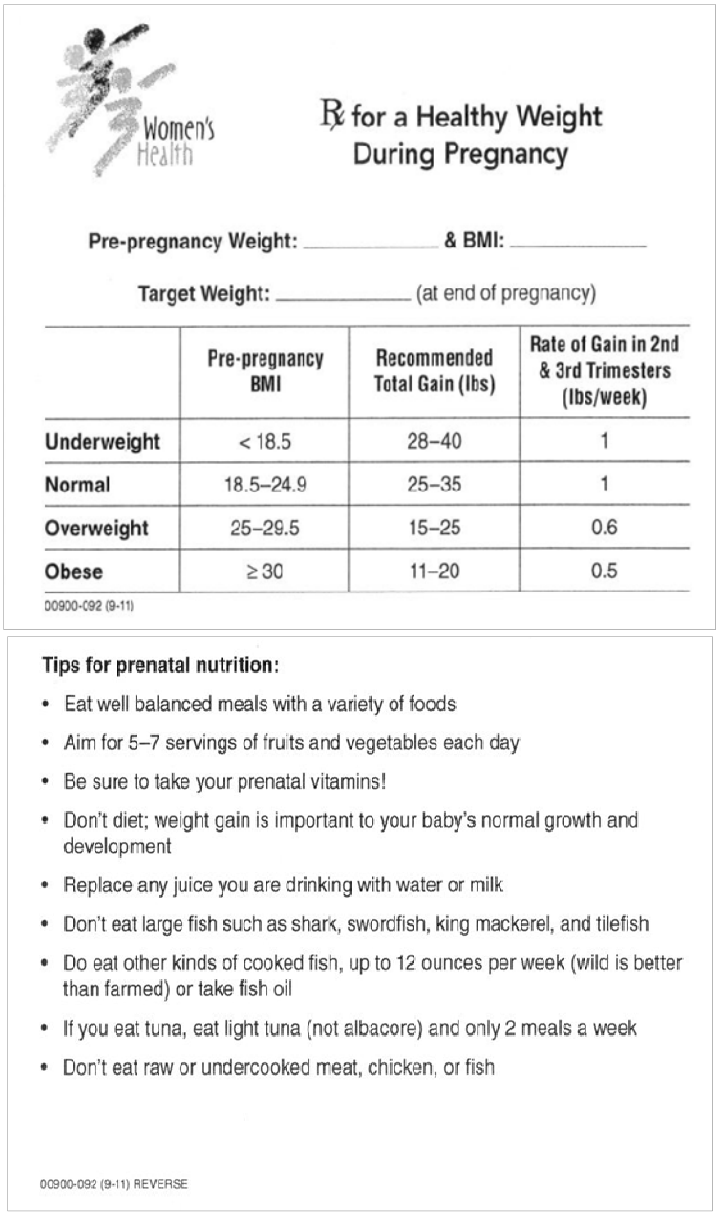
QUESTION-AND-ANSWER SESSION

Following the keynote addresses, the floor was opened for questions and discussion. The discussion covered three primary topics: time constraints and centered pregnancy, working with the family as a whole, and restructuring the postpartum visit.

Time Constraints and Centered Pregnancy

One participant asked Lu and Conry to comment on the time constraints that many obstetricians experience. As a result of these time constraints, other staff members in the office often are the ones who talk with patients about such issues as weight and exercise. The participant also asked them to comment on the pregnancy-centering programs that Dr. Conry discussed.

FIGURE 2-3 Kaiser Permanente walking prescription.
SOURCE: Conry, 2013.



Women's Health

℞ for a Healthy Weight During Pregnancy

Pre-pregnancy Weight: _____ **& BMI:** _____

Target Weight: _____ (at end of pregnancy)

	Pre-pregnancy BMI	Recommended Total Gain (lbs)	Rate of Gain in 2nd & 3rd Trimesters (lbs/week)
Underweight	< 18.5	28–40	1
Normal	18.5–24.9	25–35	1
Overweight	25–29.5	15–25	0.6
Obese	≥ 30	11–20	0.5

00900-092 (9-11)

Tips for prenatal nutrition:

- Eat well balanced meals with a variety of foods
- Aim for 5–7 servings of fruits and vegetables each day
- Be sure to take your prenatal vitamins!
- Don't diet; weight gain is important to your baby's normal growth and development
- Replace any juice you are drinking with water or milk
- Don't eat large fish such as shark, swordfish, king mackerel, and tilefish
- Do eat other kinds of cooked fish, up to 12 ounces per week (wild is better than farmed) or take fish oil
- If you eat tuna, eat light tuna (not albacore) and only 2 meals a week
- Don't eat raw or undercooked meat, chicken, or fish

00900-092 (9-11) REVERSE

FIGURE 2-4 Kaiser Permanente prescription for a healthy pregnancy.
SOURCE: Conry, 2013.

Conry agreed that time constraints are an issue. However, she said that within a 15-minute visit she calculates the patient's BMI, asks her what she thinks her weight should be, and talks with her about diet and exercise. She conducts those conversations while doing other things, such as a breast or pelvic exam. She also has other personnel reinforce these messages during other parts of the visit, such as the weigh-in. Conry suggested that one way to maximize the office visit is to have staff members conduct a follow-up phone call to see how the patient is doing with respect to the diet and exercise expectations laid out in the visit. Finally, she noted that chronic disease management approaches may be a useful model. For example, the success with hypertension that has occurred in the United States in recent years is due not only to increased knowledge about hypertension and to improved medications, but also to the fact that patients are in programs in which their blood pressure is measured, desired outcomes are made clear, and patients are followed to track progress on those outcomes.

Lu added that everything people have learned over the past 30 years indicates that quality improvement is not only about making individuals work harder, but also about making the systems work smarter. A critical way to make the systems work smarter is to have a team approach and make sure that everybody on the team is putting his or her top strengths to good use. He also noted that although physicians have a major role to play in health promotion, other types of health professionals are better at certain aspects of health education (e.g., nutrition education) than physicians. It therefore is important to think about how to create a team that can provide comprehensive, holistic care for women. Health reform may provide opportunities for stakeholders to think about developing and designing new systems of care that might provide the kind of quality that everyone deserves.

In response to the question about pregnancy centering, Conry stated that the research is positive about what centering on pregnancy might offer and that it would be useful to help medical groups and medical practices understand that this focused way to approach pregnancy may help.

Working with the Family

One participant said that in public health programs serving women and children, clinicians are appropriately focused on the purpose of the visit when a client comes in for prenatal care. However, the participant asked whether Lu and Conry could suggest ways for clinicians to seize

opportunities in other visits, such as family planning or child health, to talk to the family as a whole about issues that affect the entire family. For example, a well-child visit could provide an opportunity to set some goals with the family and the mother about weight and about moving toward a healthy weight.

The participant also stated that public health programs have good reimbursement for children and for the pregnancy, but the coverage only goes to 60 days postpartum in the Medicaid package. Public health is challenged by not having a source of funding to serve women who are interested in focusing on their weight management during the interconception period.

Conry responded to the first question by acknowledging that practitioners in different specialties work separately and that it is difficult to ensure that everyone is providing the same messages in different health visit contexts.

Lu responded to the second question by stating that the ACA will make a difference for postpartum coverage. The challenge will be to determine what decisions the states will make and how to ensure that the resources needed to help women achieve a healthy weight after pregnancy become available either through the health care marketplace or through Medicaid expansion. If states do not choose those options, then an alternative route is to consider pursuing an "1115" waiver[1] for interconception care.

Restructuring the Postpartum Visit

One participant, a family physician, said that she was particularly interested in Lu's "before, between, and beyond" remarks. Family physicians are trained to focus on the continuity of care, and one thing that has held them back is the structure and content of the postpartum exam. The medical model for the visit is well established, but the idea of making it a more preventive, holistic visit during which clinicians address a woman's long-term weight, exercise goals, and related issues is appealing. The participant asked Lu and Conry for ideas about how to move toward best practices on this issue.

[1] A waiver to Section 1115 of the Social Security Act allows states to use federal Medicaid funds in ways that are not otherwise allowed under federal rules. These waivers give states a mechanism for carrying out experimental, pilot, or demonstration projects that expand coverage or provide new services.

Conry agreed that it would be valuable to make the postpartum visit a sustained, holistic experience. She described an ACOG grant in California funded by the March of Dimes that examined postpartum visit redesign. ACOG collaborated with family physicians, internists, OB-GYNs, nurses, and many others to redesign the content of the visit so that it would be determined by algorithms that took into account events occurring during the pregnancy and labor. This project may provide a useful model for postpartum follow-up. In addition, HRSA's National Maternal Health Initiative also provides an opportunity for groups to look at how the postpartum visit may be redesigned.

Lu added that successful efforts will include many types of providers—OB-GYNs as well as family practitioners, nurse midwives and nurse practitioners, health educators, and registered dietitians—coming together to help support weight gain within guidelines during pregnancy as well as to achieve a healthy weight before pregnancy and return to a healthy weight after pregnancy. Such a goal will involve considering the redesign of prenatal care, preconception and inter-conception care, and the postpartum visit so that issues important to women's health in the long term can be addressed.

In continuing the conversation about the nature of the postpartum visit, a participant observed that maternal mortality can be defined in two ways. One looks at events that occur in the first 42 days postpartum, while the other includes events occurring during the first year after a delivery. Pregnancy-related causes of death may occur during that entire first year. It is possible that postconceptional care also should occur over that whole first year and that clinicians should see the women multiple times during that period. Conry agreed and noted that a large ACOG program is currently developing definitions and recommendations about postconceptional care. However, reimbursement is a major factor. In a health maintenance organization a patient can see a physician multiple times, and her benefits are covered. In contrast, only one visit is covered under Medicaid.

Lu added that HRSA's National Maternal Health Initiative, which would be launched on Mother's Day 2013, will be relevant. The initiative, a major national program to improve maternal health, focuses on five components. The first, and probably the most important, is improving women's health not only during pregnancy, but also before pregnancy, between pregnancies, and beyond pregnancy. The initiative also focuses on the quality and safety of maternity care, public education and increasing public awareness, developing better public health and community systems, and improving research and surveillance. HRSA has

been discussing ways to improve data collection and surveillance with CDC, the National Center for Health Statistics, ACOG, and other partners to improve research with the National Institutes of Health and the National Institute of Child Health and Human Development, all with the goal of improving maternal health and reducing maternal mortality and morbidity in this country.

Rasmussen thanked Lu and Conry for their inspiring and thought-provoking remarks and opened the next segment of the workshop.

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3

Session 1: Communicating the Pregnancy Weight Gain Guidelines

KATHLEEN RASMUSSEN, CORNELL UNIVERSITY

The newest data for full-term singleton births in the United States offer context for the committee's work in developing products to disseminate the Institute of Medicine (IOM) pregnancy weight gain guidelines. These 2010 data were derived from an analysis conducted by the Centers for Disease Control and Prevention (CDC) of data from the CDC's Pregnancy Risk Assessment Monitoring System (PRAMS). PRAMS data are not nationally representative, because they cover only 28 states and the city of New York, but they are the best data available on the topic.

Figure 3-1 shows a graph of PRAMS data on the proportion of women meeting the IOM weight gain guidelines. As can be seen, only a minority of women gained within the guidelines. Among underweight and normal-weight women (40.7 percent and 37.5 percent, respectively, gained within the guidelines), while overweight and obese women were far less likely to gain the recommended amount of weight (24.6 and 22.8 percent, respectively). The most common outcome was to gain more weight than recommended by the guidelines (as 64 percent of overweight women and 58.7 of obese women did). Based on similar data the 2009 Committee to Reexamine IOM Pregnancy Weight Guidelines anticipated that women were not gaining within the recommend ranges when it revised the pregnancy weight gain guidelines.

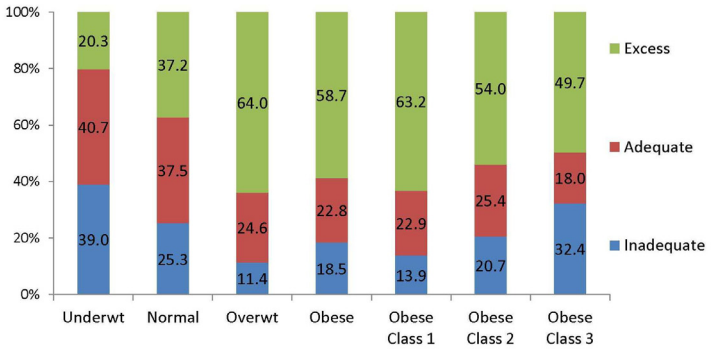

FIGURE 3-1 Proportion of women meeting gestational weight gain recommendations, full-term, singleton births in 2010, PRAMS preliminary data.
NOTE: Pregnancy Risk Assessment Monitoring System (PRAMS), 28 states and New York City included.
SOURCE: Sharma, 2013.

The three bars on the right, showing data for women in obesity classes 1, 2, and 3, reflect data that were not available to the 2009 committee. The committee's obesity recommendations were derived primarily from data for women in obesity class 1. Depending on which class of obese women is being considered, as few as 18 percent and as many as 25.4 percent gained within the guideline, while half or more of the women in each class gained more than the recommended amounts. Nearly one-third (32.4 percent) of women in obesity class 3 gained less than the recommended amount (that is, less than 5 kilograms, or about 11 pounds). The committee did not have sufficient information when it developed the guidelines to say whether such a lower-than-recommended weight gain had a net risk or a net benefit. Data to answer this question are now being collected.

These new data confirm the conclusions in the committee's report, namely that the preponderance of women are gaining outside of the guidelines and most of those women are gaining more weight than recommended. One of the motivations for taking action to disseminate the guidelines is that the majority of women need help gaining within the guidelines, and it will be important to think holistically about this issue if this goal is to be achieved.

The dissemination committee's work was guided by a conceptual model that identifies various ways to affect a woman's choice to gain within the guidelines and to influence her behavior. As illustrated in Figure 3-2, the first step in the model is the committee's report on weight gain during pregnancy (lower left). This report has been used in many ways, including shaping the opinions and actions of professional societies. If a professional society adopts a committee's recommendations, then it provides an opportunity to create a standard of care. New practices do not penetrate medical care unless they become a standard of care; therefore, professional societies play a key role once they have adopted the guidelines because they can educate health teams and develop staff training tools. In turn, the health care teams teach women how to gain within the recommended guidelines.

Standards of care also influence two other parts of the medical care system that the committee carefully considered—the electronic health record and the medical payment system. From the conceptual model, the committee found that it would not be able to influence the process by which federal agencies formulate rules about health records and the medical payment system as it relates to the Patient Protection and Affordable Care Act (ACA). The committee also learned that electronic health records are created by just a few providers in the country. Many of the available electronic health records already have components to record obstetrics visits, but hospitals may be choosing not to use them.

The right side of the model illustrates women learning about the guidelines. They learn from their health care providers, the media, Internet resources, mobile applications, and information in the doctor's office. Once women have learned about the guidelines, it is up to them to try to gain within the recommendations. In making such an effort, a woman must recognize what an appropriate weight is for herself, learn what she weighs now and what an appropriate target weight would be, and then choose to modify her behaviors to accomplish the goal. Various factors—family and friends, the eating environment in the United States, the sociocultural context, and advertising—will all influence a woman's choice whether to try to gain within the guidelines and also her ability ultimately to achieve that goal for herself. The materials that the committee developed are designed to address many parts of the learning process.

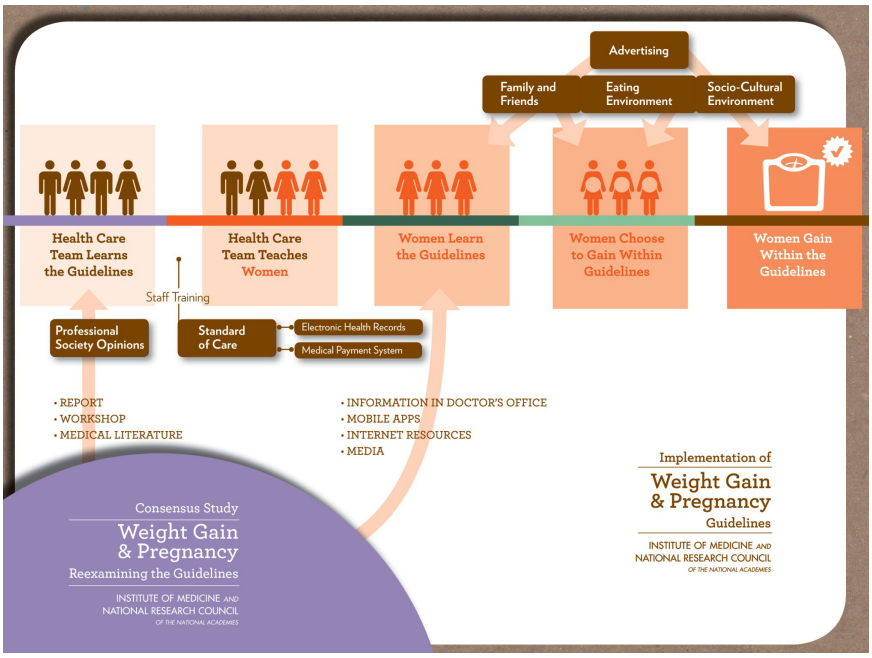

FIGURE 3-2 Pregnancy weight gain guidelines dissemination conceptual model.
NOTE: Available at http://www.iom.edu/healthypregnancy.

Rasmussen concluded her remarks and introduced the next speaker, Anna Maria Seiga-Riz. Seiga-Riz, a member of the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines, is associate professor in the Department of Epidemiology with a joint appointment in the Department of Nutrition in the School of Public Health at the University of North Carolina, Chapel Hill.

ANNA MARIA SEIGA-RIZ, UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL

The 2009 committee report that recommended the weight gain guidelines emphasized the importance of two actions—informing women and health care providers about the guidelines and helping women maintain their weight gain within the guidelines—and these two actions were the focus of the products developed by the dissemination committee. These products were designed to be visually appealing and easy to understand so that women at all different educational levels could relate to them, and the information within them was simplified to make it easier for prenatal

providers to remember. The committee developed the following products, which are available to the public free of charge on the IOM website (http://www.iom.edu/healthypregnancy):

- **A poster summarizing the weight gain guidelines** (see Figure 3-3).
- **A pamphlet for providers.** This pamphlet is small so that it can fit in a pocket, and it includes a summary card. The pamphlet intentionally does not provide all the details of the guidelines, but rather it highlights the most important information for women. Focus groups with women reveal that they hear a variety of messages from their clinicians; if providers use this pamphlet as the basis for their messages, then the result should be that women will start to receive more consistent messages. The pamphlet includes information on the different weight statuses, how much weight should be gained in the first trimester, and what the rates of weight gain should be in the second and third trimesters. If clinicians want additional information, then they can refer to the 2009 report.
- **A pamphlet for women** (see Figure 3-4). This pamphlet highlights questions that women often ask and provides quick answers. The pamphlet also includes a simple graphic that illustrates how much weight a woman should gain based on her weight entering pregnancy.
- **A weight gain tracker** (see Figure 3-5). This tracker, published in English and in Spanish, is compact so that a woman can keep it in her pocket and bring it to her visits. It provides information about how much weight women should gain during pregnancy, and it allows women to monitor their own weight gain. The weight tracker could be a useful aid when patients and clinicians or nutritionists talk about weight gain and behaviors that may be pushing the woman above or below what she should be gaining.
- **A "five common myths" chart** (see Figure 3-6). This piece, available in English and Spanish, helps to dispel common misconceptions held by pregnant women, such as needing to "eat for two."
- **An interactive infographic** (see Figure 3-7). The committee worked closely with a company to develop an attractive tool that will provide quick information for women in different body mass index (BMI) status groups. The infographic, which is accessible

from multiple platforms such as computers, tablets, and smartphones, includes an audio capability so that a woman can ask specific questions concerning weight gain relative to her own weight status and receive advice from a clinician (http://resources.iom.edu/Pregnancy/WhatToGain.html). The infographic is a new type of product for the IOM, but it answers a need that women have for simple information that is relevant to them specifically and that is delivered in a highly appealing manner.

QUESTION-AND-ANSWER SESSION

Rasmussen opened the floor to questions. One participant noted that she has clients who are living in motels, cooking on hot plates, and putting food in a cooler outside because they have very limited refrigeration. A cookbook to help women in these circumstances would be very useful, she said.

Another participant applauded the development of the interactive infographic, noting that women in her state report that they really like self-directed educational tools, such as Text4Baby, which allow them to decide what questions to ask and what information to receive. They are then free to follow up with their clinicians on issues of particular interest to them.

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FIGURE 3-3 Pregnancy weight gain guidelines poster.
NOTE: Available at http://www.iom.edu/healthypregnancy.

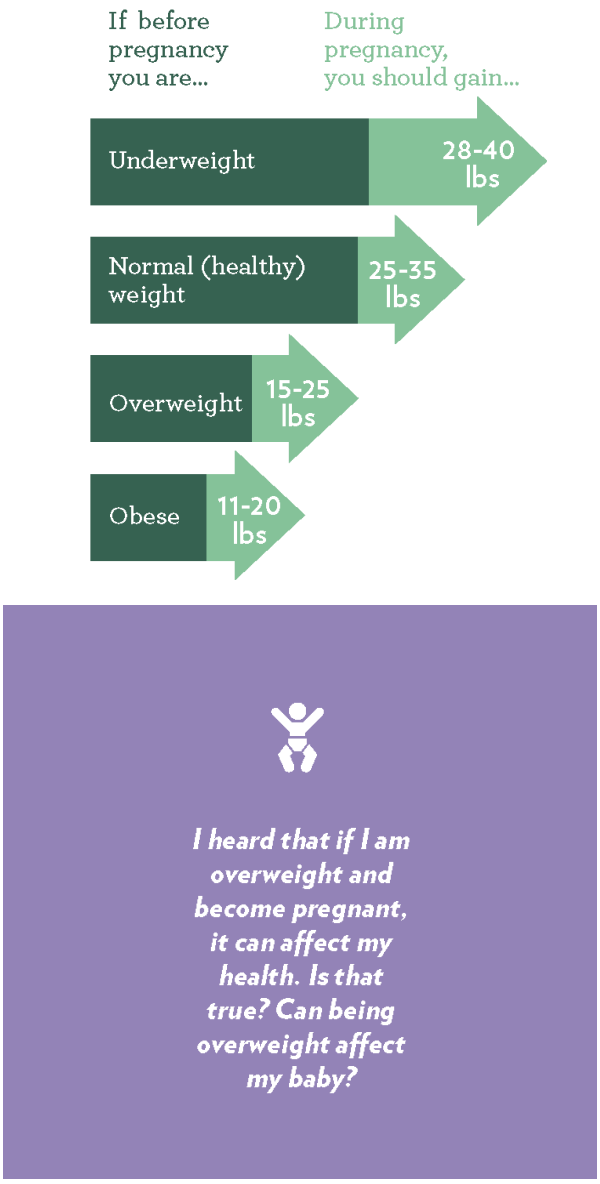

FIGURE 3-4 Images from the pamphlet for women.
NOTE: Available at http://www.iom.edu/healthypregnancy.

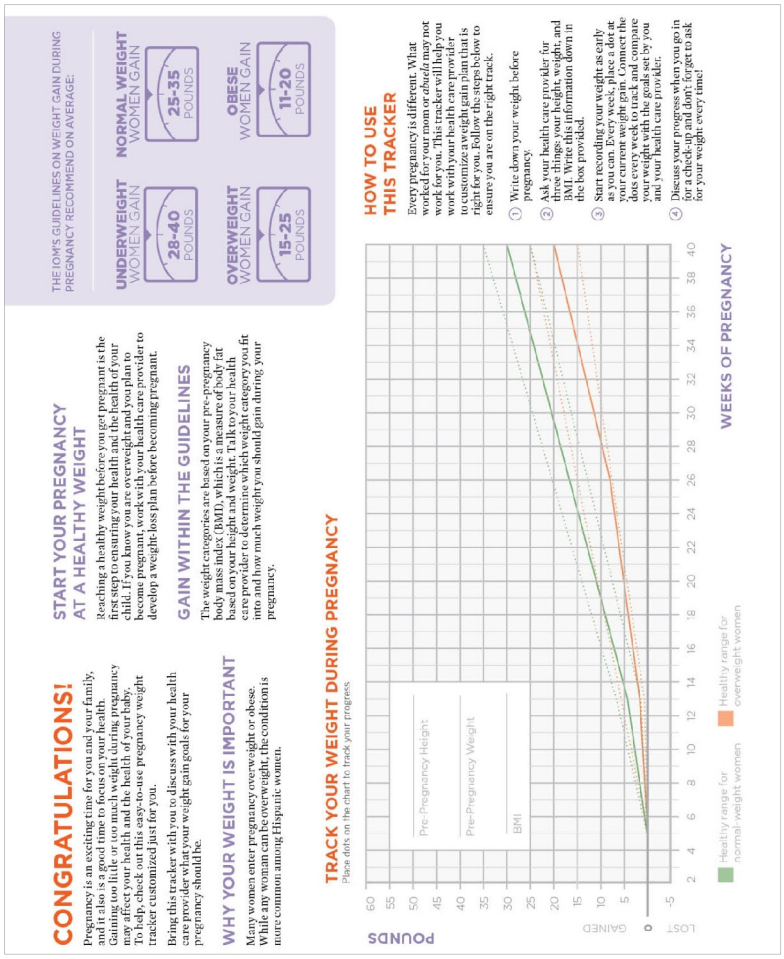

FIGURE 3-5 Pregnancy weight gain tracker.
NOTE: Available at http://www.iom.edu/healthypregnancy.

Healthy Pregnancy

Five Common Myths
Heard from Expectant Mothers

1. **MYTH: "I have to eat for two during my pregnancy."**

   TRUTH: "Eating for two" may cause you to gain too much weight. Your baby needs far fewer calories to be healthy than you need. **Gaining too much weight during pregnancy is not good for your health and can be risky for your baby's health too.**

2. **MYTH: "I should gain the same amount as the women in my family."**

   TRUTH: Every pregnancy is different. **What worked for your mom or abuela may not work for you.** You should work with your health care provider throughout your pregnancy to be sure you gain the weight that is right for you.

3. **MYTH: "The more weight I gain, the healthier and stronger my baby will be."**

   TRUTH: **Gaining too little or too much weight during pregnancy may harm your health and the health of your baby.** Gaining too much weight increases the risks for a C-section, early delivery, or a bigger baby, which can make for a complicated birth. Gaining too little increases the risk of having a premature baby and can cause future health problems as your baby grows up.

4. **MYTH: "I don't have to worry about my weight gain during my pregnancy. I'm already at my ideal weight."**

   TRUTH: Talk to your health care provider to determine which weight category you fall under and how much weight you should gain during your pregnancy. On average:

   - Underweight women should gain 28-40 lbs.
   - Normal weight women should gain 25-35 lbs.
   - Overweight women should gain 15-25 lbs.
   - Obese women should gain 11-20 lbs.

5. **MYTH: "I shouldn't worry about losing weight after my first pregnancy if I'm planning on having another child. I'll lose all the weight together."**

   TRUTH: If you are planning on having another child, losing the weight gained during your previous pregnancy is vital. Having another baby before losing weight may cause problems during delivery.

INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

iom.edu/healthypregnancy /theIOM /theIOM #WhatToGain

The Institute of Medicine Report

The Institute of Medicine (IOM) is an independent nonprofit organization that provides science-based health advice to policy makers and the public. In 2009, the IOM published a report that recommended how much weight women should gain during their pregnancy, whether they are underweight, normal weight, overweight, or obese before becoming pregnant.

Pregnancy Weight Gain and the Hispanic Community

Hispanic women are more likely to enter a pregnancy overweight or obese, especially if they have lived in the U.S. longer. They are also less likely to lose weight gained from a previous pregnancy.

Working with Your Health Care Provider and Your Family

The first step to a healthy pregnancy is working with your health care provider to create a customized weight gain plan for your pregnancy. But you shouldn't do this alone. Share your weight gain plan with your family and discuss how to make traditional family dishes healthier for the health of the whole family.

FIGURE 3-6 Pregnancy weight gain myths and facts chart.
NOTE: Available at http://www.iom.edu/healthypregnancy.

FIGURE 3-7 Screen from the interactive infographic.
NOTE: Available at http://www.iom.edu/healthypregnancy.

4

Session 2: Panel Discussion: What Are We Doing to Support Behavior Change?

Esa Davis, a member of the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines, and assistant professor of medicine at the University of Pittsburgh, introduced Session 2, which focused on what front-line providers are doing to support behavior change related to weight gain for women during the perinatal period. The three panelists for Session 2 were

- Dotun Ogunyemi, an obstetrician-gynecologist and specialist in maternal–fetal medicine representing the Society of Maternal–Fetal Medicine and the National Medical Association. Ogunyemi also is a clinical service professor at the David Geffen School of Medicine at the University of California, Los Angeles (UCLA).
- Josephine Cialone, head of the Nutrition Services Branch of the North Carolina Division of Public Health, Women's and Children's Health Section.
- Christina Johnson, director of professional practice and health policy at the American College of Nurse-Midwives.

PANEL DISCUSSION

Davis asked each of the panelists to discuss three topics as they relate to their own practices: the populations served and their needs, a

typical day of patient care, and how best to incorporate the guidelines into educational materials and tools.

Populations Served and Their Needs

Ogunyemi works in three different capacities with three different patient populations. In one practice he serves as a maternal–fetal medicine subspecialist. Patients who come to this practice have various complications of pregnancy, and more than half of them are obese. He also works as a supervisor of residents in an obstetrical practice that includes practicing midwives. The patients in this practice are also usually high risk. Many are migrant farm workers and have low incomes. About 60 percent are obese. Finally, Ogunyemi works as a maternal-fetal medicine specialist for a global health group that meets once a month. The group includes institutions from Ghana, Nigeria, Rwanda, Switzerland, Uganda, and the United States. At each meeting a member presents a clinical case with maternal mortality or major morbidity, and the group helps the presenter review various processes for community action that could improve care. In addition, in his work at UCLA Ogunyemi teaches residents, medical students, and fellows. An important issue in working with this group is to increase their awareness of nutrition during pregnancy.

Cialone noted that the Special Supplemental Food Program for Women, Infants, and Children (WIC) is administered in North Carolina through the state's local public health departments. The WIC program serves clients receiving such services as prenatal or family planning at the health department as well as clients working with private-sector providers; many of these clients also participate in Medicaid. The WIC program serves low-income women who often work in low-wage jobs. Their needs are great and go well beyond the issue of weight gain. Clients are juggling many stresses, such as food insecurity, concerns about paying rent, and concerns about whether their children can participate in the same activities that other children in school settings and child care do.

Johnson said that she and her fellow members of the American College of Nurse-Midwives (ACNM) perform about 12 percent of the vaginal births in the United States; of the births that midwives perform in the United States, 95 percent take place in hospitals. Midwives traditionally serve women in vulnerable populations, and they regularly deal with a variety of cultural issues, because their clients come from many countries and cultures. Many of the patients struggle with difficult

issues in their daily lives: how to get to an appointment with three small children and a bus system that is not working right, or how to feed a family a healthy diet when the community does not have sources of good, fresh food. A key priority for midwives is to establish personal relationships with their patients during the prenatal course of care so that they can substantively engage in these issues with them. Establishing such relationships allows midwives to use motivational interviewing techniques that help elicit the reasons why a patient is not able to change her behavior or what elements need to be put into place to enable behavior change. It is difficult to tell patients to exercise when their neighborhood is not safe, there is no mall nearby, or they cannot get their children to the park easily. Furthermore, the patients' traditional favorite foods are often not conducive to weight loss, but it is difficult to get patients to act in ways that are contrary to their cultural norms. Trying to find effective solutions takes one-on-one, time-intensive therapy, which is difficult to do in the current structure of the U.S. prenatal health care system. Additional frameworks are needed within the system to permit this more effective approach.

A Typical Day of Patient Care

Ogunyemi's practice includes a maternal–fetal medicine practice and a high-risk obstetrical practice. First, the maternal–fetal medicine practice is located in downtown Los Angeles and sees 80 or more patients daily. All are high-risk obstetrical patients referred by other clinicians. The office has 3 maternal–fetal medicine specialists and about 10 medical assistants. When a patient comes in, she is first weighed and then classified into a weight status category. A classification of morbid obesity is treated as an indication for referral to the practice, and her management is based on that indication. The next priority is to assess the patient's weight gain up to that point during the pregnancy and to ask the patient to recall everything she ate during the previous 24 hours. Based on the answers provided on that 24-hour recall, the patient is given nutritional instruction and counseling that has been individualized with an electronic medical-based approach, and then she is asked to return in a week for a follow-up visit. At that follow-up session, a physician reviews the dietary changes that the patient has been making and makes further suggestions. The patient is also informed about the importance of exercise. Ultrasound is used to detect excessive fetal growth, whose presence will lead to further adjustments in the patient's dietary and exercise recommendations. Many of patients in the practice have diabetes,

and the preventive approach and emphasis on diet and exercise that they learn while pregnant has helped many of them lose weight, maintain their diet, and get off diabetic medications.

Second, Ogunyemi's obstetrical care practice, which is also in downtown Los Angeles, is staffed by residents and five or six midwives, who are critical providers of the care to these high-risk patients. The patients in this practice have a very high incidence of obesity and gestational diabetes. One of the models used is a "centering" approach in which similar patients are grouped together in their first trimester. They meet with a midwife at each visit to discuss diet and exercise, they bring their meals and are taught to cook together, and they are followed as a group throughout the pregnancy. This approach helps the patients become more motivated as a result of working with others in their group. They obtain ideas and receive support from other women in the group After the women deliver, they are invited to stay in interconception care in which they are followed regularly for 2 years or until they become pregnant again. Through such care, Ogunyemi has been able to help patients maintain or reduce their weight so that they are in a better place if they become pregnant again. The program also provides contraceptive care to patients, which has been especially helpful for women with gestational diabetes.

In his role as an educator, Ogunyemi encourages medical students, residents, and fellows to meet with nutrition service providers. This approach fosters the creation of multidisciplinary teams in which fellows, residents, and medical students can confer with nutritionists and nutrition counselors about patients' weight gain, and it helps both the clinicians and the nutrition professionals provide consistent, reinforcing messages to patients.

In response to a question about whether it was difficult to get either of the practices he works with to implement these new approaches to patient care, Ogunyemi said that one reason the changes were successful was that the practices were somewhat freestanding. The maternal–fetal medicine practice is a private practice run by a physician who is supported by a hospital. The maternal–fetal medicine staff feel strongly that many of the problems of pregnancy are related to weight gain and therefore emphasize pregnancy weight gain in the program. The other practice has been successful because of the leadership of the midwives, who realized that much of the morbidity in the patient population was related to obesity. The midwives met with the physicians as well as with the administrators of the clinic and made a successful case for their proposed approach.

Cialone, the second panelist, said that the North Carolina health department has addressed pregnancy weight gain in two ways. One was to change policies for prenatal visits as well as policies within the WIC program to support the Institute of Medicine (IOM) recommendations. The health department integrated information from the IOM guidelines into new client materials and tools developed for clinicians to use with prenatal and preconception clients.

Second, the health department has supported providers and local health departments, primarily nurses and dietitians, with training to help them understand why helping clients meet the guidelines is so important to the long-term outcomes of the women and their children. The health department puts considerable emphasis on weight gain during pregnancy, but places even more emphasis on preconception care to help clients achieve a healthy weight between or after their pregnancies. This effort has been carried out primarily through WIC because the program has the opportunity of seeing the children in a family throughout their first 5 years. WIC has tried to use a family approach to counseling around weight and to moving families to a healthy weight.

North Carolina has built on a state-level obesity prevention initiative of the Centers for Disease Control and Prevention called NC Eat Smart, Move More to conduct a program called Families Eating Smart, Moving More (http://www.eatsmartmovemorenc.com/FamiliesESMM/FamiliesESMM.html). The program has an array of tools and materials for providers that focus on moving families toward a healthy weight.

One barrier that North Carolina has experienced is that private providers have not used the health department's tools and trainings extensively; this may be because private providers look to their national associations rather than to the health department for guidance in their clinical practice. Another barrier is that providers within health departments need enhanced skills in motivating behavior change. Accordingly, the health department has put considerable effort into helping providers learn how to counsel and to examine the barriers that are preventing women and families from achieving their goals as well as into helping providers learn how to set appropriate, attainable goals with families.

In response to a question about the interactions between WIC programs and the health care system, Cialone said that the health department attempts to have good interactions with private providers and the WIC program, which is housed primarily in local health departments. The health department suggests to WIC program staff that they encourage their clients to discuss their concerns about barriers to care with their private providers and to share the WIC staff's recom-

mendations. However, time constraints and the challenges of providing care to many patients each day can make it difficult to maintain ongoing communication with the clients.

Johnson said that one of the hallmarks of midwifery care is that it is grounded in health promotion and disease prevention, and this emphasis is a major focus of midwifery education programs. Midwives are very concerned about education, interpersonal communication skills, and developing one-on-one relationships as patient advocates. The systems barriers described by the others panelists are very familiar to midwives as well. One potential solution is to educate members more thoroughly and to provide more specific guidance about interviewing techniques so that providers can be more successful in conversations about weight, nutrition, and exercise.

Johnson also noted that changing the paradigm of prenatal care to focus more on prevention may be advantageous because pregnancy is usually a time of wellness for women. In addition, women may be more amenable to behavior change during pregnancy because they are motivated to do the best for their babies. Traditionally, midwives have used a variety of innovative care models and techniques, such as the centering pregnancy model or diet recalls at every prenatal visit. If a woman has trouble writing, recalling, or describing her diet, then she can take pictures with her smart phone and bring them to the next visit. It is very simple, and the photos allow the clinician to estimate portion sizes. A third option is to incorporate diet and nutrition into home visits. Nurses do considerable home visiting for vulnerable populations. Integrated care models with a maternity care home focus, in which one care provider does the coordination and can follow up with referral sites, show great promise.

Incorporating the Guidelines into Educational Materials and Tools

Many professional associations have been using their conferences and meetings to teach clinicians about the guidelines, and the Society of Maternal–Fetal Medicine, for example, has even created a link on its website for people who have questions about the guidelines. At the clinic level, individual doctors can also play a role. Ogunyemi has made sure that copies of the guidelines are available in his practice and that doctors and other providers are familiar with the guidelines and the specific weight gain recommendations. He noted the poster (see Figure 3-3) also is very useful in helping providers remember the specifics of the guidelines.

Cialone reiterated that North Carolina has developed an array of materials and tools for providers. As part of this effort, the health department disseminated posters to every waiting room and exam room. The bottom of the poster lists a few key questions designed to encourage patients to talk to their providers about their body mass index. North Carolina also has worked on "conversation starter" tools. In clinic settings, the health department has moved away from doing diet recalls, focusing instead on a few key trigger questions, such as "Tell me a little bit about what you usually drink with your meals," "Tell me a little bit about how many times you eat out," "Is this something you're concerned about?" and "Is this something you would like to work on?"

The health department has developed materials on a variety of topics that help guide providers in their counseling and also can be given to clients to take home. Increasingly, the clients that these providers serve are less inclined to prepare meals at home. Messages about eating at home and how it can be done more easily are therefore integrated into these materials. The North Carolina health department also has done much to focus on breastfeeding through peer support. Increasing the prevalence of breastfeeding is a major key to helping women move toward a healthy weight.

Johnson said that the ACNM has disseminated the guidelines to its members through its weekly e-newsletters, articles in its quarterly newsletter, and a small campaign on ACNM's Facebook site that asked members how they talk to their patients about weight. The ACNM has also published a number of articles on the guidelines in its peer-reviewed *Journal of Midwifery & Women's Health* and has disseminated relevant information on its e-mail lists. The ACNM also has developed a series of patient handouts called "Share with Women," which providers can use in their offices and are geared to the reading level of the average patient population.

The ACNM is also engaging women directly through a new consumer campaign called Moment of Truth, the mission of which is to increase awareness about women's health and maternity care. The association surveyed more than 1,200 women who had given birth recently or were pregnant, and the survey's results showed a major gap between what women say they want in their prenatal care and what they are actually getting. Eighty percent of the women who responded to this survey said that they value a partner in their care, and they want someone who listens to them. However, 50 percent of women had not had any conversations on any of the typical prenatal care topics that were listed in the survey, including nutritional and wellness topics. The ACNM be-

lieves this is where it needs to focus its efforts because women need to know what questions to ask so that they can prompt their clinicians to engage in these important conversations.

QUESTION-AND-ANSWER SESSION

Davis opened the floor to questions from workshop participants, but first noted that creating a maternal-centered medical home using a multidisciplinary team-based approach, an idea expressed in different ways by each of the panelists, could be a valuable opportunity for bringing together obstetricians/gynecologists (OB-GYNs), family physicians, pediatricians, nutritionists, and outside organizations such as WIC, La Leche League, and other maternal health community groups. The electronic health record could act as a linchpin in this approach by linking all the participants and providing a forum for ongoing communication.

One participant said that, from a life-course perspective, helping young pregnant women achieve and maintain a healthy weight can be seen as a way to capitalize on a window of opportunity in which the woman might be saying, "I want to make something of myself because I realize I want to be a good parent." One suggestion was to put the guidelines on a sticker that goes on the bathroom scale so that the guidelines are literally at a woman's feet. Ogunyemi and Cialone both agreed strongly that the life-course perspective provides a useful way of thinking about the issue and that pregnancy presents an opportunity to set a women on a healthy path. Cialone noted that the North Carolina health department has formed a group to look at how women's and children's health programs can focus on the life course. For example, when an adolescent comes into the clinic for well care, staff can start to have a conversation, not only about the specific purpose of the visit (an adolescent visit, school health visit, or permission to participate in athletics), but also more broadly about the young woman's goals and what staff can do for her and with her to get her on a healthy life course.

Johnson noted the gap that currently exists between pediatric care and prenatal care. Many women come into prenatal care not having been seen by a clinician since they were children. Despite the fact that it is important to reach women before they become pregnant, the reality that providers face is that they miss that preconception period for a large percentage of their patients. Johnson expressed the hope for greater linkages between pediatricians and clinicians involved in women's reproductive health care, which could encourage discussions on how best

to educate and prepare girls and young women about a range of topics, such as the nature of a well-woman visit.

Davis thanked the panelists and workshop participants and ended the session on supporting behavior change.

5

Session 3: Implementing the Guidelines

Patrick Catalano, an obstetrician and maternal–fetal medicine specialist at Case Western Reserve University and a member of the Committee to Reexamine IOM Pregnancy Weight Guidelines and of the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines, introduced the next session of the workshop. This session focused on federal, research, and private-sector perspectives on putting the Institute of Medicine (IOM) pregnancy weight gain guidelines into action. The three panelists and one speaker for this session were

- Marta Kealey, a nutritionist with the Supplemental Food Programs Division at the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA).
- Michelle Lawler, deputy director of the Division of State and Community Health in the Health Resources and Services Administration (HRSA).
- Suzanne Phelan, associate professor of kinesiology, California Polytechnic State University.
- Mr. Richard Sass, chairman of Contact Wellness Foundation.

MARTA KEALEY, FOOD AND NUTRITION SERVICE, USDA

FNS is responsible for all of the domestic nutrition assistance programs in the United States, including the Supplemental Nutrition Assistance Program (formerly known as food stamps) and an array of other

nutrition assistance programs. The Supplemental Food Programs Division in FNS administers the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which, according to 2010 data, provides services to about 40 percent of all women who deliver live births in the United States and to almost half of all infants born in the United States.

About half of all pregnant WIC participants enter the program during their first trimester. Another 35 percent enter in their second trimester, while less than 10 percent enter in their third trimester. The program encourages women to enroll early.

WIC provides a defined list of supplemental foods that supply specific nutrients of importance to pregnant and breastfeeding women, infants, and young children. In addition, WIC provides nutrition services, including nutrition assessment, nutrition education, referral to health and social services, promotion of physical activity, and an extensive breastfeeding promotion, support, and peer counseling program. As part of WIC's routine certification process, all women are weighed and measured in the prenatal and postpartum periods. WIC has few federal requirements in terms of what health data it collects, but certain anthropometric data are required and are measured at the clinic. During their postpartum periods, women on WIC are periodically weighed and measured.

WIC is unique among federal programs in that it continues services through the postpartum period—for 6 months if a woman is not breastfeeding and for an entire year if she is. This feature is part of WIC's effort to encourage breastfeeding.

The IOM pregnancy weight gain guidelines were very useful to WIC because the program relies on other professions and experts in the field to provide guidance on how to evaluate and assess appropriate preconception weight and maternal weight gain. When the 2009 IOM report was published, WIC changed its policy and practices. As of October 2011, all WIC clinics across the country and in the U.S. territories use the 2009 IOM weight gain guidelines in assessing and monitoring women. WIC also included the weight gain guidelines in its WIC participant fact sheet, "Tips for Pregnant Moms."

As part of its focus on periconception health care, WIC has funded a WIC periconception nutrition grants program in partnership with the University of California, Los Angeles, which awarded seven research grants under this program in the fall of 2012. The grantees will each partner with a local WIC agency to examine such topics as the impact of a short interpregnancy interval and weight retention, maternal over-

weight and obesity, and innovative nutrition education interventions. The findings will be presented in 2016.

MICHELE LAWLER, MATERNAL AND CHILD HEALTH BUREAU, HRSA

HRSA is the primary federal agency tasked with improving access to health care services for people who are uninsured, isolated, or medically vulnerable. The agency has 6 bureaus and 10 offices. Two of the bureaus have particular relevance to the work of the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines: the Maternal and Child Health Bureau (MCHB), which is primarily focused on the delivery of core public health services, and the Bureau of Primary Health Care (BPHC), which oversees community health centers and is more focused on the delivery of primary care.

Programs within both bureaus provide significant opportunities for encouraging the implementation of the 2009 guidelines. MCHB has a longstanding history of involvement in maternal nutrition and perinatal health, including having provided funding support to the IOM for the development of nutrition reports as far back as the 1970s.

MCHB's largest program, in terms of funding dollars, is the Maternal and Child Health Block Grant program, which was authorized under Title V of the Social Security Act. The program provides formula block grants to states that are awarded annually, with the amounts based partly on the number of children in poverty within a given state versus the number of children in poverty nationally. The block grants support a range of services in the states that are designed to ensure the health of the nation's mothers, infants, and children, including children with special health care needs. In fiscal year 2011, the 59 states and jurisdictions in the program served more than 44 million individuals, including more than 2.3 million pregnant women. Over the years, national and state leadership provided by Title V–supported programs has contributed to implementing recommended standards for prenatal care and for improved nutritional practices during pregnancy. The states are also expressing a growing interest in applying the life-course perspective to maternal and child health practice.

In addition to national performance measures and indicators on which states report annually, states develop between 7 and 10 state performance measures to address individual priority needs to the extent that they are not addressed by the national measures. Twenty-six such measures specifically focus on the weight status of women before, dur-

ing, and after pregnancy. Some states choose to focus their measures on weight status in women of reproductive age, whereas other states focus on the pre-pregnancy body mass index (BMI) in women who have given birth. Some states, such as North Carolina, focus on appropriate weight gain during pregnancy.

State Title V programs are active in a number of areas: California considers obesity in its risk factor analysis for pregnancy-associated mortality reviews. It monitors pre-pregnant weight status and pregnancy weight gain based on the revised IOM guidelines. South Dakota is implementing a gestational weight gain initiative that provides materials and a toolkit on adequate pregnancy weight gain to physicians attending births across the state. Virginia has launched its Pregnancy Weight Gain Guidelines, a set of continuing education modules developed through a partnership with the University of Virginia. The Kentucky Department of Health provides annual training to local health department nurses and staff, including training on the IOM pregnancy weight gain guidelines. Wyoming focuses on helping women gain enough weight during pregnancy in its Healthy Baby Is Worth the Weight program.

MCHB's Healthy Start program, which was initiated in 1991, provides grants to communities with very high rates of infant mortality (at least 1.5 times the national average). The program focuses on reducing the factors that influence perinatal trends in high-risk communities. These projects are community driven and service focused. In 2010, 104 Healthy Start projects were providing services in 38 states, the District of Columbia, and Puerto Rico. Healthy Start projects provide risk-reduction and risk-prevention counseling on a range of issues. Prenatal program participants receive counseling on overweight and obesity, underweight, and gestational diabetes. Interconception participants receive counseling around overweight and obesity, underweight, lack of physical activity, and diabetes.

Another new MCHB initiative is the Collaborative Improvement and Innovation Network (CoIIN) to reduce infant mortality. Born out of a January 2012 infant mortality summit convened in the 13 southern states, CoIIN was inaugurated in March 2012 as a mechanism to support the adoption of collaborative learning and quality improvement principles and practices to reduce infant mortality and improve birth outcomes. Strategy teams are working collaboratively on common priority areas identified in the individual state infant mortality action plans to establish quality improvement aims and to explore state-level opportunities for achieving the aims. The teams are currently developing measurements for tracking their progress, and most should finish their work by the end

of 2013. Of particular interest to the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines may be the strategy team that is focusing on expanding interconception care in Medicaid.

CoIIN is part of a portfolio of efforts from MCHB to improve birth outcomes, and it contributes to the advancement of the Department of Health and Human Services (HHS) Secretary Kathleen Sebelius's national strategy for addressing infant mortality. It promotes increased sharing of best practices across the states, and it is strengthening existing collaborations between states in addressing maternal and child health issues of mutual concern. In 2013 the program will be expanded to include the eight remaining HHS regions, beginning with Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin).

The National Maternal Health Initiative, described by Michael Lu and planned for launch in May 2013, is a public–private partnership that is just getting under way. Work groups have been formed to identify best practices in quality of care, community efforts, women's health and public awareness, and surveillance.

BPHC's Health Center Program reached about 20.2 million patients in calendar year 2011. These patients, who were served by more than 138,000 staff members, had 80 million individual visits. Slightly more than 50 percent of the female patients were between the ages of 24 and 39 years. Of the total number of patients served, 41 percent were white non-Hispanic, 31 percent Hispanic, and 21 percent black non-Hispanic. Although the health centers' uniform data system has no measures specific to pregnancy weight gain, a few are somewhat related to pregnancy weight gain, such as the percentage of early entry into prenatal care and the percentage of newborns below normal birth weight.

BPHC actively promotes a culture of quality improvement. Its strategies include the development and enhancement of access points to transform health care, particularly the adoption and meaningful use of electronic health records and the implementation of the patient-centered medical home, which together can serve to integrate health center programs into other community services and align these services to promote quality health care (see Figure 5-1).

In particular, goals 2 and 3 relate to areas that present real opportunities for moving forward on the implementation of the pregnancy weight gain guidelines. Although the uniform data system and meaningful use do not include clinical performance measures specific to gestational weight gain, they do have measures concerning screening, BMI, and follow-up. Focusing on follow-up, screening, and counseling related to BMI

FIGURE 5-1 Health center program: Quality strategy.
SOURCE: Lawler, 2013.

gives health centers the opportunity to follow a woman across her life span, including during pregnancy. Clinical decision support through the electronic health record is also a way to enhance guidelines-based care. Triggers can be put in based on patient characteristics and the timing of the visits, which can help in tracking the implementation of guidelines.

Many opportunities also exist relative to the patient-centered medical home. The patient-centered medical home is accessible, comprehensive, and patient centered, and it is delivered by a team of interdisciplinary providers. It also makes possible the measurement of performance through a systems-based approach.

HRSA programs in both MCHB and BPHC offer many opportunities for reaching key audiences in order to promote the adoption of the guidelines among providers and to educate women about their importance. HRSA considers broad dissemination of the guidelines to be essential to its efforts to inform women, health care providers, state Title V programs, community health agencies, and others about the importance of women entering pregnancy within a normal BMI and achieving recommended weight gain during pregnancy. HRSA's focus goes beyond ges-

tational weight gain and includes the promotion of appropriate weight before, during, and after pregnancy. In addition, HRSA considers preconceptional and interconceptional counseling and full implementation of the 2009 pregnancy weight gain guidelines to be important changes in the care that is provided to women. Finally, HRSA is committed to continued research on effective interventions to promote healthy weight in women before and after pregnancy and to help women achieve weight gain during pregnancy that is within the recommended ranges.

SUZANNE PHELAN,
CALIFORNIA POLYTECHNIC STATE UNIVERSITY

In considering ways to disseminate the IOM pregnancy weight gain guidelines, Phelan said, workshop participants face three large questions: One, do we know how to help women gain the recommended amounts of weight in pregnancy? Two, are we ready to translate the knowledge into action? Three, what should the future look like?

Results from the Fit for Delivery study, a randomized controlled trial to prevent excessive weight gain in pregnant women, provide one answer to the first question. The study recruited 200 normal weight and 200 overweight and obese pregnant women, each of whom was assigned to either standard care or standard care plus a lifestyle modification treatment program. The intervention, which was low intensity, focused on gestational weight gain, healthy eating, moderate physical activity, behavioral strategies, and motivation. Motivation was addressed in one face-to-face visit at the research center at the beginning of the study combined with weekly mailing of printed cards that challenged the women to engage in a different health behavior each week. All of the women received three brief phone-based counseling sessions and additional phone intervention if they were gaining too much or not enough weight. The women also received weight gain graphs after each of their regularly scheduled prenatal visits so that they could see how their weight gain compared to the guidelines. All the data were collected before the 2009 IOM revised guidelines were published, so results were based on the 1990 guidelines. However, after the appearance of the revised guidelines, the data were re-analyzed according to those guidelines, and the results were the same.

The study's results showed that the intervention appeared to prevent excessive weight gain in the normal-weight women but not in the overweight and obese women. Fifty-two percent of the normal-weight women who received standard care exceeded the weight gain recommended in

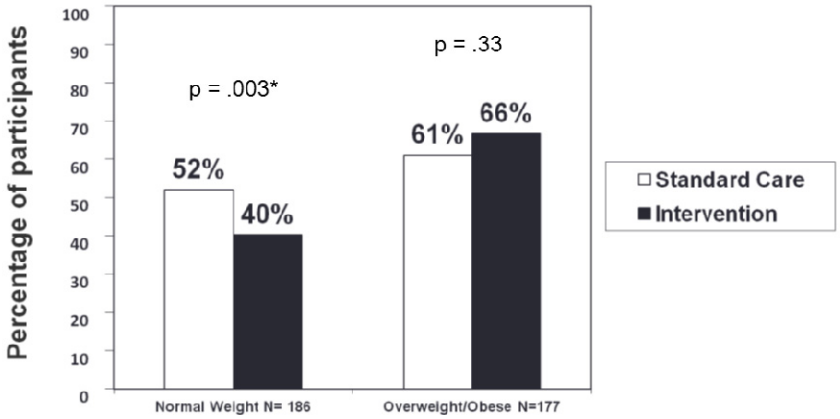

FIGURE 5-2 Results: Proportion of women exceeding IOM weight gain guidelines.
NOTE: *OR =.38 [0.20–0.87]; p = .003].
SOURCE: Phelan et al., 2011b, p. 776. Reprinted with permission from the American Society for Nutrition.

the guidelines, while only 40 percent of those in the intervention group did; by contrast, the investigators saw no difference between the standard care and intervention groups in the percentages of overweight and obese women who exceeded the guidelines. The women had been recruited early in pregnancy (after 13 weeks of gestation on average). At recruitment, 56 percent of the normal weight and 68 percent of the overweight and obese women were already above the recommended rate of gestational weight gain for that time in the pregnancy (see Figure 5-2).

Another major finding was that once women had exceeded recommendations during pregnancy, few were able to return to a weight gain that was within the guidelines. This was seen across subgroups of weight status, both in the standard care and intervention groups. Once a woman had gained more than the recommended weight, only between 3 and 10 percent were able to get back to within the recommended weight gain rates.

Although the intervention stopped at delivery, the study saw positive effects at 6 months postpartum in both the normal-weight and the overweight and obese groups in terms of the percentage of women who had returned to their pre-pregnancy weight or less by 6 months postpartum. Among the normal-weight women, 35 percent of the intervention group returned to their pre-pregnancy weight compared with only 20 percent of

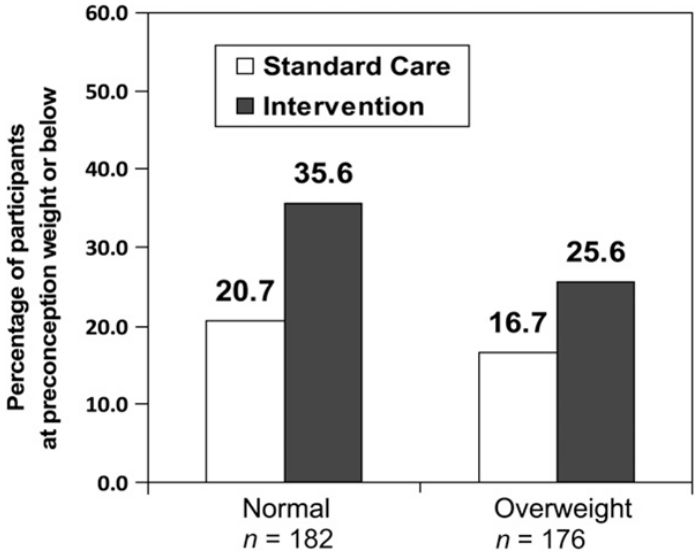

FIGURE 5-3 Percentages of women who returned to their preconception weights (±0.9 kg) or below at 6 months postpartum.
SOURCE: Phelan et al., 2011b, p. 777. Reprinted with permission from the American Society for Nutrition.

the standard care group. Among the overweight participants, 25 percent of the intervention group versus only 17 percent of the standard care group returned to pre-pregnancy weight or below (see Figure 5-3).

Thus, in addressing the first question of whether we know how to help women gain the recommended amount of weight during pregnancy, the results from Fit for Delivery indicate that a low-intensity behavioral intervention can help prevent excessive gestational weight gain in normal-weight women but not in the overweight and obese, and that such an intervention is not very effective in helping women who are exceeding guidelines get back within guidelines. This indicates that more intensive interventions may be necessary, both to help overweight and obese women in pregnancy and to help women who are exceeding to get back within the guidelines.

The Fit for Delivery study is just one of a large number of studies with varying results. Many recent published reviews and meta-analyses have summarized the results of gestational weight gain intervention trials. The results and the conclusions of the reviews differ, with some concluding that lifestyle interventions in pregnancy may be effective, and

others finding no or inconsistent effects as well as inadequate study quality.

In light of such uncertainty, it may be helpful to consider what works to help women manage their weight outside of pregnancy. Decades of randomized clinical trials have tested interventions to help non-pregnant women manage their weight. The strategies can be classified into three main classes according to how well they work: effective, moderately effective, and not effective. The effective strategies include setting calorie goals, using structured meal plans or meal replacements, weight monitoring, high physical activity, behavioral strategies, and ongoing patient–provider contact.

Randomized clinical trials of lifestyle interventions in pregnancy that have used a combination of several of these strategies have generally found positive effects on reducing excessive gestational weight gain, while studies that have used fewer of the strategies have had mixed effects or no effects. These results indicate that comprehensive programs that include calorie goals, weight monitoring, behavioral strategies,

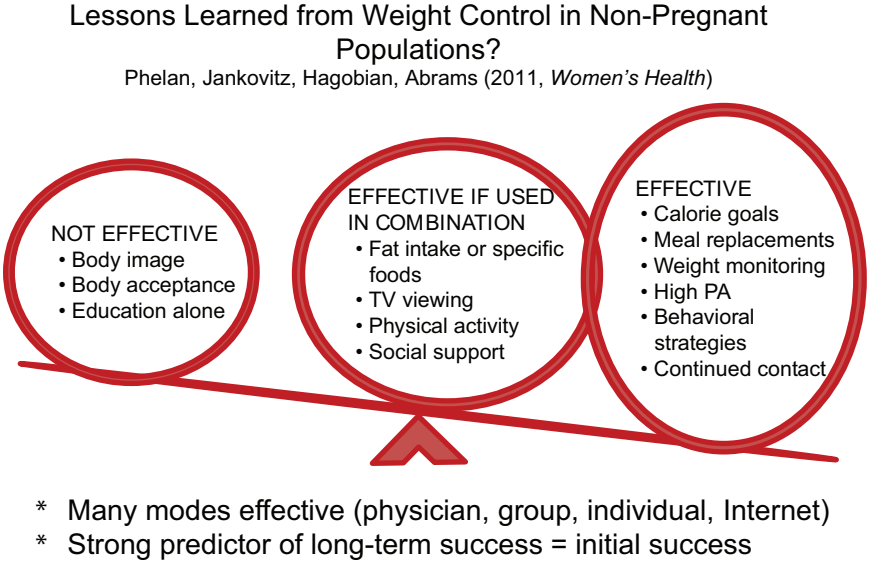

FIGURE 5-4 Lessons learned from weight control in non-pregnant populations.
SOURCE: Phelan, 2013. Derived from Phelan et al., 2011a.

ongoing contact, and physical activity—and for overweight and obese women, daily diet monitoring as well—might be effective in helping prevent excessive weight gain.

Clearly, much more research needs to be done to explore and confirm these findings, and a number of studies are under way. Currently, clinicaltrials.gov shows that 21 randomized clinical trials are testing different lifestyle interventions in pregnancy.

The second key question is: Are we ready to translate knowledge into action? It is important to note that efficacy is not the same as effectiveness, so what is studied in research centers may not translate, that is, may not be feasible or have the same effects in the community. However, in light of the promising activities already described by presenters and programs that are available to women to help prevent excessive weight gain, it is reasonable to predict that "real-world programs" will show that the same pattern as the efficacy trials—that is, the comprehensive programs will be the ones that work.

Summary of RCTs

Phelan, et al 2011; Women's Health

	CALORIE GOALS	MEAL PLAN	WEIGHT MONITOR >1/MO	DAILY DIET MONITOR	BEHAVIOR STRATEGY	ON-GOING CONTACT	EFFECT
Wolf et al. (2008)	X		X	X	X	X	YES
Thompson et al. (2009)	X		X	X	X	X	YES
Quinlivan et al. (2011)	X		X	X	X	X	YES
Asbee et al. (2009)	X		X		X	X	YES
Polley et al. (2002)			X		X	X	MIXED
Phelan et al. (2011)			X		X	X	MIXED
Jeffries et al. (2009)			X				MIXED
Guelinckx et al. (2010)					X		NO
Hui et al. (2006)					X	X	NO
Jackson et al. (2011)					X	X	NO
Callaway et al. (2010)					X	X	NO
Rhodes et al. (2010)		X				X	NO
Althuizen, E. (2013)					X		NO

FIGURE 5-5 Summary of randomized control trials.
SOURCE: Phelan, 2013. Derived from Phelan et al., 2011a. Reprinted with permission from Future Medicine Ltd.

Regarding the third question—What should the future look like?—several options can be considered:

- Modify current prenatal approaches to reverse the current pattern of prenatal care visits. Currently, visits tend to be backloaded so that women are seen more frequently toward the end of pregnancy and less frequently in the beginning. Changing this approach so that women are seen more frequently at the beginning of pregnancy could be considered, especially in light of data showing that once women exceed weight gain guidelines, it is difficult to get them back within the recommendations.
- Classify pregnancies in overweight and obese women as high risk. This might open the door for more intensive and frequent contact.
- Remember normal-weight women. Given the link between excessive weight gain in normal-weight women and their risk of obesity and overweight later in life, it is important to ensure that programs are also available for this group. Most of the ongoing research is targeting overweight and obese women in pregnancy, but programs to help normal weight women are also valuable.
- Provide multidisciplinary training for practitioners in methods to prevent excessive gestational weight gain and in strategies that encompass the life-course approach.
- Ensure financial coverage to support such programs.

QUESTION-AND-ANSWER SESSION

Catalano moderated the question-and-answer session following the presentations. He opened the discussion by asking about the accuracy of pre-pregnancy weights reported by Fit for Delivery study participants. Phelan replied that, contrary to her expectations, the reported weights were reasonably accurate. The study team compared self-reported pre-pregnancy weight and chart-abstracted measured weights, and the correlation was 0.96.

Andrea Sharma stated that she is using data from the Pregnancy Risk Assessment Monitoring System to conduct analyses of serial measured weights during pregnancy. The analysis is showing that first trimester gains are much higher than the assumed five-pound range. She wondered what could be done to catch those women early, regardless of their BMI if they are already above the first trimester weight gain threshold, and get them into nutrition counseling. Phelan strongly agreed and stated that

any effort to encourage women to begin prenatal care early would be useful. Lawler added that it is also important to keep high-risk populations in mind and ensure that women in these populations also begin prenatal care as soon as possible.

One participant asked whether pregnancy weight gain should be treated like non-pregnancy weight gain, given that the same weight control strategies are effective for both populations. Would programs such as Weight Watchers or other weight loss programs be acceptable for the pregnant population? Phelan replied that although the strategies can be applied to pregnancy, they are applied differently. A critical distinction is that weight loss is not the same as preventing excessive weight gain. Much still needs to be learned about weight gain in pregnancy, and although it may be possible to apply to pregnancy much of the work that has been done outside of pregnancy, it is still premature to conclude that the pregnant and non-pregnant populations could be treated in the same way.

The participant then asked whether, if the outcome of pregnancy is determined in the first 3 months of pregnancy, then might it be possible to change the paradigm of prenatal care so that women are seen more often in the first trimester? Many women do not even begin prenatal care until after the first trimester. Phelan responded by saying that an even more critical issue is motivating women to figure out that they are pregnant earlier and to obtain care sooner or, ideally, to begin working with their providers even before pregnancy.

Lawler noted that for the state Title V programs, entry into prenatal care is one of the national measures on which states report. Many pregnancies are not planned; therefore, trying to get women to engage in healthful behaviors before pregnancy and to enter the health care system early in pregnancy is a challenge. She added, however, that this is one area in which interconception counseling can be very helpful. Even if clinicians miss the first pregnancy, WIC and other programs that follow the mother and the child after birth provide opportunities for education to help prepare the mother for the next pregnancy. Kealey added that the WIC community looks at the postpartum period as the preconception period for the next pregnancy and that additional emphasis on that perspective may be warranted.

Another participant suggested that student health services at colleges and universities could be a useful channel for action. Young women already are visiting the services to obtain contraception and for gynecological issues. An opportunity exists there to lay a solid foundation for helping young women think about their health care and reproductive health

over the long term. The participant also returned to the issue of an early first prenatal visit, noting that even if a woman wants to see her obstetrician very early in her pregnancy, many practices will not see her before 8 or 11 weeks. There may need to be a culture shift on the medical side to convince practices to see women at 8 weeks or even 6 weeks. Another possible entry point for interconception care is through primary care providers, such as pediatricians and family practitioners, who may see postpartum women often in the context of well-child care.

Catalano thanked the presenters for their remarks and the participants for a stimulating discussion.

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6

Presentation on the First Thousand Days Program

Patrick Catalano introduced the next speaker, Richard Sass. Sass founded the Contact Wellness Foundation as his personal contribution to health care reform, reflecting his desire to move beyond his previous work in the delivery of innovative medical products to the creation of motivational tools leading to positive health behavior changes.

RICHARD SASS, CHAIRMAN, CONTACT WELLNESS FOUNDATION

The First Thousand Days program, which focused on children from conception through 2 years of age, includes a wellness algorithm and is based on the relatively new science of the developmental origins of health and disease. If the fetus is biologically programmed by the mother from the very point of conception, then it is all the more urgent to direct pregnant women who are at risk of diabetes, obesity, and other chronic conditions into preventive care as early as possible.

Compared with the standard prenatal protocol, the First Thousand Days protocol increases both the frequency and the duration of time a woman is involved in prenatal care. The standard prenatal protocol consists of 11 10-minute visits; the First Thousand Days protocol calls for an additional 40 hours of visits. Using a mental health promotion approach, the program encourages each pregnant woman to assemble her own small group of six or eight people, which might include her mother,

grandmothers, husband or significant other, neighbors, or friends, and would meet weekly in a loving and supportive atmosphere to talk about weight gain and other health-related goals and objectives. To the extent that the group is successful in encouraging the woman to improve her metabolic function, normalize her glucose, exercise more, and make healthy behavioral choices, it can help set the stage for a healthy pregnancy and a healthy baby.

The proposed protocol has three additional elements: (1) a facilitator for the group, who would meet with the group initially and then be available by cell phone and e-mail; (2) a toolkit that includes glucose monitoring, A1C monitoring, resources for calculating and tracking BMI and blood pressure measurements, and other tools to help the pregnant woman monitor her progress throughout her pregnancy; and (3) a $1,000 529 education savings plan for the baby as an incentive to motivate the mother to reach her goals for her 40 weeks of pregnancy. The money in the plan would be available for the child to use for higher education or vocational school.

The Contact Wellness Foundation is seeking funding for the project from foundations and other sources, including Wall Street. The ultimate goal of the project is to develop a large demonstration across an entire state, which could be marketed to the rest of the country as a for-profit activity through the sales of the toolkit and social impact bonds.

7

Session 4: Collaborating for Action

LEADING IMPLEMENTATION OF THE GUIDELINES: ACTION STEPS

Rafael Pérez-Escamilla, professor of epidemiology and director of the Office of Public Health Practice at the Yale University School of Public Health and a member of the Committee to Reexamine IOM Pregnancy Weight Guidelines and the Committee on Implementation of the IOM Pregnancy Weight Gain Guidelines, introduced Session 4. This session was conducted as a facilitated conversation aimed at distilling the ideas and thoughts expressed throughout the day into actions for disseminating and implementing the guidelines. To set the context for this discussion, Pérez-Escamilla noted several key points and questions from the day:

- It does not make sense to have pregnancy weight gain guidelines if the target audience cannot carry them out.
- What we are doing now with respect to helping women gain within the guidelines is too little, too late. A radical change is needed in the care of women of childbearing age if the Institute of Medicine (IOM) gestational weight gain guidelines are to be successfully implemented.
- The health care system plays a central role. Greater coordination and multidisciplinary teamwork are needed, and this is a complex task.

- How can we change communities and the environments in which women live to help them gain greater access to healthy food, physical activity, and prenatal care?
- How can we reach women before they become pregnant?

Pérez-Escamilla then introduced the panel facilitator and panelists:

Facilitator:

- Sarah Brown, co-founder and chief executive officer of the National Campaign to Prevent Teen and Unplanned Pregnancy.

Panelists:

- Regina Davis Moss, associate executive director of public health policy and practice for the American Public Health Association (APHA).
- Patricia Fontaine, representing the American Academy of Family Physicians (AAFP). Fontaine is also a senior clinical research investigator at Health Partners Research Foundation and an associate professor at the University of Minnesota in the Department of Family Medicine.

FACILITATED CONVERSATION

Brown opened the discussion by noting that the pregnancy weight gain guidelines dissemination committee has good ideas on the important issue of gestational weight gain. However, the committee faces a critical question: What can or should the committee do to get women, colleagues, and others in positions of authority to pay more focused attention to this issue than to other issues? It is a competitive marketplace. Why focus on this set of materials, pamphlets, posters, and recommendations more than others? The committee's job is to make its ideas come to life in order to gain the attention of leaders in relevant organizations and fields.

Brown asked Davis Moss and Fontaine to describe how they make decisions about the issues on which their organizations will focus and how they respond to issues pressed by advocacy groups.

Davis Moss stated that APHA is one of the oldest and largest public health associations in the world and is an umbrella organization for

public health professionals representing every sector of society. As a result, APHA advocates for a broad array of issues addressing the health and safety needs of the public and focuses on issues that will allow it to have an immediate impact. Every year APHA spends time identifying legislative priorities in three overarching areas: achieving health equity, rebuilding the public health infrastructure, and the right to health and health care.

APHA has not taken action specifically on gestational weight gain, but it does advocate for related issues, such as Health Resources and Services Administration programs on education for health care providers or efforts to increase health care services, including contraceptive coverage. Davis Moss suggested several strategies that may help gain the attention of APHA leadership:

- Be passionate about the issue of appropriate gestational weight gain and improving maternal health care.
- Network within APHA sections. Six or 7 of the association's 29 sections would be relevant, including the public health nursing, maternal and child health, and food and nutrition sections.
- Explore ways to have IOM recommendations cited in APHA policy statements and other APHA publications, such as its *Nation's Health* newspaper.
- Reach lay audiences through a variety of means, including social media.
- Consider nontraditional approaches, such as including information on gestational weight gain in pregnancy tests, or when women purchase prenatal vitamins or are given a prescription for prenatal vitamins. This information also could be disseminated in stores through tear sheets or coupon-like dispensers next to items such as pregnancy tests, condoms, and lubricants. These methods can capitalize on the fact that pregnancy is a time of intense self-initiated health-seeking behavior. Women are motivated to try to improve and maximize the health outcomes for their infants.

Fontaine noted that AAFP has more than 100,000 members. Family medicine residents in training provide prenatal care, deliver babies in the hospital, and care for babies afterwards. Although only a minority of residents end up doing obstetrics as part of their practice, this minority is sizable. Eighteen percent of rural family doctors are still providing

doctors provide such care in urban areas. Fontaine then provided several suggestions for disseminating the guidelines:

- Encourage the incorporation of maternity care into the patient-centered medical home. Encourage a focus on team care in which all the disciplines in the office can contribute so that the physician's time is used effectively. The primary physician's efforts can be substantially augmented by other staff, such as social workers, dietitians, nurse coordinators, or health educators.
- Explore ways to help patients develop their own goals. Merely telling a patient how much she ought to gain will not help her remember it. Asking her how much she thinks she ought to gain in pregnancy, how much she thinks she ought to be exercising, or how much she is planning to exercise can help clinicians learn much more and help set achievable, incremental goals.
- Incorporate the guidelines into training courses, such as AAFP's Maternity Care and Infant Safety program. One of the products of that program is the Advanced Life Support in Obstetrics (ALSO) curriculum. Although ALSO emphasizes labor and delivery room emergencies, it also covers prenatal risk assessment. AAFP was able to get information about the risks of obesity and the new weight gain guidelines into a standardized lecture that is delivered to thousands of maternity care providers annually. In addition, recertification for family physicians includes a specific module on obstetric care that is in the process of being updated.

Brown then opened the floor to discussion and asked workshop participants to identify the important ideas that had come up during the day. The first issue raised in the discussion concerned the practice of back-loading prenatal visits and whether the Patient Protection and Affordable Care Act (ACA) provides any opportunities for rethinking that structure. This issue is somewhat controversial, with diverse opinions about the optimal structure and number of visits. Several participants responded, with general agreement, that the actual number of visits was not as important as making sure that the number was appropriate for a particular patient. However, for the purposes of weight management, data suggest that more visits early in pregnancy are needed. A participant added that everyone—obstetricians, midwives, family practitioners, and other people who take care of pregnant women—

should be taught the importance of the first few weeks of pregnancy in determining the course of pregnancy. Women also need to understand this. If the women do not know this period is important, if the physicians who are taking care of them do not know it is important, and if the reimbursement companies do not think it is important and do not want to cooperate, then little can be accomplished.

Another participant continued the conversation by suggesting that there is a difference between public health and medical care perspectives on prenatal care. From a medical care perspective, a healthy woman coming in for prenatal care does not have complications and thus needs less care; on the other hand, an unhealthy woman may develop complications and would therefore need more intensive monitoring, especially toward the end of pregnancy. In contrast, a public health model would put the emphasis on helping women come in to prenatal care in the healthiest possible state. The United States does not necessarily have the institutional support for women to be in the healthiest possible condition to ensure the future of the next generation. This may be where policy action is necessary.

A participant noted that primary care is beginning to move away from a relative value unit–based payment system, in which a physician delivers the care one on one and then gets reimbursed for the services provided, toward an approach in which the physician, along with an expert team that may include a nutritionist, social worker, or nurse practitioner, is responsible for a panel of patients. In this approach, all the non-physician providers have expertise in certain areas, which frees up the physician to deal with more complicated concerns. To apply this framework to prenatal care, the team would take an inventory of a woman on her first visit in order to define her level of risk for that pregnancy based on how she presents. The team would then create a care plan for her in the first prenatal visit, which would set out what each of her visits would look like and who would be responsible for each element of the visit. The payment structure would then follow that framework, with the team being paid for taking care of a panel of patients. The University of Pittsburgh is currently conducting a pilot study of this team care approach in a primary care setting (not the maternal care setting). One useful next step would be to test these systems and put the models into the literature because evidence-based support will be critical to changing the payment system.

Another participant agreed that these changes are worth exploring but reminded workshop participants of the complexity of the coordinating system that would need to be in place to make all of these

ideas work. He then suggested that many previous successes have had a champion at the very top. For example, Surgeon General C. Everett Koop and his antismoking report had an enormous impact. More recently, Surgeon General Regina Benjamin's call to action for supporting breastfeeding has already had an impact, even though that report was only released in 2010. First Lady Michelle Obama also has had a huge impact on the success of the Let's Move campaign.

Brown agreed and noted that popular media is another efficient and potentially effective way to raise awareness and increase understanding about issues. Over the past 15 to 20 years, the rates of teen pregnancy and childbearing have gone down between 40 and 50 percent, depending on the measurement. One factor that may have accelerated the decline in the past several years was the MTV shows *16 and Pregnant* and *Teen Mom*. Some limited research suggests that adolescent girls respond to those programs and that they influence what the girls think and do.

A participant echoed the challenge of bringing gestational weight gain to people's attention when it must compete with so many other issues. She noted that girls who have a negative pregnancy test are likely to get pregnant within the next 6 months. A woman visiting a doctor's office for a pregnancy test presents an opportunity for counseling and education, but now that many women use home pregnancy tests, that opportunity arises much less often and other channels are necessary for reaching women. One possible course of action might be to put messages in home pregnancy test boxes to help women develop a reproductive life plan. These messages could cover topics such as contraception to prevent unplanned pregnancy, the importance of preparing for pregnancy by being at a healthy weight and engaging in healthy lifestyle behaviors, and the importance of early and regular prenatal care.

One participant expressed concern about the influence of mass media, noting the current attention that is paid to celebrities' appearance during pregnancy and the way in which some consumers interpret that appearance as an encouragement to gain less weight than recommended. Other participants suggested ways that the media could be a positive force in educating women about appropriate weight gain during pregnancy, such as the involvement of a credible celebrity who could be a role model or spokeswoman for healthy weight and pregnancy, a reality show about healthy behaviors leading to healthy weight gain, education from well-known media health authorities, shows on the Food Network, and efforts to increase awareness of HBO's documentary series The Weight of the Nation. Other suggestions for educating consumers included apps that provide nutrition information when a product's UPC

code is scanned and a "seal of approval" logo from a trusted organization such as the March of Dimes. Brown noted that analyses of declines in highway fatality research have indicated that a combination of multiple factors (e.g., air bags, driver's education, seatbelts, exit ramp redesign, speed limits) is responsible, not any single factor. A multi-faceted approach may be applicable in this case as well.

One participant suggested that improved monitoring and surveillance data systems would be of great value in determining the effects of policies and programs aimed at helping pregnant women gain weight within the guidelines.

Other ideas offered by participants included talking with mothers of young women at their own well-woman visits to encourage the support system that is critical to helping young women develop and maintain healthy behaviors, and ensuring that the science textbooks used in high schools appropriately cover issues related to the effects of nutrition during pregnancy on the health of the fetus and mother.

Brown thanked the panelists and workshop participants for a stimulating discussion and concluded the session.

8

Final Thoughts

KATHLEEN RASMUSSEN, CORNELL UNIVERSITY

Kathleen Rasmussen concluded the workshop by offering a synthesis of major ideas and themes from the day.

Adopt a "Before, Between, Beyond" Mindset

This concept of a "before, between, and beyond" mindset, articulated by Lu in his keynote address and echoed by participants throughout the day, is a strategy for connecting preconception, prenatal, and postnatal care to long-term reproductive care. This idea has emerged because research has increasingly indicated that a woman's health and weight status before pregnancy and what happens during pregnancy both matter for a woman's overall health. This strategy is also a way to connect pregnancy care to women's health care generally.

Preconception care in the United States is especially difficult because approximately 50 percent of pregnancies are unplanned. Women do not necessarily have opportunities to talk with their physicians about weight, nutrition, exercise, and health behaviors before they become pregnant. It is much easier in Europe, where a higher percentage of women use intrauterine devices as their contraceptives. They go to a clinician to have them removed, which presents an opportunity for conversation.

The nature of postpartum care is also critical. Most women have only one postpartum visit. Many opportunities exist to consider new approaches to postpartum care and, indeed, to care throughout the entire

interconception period, given that 70 percent of women will have more than one pregnancy.

Other major themes related to this concept were the need for greater attention to public health approaches to help women be at a healthy weight when they conceive and the importance of better surveillance of gestational weight gain in order to monitor progress (or lack thereof) and therefore to determine what works and what does not and to identify when changes in course are necessary.

Change the Structure of Prenatal Care

The current structure of prenatal care was on the minds of many workshop participants, as evidenced during the discussion following the keynote addresses, the Session 2 panel discussion, and the discussion following Phelan's presentation. Suggestions for improvement included starting prenatal care earlier in pregnancy, changing the frequency of visits so that the woman is seen more often earlier in pregnancy, and crafting a visit schedule that reflects the woman's unique situation and risk profile. One rationale for this new vision can be derived from the results of Phelan's work showing that early excessive weight gain is very difficult to reverse. Participants also discussed team-based plans for prenatal care, identifying which types of providers a woman should see, and ensuring visits with those providers. Another idea for amplifying and reinforcing messages received in office-based prenatal care was to put messages on pregnancy test kits and bathroom scales.

Motivate Women to Adopt Healthy Behaviors

Conry first raised this strategy of motivating women to adopt healthy behaviors in her keynote address when she suggested that clinicians ask women about their reproductive goals periodically as part of a larger discussion about the women's goals for their overall health. This is an opportunity for dialogue not only between women and their obstetricians-gynecologists, but also between women and other clinicians whom they encounter in their own health care and in their family's health care. Integral to this suggestion is the concept of motivating women, an idea that emerged in Conry's remarks and in the Session 2 discussion. Women are interested in educating themselves and often already know what they should do, but they need to be motivated to choose to gain within the guidelines and to make the behavior changes necessary to carry out that goal.

Broaden the Concept of Women's Health Care

Several presenters and workshop participants noted that many of the ideas suggested, such as encouraging motivational interviewing, helping women adopt healthy behaviors, and changing the structure of prenatal care to a team-care approach, would require a change in the way that pregnancy care is currently reimbursed.

Participants talked about a broader change to the structure of women's reproductive care so that it might become part of an overall patient-centered health home for women, which would start after pediatric care ends and carry through the adult years. Sass referred to this concept when describing his "Thousand Days" approach to holistic care for pregnant women and new mothers and infants. Some European countries provide models for such an approach. For example, in Denmark public health nurses make several postnatal visits and then establish and support a group of women in the same neighborhood who have had a delivery at about the same time. The group continues to meet until their children go to school.

Leveraging Action to Disseminate the Guidelines

In Session 1, when Rasmussen was presenting the conceptual model for disseminating the guidelines (see Figure 8-1), she noted that leverage could be exerted at many places in the diagram. The discussions from the workshop suggest that it is possible to exercise leverage across the entire conceptual model. The guidelines can be disseminated at many times during a woman's lifetime—from menarche until sometime after the birth of her last child—and the information can be disseminated through many channels, including by the staff at individual clinics, by officials at the highest federal levels, and even by well-known media personalities. Visible leadership to promote these discussions is essential.

Workshop participants themselves have opportunities to take advantage of the "bully pulpits" afforded by their various organization roles to affect policy change and to motivate patients, professional societies, or students. Rasmussen noted that all of the workshop participants have places where they can exercise leverage, and she expressed the hope that they would take advantage of their capabilities to affect this important dialogue.

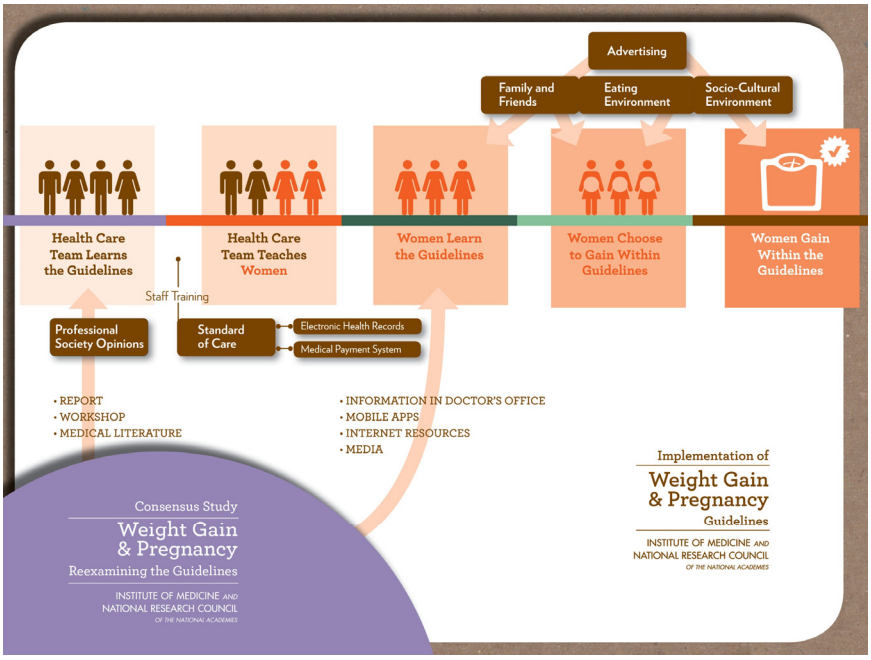

FIGURE 8-1 Pregnancy weight gain guidelines dissemination conceptual model.
NOTE: Available at http://www.iom.edu/healthypregnancy.

Rasmussen concluded her remarks by thanking the participants, the Institute of Medicine staff, and the meeting's sponsor, the Bureau of Maternal and Child Health of the Health Resources and Services Administration, for their support, encouragement, and participation. The workshop was adjourned.

A

Workshop Agenda

LEVERAGING ACTION TO SUPPORT DISSEMINATION OF PREGNANCY WEIGHT GAIN GUIDELINES: A WORKSHOP

National Academy of Sciences
2100 C Street, NW
Washington, DC

March 1, 2013

8:00–9:00 am **Registration**

INTRODUCTION

9:00 am **Welcome and Introduction of Keynote Speakers**
Kathleen Rasmussen, Sc.D., R.D., Chair, Committee on the Dissemination of Pregnancy Weight Gain Guidelines

KEYNOTE ADDRESSES

9:15 am **Improving Health Care for Women**
Michael Lu, M.D., M.S., M.P.H., Associate Administrator, Maternal and Child Health Bureau, Health Resources and Services Administration, U.S. Department of Health and Human Services

Jeanne A. Conry, M.D., Ph.D., President-Elect, American Congress of Obstetrics and Gynecology

9:45 am Q & A with participants

SESSION 1: COMMUNICATING THE PREGNANCY WEIGHT GAIN GUIDELINES

10:00 am **Conceptual Products**
Kathleen Rasmussen, Sc.D., R.D., Chair, Committee on the Dissemination of Pregnancy Weight Gain Guidelines

10:05 am **Products for Dissemination**
Anna Maria Siega-Riz, Ph.D., R.D., Committee on the Dissemination of Pregnancy Weight Gain Guidelines

10:30 am **BREAK**

SESSION 2: SUPPORTING BEHAVIOR CHANGE
Moderated by Esa Davis, M.D., M.P.H., Committee on the Dissemination of Pregnancy Weight Gain Guidelines

10:45 am **Panel Discussion: What Are We Doing to Support Behavior Change?**
Panelists:

- *Dotun A. Ogunyemi, M.D., National Medical Association*
- *Josephine Cialone, M.S., R.D., North Carolina State Title V Program*
- *Tina Johnson, C.N.M., M.S., American College of Nurse-Midwives*

11:30 am **Audience Discussion and Feedback**

12:00 pm **LUNCH**

SESSION 3: IMPLEMENTING THE GUIDELINES
Moderated by Pat Catalano, M.D., Committee on the Dissemination of Pregnancy Weight Gain Guidelines

Perspectives on Putting the Guidelines into Action

1:00 pm **Introductory Remarks**
Marta Kealey, Food and Nutrition Service, U.S. Department of Agriculture
Speakers:

- *Michele Lawler, M.S., R.D., Maternal and Child Health Bureau, Health Resources and Services Administration, U.S. Department of Health and Human Services*
- *Suzanne Phelan, Ph.D., California Polytechnic State University*

1:30 pm **Town Hall Discussion**

2:00 pm **Innovative Approaches to Implementing Change**
Richard Sass, Chairman, Contact Wellness Foundation

2:30 pm **BREAK**

SESSION 4: COLLABORATING FOR ACTION
Moderated by Rafael Pérez-Escamilla, Ph.D., Committee on the Dissemination of Pregnancy Weight Gain Guidelines

3:00 pm **Leading Implementation of the Guidelines: Action Steps**

Facilitated Conversation with Participants
Led by Sarah S. Brown, M.P.H., Committee on the Dissemination of Pregnancy Weight Gain Guidelines

- *Regina Davis Moss, Ph.D., M.P.H., M.C.H.E.S., American Public Health Association*
- *Patricia Fontaine, M.D., M.S., representing the American Academy of Family Physicians*

4:00 pm **Final Thoughts**
Kathleen Rasmussen, Sc.D., R.D., Chair, Committee on the Dissemination of Pregnancy Weight Gain Guidelines

4:30 pm **ADJOURN**

B

Workshop Participants

COMMITTEE

Kathleen M. Rasmussen, Sc.D., R.D., Cornell University (*Chair*)
Linda Bearinger, Ph.D., R.N., FAAN, University of Minnesota
Sarah S. Brown, M.P.H., National Campaign to Prevent Teen and Unplanned Pregnancy
Patrick M. Catalano, M.D., FACOG, Case Western Reserve University
Debbie I. Chang, M.P.H., Nemours Health and Prevention Services
Esa M. Davis, M.D., M.P.H., University of Pittsburgh
Marvin E. Goldberg, Ph.D., Pennsylvania State University
Rafael Pérez-Escamilla, Ph.D., Yale University
Anna Maria Siega-Riz, Ph.D., R.D., University of North Carolina, Chapel Hill

SPEAKERS AND INVITED GUESTS

Josephine Cialone, M.S., R.D., North Carolina State Title Program
Jeanne A. Conry, M.D., Ph.D., American Congress of Obstetricians and Gynecologists
Patricia Fontaine, M.D., M.S., Health Partners Institute for Education and Research
Douglas Greenaway, M.Div., National WIC Association
Debra Hawks, American Congress of Obstetricians and Gynecologists

M. Christina Johnson, C.N.M., M.S., American College of Nurse Midwives
Marta Kealey, R.D., Food and Nutrition Service, U.S. Department of Agriculture
Michele Lawler, M.S., Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services
Michael Lu, M.D., M.S., M.P.H., Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services
Regina Davis Moss, Ph.D., M.P.H., M.C.H.E.S., American Public Health Association
Dotun Ogunyemi, M.D., National Medical Association
Suzanne Phelan, Ph.D., California Polytechnic State University
Kathleen Rasmussen, Sc.D., R.D., Division of Nutritional Sciences, Cornell University
Anne Santa-Donato, R.N.C., M.S.N., Association of Women's Health, Obstetric, and Neonatal Nurses
Richard Sass, Contact Wellness Foundation
Andrea Sharma, Centers for Disease Control and Prevention
Anna Maria Siega-Riz, Ph.D., R.D., School of Public Health, University of North Carolina, Chapel Hill

REGISTERED PARTICIPANTS

Tamara Barry, Dartmouth Hitchcock Medical Center
Arun Kumar Beborta, Mid-India Board of Education Graduate School for Nurses, Indore
Donna Blum-Kemelor, Center for Nutrition Policy and Promotion, U.S. Department of Agriculture
Amanda Cash, Office of the Assistant Secretary for Planning and Evaluation, Department of Health and Human Services
Jasmine Dailey, Howard University
Jessica DiBari, Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services
Karen Fennell, American Association of Birth Centers
Carolyn Gegor, Midwifery Consulting Group
Susan Gross, Johns Hopkins University
Cheryl Kirven, Texas Health Harris Methodist Hospital

Patricia MacNeil, Center for Nutrition Policy and Promotion, U.S. Department of Agriculture
Mary Morall, Howard University
Julie Obbagy, Center for Nutrition Policy and Prevention, U.S. Department of Agriculture
Katie Pahner, Thorn Run Partners
Kim Pekin, NOVA Natural Birth Center
Kathleen Pellechia, WIC Works Resource System, U.S. Department of Agriculture
Julia Perkins, BirthCare and Women's Health
Megan Phillippi, Association of Maternal and Child Health Programs
Allyson Reddy, National Women's Health Network
Cindy Reeves, National Institute of Food and Agriculture, U.S. Department of Agriculture
Denise Sofka, Maternal and Child Health Bureau, Health Resources and Services Administration, Department of Health and Human Services
Catherine Spong, National Institutes of Health
Jamie Swietlikowski, Community of Hope: Family Health and Birth
Paulette Thompson, District of Columbia Supplemental Nutrition Program for Women, Infants, and Children
Chelsea Webb
Claudette Welch, Johns Hopkins Women, Infants, and Children (WIC) Program
Allison Yates, Agricultural Research Services, U.S. Department of Agriculture

C

Speaker Biographies

Josephine Cialone, M.S., R.D., is head of the Nutrition Services Branch of the North Carolina Division of Public Health. She has worked in public health nutrition in North Carolina for more than 30 years, beginning her career in a local health department. During her career Ms. Cialone has worked within Title V Programs and the Supplemental Nutrition Program for Women, Infants, and Children in North Carolina to support implementation of nutrition care to women, infants, and children within the Women's and Children's Health Section. Ms. Cialone is a registered dietitian and has a master of science degree in public health nutrition from Case Western Reserve University in Cleveland, Ohio. She is active in the Academy of Nutrition and Dietetics.

Jeanne A. Conry, M.D., Ph.D., is assistant physician in chief at the Permanente Medical Group in Roseville, California, and associate clinical professor of obstetrics and gynecology at the University of California, Davis. She has been a practicing obstetrician-gynecologist with the Permanente Medical Group for more than 20 years. Dr. Conry's clinical interests include menopausal health and preconception care. She served as chair of the California Preconception Care Council from 2006 to 2010 and currently serves on the Centers for Disease Control and Prevention Select Panel on Preconception, a coalition of government and health care providers that seeks to improve pregnancy outcomes by emphasizing the need for healthy choices across the reproductive life span of women. As assistant physician in chief at the Permanente Medical Group, Dr. Conry had an integral role in developing the group's chronic conditions management program, making sure the particular

needs of women and preconception care were included. She also oversaw the design and development of the group's Women and Children's Center, which is one of the largest obstetric service providers for Kaiser Permanente in the United States. She currently oversees health and wellness activities, focusing on the health and well-being of Kaiser Permanente members and employees and of the Sacramento community overall. Dr. Conry received her medical degree from and completed her residency training at the University of California, Davis. Before medical school, Dr. Conry earned a doctor of philosophy in biology at the University of Colorado–Boulder.

Patricia Fontaine, M.D., M.S., is a family physician whose decades of clinical practice, teaching, and research have focused on perinatal care and women's health. She provided maternity care for 25 years. She is currently a senior clinical research investigator at HealthPartners Research Foundation and holds an appointment as associate professor in the University of Minnesota Department of Family Medicine. She has published articles and book chapters on labor pain management and the medical complications of pregnancy, including hypertension, venous thromboembolism, and postpartum hemorrhage. Dr. Fontaine served as a peer reviewer for the Agency for Health Care Research and Quality's 2008 meta-analysis, "Outcomes of Maternal Weight Gain." She has created a HealthPartners database that links electronic health records of mothers and infants, and the resulting research paper, "Evaluating BMI-Specific Trimester Weight Gain Recommendations: Differences between Black and White Women," has been accepted for publication in the *Journal of Midwifery & Women's Health*. Dr. Fontaine serves as the liaison from the American Academy of Family Physicians (AAFP). She is a member of the AAFP Maternity Care and Patient Safety Advisory Board and chairs the AAFP Subcommittee on Clinical Practice Guidelines.

M. Christina Johnson, C.N.M., M.S., is director of professional practice and health policy at the American College of Nurse-Midwives. Ms. Johnson provides leadership related to shaping national policy, legislation, and reform affecting the profession of midwifery. She participates in the development of national and international practice, regulatory, and educational standards; represents certified nurse-midwives and certified midwives to the public and in the health policy arena; and provides individualized professional practice guidance. Ms.

Johnson was previously the founding director of midwifery services at Maryland General Hospital in Baltimore, where she continues to provide a full range of primary, gynecologic, antenatal, intra-partum, and postpartum women's health services. Ms. Johnson has trained resident physicians, midwives, and undergraduate- and graduate-level nurses and other students domestically and abroad. She has attended more than 1,000 births in hospital, home, and birth center settings. Ms. Johnson earned a bachelor's degree in psychology from Virginia Tech, a nursing diploma from Bronson Methodist Hospital School of Nursing, and a master's degree in nurse-midwifery from Stony Brook University.

Marta Kealey, R.D., is a nutritionist in the Policy Branch of the Supplemental Food Programs Division in the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture. Her responsibilities include the development of policy related to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) nutrition risk assessment, a requirement of the WIC certification process. She has spent the majority of her 30-year career with the WIC program at the local (El Dorado County, California), regional (Atlanta, Georgia—Southeast Regional FNS office) and national (Washington, DC—FNS headquarters) levels.

Michael Lu, M.D., M.S., M.P.H., is associate administrator of maternal and child health in the Health Resources and Services Administration of the U.S. Department of Health and Human Services. Dr. Lu's experience includes maternal and child health research, practice, and policy. Before his appointment, Dr. Lu chaired the Secretary's Advisory Committee on Infant Mortality. He has served on two Institute of Medicine committees as well as on the Centers for Disease Control and Prevention Select Panel on Preconception Care. In his previous position at the University of California (UC), Los Angeles, Dr. Lu was lead investigator for the National Children's Study and led a project to monitor and improve the quality and safety of maternity care in California. He is best known for his research on racial-ethnic disparities in birth outcomes. Dr. Lu has received numerous awards for his teaching, including excellence in teaching awards from the Association of Professors of Gynecology and Obstetrics. Dr. Lu received his master's degree in health and medical sciences and public health from UC Berkeley and his medical degree from UC San Francisco. He completed his residency training in obstetrics and gynecology at UC Irvine.

Regina Davis Moss, **Ph.D., M.P.H., M.C.H.E.S.,** is the associate executive director of public health policy and practice for the American Public Association, where she oversees a broad portfolio of programs and activities ranging from continuing education to global health. She has nearly 20 years of experience managing national health promotion and disease prevention initiatives addressing such areas as reproductive health, healthy aging, obesity prevention, health policy, and sustained capacity in public health. Formerly, Dr. Davis Moss held a senior management position for a healthy eating and active living education effort for the federal government. Before that she worked for the Henry J. Kaiser Family Foundation where she helped launched the *Kaiser Health News* online information service and served as the senior producer. Dr. Davis Moss is a master certified health education specialist and is a member of the Delta Omega honorary public health society. She earned a doctorate of philosophy in maternal and child health from the University of Maryland, College Park, a master's in public health from George Washington University, and a B.S. degree in biology from Howard University.

Dotun Ogunyemi, M.D., is chief of inpatient obstetrics, director for the third-year medical students clerkship, and associate obstetrics and gynecology residency director within the Department of Obstetrics and Gynecology at Cedars–Sinai Medical Center. Dr. Ogunyemi also is an associate professor with the David Geffen School of Medicine at the University of California, Los Angeles (UCLA). Dr. Ogunyemi has received numerous awards for medical education and clinical research, including the Association of Professors of Obstetrics and Gynecology Award for Educator of the Year 2001; the Blue Ribbon Award for birth weight for gestational age patterns at the American College of Obstetricians and Gynecologists' 52nd Annual Clinical Meeting, 2005; and the award for best presentation for noninvasive cutaneous cardiovascular dynamics patterns as predictors of preterm delivery in 2002 at the Annual Congress of the Japan Society of Obstetrics and Gynecology. Dr. Ogunyemi has written numerous articles for peer-reviewed journals and is a member of the American Institute of Ultrasound in Medicine, the International Society of Ultrasound in Obstetrics and Gynecology, the American Medical Association, and the Society of Maternal–Fetal Medicine. Dr. Ogunyemi received his medical degree from the University of Ibadan, Nigeria. He completed an obstetrics and gynecology residency at Los Angeles County King Drew

Medical Center and completed his maternal–fetal medicine fellowship at David Geffen School of Medicine at UCLA.

Suzanne Phelan, Ph.D., is assistant professor of psychiatry and human behavior at Brown University Medical School and is a staff psychologist at the Miriam Hospital Center for Behavioral and Preventive Medicine. Dr. Phelan's principal research is in examining ways to improve long-term weight loss maintenance through interventions, including behavior modification and medication. She is co-investigator of the National Weight Control Registry and has conducted several studies examining predictors of long-term weight loss among registry participants. Dr. Phelan's other interests include evaluating the efficacy of a contingency-based behavioral treatment program for obesity and interventions to prevent excessive weight gain during pregnancy and the postpartum year. She has several publications and numerous professional presentations in the area of obesity. Dr. Phelan earned her master's degree and Ph.D. in clinical psychology from MCP Hahnemann University. She completed her internship in behavioral medicine at Brown University.

Kathleen Rasmussen, Sc.D., R.D., is a professor of nutrition in the Division of Nutritional Sciences at Cornell University. Dr. Rasmussen is internationally known for her research on maternal and child nutrition, particularly in the areas of pregnancy and lactation. She has served as program director for Cornell's National Institutes of Health–sponsored training grant in maternal and child nutrition since 1986 and also has directed a training grant in international maternal and child nutrition. Dr. Rasmussen has taught a nationally recognized course in maternal and child nutrition for graduate students since 1980 and has co-taught a unique course on public health nutrition for undergraduate students since 1998. Continuing her interest in mentoring the future leaders in nutrition, Dr. Rasmussen serves as the principal faculty member at the Dannon Nutrition Leadership Institute, which she helped to develop in 1998. In 2006 she received the first Excellence in Nutrition Education Award to be given by the American Society for Nutrition. Dr. Rasmussen has served as secretary and as president of the American Society of Nutritional Sciences and also as president of the International Society for Research on Human Milk and Lactation. She has previously been associate dean and secretary of the University Faculty and served a 4-year term on Cornell's Board of Trustees as one of its faculty-elected members. Dr. Rasmussen was a member of the recent DBASSE–IOM

(Division of Behavioral and Social Sciences and Education–Institute of Medicine) Committee on the Impact of Pregnancy Weight on Maternal and Child Health and served on the IOM Committee on Nutritional Status During Pregnancy and Lactation and its Subcommittee on Nutrition During Lactation as well as on the Committee on Scientific Evaluation of the WIC (Women, Infants, and Children) Nutrition Risk Criteria. She received her A.B. degree from Brown University in molecular biology and both her Sc.M. and Sc.D. degrees from Harvard University in nutrition.

Richard Sass is president of Contact Wellness Foundation in Portland, Oregon. Over the past 47 years he has successfully founded, directed, and exited companies within the medical technology arena and continues to consult with companies on the design and manufacture of medical products with disruptive technologies. Mr. Sass founded Contact Wellness as part of his personal contribution to health care reform, representing his desire to move beyond the delivery of innovative medical products to the creation of motivational tools leading to positive changes for those living with chronic disease. He currently serves as chairman of the board and is a member of the executive committee. Mr. Sass holds a B.A. in business administration from Michigan State University and is a Fellow of the Royal Society of the Arts, London.

Anna Maria Siega-Riz, Ph.D., R.D., is associate professor in the Department of Epidemiology with a joint appointment in the Department of Nutrition in the School of Public Health at the University of North Carolina (UNC), Chapel Hill. Dr. Siega-Riz is a fellow at the Carolina Population Center and serves as the associate chair of epidemiology and director of the Nutrition Epidemiology Core for the Clinical Nutrition Research Center in the Department of Nutrition at UNC. She also is the program leader for the Reproductive, Perinatal, and Pediatric Program in the Department of Epidemiology. She has expertise in gestational weight gain, maternal nutritional status and its effects on birth outcomes, obesity development, and trends and intakes among children and Hispanic populations. Dr. Siega-Riz uses a multidisciplinary team perspective as a way to address complex problems such as prematurity, fetal programming, and racial disparities and outcomes. She received the March of Dimes Agnes Higgins Award for Maternal and Fetal Nutrition in 2007, which recognizes professional contributions and outstanding service in the area of maternal and fetal nutrition. Dr. Siega-Riz earned a B.S.P.H. in

nutrition from the School of Public Health at UNC, Chapel Hill; an M.S. in food, nutrition, and food service management from UNC, Greensboro; and a Ph.D. in nutrition and epidemiology from the School of Public Health at UNC, Chapel Hill.

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Workshop Statement of Task

LEVERAGING ACTION TO SUPPORT DISSEMINATION OF PREGNANCY WEIGHT GAIN GUIDELINES: A WORKSHOP

The Institute of Medicine and the National Research Council will develop a series of information resources to support guidance based on the recommendations of the report *Weight Gain During Pregnancy: Reexamining the Guidelines*. This effort will focus on three major audiences: health care providers, public health agencies, and community-based organizations and women's groups. Working with sponsoring organizations, the project team will identify up to five key partnership groups within each audience for collaboration and creation of a core set of materials (an "information toolbox") that includes print, electronic, and possibly video resources.

In addition, a planning committee will organize one 1-day workshop (Type 3) that will feature the toolbox of resource materials for (1) health providers and community health agencies, and (2) community leaders from organizations that interact with underserved populations, especially women planning pregnancy. A summary report will be prepared for the workshop by a designated rapporteur.