Primary care clinicians – including physicians, nurses, nurse practitioners, physician assistants, nutritionists, and pharmacists – provide the bulk of care to patients with most common endocrine conditions. Their role is critical given the increasing gap between supply and demand for adult endocrinologists. Thus, primary care clinicians will shoulder an ever-increasing percentage of patients with endocrinology-related needs.\(^1\)

To ensure that these practitioners provide the highest quality care, are aware of the latest studies and treatments, and are comfortable with the screening, diagnosis, and management of endocrine conditions, the California chapter of the American Association of Clinical Endocrinologists (AACE) provides annual workshops in underserved areas of the state on the most common endocrinology-related conditions.

The effectiveness of the programs can be seen in the surveys completed after the 2016 sessions, in which 92% of participants said they would make changes in their practices based on the information presented. As one respondent wrote: “I attend this conference yearly and learn lots of new information. Speakers are very expert in their field.”

Building on the success of the 2016 series and the feedback received, the AACE California chapter identified 4 important areas for education in 2017: diabetes, cardiovascular disease, obesity, and osteoporosis. The programs will be presented in Bakersfield, Carmel/Monterey, Los Angeles, and San Diego.

This needs assessment was developed after an in-depth review of the lay and medical literature, national guidelines, and surveys from previous AACE programs.

<table>
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<th>Clinical Gap</th>
<th>Educational Need</th>
<th>Learning Objective</th>
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<tr>
<td>The dynamic nature of diabetes research and treatment guidelines requires continual education in order to improve the quality of care of the growing number of patients with diabetes.</td>
<td>Educate participants about the latest AACE/ACE guidelines for diabetes management and how to integrate them into their practice.</td>
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<td>Educate clinicians regarding new blood glucose collection and monitoring technologies including Continuous Glucose Monitoring (CGM) they can use in their practice.</td>
<td>Describe how new blood glucose collection and monitoring technologies (CGM) and can be integrated into practice to improve patient care.</td>
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<td>Clinicians consistently underdiagnose and undertreat patients with obesity, with numerous barriers preventing the delivery of quality care.</td>
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<td>Identify opportunities to improve the diagnosis and management of obesity in clinical practice.</td>
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<tr>
<td>Despite effective treatments for osteoporosis shown to prevent fractures, patients are still underdiagnosed and undertreated.</td>
<td>Educate clinicians regarding the role of primary care physicians in the prevention of primary and secondary fractures in patients with osteoporosis and osteopenia.</td>
<td>Discuss opportunities to integrate evidence-based guidelines into clinical practice to improve the prevention of primary and secondary fractures in patients with osteoporosis and osteopenia.</td>
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Pharmacotherapy Advances in the Management of Patients with Type 2 Diabetes

**Clinical gap:** The dynamic nature of diabetes research and treatment guidelines requires continual education in order to improve the quality of care of the growing number of patients with diabetes.

<table>
<thead>
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<th>Educational goals:</th>
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<tr>
<td>• Implement the latest AACE diabetes algorithm into practice</td>
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<td>• Utilize opportunities to meet and exceed quality indicators for T2DM treatment</td>
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<td>• Evaluate treatment options with a focus on incorporating incretin-based therapy</td>
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<td>• Understand the potential and pitfalls of SGLT2 inhibitors</td>
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<td>• Recognize when advanced beta cell failure is present and basal insulin is necessary</td>
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<td>• Understand when the newer basal insulin formulations are indicated and how to use these with other agents such as GLP-1 agonists</td>
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<tr>
<td>• Incorporate the newest methods to collect and interpret blood glucose data in your practice</td>
</tr>
<tr>
<td>• Identify key components in evaluating CGM data required to improve patient care</td>
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The field of diabetes is one of the most dynamic therapeutic areas in medicine today, with more than 50 medications available, more than 100 currently in clinical trials, and new testing, treatment, and monitoring devices entering the market. At the same time, research into the underlying pathophysiology of the disease, preventive approaches, and best treatment regimens continues.

Despite the availability of numerous guidelines from US and international medical societies, including AACE and the American College of Endocrinology (ACE), the quality of care provided to people with diabetes remains less than ideal.

The most recent government figures find that while glycemic control has improved from 1999 through 2010, nearly half of US adults with diabetes still do not meet the ABCs of diabetes – a hemoglobin A1c less than 7% for most individuals, a blood pressure less than 130/80 mmHg (recently updated to 140/90 mmHG), and a low-density lipoprotein cholesterol (LDL-C) less than 100 mg/dL.²

Numerous other gaps in the quality of care exist, including:

- **Poor adherence to screening guidelines.** Just half of those with risk factors for diabetes have been screened for the disease.³
- **Lack of focus on prediabetes.** Prediabetes (defined as an A1c between 5.7% and 6.4%) is a well-known risk factor for diabetes. An estimated 86 million US adults, 37% of the population, have prediabetes, up from 79 million in 2010. Most are
unaware that they have the condition, so they do not receive the early
treatment that could stem the progression to diabetes.⁴ Even those who receive
a diagnosis often go untreated or are undertreated.⁵

- **Lack of individualized care.** Recent studies to identify an “ideal” A1c level in
people with diabetes found that the level is dependent on several factors,
including age and health status.⁶⁻⁸ This prompted medical societies, including
AACE/ACE, to change their guidelines from a one-size-fits-all A1c goal to one that
is individualized based on the patient’s medical condition, age, personal goals,
financial status, race/ethnicity, and other parameters.⁹,¹⁰

Yet a study published in 2015 found that clinicians are not individualizing
diabetes management for their patients. Indeed, the researchers found, patients
in poor health at high risk for hypoglycemia were treated as aggressively as
healthier patients. “Our findings suggest that a substantial proportion of older
adults with diabetes in the United States were potentially over-treated,” the
authors wrote.¹¹

Another cross sectional study of 652,000 patients found that 10.1% of those with
an A1c less than 6% were over-treated as were 25.2% of those with an A1c less
than 6.5% and 44.3% of those with an A1c less than 7.0%.¹²

- **Delays in insulin use, treatment intensification.** Insulin therapy has traditionally
been reserved as a third- or even fourth-line treatment for diabetes, used when
all other options fail. However, there is now a greater understanding of the
benefits of early initiating of insulin on beta cell preservation and reduced
microvascular complications.⁹

However, the literature is rife with evidence of clinical inertia, defined as a
failure to act despite evidence that a patient’s current therapeutic regimen is
suboptimal, when it comes to intensifying treatment.¹³⁻¹⁶ A recently published
study assessed clinical inertia in a database of more than 500,000 adult patients
with T2DM who experienced above-target A1C values between July 1, 2008 and
June 30, 2012.¹⁷

Regardless of their A1c target, nearly all (70.4% to 72.8%) experienced clinical
inertia in the 6 months following the index event, with just 5.3% to 6.2% of
patients intensifying treatment with insulin. Older patients, those using more
than 1 oral antidiabetes drug during the baseline period, and those with a recent
above-target A1C were less likely to receive treatment intensification. Patients
with point-of-service insurance, mental illness, an endocrinologist visit in the
baseline period, or a higher index A1C were more likely to have their therapy
intensified.¹⁷
As the authors wrote: “The finding that the mean time to treatment intensification over the entire study was more than 700 days is of concern and suggests that greater attention needs to be given to the problem of clinical inertia. Moreover, the low proportion of patients who received insulin as treatment intensification (<10% in the variable-response group) may reflect physician and patient barriers to insulin initiation . . . Taken together, the data presented herein highlight the need to inform stakeholders of the importance of a timely and personalized approach to optimize the treatment of T2DM.”

Another recent study found that physician decisions regarding insulin initiation were based on their perception of patients rather than objective data.18

Clinicians also require education regarding the most appropriate forms of insulin and their appropriate place on the treatment continuum. While basal insulin, with reduced frequency of injection and glucose monitoring, is usually the first option recommended when initiating insulin therapy, they have numerous limitations, including complexity of use, risk of hypoglycemia, and weight gain.19,20

Novel formulations of long-acting basal insulins, however, require a once-daily injection, have a longer and more stable pharmacokinetic profile, exhibit lower within-subject variability, no significant weight gain, and a lower risk of hypoglycemia. There is also less involvement with the hepatic or renal systems, and they can be combined with a fast-acting insulin and/or a GLP-1 analogue in a single injection.20,21

**New Guidelines Available**

The American Association of Clinical Endocrinologists (AACE) and the American College of Endocrinology (ACE) plan to release a new algorithm in 2017 to guide clinicians on the management of patients with type 2 diabetes (Figure 1). The algorithm stratifies the choice of therapies based on the patient’s initial A1c.22

The algorithm includes a plethora of new recommendations that should significantly change current clinical practice and improve the quality of care provided. A guiding principle is that the progressive pancreatic beta-cell defect that drives the progression to diabetes begins early, likely before the diagnosis of diabetes. Thus, the algorithm highlight several areas for early intervention and diagnosis of pre-diabetes, particularly in those who are overweight and obese or have other risk factors for diabetes.

The algorithm also stresses that clinicians should consider the cost of care as well as patient preference when choosing a therapeutic strategy.22 This fits with current goals of the healthcare system to provide more patient-centered, cost-effective care.

Other key recommendations include:

- Begin testing at 45 years of age regardless of the patient’s weight, then again every 3 years in those with normal intervals.
- Consider insulin therapy even in newly diagnosed patients with elevated blood glucose levels or A1C.
- Incorporate combination therapy that involves agents with complementary mechanisms of action.
- Provide comprehensive management, including lipid and BP therapies as well as treatment of comorbidities.
- Evaluate therapy every 3 months.
- Use the simplest possible therapeutic regiment to optimize adherence.
- Individualize glycemic goals: A1c ≤ 6.5% in patients without concurrent serious illness and at low hypoglycemic risk; >6.5% in those with concurrent serious illness and at risk for hypoglycemia

The new algorithm also includes a section on lifestyle therapies and discussions of all classes of drugs for obesity, diabetes, hypercholesterolemia, and hypertension approved by the FDA as of December 31, 2015, with a helpful grid on antidiabetic medications highlighting their risks, benefits, and contraindications (Figure 2).
This latter section is critical given the plethora of medications available today. “One of the major challenges for practitioners,” wrote the primary investigators of a major clinical trial comparing different combinations, “is to choose from the considerable armamentarium of glucose-lowering medications the best means of maintaining an appropriate level of glycemic control over time.”

It is also important that clinicians consider additional effects from diabetes medications. For instance, GLP-1 receptor agonists are typically associated with weight loss and blood pressure reduction, while at least one currently available SGLT-2 inhibitor, empagliflozin, and a GLP-1, liraglutide, is associated with a significantly lower rate of all-cause and CV death. Empagliflozin is also associated with a lower risk of cardiovascular morbidity and mortality.

These newer antidiabetic drugs also have a minimal risk of hypoglycemia when used appropriately. Hypoglycemia is recognized as a serious adverse effect of many antidiabetic medications, including insulin, and may result in significant morbidity and even mortality. The newer drugs also have less risk of weight gain, another unwanted side effect of many older antidiabetic drugs, including insulin. Indeed, as noted earlier, the GLP-1 receptor agonists may lead to significant weight loss.

Clinicians require more than just a copy of the new guidelines if they are to improve the delivery of diabetes-related care. Educational programs like the one proposed here provide not just information, but context for recommendations, as well as clear direction on implementing such guidelines into the clinical workflow.

“Treatment of type 2 diabetes has grown in complexity and cost while older treatments continue to be replaced or supplemented by newer therapies. It is critical to monitor these patterns as additional evidence is developed regarding the comparative effectiveness as well as potential risks of newer therapies, especially injectable incretin mimetics (GLP-1 agonists), DPP-4 inhibitors, and SGLT-2 inhibitors.”

Technological Advances

In addition to advances in the medical management of diabetes, clinicians need to be aware of technological advances in diabetes, including point-of-care A1c tests that can deliver immediate results while the patient is with the physician. This, in turn, provides an important opportunity for immediate feedback and education. It also increases the likelihood that patients will have their A1c tested since it doesn’t require a separate visit to a lab.\textsuperscript{26}  

Another technological advancement is the use of continuous glucose monitoring (CGM) sensors, which provide unprecedented access to real-time glycemic information that can feed directly into the patient’s electronic health record. The tool is valuable for many reasons, not the least of which is providing an important educational opportunity in the primary care setting.\textsuperscript{27} Primary care clinicians also need to be educated about advances in insulin pump technology, since they will continue to see their patients who receive pumps. This includes the first sensor-driven pumps.
**Educational need:** Educate participants about the latest AACE/ACE guidelines for diabetes management and how to integrate them into their practice.

**Learning objective:** Describe key components of the latest AACE/ACE guidelines for diabetes management, including the timing and intensification of insulin therapy; the use of newer antidiabetic agents such as GLP-1 agonists and SLGT-2 inhibitors; and the diagnosis and management of pre-diabetes.

**Educational need:** Educate clinicians regarding new blood glucose collection and monitoring technologies they can use in their practice.

**Learning objective:** Describe how new blood glucose collection and monitoring technologies and can be integrated into practice to improve patient care.
New Approaches to Cardiovascular Risk Management


Educational Goals

- Understand why we have to move beyond LDL-C alone to lower risk further
- Incorporate new agents to lower LDL cholesterol into a treatment paradigm
- Recommend optimal dietary regimens for patients with diabetes and cardiovascular risk factors.
- Understand current anti-diabetic medications that improve cardiovascular risk independent of glucose lowering

Cardiovascular disease (CVD) is the most common cause of morbidity and mortality in patients with diabetes, as well as the main driver of costs of diabetes-related health care. A primary contributor to cardiovascular disease is hyperlipidemia, which is more common in people with diabetes, possibly because of the inflammatory effects of hyperglycemia.28

Yet about half of patients with diabetes do not meet lipid targets.29 There is also evidence that patients with dyslipidemia are undertreated. One retrospective analysis of records from 136,854 patients with diabetes and a high risk of CVD who were receiving medication found that just a fourth (26%) received high-intensity statins.30

Thus, there is a critical need for improved adherence to current guidelines for the management of CVD risk factors in people with diabetes.

The Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results (LEADER), published in 2016, was a double-blind trial in which 9,340 patients with type 2 diabetes and high cardiovascular risk were randomized to liraglutide or placebo and followed for a mean of 3.8 years. In a time-to-event analysis, 13.0% of the liraglutide patients vs 14.9% of the placebo cohort met the primary endpoint (first occurrence of death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke) (hazard ratio, 0.87; 95% confidence interval [CI], 0.78 to 0.97; P<0.001 for noninferiority; P = 0.01 for superiority). Fewer patients died from cardiovascular causes in the liraglutide group (4.7%) than in the placebo group 6.0% (hazard ratio, 0.78; 95% CI, 0.66 to 0.93; P = 0.007), while the rate of death from any cause was lower in the liraglutide group than in the placebo group (8.2% vs 9.6%, respectively; hazard ratio, 0.85; 95% CI, 0.74 to 0.97; P = 0.02).24
New drugs to treat dyslipidemia as well as groundbreaking research into the benefits of combination therapy with ezetimibe and statins on patients with diabetes may change the landscape of CVD prevention in those with diabetes.\textsuperscript{29}

The Improved Reduction of Outcomes: Vytorin Efficacy International Trial (IMPROVE-IT) trial randomized more than 18,000 patients to receive treatment with a statin plus ezetimibe, or with a statin plus placebo. After a median 6 years of follow up, the addition of ezetimibe to statin therapy lowered LDL-C by 24\% compared to statin with placebo. The risk of the primary end point – a composite of death from cardiovascular causes, major coronary event, or nonfatal stroke – was also significantly lower in the combination therapy group (32.7\% vs 34.7\%, \textit{P}=0.016). Secondary endpoints (cardiovascular-related and all-cause mortality) were all significantly decreased with combination therapy use.\textsuperscript{31}

The EMPA-REG OUTCOME trial assessed the impact of adding the SLGT-2 empagliflozin to standard care in 7,020 patients with type 2 diabetes and high cardiovascular risk on cardiovascular morbidity and mortality. After a median observation time of 3.1 years, the empagliflozin cohort demonstrated a significantly lower risk of the primary outcome of death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke (10.5\% vs 12.1\%, respectively, hazard ratio in the empagliflozin group, 0.86; 95.02\% confidence interval, 0.74 to 0.99; \textit{P} = 0.04 for superiority).\textsuperscript{25}

Empagliflozin is also associated with a lower risk for hospitalization for heart failure.\textsuperscript{22}

There is also some evidence that the combination of ezetimibe and statin therapy can reduce the risk of recurrent ischemic stroke in patients with diabetes.\textsuperscript{32}

The management of hyperlipidemia in patients with diabetes may also improve with the addition of a new class of dyslipidemia drugs: monoclonal antibody PCSK9 inhibitors. These drugs are approved for primary prevention in patients with hetero- and homozygous familial hypercholesterolemia or as secondary prevention in patients with clinical CVD who require additional LDL-C–lowering therapy. Their mechanism of action differs from existing dyslipidemia therapies in that they regulate LDL metabolism by preventing degradation of LDL receptors and thus helps the liver to remove excess circulating LDL-C.\textsuperscript{22}

The 2016 AACE/ACE guidelines note that this class of drugs meets a large “unmet need” for more aggressive lipid-lowering therapy beyond statins.\textsuperscript{22} Although no primary clinical trials on their use have been published yet, a subgroup analysis of patients with diabetes taking alirocumab demonstrated that a 59\% LDL-C reduction was associated with a CVD event relative risk reduction trend of 42\%.\textsuperscript{33}

The AACE treatment guidelines categorize patients with diabetes as high or low risk for CVD based on their risk factors. Those who have diabetes but no other CVD risk factors
and are under 40 years of age, should maintain an LDL-C level of <100 mg/dL while those with diabetes and major CVD risk factors or a history of CVD should maintain an LDL-C target of <70 mg/dL. The recommendations are the same for patients with pre-diabetes.

The AACE diabetes management algorithm recommends first-line therapy with a moderate- to high-intensity statin followed by other lipid-modifying agents, such as ezetimibe, bile acid sequestrants, fibrates, or niacin.

As noted earlier, some antidiabetic medications also have cardiovascular protective benefits, including metformin, GLP-1 agonists, and SGLT-2 inhibitors.

**Educational need:** Educate clinicians on current recommendations for the management of dyslipidemia and other CV risk factors in patients with diabetes.

**Learning objective:** Describe current recommendations for the management of dyslipidemia in patients with diabetes and identify opportunities to implement them in practice.

**Educational need:** Educate clinicians regarding the cardiovascular risks and benefits of antidiabetic medications.

**Learning objective:** Discuss the cardiovascular risks and benefits of antidiabetic medications.
Successful Obesity Management and Counseling

Clinical gap: Clinicians consistently underdiagnose and undertreat patients with obesity, with numerous barriers preventing the delivery of quality care.

Educational goals:

- Learn to communicate with patients about obesity, its associated health consequences, and lifestyle and medical options to address the condition.
- Use approved pharmacologic agents to treat obese patients.
- Navigate billing procedures coding and insurance coverage (or lack thereof) for weight management.

Nearly 70% of adults in the US are overweight, more than a third of them (35.7%) obese. In addition, about 1 in 20 adults are considered morbidly obese. At this rate, it is projected that nearly half of all American adults will be obese by 2030.

Obesity now accounts for an estimated 10% of medical spending in the US, between $147 and nearly $210 billion per year in direct costs and another $4.3 billion in indirect costs such as job absenteeism and reduced productivity. It is a risk factor for numerous metabolic diseases, including diabetes, polycystic ovarian syndrome (PCOS), non-alcoholic fatty liver disease, CVD, and cancer.

As early as 2011, AACE took the lead in addressing obesity-related health care deficits in the U.S. and indicated support for redefining the condition as a chronic disease. Its recommendations were adopted by the American Medical Association two years later, and today Medicare and most insurance companies pay for obesity-related counseling and management.

Studies and the lay media have suggested, however, that doctors still do not address issues related to obesity and overweight with their patients. Barriers to greater patient/physician communication about the condition include a lack of physician education; the belief that losing weight is related solely to the patient’s willpower; the physician’s own prejudices towards obesity, which stigmatizes patients; and an unwillingness to address a complex issue that requires significant lifestyle and medical interventions, which physicians often feel unequipped to handle.

Indeed, recent data from the Centers for Disease Control and Prevention from the 2012 National Ambulatory Medical Care Survey shows that physician office visits for obesity comprised just 2% of all office visits in the US that year.

Some physicians question whether it is even appropriate for them to treat obesity, often resulting in the topic not being brought up at all. In addition, most physicians lack
formal training in obesity management (either in medical school or via continuing education).\textsuperscript{47,48}

Yet studies show that physician counseling and intervention are among the most powerful motivators for weight loss.\textsuperscript{50,51}

AACE and ACE released their first clinical practice guideline for the diagnosis and management of overweight and obese patients in 2016. The detailed, evidence-based recommendations are based on the recognition that obesity is a complex, adiposity-based chronic disease in which management should target both weight-related complications and adiposity to improve overall health and quality of life. The guidelines are designed to provide real-world direction to practicing clinicians, particularly primary care physicians, on how to recognize, diagnose, and treat obesity in their patients. It consists of 123 clinical practice recommendations addressing 9 broad questions covering the spectrum of obesity management.\textsuperscript{52}

Importantly, they provide guidance on the use of medical approaches to obesity, including approved and off-label pharmacotherapies and bariatric surgeries. They also include an algorithm for the use of medical approaches, including medications for chronic weight management in people with certain clinical characteristics or coexisting disease.\textsuperscript{52}

The guidelines provide a framework for staging obesity from 0 to 2 using criteria that goes beyond the BMI, such as age, gender, ethnicity, fluid status, muscularity, and waist circumference. It also establishes different cutoffs for an obesity diagnosis based on ethnicity and race, and recommends screening for 16 weight-related comorbidities, including diabetes.\textsuperscript{52}

\begin{quote}
"We think what we've developed is a model for the chronic care of people with obesity, applicable to real-world care and comprehensive in nature."

AACE Obesity Scientific Committee chair W Timothy Garvey, MD

\textit{Medscape Medical News. May 26, 2016.}
\end{quote}

The guidelines also recommend diabetes testing for all patients who are overweight, obese, or have one or more risk factors for the disease, including physical inactivity, first-degree relatives with the disease, high risk due to ethnicity or race, and history of CVD.\textsuperscript{52}

\textbf{Educational need:} Educate clinicians on opportunities to improve the diagnosis and management of obesity in their practice.

\textbf{Learning objective:} Identify opportunities to improve the diagnosis and management of obesity in clinical practice.
New Advances in the Management of Osteoporosis

Clinical gap: Despite effective treatments for osteoporosis shown to prevent fractures, patients are still underdiagnosed and undertreated.

Educational goals:

- Enable primary care physicians to be at the forefront of fracture risk assessment and osteoporosis diagnosis
- Complete workups to evaluate secondary causes of osteoporosis and refer to endocrinologists when appropriate
- Use appropriate treatment modalities in management of patients with osteoporosis
- Describe non-pharmacological strategies to prevent fractures in patients with osteoporosis

An estimated 44 million people in the US have either osteoporosis or low bone mass, representing about half of all people aged 50 and older. Diabetes and obesity significantly increase the risk of osteoporosis, with a recent study finding a 39% increased risk in those with diabetes and a 46% increased risk in those who are obese (confidence interval: 1.05-1.83 and 1.20-1.78, respectively).

Osteoporosis takes a tremendous toll on an individual’s quality of life and is a major contributor to morbidity and mortality resulting from fractures.

The majority of patients with the condition are seen in primary care practices, making the appropriate screening, diagnosis, and treatment of the condition paramount to prevent potentially life-threatening fractures.

Yet studies find several gaps in the quality of care provided in the primary care setting for patients with primary and secondary osteoporosis. Patients remain underdiagnosed and undertreated, and there are high rates of treatment discontinuation and nonadherence with the most commonly prescribed and effective drugs.

One retrospective study based on medical records from 7 large health insurers found that of the 3,492 women aged 60 and older who experienced a hip, vertebra, or wrist fracture, just 25% had received any osteoporosis medication in the 3 months before their fracture. In the year after their fracture, just 24% were medically treated; just 14% of those who had not been treated for osteoporosis before their fracture.

In a retrospective chart review and follow-up telephone calls with 113 patients age 65 and older who received a diagnosis of osteoporosis, just 13.2% of the 68 patients with appropriate baseline DXA scans received the recommended follow up every 2 years and
only 57.5% were receiving pharmacotherapy. While the majority of women in the telephone survey reported taking calcium with or without vitamin D, they were unaware of the optimal calcium to take, possibly from a lack of education from their physicians (just a third of the patient charts documented that patients were taking calcium). A quarter (26%) of the women reported a fracture after diagnosis, which the authors called “worrisome.”

As the authors wrote: “Despite the existence of guidelines, DXA scans, effective pharmacotherapy, and nonpharmacologic measures, these treatments are not being applied consistently. Fracture rates are not being reduced or prevented adequately.

A small survey of 23 primary care physicians and 8 orthopedic surgeons regarding the care of patients after fracture found several barriers to the diagnosis and treatment of osteoporosis. The orthopedic surgeons said that postfracture care is the responsibility of the PCP. The PCPs agreed, but cited adverse effects and cost of therapy as limiting barriers to treatment, with 61% of those surveyed citing cost as the most important barrier in treatment.

Most importantly, nearly all primary care physicians and half of the orthopedic surgeons called for increased PCP education about managing osteoporosis in patients hospitalized with low-impact fractures.

Rates of screening in patients 65 and older are also extremely low. One analysis of bone mineral density (BMD) scans in more than 20 million eligible Medicare patients found that just 1.75 million scans were reimbursed in 2000. The authors estimated that screening just 1 million more women would have prevented 35,000 fractures in the following 3 years, equating to a savings of about $78 million (in 2001 dollars). Another study of women 50 to 84 found that just a third had BMD scanning prior to their first fracture and just 38% had scanning after the fracture.

New guidelines from AACE/ACE released in 2016 provide comprehensive guidance on the diagnosis and management of primary and secondary osteoporosis both before and after fracture. The guidelines are based on 12 questions, including the assessment of fracture risk and diagnosis of osteoporosis; fundamental measures for bone health; the appropriate use of pharmacologic therapy; and the definition of “successful treatment.”

These guidelines need to be disseminated to clinicians, along with clear strategies for incorporating them into clinical practice.

**Educational need**: Educate clinicians regarding the role of primary care physicians in the prevention of primary and secondary fractures in patients with osteoporosis and osteopenia.
Learning objective: Discuss opportunities to integrate evidence-based guidelines into clinical practice to improve the prevention of primary and secondary fractures in patients with osteoporosis and osteopenia.
References


