By Jim Owen, OD, MBA, FAAO

Over the past 20 years, laser vision correction has improved dramatically. Flying-spot lasers have replaced broad beam lasers, the femtosecond laser has replaced the microkeratome, and Scheimpflug images have replaced Placido disc topography. With these changes in technology, has optometry’s narrative changed?

While “20/happy” is still the goal and a phrase I use each day, how optometrists position laser vision correction with patients seems stale. A few studies have changed what I tell patients about laser vision correction.

What research says

A 2017 study examines laser vision correction patients (90.9 percent laser-assisted in situ keratomileusis [LASIK]) from 45 medical institutions in Japan during 2013.1 The data is based on three-month, postoperative visits from 131 ophthalmologists. These surgeons used nine different excimer lasers, and the majority (72.6%) were in the United States. The data showed that the most common complication was dry eye, and the prevalence of dry eye symptoms was significantly higher in patients who had undergone LASIK compared to those who had undergone PRK. The study also found that the prevalence of symptoms of dry eye increased with increasing age and decreased with increasing preoperative dry eye symptoms.

What optometrists need to know about substance abuse

By Michael W. Ohlson, OD, FAAO

Optometrists may be the first healthcare provider to become aware of a patient’s substance abuse problem. Substance abuse is not uncommon in society, and optometrists provide care in primary-, secondary-, and tertiary-care settings.

A U.S. Surgeon General report highlights

See Substance abuse on page 14
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Learning how to manage scared noncompliant patients

By Benjamin P. Casella, OD, FAAO
Chief Optometric Editor
Practices in Augusta, GA, with his father in his grandfather’s practice

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Fear of going blind (scotomaphobia) ranks high on the list of people’s most feared medical conditions. Phobias, by definition, are irrational and can cause patients to act irrationally. A prime example would be when a patient becomes too scared to comply with follow-up care and retreats into denial and/or ignorance of his condition.

With this in mind, I am periodically reminded why optometry (or any other healthcare profession) is something that we don’t simply do but instead something we practice.

Continuing education requirements are rightfully imposed with this concept in mind. Our diplomas are symbols of the beginning of a lifetime of learning, and every patient encounter presents itself as a learning opportunity—if we are open to learning.

However, dealing with patients’ emotions and perceptions of their ailments is an art form for which there is no cookie-cutter approach.

Not uncommonly, one of my glaucoma patients asks me if she is going to go blind. My knee-jerk response is typically a hard “no” followed by a qualifying remark explaining that we’re going to follow an evidence-based approach to make sure that we are doing all we need to ensure good visual health. However, some patients need to be rattled a bit.

A few weeks ago, a 48-year-old patient returned after several years of noncompliance. My technician told me he was very nervous, and I could sense that as I checked his intraocular pressures. When I said, “It’s been a million years, my friend,” he told me he just didn’t want to think about his glaucoma although he knew it needed to be addressed. This disconnect between what he knows to be true and how he acts on that truth points to his underlying phobia.

I tried to balance conveying that failure to comply with treatment could end in severe visual impairment without scaring him away again.

I also said that he and I were a team and that I wasn’t going to bark orders at him. This was geared toward two goals: convincing him to comply with his treatment and making him feel as though he wasn’t alone. I gave him a sample of his medication and made sure his insurance covered it before scheduling him for a follow-up in a few weeks.

I hope I continue to better myself in dealing with such situations, and I hope he comes back.

Without scaring him, I tried to convey that failure to comply could end in visual impairment

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Dr. Michael Olshin talks impaired patients. See page 16.

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Dori Carlson, OD
Park River, North Dakota

Our revenue per patient has risen- in part because the TRS-5100 allows me to show people the changes in the Rx with a push of a button. They can quickly see for themselves how minor shifts can impact their overall vision.
How artificial intelligence may transform optometry

Embracing new technologies may be key to improving patient outcomes

The search for cognitive solutions in health care is underway. Will optometry choose to utilize innovative technologies such as artificial intelligence (AI) to improve patients’ outcomes, or will it remain fearful and reactive when it comes to meaningful change?

The potential for improving medical services through the use of machine learning has been well documented. In November 2016, the online version of the Journal of the American Medical Association (JAMA) featured an article discussing an application of AI in the diagnosis of diabetic retinopathy (DR). While the eye care world has been fixated on telemedicine and online eye exams, robots are set to impact our 21st century world.

AI evolving around us
Many have heard Tesla CEO Elon Musk’s warnings about AI at the World Government Summit 2017 in Dubai. Living in New York City, I have seen the move from hailing a cab to using your smartphone to call for an Uber, Lyft, or Via. Within a few years, autonomous, self-driving electric cars may transform the taxi and car service industry.

Once these vehicles are deployed in large numbers, Kyle Vogt, CEO and founder of Cruise Automation, predicts the third generation of self-driving cars will save millions of lives and accelerate the world’s transition to sustainable energy.

The eventual success of self-driving cars and AI’s success in health care will depend on optimal hardware and software applications. For AI to succeed in eye care, it must be able to improve the current care we provide patients.

AI in optometry
Forum (Zeiss), Synergy (Topcon), and Spectralis (Heidelberg Engineering) software to monitor glaucoma progression has transformed and improved care of glaucoma patients. It provides an early and insightful look into the use of robotics and AI in optometry.

At the 2017 Association of Research in Vision and Ophthalmology (ARVO) meeting in Baltimore, surgeons demonstrated the first successful use of a remote-controlled robotic system during retinal surgery in the human eye. A randomized clinical trial recruited six patients who had surgery with the robotic system and six patients who had traditional surgery. Retinal micro-hemorrhage complications were reduced in the robotic-assisted group.

Additionally, the Harker School of San Jose, CA, and the Byers Eye Institute at Stanford University Medical School independently developed and evaluated a data-driven, deep-learning algorithm as a diagnostic tool to detect DR.

The algorithm analyzed fundus images and identified cases for medical referral. Researchers concluded a fully data-driven AI-based grading algorithm has the potential to screen fundus photography in diabetic patients. Diabetes affects more than 415 million people worldwide. The prudent use of AI could reduce the global loss of vision from DR.

In addition to the applications of AI in DR treatment, deep-learning algorithms are being assessed for its value to the treatment of glaucoma progression.

Glaucoma progression analysis software is commonly used in optometric offices. Visulytix has developed a retinal AI platform called Pegasus that autonomously screens for glaucoma via assessment of the optic disc while simultaneously classifying the patient’s stage of DR.

AI is likely to become commonplace over the next few years, helping optometrists and ophthalmologists with clinical decision-making and reducing medical errors and variability in patient care.

Future of optometry and AI
As technology continues to influence optometry, AI will continue to make transformational changes. The real test for optometry is two-fold. First, we must embrace innovations such as AI. Second, we must be objective in assessing and adopting AI in order for optometry to mature as a profession.

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Dr. Wong is a Diplomate of the American Board of Optometry and a member of the AOA Ethics committee and ASO Ethics SIG. He is a past president of the Maryland Optometric Association, and an appointee to the American Medical Association’s Physician’s Consortium for Performance Improvement-PCPI’s Technical Advisory Panel for Eye Care Metrics. He lectures on the topics of medical ethics, technology and innovations in eye care, ocular disease, mobile health apps, and contact lenses.

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Important Safety Information
In clinical trials, the most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

To avoid the potential for eye injury or contamination of the solution, patients should not touch the tip of the single-use container to their eye or to any surface.

Contact lenses should be removed prior to the administration of Xiidra and may be reinserted 15 minutes following administration.

Safety and efficacy in pediatric patients below the age of 17 years have not been established.

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**ADVERSE REACTIONS**
**Clinical Trials Experience**
Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in clinical studies of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. In five clinical studies of dry eye disease conducted with lifitegrast ophthalmic solution, 1401 patients received at least 1 dose of lifitegrast (1287 of which received lifitegrast 5%). The majority of patients (84%) had ≤3 months of treatment exposure. 170 patients were exposed to lifitegrast for approximately 12 months. The majority of the treated patients were female (77%). The most common adverse reactions reported in 5-25% of patients were instillation site irritation, dysgeusia and reduced visual acuity. Other adverse reactions reported in 1% to 5% of the patients were blurred vision, conjunctival hyperemia, eye irritation, headache, increased lacrimation, eye discharge, eye discomfort, eye pruritus and sinusitis.

**USE IN SPECIFIC POPULATIONS**
**Pregnancy**
There are no available data on Xiidra use in pregnant women to inform any drug associated risks. Intravenous (IV) administration of lifitegrast to pregnant rats, from pre-mating through gestation day 17, did not produce teratogenicity at clinically relevant systemic exposures. Intravenous administration of lifitegrast to pregnant rabbits during organogenesis produced an increased incidence of omphalocoele at the lowest dose tested, 3 mg/kg/day (400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD], based on the area under the curve [AUC] level). Since human systemic exposure to lifitegrast following ocular administration of Xiidra at the RHOD is low, the applicability of animal findings to the risk of Xiidra use in humans during pregnancy is unclear.

**Animal Data**
Lifitegrast administered daily by intravenous (IV) injection to rats, from pre-mating through gestation day 17, caused an increase in mean preimplantation loss and an increased incidence of several minor skeletal anomalies at 30 mg /kg /day, representing 5,400-fold the human plasma exposure at the RHOD of Xiidra, based on AUC. No teratogenicity was observed in the rat at 10 mg /kg /day (460-fold the human plasma exposure at the RHOD, based on AUC). In the rabbit, an increased incidence of omphalocoele was observed at the lowest dose tested, 3 mg /kg /day (400-fold the human plasma exposure at the RHOD, based on AUC), when administered by IV injection daily from gestation days 7 through 19. A fetal No Observed Adverse Effect Level (NOAEL) was not identified in the rabbit.

**Lactation**
There are no data on the presence of lifitegrast in human milk, the effects on the breastfed infant, or the effects on milk production. However, systemic exposure to lifitegrast from ocular administration is low. The developmental and health benefits of breastfeeding should be considered, along with the mother’s clinical need for Xiidra and any potential adverse effects on the breastfed child from Xiidra.

**Pediatric Use**
Safety and efficacy in pediatric patients below the age of 17 years have not been established.

**Geriatric Use**
No overall differences in safety or effectiveness have been observed between elderly and younger adult patients.

**NONCLINICAL TOXICOLOGY**
**Carcinogenesis, Mutagenesis, Impairment of Fertility**
**Carcinogenesis:** Animal studies have not been conducted to determine the carcinogenic potential of lifitegrast. **Mutagenesis:** Lifitegrast was not mutagenic in the in vitro Ames assay. Lifitegrast was not clastogenic in the in vivo mouse micronucleus assay. In an in vitro chromosomal aberration assay using mammalian cells (Chinese hamster ovary cells), lifitegrast was positive at the highest concentration tested, without metabolic activation. **Impairment of fertility:** Lifitegrast administered at intravenous (IV) doses of up to 30 mg/kg/day (5400-fold the human plasma exposure at the recommended human ophthalmic dose [RHOD] of lifitegrast ophthalmic solution, 5%) had no effect on fertility and reproductive performance in male and female treated rats.

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How the Japanese treat allergic conjunctivitis

Though allergens and environment may differ, treatments similar to those in U.S.

As allergy season is about to kick into high gear, I thought it might be interesting to review how another country like Japan tackles ocular allergies. Like North America, there has been an exponential rise in sensitization by 2.6-fold from 1980 to 2000 due to the prevalence of Japanese cedar pollen (JCP, sugi-pollinosis).1

During the height of allergy season between February and April, a large number of patients with sugi-pollinosis experience more severe symptoms for longer periods of time compared to other pollen allergies. In this case, aerobiology might hold the explanation because JCP is dispersed in large quantities over long distances and can remain airborne for more than 12 hours.2

Japanese cypress pollen is dispersed in April and May immediately after the release of JCP, causing a “sandwiching” effect of pollen exposure. This cross reactivity has allowed an elongation of the allergy season in many parts of Japan with annual climate variations leading to healthcare problems that affect daily activity, work productivity, learning, sleep, and quality of life (QOL) in people of all ages.3

What’s in a number?

In 1993, the Allergy Integrated Project Epidemiologic Investigation Group of the Ministry of Health and Welfare surveyed the entire Japanese population. Researchers found the proportion of people with bilateral ocular itching at 16.1 percent in children under age 15 and 21.1 percent in adults.4

The proportion of people with allergic conjunctival diseases (ACD) diagnosed by ophthalmologists was 12.2 percent in children and 14.8 percent in adults.5 From these results, the proportion of people with ACD in the entire Japanese population is estimated to be 15 to 20 percent. If this statistic sounds familiar, it is because the U.S. figure is similar.5,6

A research group on allergic ocular disease of the Japan Ophthalmologists Association conducted epidemiologic surveys of all patients with ACD who were treated across Japan in 28 different facilities from January 1, 1993, to December 31, 1995. Researchers found female patients with seasonal and perennial allergic conjunctivitis (SAC or PAC) outnumbered male patients 2-to-1; male patients with vernal keratoconjunctivitis (VKC) outnumbered female patients 2-to-1.7

Getting results

The medical decision path from mast cell, to antihistamine H1 antagonists/combinations, to steroid application remains the same no matter where you reside.8 In managing pediatric patients or those with corneal epithelial defects from vernal or atopic keratoconjunctivitis, oral medication is dispensed with a one- to two-week follow-up and close communication among ophthalmology, internists, and pediatricians to watch for side effects.

The course of action diverges when handling recalcitrant cases in which these therapeutic remedies are not exerting the desired effect. When this situation arises, subtenzial conjunctival steroid injections of triamcinolone acetonide or betamethasone are administered to the upper eyelid for intractable or severe cases with cautionary notes to follow carefully for intraocular pressure elevation or repeated use in children under age 10.8,9

While cyclosporine (Papilock 0.1 percent, Santen Pharmaceutical) solution and tacrolimus (Talymus 0.1 percent, Senju Pharmaceutical) suspension are reserved for experimental literature work and off-label clinical usage, Japan has approved these agents for VKC treatment to reduce the need for long-term steroid use.10

Further surgical management is warranted when symptoms are not alleviated by drug treatment and/or conjunctival papillary hyperplasia (CPPH) progresses, causing refractory corneal epithelium disorder. The procedure performed is a tarsal conjunctival resection including the papillae to reduce the mechanical and biological burden on the ocular surface.11 Even though the treatment result is immediate, there can be recurrence of CPH in some cases. Treatment and management in Japan do not digress much from the American Academy of Ophthalmology guidelines for conjunctivitis.12

REFERENCES

Why I changed what I tell my patients about refractive surgery

Continued from page 1

lasers and five different femtosecond lasers to create a LASIK flap. Some 95.9 percent of LASIK patients achieved 20/20 or better. This data compares favorably to published FDA data from the Contoura (Alcon) platform with 92.6 percent 20/20 or better and iDesign (Johnson & Johnson Vision) with 94 percent 20/20 or better.2,3

A controlled group of patients was used to compile the FDA data, but the Japanese data comprised patients who visited Japanese clinics over the course of a year. By contrast, the original FDA approval for the VISX excimer laser system in 1996 was 63.7 percent 20/20.4

LASIK complications
In the Japanese study, researchers reported 0.8 percent of patients had the following three LASIK complications combined—diffuse lamellar keratitis, flap striae, and epithelial ingrowth. The most common complication was dry eye at 1.2 percent.

Schallhorn et al reported on 32,569 LASIK eyes in 2009, finding less than 1 percent of the three complications combined. This study stands out because researchers examined baseline data prior to surgery and surveyed patients before surgery, one year postop, and three years postop.

In the group which continued contact lens wear only, 63 percent of respondents said they “strongly agree” with the statement, “I would recommend my current method of vision correction to a close friend or relative.”

In the group which started with contact lens wear and moved to LASIK, 40 percent responded “strongly agree” with the statement, “I would recommend my current method of vision correction to a close friend or relative.”

In the contact lens-only group, 54 percent of contact lens wearers responded after three years they “strongly agree” with the statement, “I would recommend my current method of vision correction to a close friend or relative.” This compares to the two LASIK groups in which 88 percent of those who previously wore contact lenses and 77 percent of those who previously wore glasses responded they would “strongly” recommend LASIK.

About 1 percent of respondents in each group at each time period responded they “strongly disagree” with the statement, “I would recommend my current method of vision correction to a close friend or relative.”

Researchers also surveyed subjects about night driving, starbursts, dry eye, and eye infections. In the contact lens-only group, the percentage of patients who respond they had no difficulty driving at night remained virtually the same over three years. Some 36 percent of respondents had no night driving difficulty at baseline, and 37 percent had none at three years.

For the contact lens to LASIK group, 60 percent had no problems driving at night at baseline; at the three-year mark more than 60 percent had no night driving problems. Glasses wearers who did not suffer from night driving problems improved from 44 percent to 57 percent. As compared to contact lens wearers, LASIK patients reported better vision while driving at night.

Dryness happens
Dry eyes are the most common side effect of LASIK, but opinions of patients who have had LASIK vary about the dryness of their eyes three years after surgery.5 The control group remained the same from baseline to the three-year reporting period with 29 percent indicating they do not feel dry at all. In the contact lens group, there was improvement from 44 percent to 57 percent.

In the contact lens only group, there was improvement from 44 percent not feeling dry eye at baseline to 50 percent at three years. The glasses group went from 51 percent to 42 percent at three years and significantly fewer patients reported dryness than the group who remained in contact lenses.

For both the contact lens-only group and the contact lens to LASIK group, 1 percent reported feeling dry “all the time” at all reporting periods. For the cohort of patients, patients who felt the driest in their contact lenses did not have surgery. After surgery, the LASIK patients felt better than the contact lens patients.

When asked about experiencing eye
infections in the past year, 8 percent of contact lens-only patients and 3 percent of both LASIK groups said yes. A similar trend was shown for questions about ulcer and abrasion. The risk of an eye infection is low but appears less likely with LASIK over time.

**Ask the right questions**

Laser vision correction is not for everyone, and eye surgery may be scary for many patients. It is worth your time and a benefit to your patient to ask, “What are you fearful of with surgery?” I ask this question often, and the most common answer is, “I do not know, it is just scary.”

New technology has reduced the risks and complications of laser vision correction. Understanding a patient’s subjective symptoms of glare, halos, night driving, and dryness before surgery go a long way in determining what symptoms will be after surgery. Ask your patients the right questions when they inquire about surgery—it will help to deliver “20/happy” patients.

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Dr. Owen has served as the president of the Optometric Cornea, Cataract and Refractive Society (OOCRS) and sits on its board of directors. He participates in clinical research and lectures on laser vision correction, cataract surgery, dry eye, and contact lenses.
Mixed or missing?
Substance P is an 11-amino acid peptide generally associated with neurogenic pain ranging from intense to chronic present in physiologically relevant tear concentrations. Lai et al illustrated that this particular compound emanates from eosinophils, monocytes, lymphocytes, macrophages, and dendritic cells with an inflammatory trigger.

Subsequently, the induction of pain facilitates vasodilation that can increase vascular permeability of the surrounding tissue which stimulates mast cells and B to T lymphocytes as well as acts as a chemotactant for eosinophils.

With regard to dry eye disease, the chronic inflammatory response impacts nociceptors in the damaged dendritic space to initiate a sensation of pain. In turn, these receptors are stimulated after impairment due to a release of tachykinins such as Substance P and calcitonin gene-related peptide (CGRP) to which they are sensitive.

For the cornea, these receptors are primarily chemical sensors, but they are interrelated to mechanical and thermal stimuli in reference to recalcitrant superficial keratopathy, increased pH levels, and elevated tear osmolarity.

Evidence of such involvement of neuromediation affecting the ocular surface has been growing in the last two decades, suggesting that neuropeptides released from sensory and autonomic sympathetic and parasympathetic nerves may influence the pathogenesis and progression of dry eye and other autoimmune diseases.

Consequently, the increased secretion of these compounds may lead to a widespread chronic inflammatory response in which the ocular surface reaches a breaking point, causing meibomian glandular structure to undergo some level of hyperkeratinization, dysregulation of tear production by the lacrimal gland, and mucin decompensation due to deficient conjunctival goblet cells.

Switching gears to allergic conjunctivitis, the hallmark inflammatory response is a delayed Type IV hypersensitivity. Diving deeper into the ocular surface mucosa, both mucin-secreting goblet cells and a fine network of sensory nerve terminals are found in allergic diseases such as seasonal or perennial allergic conjunctivitis (SAC and PAC), atopic (AKC), and vernal keratoconjunctivitis (VKC).

By virtue of an increase in mast cell and eosinophil infiltration of the mucosa, it has been reported that Substance P levels are increased in the tears of patients with SAC compared with healthy individuals, suggesting that the compound may contribute to the pathogenesis and severity of allergic conjunctivitis.

With specific focus to the itching sensation, it is postulated that the peripheral nervous system could play a major role in its pathophysiology. With the symptom being triggered and maintained by stimulation of the nerve endings, inflammatory neuropeptides such as Substance P and calcitonin gene-related peptide (CGRP) foment the inflammatory cascade. A broadened molecular investigation of the neuropeptide effect is clearly required to gain a greater understanding of their involvement as to the presence, release, and specific roles played in ocular allergic reactions.

Conclusion
Inflammation may lead to heightened peripheral sensitization and stimulation through a developing concept in which neuroimmune cross-talk causes the confounding interplay of both signs and symptoms in dry eye and allergic disease.

Furthermore, this cascading response may propagate a neurogenic amplification of the inflammatory responses in a vicious loop that could have both protective and detrimental effects depending on the levels of a single neuropeptide entity.

Therefore, it can be hypothesized that by peering into the mechanisms behind neurogenic inflammation this will yield better treatment and stabilization of the disease activity through appropriate modulation of specific neuropeptides.

REFERENCES


Dr. Cooper is a consultant to Allergan, BioTissue, Johnson & Johnson Vision, Alcon Surgical, Valeant/Bausch + Lomb, TearLab, Epocrates and has received past honoraria from Alcon Vision Care and inVentiv Health. coopadre@gmail.com
What optometrists need to know about substance abuse

Continued from page 1

the scope of the nation’s substance use problem, advising that addiction is a chronic neurological disorder rather than a “moral failing” or a “character flaw” while imploiring for change in both the public perception and the health care system. The dilemma of handling patients with substance abuse problems, while seldom discussed in training and practice, is relevant to optometry’s role in society. As optometry strives for improved community recognition and increased scope, the responsibilities associated with primary care provision come along for the ride.

In my experience, it’s virtually impossible to avoid contact with patients recently using drugs or presenting to the office while impaired (I had a private practice in the area of the country described in the book Methland). Substance use disorders (SUD) are defined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition as: “clinically and functionally significant impairments caused by substance use, including health problems, disability, and failure to meet major responsibilities at work, school, or home.”

SUDs affected 20.8 million Americans in 2015. This is about the prevalence of diabetes and more than 1.5 times the annual prevalence of all cancers.

Substance abuse stats
Drug use and abuse is common, affecting patients of any demographic (age, gender, ethnicity, region, socioeconomic, etc.). Alcohol use disorder (AUD) affects 15.1 million adults (age 18+) and 623,000 adolescents (ages 12-17). Of people age 18 and older, 26.9 percent reported engaging in binge drinking (five or more alcoholic drinks on the same occasion on at least one day in the past 30 days); AUD is more prevalent in the college student population.

Marijuana use is also prevalent; the National Survey on Drug Use and Health reported usage of marijuana/hashish in the past year as 12.6 percent in people ages 12-17; 32.2 percent in ages 18-25; and 10.4 percent in ages 26 and older. While marijuana remains illegal under federal law, 29 states and the District of Columbia allow medical marijuana use. Nine states (Alaska, California, Colorado, Maine, Massachusetts, Nevada, Oregon, Vermont, Washington) and the District of Columbia currently permit recreational use.

Opioid abuse is relevant to primary care as well; the epidemic abuse of prescription opioids is a risk factor for heroin use. ODs may encounter multiple other drugs, such as the “club drugs” (GHB, Rohypnol, ketamine, MDHD (Ecstasy), LSD), methamphetamine, cocaine, inhalants, anabolic steroids, synthetic cannabinoids (K2, Spice), synthetic cathinones (bath salts), and more.

Managing substance abuse
Evidence exists of knowledge and performance gaps in diagnosing and managing drug use and addiction.

A survey indicated that less than 20 percent of primary-care physicians felt very prepared to identify alcoholism or illicit drug use, while greater than 50 percent of patients reported that their physician did not address their problem.

A 2012 report from The Center on Addiction and Substance Abuse at Columbia University stated that physicians and other medical professionals receive little education and training in addiction science, prevention, and treatment. These medical professionals also fail to identify the disorder, and they do not know what to do with patients presenting with identifiable signs and symptoms.

The report concluded that about only one in 10 patients with addictions to alcohol or drugs receives treatment for the condition—this is a treatment gap of 20.7 million citizens.

Other obstacles to care include:
- Doctor and patient comfort levels
- Limited time with patients
- Availability of services
- Inadequate or poor insurance coverage
- Physician attitude (blaming, bias, misunderstanding).

To address the serious risks associated with extended release and long-acting opioids, the Food and Drug Administration (FDA) has required a risk evaluation and mitigation strategy (REMS), including a REMS-compliant continuing education (CE) program and other tools for prescribers of schedule II and III controlled substances.

See box for physical findings and symptoms.

As optometry strives for improved community recognition and increased scope, the responsibilities associated with primary care provision come along for the ride.

TAKE-HOME MESSAGE
Substance abuse is a challenge to society, and optometrists, on the front lines of health care, may be the first healthcare provider to notice a patient’s problem. ODs should understand the signs and symptoms of substance abuse and be prepared to manage impaired patients while in the office.
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Substance abuse
Continued from page 14

Additional quick screening tools include a single-question screen (“How many times in the past year have you used an illegal drug or used a prescription drug for non-medical reasons?”), the Drug Abuse Screening Test-10, and the AUDIT, AUDIT-C, and CAGE-AID questionnaires.5,13

Direct confrontation is seldom helpful when treating patients with possible substance abuse disorders. Improve outcomes with motivational interviewing techniques such as resisting the “righting reflex,” listening, using a non-confrontational approach so to advise or share information while allowing patients to express feelings about change (“elicit-provide-elicit”), articulating the pros and cons of change (decision analysis), identifying statements patients make in support of change and reflecting such statements back (reflections), and promoting patient self-efficacy to improve confidence in making change (affirmations).5

Once ODs identify substance misuse, refer to primary care physicians with training and experience or to specialty addiction treatment. Additional resources for the patient and the referring doctor may include mutual help meetings (such as Alcoholics Anonymous, Narcotics Anonymous, Rational Recovery, SMART Recovery), medically supervised withdrawal, and outpatient or residential treatment (such as American Society of Addiction Medicine Physician Finder, Substance Abuse and Mental Health Services Administration Treatment Locator).

Impaired patients in the office
Acutely impaired patients presenting to the office represent a dilemma for staff and doctors. These patients may intend to drive while impaired by alcohol, illicit drugs, or

Acutely impaired patients presenting to the office represent a dilemma for staff and doctors.

Physical findings and symptoms of substance abuse

**PHYSICAL FINDINGS SUGGESTING ALCOHOL OR OTHER DRUG USE MAY INCLUDE:**
- Mild tremor
- Odor of alcohol on the breath
- Enlarged liver
- Nasal irritation
- Conjunctival irritation
- Labile blood pressure
- Tachycardia
- “Aftershave/mouthwash syndrome” in attempts to mask odor
- Odor of marijuana on clothing
- Signs of chronic obstructive pulmonary disease (COPD), hepatitis B or C, or human immunodeficiency virus (HIV) infection

**OTHER PHYSICAL FINDINGS MAY INCLUDE:**
- Lower than normal temperature
- Injection marks
- Jaundice
- Skin rash or excoriation
- Lymphadenopathy
- Head trauma (secondary to falls or assault)
- Miosis
- Mydriasis
- Nystagmus
- Abnormal respiration rate
- Chronic cough
- Bronchospasm
- Heart murmur
- Abdominal hyperactivity
- Liver tenderness
- Edema in the extremities
- Changes in mental state
- Ataxia
- Hyperreflexia

**ACUTE EXPOSURE TO METHAMPHETAMINE MAY PRODUCE:**
- Anorexia
- Anxiety
- Hypertension

**CHRONIC USE CAN RESULT IN:**
- Aging effects
- Severe dental decay (“meth mouth”)
- Poor hygiene
- Weight loss
- Abscesses from skin-picking behaviors
- Inhalant abuse is prevalent in the adolescent population with both physical and behavioral signs and symptoms.11

**PHYSICAL SYMPTOMS INCLUDE:**
- Paint/oil stains on clothing/body
- Chemical odor on the breath
- Perioral sores
- Rhinorrhea
- Ocular injection
- Nystagmus
- Diplopia
- Stained fingernails

**BEHAVIORAL SIGNS AND SYMPTOMS ARE:**
- Dazed appearance
- Dizziness
- Unsteady gait
- Slurred speech
- Forgetfulness
- Difficulty concentrating
- Anorexia
- Nausea
- Irritability
- Excitability
- Anxiety
- Sleep disturbances11

See Substance abuse on page 18
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Substance abuse issues are complex. This situation represents significant risk of injury and death via motor vehicle accident as well as liability to the practice and doctor.

The ethical dilemma places the duty to prevent harm to the patient and others vs. the need to respect the patient’s rights of autonomy and confidentiality.

Legal problems may develop based upon the varied federal, state, and case law regarding breach of confidentiality, the duty to warn, and the duty to report. The Health Insurance Portability and Accountability Act (HIPPA) permits disclosure of relevant protected health information to family members or law enforcement when the provider believes the patient represents a “serious and imminent threat” to self or others.

The significant healthcare dilemmas of substance use and SUDs pose challenges to the practice general liability insurer for any potential related problems.

Optometry’s larger role in health care
Optometry has integrated and embraced many of the 10 Cs of primary care (continuity, comprehensiveness, coordination, contact, competence, cost-effectiveness, communication, collaboration, compliance, competing demands) as important aspects of our profession. Our Optometric Code of Ethics charges us to keep the patients’ general health paramount, to advise patients whenever consultation with or referral to another healthcare professional is appropriate, to recognize our obligation to protect the health and welfare of society, and to conduct ourselves with compassion.

Substance abuse disorders affected 20.8 million Americans in 2015; this is about the prevalence of diabetes and more than 1.5 times the annual prevalence of all cancers

Most states do not specifically address how to handle patients representing danger to others because of current intoxication with regard to confidentiality, but case law indicates that a healthcare provider should minimally inform the impaired patient not to drive. Suitable alternatives might include having the patient arrange for a sober friend or relative to drive or calling a taxi or ride-sharing service such as Uber or Lyft.

Decrease your liability risk by documenting the warning to not drive and making reasonable efforts to arrange transportation. In the event of the patient becoming abusive, threatening, or driving while a risk to self and others, it’s reasonable to notify the police.

Because these situations can be expected to occur over the course of a career, consider implementing a written office policy for staff regarding how to manage impaired patients. Suggestions for office policies include: detailed and complete documentation of the incident (this may be kept separate from the patient chart), approaching the patient in a non-confrontational manner, expressing concern regarding driving, offering to find alternative transportation, calling the police if necessary, and confirming coverage under the practice general liability insurer for any potential related problems.

References


DAYTONA BEACH, FL—Costa has expanded its Core Collection to include four new sunglass styles for men and women. The four styles are built with features from Costa’s new sweat management system.

Costa’s sweat management system includes improved temple ventilation ports, channels along the temple length, thinner bottom eyewires, and its hydrolite nose and temple pads.

Costa adds four new frame styles to its Core Collection

**Montauk** incorporates ventilation in conjunction with sweat management that draws sweat and heat away from the head. This bio-resin frame is a large 8-base, full-wrap that blocks peripheral light and includes Costa’s hydrolite nose and temple pads for a secure fit.

**Cape** is an extra-large sport frame offering a maximum field of view for the wearer. The Cape features similar features to Montauk with large polycarbonate lenses and ultra-wide temples. The bio-resin frame incorporates Costa’s hydrolite nose pads and open ventilation ports that manage sweat and heat.

**Slack Tide** is a men’s hybrid, 6-base frame with Costa’s hydrolite padding, pin hinges, ventilation, and thinner bottom eyewires. Slack Tide is inspired by the West Coast.

**Bayside** is the women’s version of Slack Tide, incorporating a rounder eye shape with the same performance features. A slightly smaller model, Bayside is a hybrid frame that features ventilation, thinner bottom eyewires, Costa’s hydrolite nose and temple pads, and pin hinges.
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