High-Value Health Care: Perspectives from the Sex- and Gender-based Care Lens

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Learning Objectives

1. Describe the elements of the quadruple aim and gender differences in access, quality, cost, and care experience.
2. Compare and contrast examples of low-value and high-value care in women.
3. Describe strategies to achieve high-value care for women including systems engineering, shared decision-making, and best use of care teams.
4. Explain how pay-for-value arrangements can improve care in women.
5. Discuss the impact of care disparities and social determinants of health and the importance of gender equity and advocacy.

Barb, a 68-year-old retired administrative assistant, returns to your office for a prevention visit. She explicitly requests this visit be coded as a Medicare annual wellness visit. Barb asks for ovarian cancer screening, specifically an ultrasound and CA-125 test, as has been done the last few years annually. About 10 years ago, her sister had ductal breast cancer in situ, and she has always been worried about cancer. She also comes to her appointment with a newspaper article on cholesterol medications and has some questions about it.

Quadruple Aim: Better Care, Healthier People, Smarter Spend, and Joy in Work

Excellence in health care is a balancing act: It is the art of providing the right care at the right time in the right place to the right person in the right way. High-value care means timely access to necessary care and not more. It means care is provided in the emergency department when it is an emergency, in the hospital when the condition is acute, and in the clinic or at home otherwise. Moreover, it means care that is individualized to the needs of the patient and put into the context of the woman’s life (medical, social, psychologic, and spiritual). Primary care providers, with comprehensive training, continuity practices, and relationship-centered attitudes, are well suited to provide high-value care and, indeed, they do [1].

The triple aim of quality, affordability, and patient experience was first described as “care, health, and cost” by Don Berwick and others [2]. Recognizing the potential to burn out providers while attempting to meet the triple aim, Bodenheimer and Sinsky added a fourth aim: “improved work life of health-care providers,” shortened to “joy in work” [3]. Underscoring the importance of this fourth aim, one set of primary care redesign architects found that achieving health-care excellence was critically dependent on the engagement of the physicians and other team members providing care [4].

Access to Care Including Prevention

One component of high-value care is access to care, which is dependent on insurance status for American women. In a 2016 survey, 59% of women aged 18–64 years were enrolled in employer-sponsored health insurance, a rate that is similar to men [5]. Yet women are more likely than men to be covered by government-sponsored insurance: 21% of non-elderly adult women report Medicaid or other public insurance vs. 17% of men, and 55% of Medicaid beneficiaries
are female. Medicaid covers low-income women and children, but eligibility varies notably by state statute and policies. For example, the percent of women aged 18–64 years reporting Medicaid insurance ranges from 8 to 31% by state [5]. Women who are older than 65 or who are disabled are eligible for Medicare; 55% of Medicare beneficiaries are women [5].

Prevention is a coverage requirement for all health plans compliant with the Affordable Care Act. United States Preventive Services Task Force (USPSTF) grade A–B recommendations are the standard for preventive benefits [6]. In practice, many women nonetheless end up paying some out-of-pocket costs for prevention: women in private health plans reported some personal expenditures for Pap and related services (23%) and for mammograms (16%) [7].

For women enrolled in Medicare, like in our case, the annual wellness visit (AWV) is an opportunity to review risks, provide preventive care, and choose evidence-based high-value services. Medicare purposefully designed their benefits to include a free annual visit for prevention with its own billing code. Non-Medicare plans also accept an annual prevention visit billed with a prevention code. The use of these prevention codes saves out-of-pocket costs for patients and potentially assists in tracking for continuous process improvement.

Experience of Care: Communication, Relationships, and Teams

Patient experience has become an established, measurable dimension of high-value care [8]. Some have argued that “patient satisfaction” isn’t a valid measure of quality either because patients, as laypersons, are unable to assess care or because patients are only satisfied when they are happy, healthy, or receive the services (tests, medications) they think they need. However, several studies have shown correlation between patient experience ratings and more traditional measures of quality, such as adherence to clinical treatment guidelines, and this correlation persists when adjusted for patient mix and when patients are directed to evaluate their experience (not their feelings). Patient-reported experience surveys are best used to evaluate patient-provider interactions, especially when specific to a certain event or service (such as a hospitalization) and closely timed to that event or service. Additionally, there is evidence that when patients are more engaged with their care, patients may choose less resource use rather than more [8].

Women’s roles in society and unique needs as patients can lead to expectations and preferences that differ from those of male patients. For all patients, communication is a critical part of high-value care; history taking, shared decision-making, patient education, motivational interviewing, and documenting a care plan all require effective communication skills. While patients from both genders prefer a participatory decision-making style [9], there are gender differences in expectations that affect patients’ satisfaction with care. For example, in clinic visits, women base their satisfaction level on “informational content, continuity of care, and multidisciplinarity,” while men look to “personal interest shown in them by their providers” [10].

Some women prefer female providers, clinics set up for only women and one-stop shopping for women’s health care. To that end, specialized women’s health clinics meet a marketing need, although it is not clear if these clinics provide care of higher value [11]. Women of reproductive age can receive primary care either from primary care specialties (like internal medicine or family medicine) or from obstetrics-gynecology; this care may or may not be coordinated. Health-care organizations who wish to be successful in providing high-value care must seek to create comprehensive, coordinated options for women.

In contrast to men, women are more likely to serve as the family caregiver, bringing kids and older adults to their doctor appointments and influencing the motivations and health behaviors of the adult men in their lives. In a 2016 survey, 79% of mothers indicated they usually decide about their children’s doctor, compared to only 22% in a similar survey of fathers [7]. Additionally, about 80% of those working in health care, a field that employs about 10% of American workers, are women; yet only 40% of health-care leaders are women [12]. These roles in society may influence women’s expectations and agendas when coming to care.

To help provide high-value care, primary care physicians working in advanced medical homes lead care teams consisting of nurses, medical assistants, patient care representatives, and others. These care teams can extend the reach of physicians, improve care quality, and bring improved job satisfaction to all care team members [4, 13, 14]. To achieve these outcomes, all team members must work collaboratively with clear, standard processes and have the tools they need to do their job. Everyone on the team can benefit from working at the top of their license and actively incorporating the expertise each team member brings.

There are many ways care teams can create high value. Some examples include constructing visits for specific time with care team members depending on the visit concern; using pre-visit planning, rooming, and outreach to address clinical care gaps; and training nurses in patient education and shared decision-making. For instance, a clinic appointment may have 10 min budgeted for rooming, with an appointment time for check-in and an appointment time for the physician 10 min later. At rooming, a nurse may provide and review preventive care pamphlets or electronic links, a scribe may document the history and exam, and a nurse may pend the requested diagnostic code/revenue code combina-
tion for the physician to sign. Finally, care teams may help patients by extending their reach outside the health system, connecting patients with community organizations (such as support groups or city health departments), and taking advantage of medical management resources (such as a nurse line or social workers) at patients’ health insurance companies.

In addition to improved job satisfaction, advanced medical homes with features of accessible coordinated care, patient-centered communication, and team-based care are associated with higher patient experience ratings [15]. Moreover, patient experience ratings suffer when physicians turnover [16]: further evidence to the interdependence of the elements of the quadruple aim.

| Your medical assistant enters Barb’s concerns (annual wellness visit, requests for ovarian cancer screening, newspaper article on cholesterol medications) in your electronic health record while you review previous testing. For the past 10 years, Barb has had annual pelvic ultrasounds and CA-I25 tests that have been negative. On history, she has no symptoms of ovarian or breast cancer and no updates to her family history. |

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**Table 2.1** High-value preventive services in women, defined as USPSTF recommendations with Grades A–B (including only those recommendations that are different than for men) [6]

| Population | Recommendation                                                                 | USPSTF Grade |
|------------|---------------------------------------------------------------------------------|--------------|
| **Age-based recommendations**                                                   |              |              |
| Women aged 21–65 years                                                         | The USPSTF recommends screening for cervical cancer every 3 years with cervical cytology alone in women aged 21–29 years. For women aged 30 to 65 years, the USPSTF recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (cotesting) | A            |
| Women of reproductive age                                                       | The USPSTF recommends that clinicians screen for intimate partner violence (IPV) and provide or refer women who screen positive to ongoing support services | B            |
| Women aged 50–74 years                                                         | The USPSTF recommends biennial screening mammography | B            |
| Women 65 years and older                                                        | The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures | B            |
| **In pregnant women**                                                           |              |              |
| All pregnant women                                                              | The USPSTF recommends that clinicians screen all pregnant women for HIV, including those who present in labor who are untested and whose HIV status is unknown | A            |
|                                                                                | The USPSTF recommends screening for hepatitis B virus (HBV) infection in pregnant women at their first prenatal visit | A            |
|                                                                                | The USPSTF recommends early screening for syphilis infection in all pregnant women | A            |
|                                                                                | The USPSTF recommends screening for preeclampsia in pregnant women with blood pressure measurements throughout pregnancy | B            |
|                                                                                | The USPSTF recommends that clinicians ask all pregnant women about tobacco use, advise them to stop using tobacco, and provide behavioral interventions for cessation to pregnant women who use tobacco | A            |
| Pregnant women and new mothers                                                   | The USPSTF recommends providing interventions during pregnancy and after birth to support breastfeeding | B            |

(continued)
health outcomes of interventions but also their cost-effectiveness in terms of dollars per quality-adjusted life-year (QALY) [22]. This measure serves to compare a variety of interventions in a standard way, though it is difficult to pick a single cutoff for “high-value care,” given that society’s willingness to pay for a given service depends on the context (high-resource or low-resource environment), the case (the age of the individual, the condition, and the alternatives), and individual patient preferences. For these reasons, there is no universally accepted threshold for cost-effective care. Importantly, physicians and provider groups can increase high-value care by improving adherence to evidence-based practices. This is the usual quality work many hospitals and clinics perform and certainly a goal of primary care. A critical complementary strategy is to avoid low-value care. Commonly performed low-value care services are starting to be defined, particularly by the Choosing Wisely campaign [23] and researchers studying overuse in Medicare populations [24]. The common low-value services in these lists are manageable in number, and so adjusting practice patterns to address these services may also be manageable. While an important starting point, some argue that these lists focus more on clinical practices that have little value (“no value care”) rather than looking critically at the cost-effectiveness research [25]. For example, only 2% of the Choosing Wisely recommendations cited cost-effectiveness research [25].

In prioritizing the implementation of interventions that increase value, it is useful for both providers and patients to remember that we all take responsibility for the overall cost of health care, and we all pay for it as well, since the market reacts to high spending by increasing premiums or refusing to pay for certain services. Moreover, “when society spends on low-value healthcare, it’s coming at the expense of doing things like hiring more teachers, hiring more police officers, rebuilding our schools, and rebuilding our infrastructure” [26]. While these principles apply to women’s as well as men’s health care, the overall cost of care for women is higher than for men, primarily because of maternity care, and so improving the rate of high-value care in women may have more impact overall.

In the future, precision medicine may help us better define the circumstances that make services high value. Consider breast cancer screening with mammography, where the current recommendations are largely based sim-

Table 2.1 (continued)

| Population | Recommendation | USPSTF Grade |
|------------|----------------|--------------|
| Pregnant women, during the first pregnancy-related care visit | The USPSTF strongly recommends Rh(D) blood typing and antibody | A |
| Pregnant women at 12–16 weeks’ gestation | The USPSTF recommends screening for asymptomatic bacteriuria with urine culture for pregnant women at 12–16 weeks’ gestation or at their first prenatal visit, if later | A |
| Asymptomatic pregnant women, after 24 weeks of gestation | The USPSTF recommends screening for gestational diabetes mellitus (GDM) | B |
| Selected pregnant women | | |
| Pregnant women who are at high risk for preeclampsia | The USPSTF recommends the use of low-dose aspirin (81 mg/day) as preventive medication after 12 weeks of gestation | B |
| Unsensitized Rh(D)-negative pregnant women | The USPSTF recommends repeated Rh(D) antibody testing for all unsensitized Rh(D)-negative women at 24–28 weeks’ gestation, unless the biological father is known to be Rh(D) negative | B |
| Women at increased risk | | |
| Postmenopausal women younger than 65 years at increased risk of osteoporosis | The USPSTF recommends screening for osteoporosis with bone measurement testing to prevent osteoporotic fractures in postmenopausal women younger than 65 years who are at increased risk of osteoporosis, as determined by a formal clinical risk assessment tool | B |
| Women who have family members with breast, ovarian, tubal, or peritoneal cancer | The USPSTF recommends that primary care providers screen with one of several screening tools designed to identify a family history that may be associated with an increased risk for potentially harmful mutations in breast cancer susceptibility genes (BRCA1 or BRCA2). Women with positive screening results should receive genetic counseling and, if indicated after counseling, BRCA testing | B |
| Women who are at increased risk for breast cancer | The USPSTF recommends that clinicians engage in shared, informed decision-making with women who are at increased risk for breast cancer about medications to reduce their risk. For women who are at increased risk for breast cancer and at low risk for adverse medication effects, clinicians should offer to prescribe risk-reducing medications, such as tamoxifen or raloxifene | B |
| Sexually active women | | |
| Sexually active women | The USPSTF recommends screening for chlamydia and gonorrhea in sexually active women age 24 years and younger and in older women who are at increased risk for infection | B |
| Women who are planning or capable of pregnancy | The USPSTF recommends that all women who are planning or capable of pregnancy take a daily supplement containing 0.4–0.8 mg (400–800 μg) of folic acid | A |
ply on age. Yet like all screening tests, the effectiveness of mammography in reducing cancer deaths depends on the risk of the population for breast cancer. While age is the strongest risk factor for breast cancer, other epidemiologic and genetic risk factors change the pretest probability. What if we screened based on risk, omitting routine mammography on low-risk individuals over age 50? In a modeling study, Pashayan and colleagues demonstrated that risk-stratified screening, compared to age-based screening, resulted in 71% fewer overdiagnoses and about $720,000 in savings, with the trade-off of 9.6% fewer breast cancer deaths averted [27]. In terms of absolute risk, this model resulted in 262 breast cancer deaths, 23 more than if using an age-based strategy, but also only 30 cases of overdiagnosis, 75 less than if using an age-based strategy. This risk-stratified scenario, where the threshold for high risk was a 10-year risk of 3.24%, had the highest net monetary benefit, was cost-effective (about $26,000 per QALY), improved the benefit-to-harm ratio, and largely maintained the benefits of screening. Notably, a shift from age-based to precision-based screening requires a shift in thinking; currently, the barriers are numerous, including de-implementation of low-risk screening, a willingness to prioritize preventing the harms of screening, and incorporation of genomic testing into practice [28].

In our case, the patient requested ovarian cancer tests and imaging, which is a preventive service since she has no signs or symptoms. Ovarian cancer screening is not recommended by the USPSTF [6]. Additionally, Choosing Wisely specifically calls this out as a low-value service [29]. A sample of low-value services, including services with Grade D rating by the USPSTF, relevant recommendations from Choosing Wisely, and items specific to women and on researchers’ low-value lists, is in Table 2.2.

### Table 2.2 A sample of low-value women’s health services [6, 21, 29]

| Population | Recommendation | Reference |
|------------|----------------|-----------|
| Asymptomatic women who do not have a high-risk hereditary cancer syndrome | The USPSTF, Society for Gynecologic Oncologists, and ACOG recommend against screening for ovarian cancer in asymptomatic women | [6, 29] |
| Asymptomatic women | American Society of Clinical Pathologists recommends against population-based screening for 25-OH vitamin D deficiency | [29] |
| Nonpregnant women | American Academy of Family Physicians recommends against performing pelvic exams on asymptomatic women, unless necessary for guideline-appropriate screening for cervical cancer | [29] |
| Women who have never smoked | The USPSTF recommends against screening for abdominal aortic aneurysms | [6] |
| Women not at increased risk for breast cancer | The USPSTF recommends against both 1) routine genetic counseling or BRCA testing in women whose family history is not associated with an increased risk for potentially harmful mutations in the BRCA1 or BRCA2 genes and 2) the routine use of medications, such as tamoxifen or raloxifene, for risk reduction of primary breast cancer in women who are not at increased risk for breast cancer | [6] |
| Women older than 65 years and women younger than 21 years | The USPSTF, ACOG, and the American Academy of Family Physicians recommend against screening for cervical cancer in women older than 65 years who have had adequate prior screening and are not otherwise at high risk for cervical cancer and women younger than 21 years | [6, 21, 29] |
| Women who have had a hysterectomy | The USPSTF recommends against screening for cervical cancer in women who have had a hysterectomy with removal of the cervix and do not have a history of a high-grade precancerous lesion (i.e., cervical intraepithelial neoplasia [CIN] grade 2 or 3) or cervical cancer | [6, 29] |
| Postmenopausal women considering hormone therapy for primary prevention of chronic conditions | The USPSTF recommends against the use of combined estrogen and progestin in postmenopausal women and against the use of estrogen alone in postmenopausal women who have had a hysterectomy for primary prevention | [6] |
| Postmenopausal women | The USPSTF recommends against daily supplementation with 400 IU or less of vitamin D and 1000 mg or less of calcium for the primary prevention of fractures in community-dwelling, postmenopausal women | [6] |
| Women with a history of bone mineral density testing | American College of Rheumatology recommends against a repeat BMD test within 2 years | [21, 29] |
| Women with vertebral osteoporotic fractures | Literature recommends against vertebroplasty or kyphoplasty | [21] |
| Women with overactive bladder | American Urogynecological Society recommends against cystoscopy, urodynamics, or diagnostic renal and bladder ultrasound in the initial workup of an uncomplicated overactive bladder (OAB) patient | [29] |

(continued)
While a provider may wish to avoid low-value services, talking with patients about making choices based on value can be challenging. An NEJM perspectives roundtable gives several practical tips on conversing with patients about low-value services [26]. First, providers should be transparent with patients about their reasoning, clearly describing their practice norms and expectations and citing society guidelines or Choosing Wisely to back up their statements. Generally, providers should focus on the clinical harms more than the dollar costs. Second, providers should have a script for common scenarios, such as Paps or pelvics after 65 years, and sum up their script with a recommendation to avoid a low-value service. If the provider questions whether a generally low-value service has value for a certain individual, he or she can begin a discussion with a lead-in such as “On the whole, {this service} is doing all that harm to get very little benefit. Given that, what do you think you want to do?”

You have a frank conversation with the patient about ovarian cancer screening, her concerns, and goals of care. You discuss the downstream effects of over-testing and check for understanding. She agrees that screening ultrasounds and blood tests are not needed. Your visit then turns to other prevention recommendations. According to your records, her last mammogram was three years ago and her last Pap was normal at age 63. Using the atherosclerotic cardiovascular disease pooled cohort calculator, Barb has a 10-year risk of a cardiovascular event of 7.5%.

### Test Characteristics

The reason ovarian cancer screening tests are not recommended is that the available tests have unacceptably high false-negative and false-positive rates. In other words, the predictive value of a positive and the predictive value of a negative test are too low.

| Population | Recommendation | Reference |
|------------|----------------|-----------|
| Women with irregular or abnormal bleeding | American Society for Reproductive Medicine recommends against obtaining follicle-stimulating hormone (FSH) levels in women in their 40s to identify the menopausal transition as a cause of irregular or abnormal menstrual bleeding | [29] |
| Women with suspected thyroid disease | American Society of Clinical Pathology recommends against multiple tests in the initial evaluation of a patient with suspected thyroid disease. Order thyroid-stimulating hormone (TSH), and if abnormal, follow up with additional evaluation or treatment depending on the findings | [29] |
| Pregnant women | American Academy of Family Physicians and ACOG recommend against scheduled elective, non-medically indicated inductions of labor or Cesarean deliveries before 39 weeks, 0 days gestational age | [29] |

Table 2.3 Applying test characteristics to a screening test. Example test with 95% sensitivity and 95% specificity in a hypothetical population of 1000 persons with 0.1% point prevalence of the condition. In this example, the positive predictive value is 2% (1/51)

| Test is positive | Disease is present | Disease is absent |
|-----------------|-------------------|-----------------|
| True positive | 1 | 50 False positive |
| False positive | 51 All with positive test |
| Test is negative | 0 | 949 True negative |
| False negative | 949 All with negative test |
| All with disease | 1 | 999 All who are well |
| All population | 1000 |

*95% sensitivity would yield 0.95 with a true-positive and 0.05 with a false-negative test; numbers are rounded to whole numbers

In screening, where, by definition, we are testing a low- or average-risk population, most people do not have the problem for which we are screening. Thus, a good screening test needs a very high specificity. For example (see Table 2.3), if the test’s specificity (the percent of persons without the problem that test negative, the true negative rate) is 95%, the remainder with a positive test will actually be well, making a 5% false-positive rate. The impact of a 5% false-positive rate is amplified when screening because so many of the population are well. Continuing the example, in a population that has a 0.1% point prevalence (1 out of 1000 have the problem), a 5% false-positive rate means 50 of 1000 people test positive but are well. Since we know 1 of these 1000 has the problem, there would be 51 positive tests, but only 1 of those 51 actually has the problem. The positive test yields meaningful information only 2% of the time, thus a low positive predictive value.

Only half of clinicians have a working knowledge of these concepts [30]. And yet understanding when to order tests and how to interpret the results is critical to high-value care, lest physicians fall prey to ordering unnecessary tests or placing too much importance on a positive result. Providers who lack understanding of critical test characteristics can underestimate the harm caused by an inappropriately ordered test.
Shared Decision-Making

Shared decision-making involves talking with patients to help explain the concepts of value, test characteristics, and best practices to come to a joint decision when selecting appropriate preventive care or other services. Often, there is no one “right answer”; thus, primary care providers frequently face situations where the next best step is shared decision-making. Using the breast cancer screening (Chap. 18) and cervical cancer screening (Chap. 14) recommendations and the information given, most providers would appropriately advise the patient in our case to obtain a mammogram and forego a Pap without much hesitation. However, her borderline cardiac risk (Chap. 21) should direct the clinician to a shared decision-making discussion.

Engaging patients in shared decision-making can be a challenge. First, it can be time-consuming and difficult to fit in a prevention visit, particularly one with multiple prevention items needing a discussion within a limited appointment duration. Of note, women have more prevention recommendations than men (see Table 2.1). Second, situations that require shared decision-making often are the same situations where data is lacking, recommendations are conflicting, or relatively new information changes established practices. Thus, these are situations where providers may not have an internal script for the discussion, may not have materials to help aid the conversation, or may bring their own biases. For example, regarding mammographic screening of women in their forties, Keating and Pace describe several factors preventing a practice change to shared decision-making instead of reflexively ordering a mammogram. These include general biases toward testing, concerns about litigation, more payment for testing and less payment for conversations, disagreement with the guidelines, and inaccurate understanding of the harms, such as overdiagnosis [31]. Third, we must be aware that risk is frequently processed emotionally rather than cognitively [32]. Often, both clinicians and patients anticipate and try to avoid the regret of not doing something rather than understand the harms of doing something. In breast cancer screening, this harm is overdiagnosis, which remains largely invisible. It is difficult to disentangle values and beliefs from facts when discussing risk, but the primary care provider is in a very good position to elicit what matters to the patient.

**Tips in Providing Shared Decision-Making**

The best way to address these challenges is a combination of patient-centered materials, appropriate pre-visit preparations and during-visit education conducted by medical home care team members, and managed agendas to match the time available. Decision aids and patient education materials with easy-to-understand graphics on risk improve decision-making for testing and less payment for conversations, disagreement with the guidelines, and inaccurate understanding of the harms, such as overdiagnosis [31]. Examples of decision aids can be found on the Internet: The Mayo Clinic website [33] tools include osteoporosis management, and Health Decisions [34] includes cardiovascular prevention and breast cancer screening. Similarly, pamphlets [35] and videos [36] directed at educating patients are available and can be selected to match the patient’s learning style and technology savvy. It is important to have diverse materials, picturing individuals of all colors, available in multiple languages to engage all patients. Additionally, sometimes decision aids ask for a race or ethnicity designation but unfortunately don’t allow for all realities such as women who are more than one race or who are American Indian; often, this is because calculators are based on research populations that didn’t include these designations. For women in this situation, providers can choose between the option with the best fit or not answering. Finally, providers who need training on shared decision-making can use Agency for Healthcare Research and Quality’s SHARE materials online [37].

**Systems Engineering and Process Improvement**

Systems engineering is a way of thinking that allow providers to achieve the quadruple aim by solving problems like finding time for shared decision-making. Health-care organizations that use systems engineering tools like Lean [38] or Six Sigma have a set of reproducible process to discover problems and solve them. This often means improving the process itself but, in other cases, requires adjusting the management system, how processes coordinate, and how people interact with the process.

The use of systems engineering to enhance the care of women is best illustrated with an example. Consider breast cancer screening. The USPSTF recommends mammographic screening at least every 2 years. If an organization has a quality goal of breast cancer screening and patients are not meeting this goal, the organization labels “failure to meet breast cancer screening goal” as the problem and then takes the first step to map out the processes in place that address breast cancer screening. It may be that a standard process is lacking—for example, the only identified process is to expect PCPs to note the gap and order mammograms when due. Other organizations, may have a process or combination of processes, such as (1) outreach between visits by non-physician care team members, (2) pre-visit processes and/or point-of-care reminders for care team members to order mammograms before the visit or on rooming, (3) heightened awareness of the goal and current performance with visual boards and team meetings, or (4) expanding the impact of primary care physicians with
better.
The final step would be to “adjust” to make the process an AWV yearly? This step is called “study” in a PDSA cycle.

If screening rates improve? If not, did patients at least receive measured and tracked. For example, did the breast cancer only name the problem but to decide on how the problem is measured if the change made a difference. The idea is to not plex medical services at another visit.

AWV and partner with physicians to provide any needed com-

advance practice providers or in coordination with obstetrics-gynecology clinicians.

Mapping the current process means developing a diagram of who does exactly what when. The care team members who perform the work must be part of the mapping process, both to understand what is truly happening and then to participate in brainstorming for improvement. This mapping process may be done when a problem is identified but ideally happens periodically to continually improve a working process. In a PDSA (Plan/Do/Study/Act or Adjust) improvement cycle model [39], this mapping is the “plan” step. The next step would be to “do,” that is, select a modification or an addition to the current process to make the improvement. See Fig. 2.1.

For example, if the current state is a practice where annual mammography was left to PCPs to order at the point of care, a strategy to increase the rate of mammography would be to ensure that patients are coming in at least every 1–2 years for preventive care. For patients insured by Medicare, health-care organizations can take advantage of the annual wellness visit (AWV) benefit and set up systems to remind patients that an appointment is due every 12 months. If physician visits are limited due to demand, practices can develop a process where advanced practice providers (APPs) see the patients for the AWV and partner with physicians to provide any needed complex medical services at another visit.

Once the process is improved, it is incumbent on the team to measure if the change made a difference. The idea is to not only name the problem but to decide on how the problem is measured and tracked. For example, did the breast cancer screening rates improve? If not, did patients at least receive an AWV yearly? This step is called “study” in a PDSA cycle. The final step would be to “adjust” to make the process better.

Often, even a perfect process is not enough to achieve the goal. If the process that the organization’s leaders (“manage-

ment”) expect is not the process that is actually happening, barriers must be identified and addressed. In a primary care clinic, “management” may not be simply defined: Is it the physician in a physician-led care team? Is it the medical director or clinic manager? Are all stakeholders on the same page? If the answers to these questions are not clear, it’s time to map out the management system.

Alternately, the process may work but only for selected patients (seen by a certain clinician or with a given insurance type or of a certain socioeconomic group) or only for breast cancer screening and not cervical cancer screening. Here, performance or outcome data, preferably with drill-down capability, can help identify the root cause of the problem. The problem may be a matter of training, motivation, or resources. Alternatively, it may be that populations respond differently to interventions. For example, studies have demonstrated that in the case of breast cancer screening, Black women may have a distrust of mammograms, and therefore a phone call alone may be less likely to convince them to schedule the overdue exam [40]. Finally, the problem may be a lack of data. Women, because of fragmented care, often get screenings in multiple systems, and reports may not be appropriately sent or scanned into the primary care providers’ system.

Fig. 2.1 Quality improvement cycle

Your medical assistant, in a pre-visit planning process, identified that Barb was overdue for a mammogram according to your records and called Barb before the visit about the need for a mammogram. In response to that call, Barb brings in her records of a mammogram done last year that was ordered by an ob-gyn in a health system closer to her home. The mammogram was normal.

Public Reporting and Pay-for-Performance Measures

To highlight high-quality care and assist patients in selecting high-quality providers, facilities, and health insurance plans, organizations such as the Center for Medicare Services [41], National Committee for Quality Assurance [42], and regional health improvement organizations publicly report performance. These publicly available scorecards often include measures of prevention, chronic condition management, patient experience, and cost and utilization, and health systems or providers are compared against an average or benchmark. In general, metrics are selected if they represent services or conditions that are relevant for a large number of people, and consensus exists regarding the best practice for that service or condition that can reliably be measured. While
simply the act of public reporting increases transparency and likely quality, more often these measure sets have an impact if they are used in pay-for-performance programs for providers or hospitals or used to hold payers accountable [43].

Pay-for-Value Programs  CMS uses pay-for-performance programs to incentivize high-value care for providers and hospitals [41]. The program for physicians and other eligible clinicians is called the Quality Payment Program, and this program was legislated by the 2015 law called the Medicare Access and CHIP Reauthorization Act (MACRA). Most providers in large groups need to participate in one of two tracks or be subject to a fine. To participate in the Merit-based Incentive Payment System (MIPS), providers select from a list of over 100 metrics (including core measure sets for primary care and for obstetrics-gynecology), report their results to CMS, and then are paid or fined in a zero-sum program. Alternatively, providers and their health systems can participate in the Advanced Alternate Payment Models track, where the model for payment meaningfully shifts from traditional fee-for-service to value-based payment. Quality, cost, and experience measures are publicly shared on either Physician Compare for providers or Hospital Compare for hospitals.

Many services for women are linked to commonly reported measures. For example, breast cancer screening, cervical cancer screening, and chlamydia screening are posted on regional quality improvement organizations’ sites [44, 45], at NCQA’s rating of health plans [42], and are available for MIPS reporting [41]. Similarly, Hospital Compare reports the elective delivery and mammogram follow-up rates [41]; the National Healthcare Quality and Disparity Report reports breast cancer mortality, HPV vaccination, and advanced cervical cancer rates [46]; and CMS’s Star Ratings Program for Medicare health plans includes breast cancer screening, osteoporosis management after fracture, and improving bladder control rates [41]. State-run Medicaid plans often have similar measures. As these measures are more strongly linked to payment models, improving high-value care for women becomes not only the right thing to do but also a sound business decision.

Alternative Payment Models and Value-Based Insurance Design

As mentioned, governmental and commercial insurance carriers are increasingly paying providers and facilities based on the value they provide rather than simply based on the services rendered. There are a wide variety of payment arrangements, for instance (1) paying for an outcome like a quality metric (discussed above), (2) sharing in savings or risk determined by the total cost of care, or (3) paying based on the size of the population (number of members) rather than the number of services, called population-based payments. Another arrangement is paying for an “episode of care,” such as a joint surgery or a pneumonia hospitalization as a bundle, including all related care in a time window such as 30-days.

Like publicly reported services, quality or cost measures that are linked to a payment often include women’s health services. Obstetric care is often paid as an episode; there is a single “global payment” for all services associated with the pregnancy and delivery, up until 6 weeks of delivery, with the fee often dependent on the complexity of the pregnancy. This arrangement encourages coordinated care throughout the pregnancy and the use of the least expensive yet appropriate level of care. For example, episode-based payment encourages hospitals to keep costs of supplies and durable medical equipment low, to only admit when necessary, and to avoid unnecessary days in the hospital. At the same time, episode-based payment encourages providers to manage diabetes, appropriately vaccinate for influenza, and screen for infections to limit complications in pregnant women. The advantages of the bundled payment arrangement end with the end date of the bundle, however. Postpartum care and other health care may become uncoordinated or unavailable (as happens in some state Medicaid plans) at the 6-week postpartum mark [47].

Insurance programs, both commercial and governmental, can also be designed to incentivize patients to be more cost-conscious. Consumer-driven health plans shift first payments and a higher percentage of costs to patients by using high deductibles and co-insurance. These benefit designs do lower overall costs, as patients defer services, some of which are unnecessary or low value [48]. However, some of these deferred services are high value. In a study of Medicare managed health plans before the enactment of the Affordable Care Act, the biennial mammography rate was 8% less among women who had to share in the cost of a mammogram [49]. More rigorous study and innovation are needed to realize the benefits of these plans without putting patients at risk for skipping needed care.

Cost of Care for Women

When considering systems design and insurance payments, it is important to remember that per capita lifetime expenses are generally higher for women (about $360k) than for men (about $270k). About 40% of this difference can be explained by the longer life span of women [50]. Women live about 8% longer than men, and about half of all health-care expenses occur in people over the age of 65 years independent of gender (due to medical conditions, disability, and end-of-life care that occur in older patients). The remainder of the
difference in expenditure is likely due to pregnancy and childbirth [51], a necessary burden of health-care services that is carried by only women, despite the fact that both sexes are often required for pregnancy to occur.

Currently, US law does not allow differences in insurance premiums by gender, also known as “gender rating,” and most Americans agree with this core principle of the Affordable Care Act [52]. Additionally, the American College of Physicians states in a position paper “health insurers should not be allowed to charge women higher premiums or impose higher cost sharing on women because of their sex or gender” [53].

Thus, care for women is an important target for organizations aiming to improve affordability. In value-based arrangements, providers, payers, and patients all benefit from reducing the cost of care in women. Moreover, when measures like breast cancer screening are part of a population-based payment arrangement, these payments can be earmarked for care teams to assist primary care providers in closing care gaps.

At the conclusion of your clinic session, you huddle with your care team and review your quality measures. Your mammogram rate is 88%, which is better than the average in your clinic. However, your rate for Black women is 77%, while your rate for White women is 95%. Your care team enacts its process for continual quality improvement to address this disparity.

Equity and Disparities

As mentioned, population health refers to the health outcomes of a group of individuals, but it also includes the “distribution of such outcomes within the group” [54]. Thus, equity of care—in terms of both patient characteristics (sex and gender, race, creed, sexuality, or certain conditions) and system processes and outcomes (access, effective communication, costs of care, or care team support)—is also a critical component of the quadruple aim. While pursuing high-value care for women, systems engineering and team-based care programs must address and work to eliminate health disparities.

In the pages that follow, this textbook includes many examples of gender differences in the receipt of care and the outcomes of care. For example, the conditions that affect women veterans are different than in men; heart disease manifests differently in women, with different risk factors, and worse outcomes; and sexually transmitted infections have different and often more severe consequences in women. Just as gender impacts health equity, race affects care and outcomes in women. To illustrate, Black women die of breast cancer at twice the rate of Latinas or Asian women; American Indian women are much less likely to receive prenatal care than Asian or White women; and White women are more likely to receive birth control than Hispanic or Black women. The origins and solutions to sex-based disparities can inform and complement understanding and problem-solving for other disparities.

One foundational step providers can take to address inequality is to look in the mirror. Often, without conscious recognition, we make assessments and decisions based on our backgrounds and experiences; in other words, we harbor implicit bias. To change that bias, we must first be aware of it. Providers can learn of their implicit biases by taking an online survey [55]. Armed with the results, providers might feel empowered to identify biases when they see them, use their names (e.g., call out “racism”), and shift from the majority perspective to the minority perspective [56]. Many institutions and specialty organizations are focused on working with providers to reduce the impact of implicit bias; availing oneself of these opportunities when offered may be the first needed step in providing the equitable care we all aspire to give.

Social Determinants of Health

While most of this text is about “health care,” the provision of health care determines only about 10% of health [57]. Far more important are behavior and genetics (together 70%), plus “social circumstances,” which contribute about 15% to premature death. Social determinants of health include financial resource strain, education, food and housing security, social support, employment, and insurance status. These factors contribute to one another and to health behaviors, as do the living environment, cultural background.

Since insurance eligibility often depends on employment, income, marriage to a spouse with insurance benefits, and/or minor children, instability in any of these factors can lead to fragmentation in care, limited access, or frequent changes of the enrolled health insurance plan. This is especially the case for women, who are more likely than men to rely on government programs, marriage, and being a parent for care. Women, like men, can experience gaps in insurance coverage, yet rates of uninsured declined markedly with the enactment of the Affordable Care Act. In 2016, 11% of non-elderly adult women were uninsured (down from 18% in 2013); meanwhile, 13% of men (down from 20% in 2013) were uninsured [5].

The presence of insurance doesn’t mean unlimited access to health care; some high-deductible health plans have such high out-of-pocket costs that, outside of a catastrophe, beneficiaries are priced out of access beyond preventive care.
About half of uninsured women delayed or went without care because of costs, but 21% of those with private insurance and 25% of those with Medicaid also delayed care or went without care [7]. Comparing women overall to men overall, 26% of women delayed care or went without care compared to 19% of men. Women, who on average earn less than men, may be more affected by the rising costs of health care. Finally, 42% of women who have trouble paying for medical bills report difficulty paying for basic necessities such as food and housing because of medical bills.

Getting to the doctor also requires time and transportation. About one-quarter of women delayed or went without care because they couldn’t take time off work; that number rises to one-third of low-income women [7]. Similarly, 9% of women delayed or went without care because of transportation barriers, a figure that increases to 19% when considering only low-income women. Further, these transportation problems are significantly worse among Black and Hispanic women.

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Covid-19 and Public Health

The Covid-19 pandemic is a stark reminder that the U.S. healthcare system is primarily a system of clinical care delivery to individuals. In contrast, public health functions such as controlling epidemics, contact tracing, and return-to-work or return-to-school strategies are the domain of governments and local health departments. While men and women have similar infection rates when exposed, men tend to have a more severe disease course and worse outcomes. However, Covid-19 has deepened existing disparities based on socioeconomic determinants of health. Women are more likely to work in healthcare (essential work with exposure risk), work part-time or in the informal economy (which does not supply health insurance), and be the primary caregiver of children (forcing a choice between employment/insurance and caregiving for school-aged children at home during the pandemic). Thus, Covid-19 may have a more significant indirect impact on women.

Health Policy and Advocacy

While this textbook largely works to help guide our actions at the bedside in hospitals or in clinics, critical elements of high-value care for women and LGBTQ populations are most impacted when providers influence societal attitudes and/or health policy. This textbook does not suggest providers enter the world of partisan politics. Indeed, providers must remain impartial and care for all persons, as dictated by the 2017 World Medical Association Declaration of Geneva [58]. Yet physicians must be aware of how our voices and professional societies can and should make a difference [59]. At our core, we are advocates, putting the interests of our patients before our own. Interested readers are directed to relevant society’s position papers such as ACP’s position on women’s health [53], ACOG’s position on access [60], and the AAFP’s position on violence [61]. Advocacy efforts by health professionals are another important, if often overlooked, avenue toward high-value care for women.

Summary Points

1. The quadruple aim is a four-part goal to achieve high-quality care, a meaningful care experience for patients, job satisfaction for providers, and all at an affordable cost. Access to health care is often dictated by health insurance status; about 60% of non-elderly women have employer-sponsored health insurance and 20% have Medicaid.

2. Examples of high-value care include recommended prevention measures such as breast cancer screening in 50- to 74-year-old women, chlamydia screening in sexually active women 24 years and younger, or supporting breastfeeding interventions in pregnant women and new mothers. In contrast, low-value care may be measures that aren’t evidence-based (such as screening for vitamin D deficiency), with limited cost-effectiveness (such as routine BRCA genetic testing) or both (such as elective delivery before 39 weeks).

3. Health care organizations can put systems in place to improve care for women and LGBTQ populations by using teams to promote timely preventive care and chronic disease management, creating a culture of continuous quality improvement, and prioritizing shared decision-making.

4. Measures targeting women such as breast cancer screening are commonly included in pay-for-value arrangements and publicly reported scorecards of performance. Achieving high-value care requires attention to care for women, including maternity care.

5. Population health management means improving the outcomes of the group as well as the outcomes within the group. Gender equity, reducing disparities, addressing social determinants, and professional advocacy are important components of high-value care.

Review Questions

1. One population health tenet is to achieve all four objectives of the “quadruple aim.” Which objective is included in the quadruple aim?
A. Reducing health system costs such as clinical informatics and analytics
B. Improving the quality of care such as the rate of breast cancer screening
C. Decreasing the number of for-profit health-care organizations to improve coordination with community organizations
D. Increasing the number of patients seen per day to improve access

The correct answer is B. The quadruple aim is to improve the experience, quality, and vitality of providers while keeping spend in check [3]. Reducing costs are aimed at reducing low-value care or bringing transparent discussions of cost into treatment plans when options are available. Clinical informatics and analytics often develop or inform process improvement which can increase high-value care. Access is an important aspect of patient experience; the ways to improve access are to decrease rate of uninsured and to make clinicians available by ensuring adequate number of primary care physicians and using alternate methods of patient encounters such as advance practice providers.

2. Which of the following is an example of a low-value service?
A. Annual cervical cancer screening in ages 21–64
B. Osteoporosis screening at age 65 years
C. Elective delivery after 40 weeks gestational age
D. Breast MRI for breast cancer screening in BRCA mutation carriers

The answer is A. Low-value services are listed by Choosing Wisely [29]; one example is scheduling an elective delivery before 39 weeks of gestation. High-value preventive care is Grade A–B rating by USPSTF [6]. USPSTF recommends cervical cancer screening every 3–5 years depending on patient factors, osteoporosis screening beginning at age 65 years, and breast cancer screening, including MRI in those at high-risk for breast cancer in women aged 50–74 years.

3. Your health-care organizations’ breast cancer screening rate is 55%, using a numerator of at least every 2-year mammogram and a denominator of women ages 50–74 years. The rate for White women is 60%, and the rate for Black women is 45%. Your current efforts to address breast cancer screening include multilingual patient education materials, electronic best-practice alerts at a visit if a mammogram is due, and setting up an annual follow-up appointment for all women in the age range who are due for a mammogram to come in for a mammogram

The correct answer is D. The core tenet of systems engineering quality improvement is to understand current state before planning a future state [38]. Often, the best ideas for planning the future state come from those doing the work, so the map of the current state and its review should include persons directly involved. After this, it may be that the suggestion is to outreach to those due for mammograms or poll patients.

4. Your health care organization is part of an accountable care organization that has an opportunity for shared savings in a pay-for-value contract. However, to be eligible for shared savings, your organization must meet a quality performance threshold. This threshold includes measures such as breast cancer screening, chlamydia screening, patient experience ratings, and prenatal care visits. Your composite rate is 55%, but the required threshold is 70%. To achieve maximum shared savings, your best next step is to
A. Plan a team meeting to study your composite performance
B. Lower the rate of uninsured at your clinic
C. Reduce the rate of early elective Cesarean sections
D. Reduce your breast cancer spending

The correct answer is A. Pay-for-value contracts encourage health-care organizations and payers to work together as they both benefit from reducing unnecessary spending and low-value care [43]. In this scenario, your group may not share in savings even if it is achieved because the quality composite score is not at threshold, so your best bet is to work on the quality score in a PDSA cycle with your team.

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