Falling

(Home Study Course HS-23)

by

Anthony Record, LDO
Optical Seminars, Inc.
PO Box 5445
Spring Hill, FL 34611-5445
homestudy@opticalseminars.com

Course Objectives

Upon completing this one-hour home study module, participants should:

- Have a clear understanding of a root-cause analysis.
- Be more aware of the relationship between wearing multifocals and falling.
- Be able to communicate more effectively with geriatric patients.
- Offer non-optical actions that senior patients can implement to improve their vision.
- Obtain a minimum score of 70% on the 20-question final assessment.

I Introduction

Margaret Record passed away on October 28, 2011. Although she was 87 years old, she had no health problems. She was a good driver. She had IOL surgery many years before and had worn both progressive lenses and FT-28 bifocals interchangeably and successfully before and after having her cataracts removed. She used single-vision glasses when she played the organ. About a month before she died, she experienced a serious fall in the doorway between her bedroom and bathroom which resulted in a broken hip. The hip was "successfully" repaired, but despite the best of care and physical therapy, she never recovered. She was survived by her three children. Her youngest son, Anthony, is an optician. Margaret Record passed away on October 28, 2011. She was my mom. So, in the end, why did my mother die when she did? Did she simply die of being 87? Did she die because she fell? Did she fall because she simply lost her balance? Was the floor wet or did she slip on a rug? If she fell, was it due to one or both of the last two reasons (balance/slip)?

II Introduction to Root-Cause Analysis

With the passing of time, in my mind I sometimes do a cursory Root-Cause Analysis (RCA) of what happened. A Root-Cause Analysis is the process of trying to determine the underlying reason a problem or mistake occurred. Ultimately, the reason for conducting a RCA is so that leaders and team members can take some actions to prevent the problem or mistake from happening again. Although sometimes there may be a single cause of a problem, RCA tries to determine if there are multiple causes (and therefore, possibly multiple solutions) by looking for patterns of behaviors or effects that may have resulted in a negative outcome. RCA looks at specific events and then works backward from the problem to its ultimate beginning point, that is, the root cause. Although there are different approaches, generally an RCA has four steps:

1. Identify the problem
2. Gather information

3. Analyze the problem
4. Solve the problem

1. **Identify the Problem.** During this first step of the RCA, you define what the issue is and how it affects the organization, a team, a patient, or an operating system. (By the way, my experience has taught me that the longer a problem has existed, the harder every step of the RCA becomes.) But once you have identified the problem, you can start to determine when the problem first started.

2. **Gather Information.** As you gather information and collect data, try to fully analyze your situation to understand more about the problem. Consider how long the problem has existed, how it was discovered and how it is affecting your patients, team, operations, etc. The best way to gather data is by involving those most familiar with the problem and the system it's affecting. Team members with more first-hand knowledge are likely to better understand how the system breaks down and how it runs when it's problem-free. Their hands-on input is far more critical than the hands-off opinion of a manager or supervisor removed from the front lines of action. The more diverse your input, the more you will learn about the issue and its possible solutions.

3. **Analyze the Problem.** To analyze the problem, you want to determine why the problem occurred. You may want to create a causal graph to help you identify the root cause(s) of a problem along with any causal factors, and then consider how these factors may be potentially making the problem worse. Use the SIT acronym to remember and consider the three main types of problems:

    a. **System.** A system cause is usually organizational, meaning that there is a dysfunctional policy and/or process in the workplace. For example, a lensometer that is reading incorrect prescriptions because it is out of calibration, or a computer that experienced a hard drive crash because someone clicked on a spam link in their email, and there was no anti-spam software installed on the company's computers.

    b. **Individual.** While most RCA's determine that eckless individual behavior is rarely the explanation, an individual cause is a human error. It involves an individual or team who either did something wrong or failed to do something they could have done to prevent the problem. For example, an optician who should have focused the lensometer reticle before neutralizing a pair of eyeglasses, or a computer that experienced a hard drive crash because the user clicked on a spam link in their email.
    c. **Tangible.** A tangible cause (sometimes called a concrete cause) is more physical, representing tangible items that didn't perform as they should. For

example, a lensometer malfunctioning despite proper calibration, or a computer that experienced a hard drive crash even in the absence of improperly downloaded malware.

4. **Solve the Problem.** To solve the problem means understanding not only what you can do to solve the problem, but more importantly, prevent its recurrence. During this step, you'll also want to discuss how you will implement the solutions as the logistics of changing a process could involve other stakeholders. You can then decide who is ultimately responsible for implementing the solution, identifying risks, and ensuring the solution is viable.

We will return to this idea of Root-Cause Analysis as it relates to the topic of falls and eyeglasses toward the end of this module.

III Proposition – Bifocals and PALs Contribute to Falls in Elderly Patients

If you have been an optician or any eye-care professional (ECP) for even a few years, then you have had the experience of a former patient – usually elderly – arriving at your office with their glasses askew or totally mangled. Even more alarming, their face is cut and bruised so badly it looks as though someone bashed it in with a baseball bat! In my 40 years of practice, I'm sure I've had that experience more than 100 times. Nine times out of ten, the injury and damage have been caused by a fall. Most times the fall has occurred in their home or out in their yard. After all, that's where they spend the most amount of time. However, many times the fall has occurred in a store, while walking the dog, and many times it happens in a strange parking lot; those concrete bumper blocks in front of the parking spaces are a usual culprit in the fall.

As Florida-licensed opticians we are regulated by the Florida Department of Health. The very first sentence and section of the law that governs our profession (Florida Statute 484, part 1) lays out the purpose, legislative findings, and the intent behind all the laws and rules that follow. Here it is in its entirety: "The Legislature finds that the practice of opticianry by unskilled and incompetent practitioners presents a danger to the public health and safety. The Legislature finds further that it is difficult for the public to make an informed choice about opticians and that the consequences of a wrong choice could seriously endanger their health and safety. The only way to protect the public from the incompetent practice of opticianry is through the establishment of minimum qualifications for entry into the profession and through swift and effective discipline for those practitioners who violate the law. The sole purpose of enacting this part is for the protection of the public health, safety, and welfare."

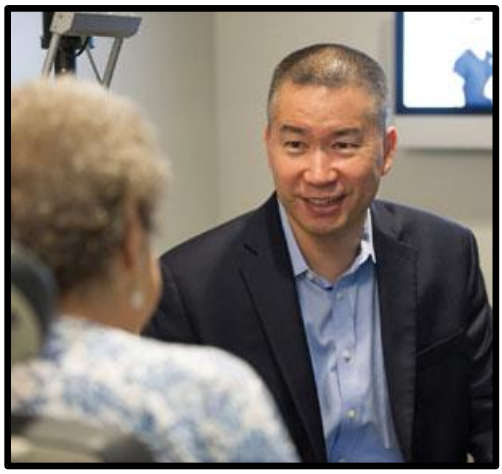
With that in mind, consider some of the following information, taken from a variety of sources. First, I was intrigued by a headline blurb I saw in *Primary Care Optometry News* in an article co-written by several contributing optometrists in their March 14, 2019 edition. It read:

"Better fall prevention includes prescribing conservatively [to] those at higher risk."

“Dr. Daniel H. Chang, an ophthalmologist with the Empire Eye and Laser Center, said in an interview with *Primary Care Optometry News*:

‘The risk of tripping increases by 2.3 times with multifocal lens wear, whether bifocal or progressive-addition lenses (PALs)’ said Chang, who lectures often on the topic and has particular interest in the surgical correction of presbyopia with cataract surgery.

‘That’s something we don’t think about as optometrists or ophthalmologists because glasses become a part of our patients’ identity,’ he said. ‘When people trip and fall they tend to blame themselves and not their glasses.’”



Daniel H. Chang, MD

The best way for an optician to find out if his or her new patient is at risk of falling is by following Dr. Chang’s advice to his fellow practitioners. He recommends simply asking patients if they have ever tripped and fallen.

“‘There is an assortment of risk factors,’ researcher David Elliott, PhD, FAAO, said in an interview. ‘These include age 75 years and older, female gender, a history of falls, living alone, decreased strength, Parkinson’s disease, stroke, arthritis, diabetes, Meniere’s disease, dementia, taking sedatives and antidepressants, and taking more than four prescription medications per day.

A substantial change in refractive error can also cause problems,’ he said.

‘Although poor vision causes falls, and you would expect that updating refractive correction in glasses would help reduce falls rate, large changes in refractive correction (over 1.00 D) have been shown to increase falls, according to a randomized controlled trial by Cumming et al,’ Elliott added.

To combat this, he recommends prescribing conservatively in older patients, particularly those at a higher risk of falls, and keeping distance refractive changes small; ideally, no more than 0.75D.

Tammy Labreche, OD

In 2014, optometrist Tammy Labreche took part in a mobility clinic for community based fall prevention.

‘I think we are becoming more aware of falls, but it’s not something that typically comes up in a normal optometric assessment; it’s not really asked about unless the patient is in a rehabilitation situation.’

She recommends paying attention to the other risk factors that impact falls, in addition to ocular health and spectacles. She said more research is needed in this area.

‘One concern is in regular strength bifocals, as they blur the area where the patients are intending to walk,’ Labreche said. ‘It causes a potential misjudgment in their step, which can be avoided with proper head movement. However, if they have a greater fall risk, perhaps the bifocals should be avoided, and patients should strive for making their walking area clear.’

Multiple studies have demonstrated that first-eye cataract surgery can reduce the incidence of falls by one-third, Chang said.

However, the benefit of cataract surgery is more limited than one might expect, according to Elliott.

‘Poor vision causes falls, and you would expect that cataract surgery would help reduce falls rate, but there is evidence that second eye surgery has no effect on it, and first eye surgery seems to improve falls rate only for recurrent falls,’ he said.

‘This appears to be because modern cataract surgery also includes changes in refractive correction, and these can have a negative impact. Large changes in refractive correction after cataract surgery can increase falls rate, as can changing into progressive or bifocal lenses after cataract surgery when they were not worn prior to surgery.’

Chang said the patient’s environment also plays an important role.

‘Studies show that if you’re inside your own home, bifocals do not pose as great a risk because you’re familiar with your surroundings. If you leave your home, bifocals can pose a greater risk of tripping and falling.’

As such, Chang believes bifocal wear is appropriate in the home, but he suggests patients get a separate pair of single distance vision glasses for outside the home. ‘It’s less convenient, but safety is improved,’ he said.

Chang said the focus on spectacle independence with LASIK has driven our thinking when correcting presbyopia after cataract surgery.

‘We push so hard to correct all refractive error when addressing presbyopia,’ he said. ‘However, I think that leaving patients with single distance vision lenses while getting them out of bifocals is an acceptable alternative. While not as convenient because glasses are still needed, that offers an improvement in safety, and I’m more concerned about safety than convenience.’

‘Every time I have an opportunity to talk about presbyopia, I try to bring up the topic. Our surgical options have their own risks and benefits, but I try to add the risks of bifocal glasses to the conversation,’ Chang said.

Prescribing Practices to Keep in Mind

Dr. Elliott added that PALs or bifocals should never be prescribed to patients who are used to wearing single-vision glasses and could be categorized as a high-fall risk.

David Elliott, PhD

‘PALs, bifocals and monovision correction are hugely convenient, and patients are loathe to change to standard single vision glasses,’ he added.

Elliott shared advice for long-term wearers who are identified as high risk for falls based on the results of the randomized controlled trial by Haran and colleagues:

- Long-term wearers of bifocal/PALs with minimal ametropia may be less likely to fall if they remove their glasses when walking outside the home.
- Long-term wearers of bifocal/PALs with significant ametropia who take part in frequent outdoor activities should use distance single-vision glasses when outside the home (unless driving or shopping).
- Prescription single-vision sunglasses may be particularly useful for sunny days and holidays.

- Long-term wearers of bifocal/PALs with significant ametropia who take part in few outdoor activities should continue to wear bifocal/PALs for most activities.

Furthermore, Elliott suggests that patients tuck their chins in when negotiating steps and stairs, to look through the distance vision portion of their PALs or bifocals.

Based on his research, Elliott recommends an alternative strategy to distance single-vision glasses for outside use in long-term PAL/bifocal wearers: Prescribe a PAL/bifocal with an add of intermediate power (about 1.25 D) that provides much less peripheral distortion and much clearer view of steps and stairs and obstacles in the travel pathway so that it provides a lower risk of falls and yet allows spot reading.

Standard addition (about 2.50 D) progressives can be used when seated and reading/performing other near vision tasks for longer, he said.

Dr. Labreche said adding a specialty filter to reduce glare and enhance contrast or considering frame parameters that would not contribute to field defects may help. She also advises optometrists not to make quick changes to prescriptions so patients can adapt.

'If somebody presents with concerns of falls risk, monovision is certainly not something that I would recommend if the patient has never experienced it before,' she added.

Communication is another important component in managing fall risk.

'If you are diagnosing someone with formal vision impairment, it's always a good idea to communicate with other providers to share those findings,' Labreche said.

'A lot of good can come from simply asking your patients if they have ever tripped and fallen,' according to Chang. Additionally, ask if patients are bothered by their bifocals.

'I now bring it up in my cataract discussion. It's really common. Go talk to your patients; you'll be surprised,' Chang said."

The Down-Under Connection

In 2016, an Australian study with more than 600 participants sought to determine if falls could be reduced by providing single-vision distance glasses to older (at least 80 years of age) wearers of multifocal glasses and "higher risk" individuals (those age 65-79 who had fallen at least once in the previous 12 months).

If you are interested in the details of the study, you may access it by following this link: https://www.bmj.com/content/340/bmj.c2265

Bottom line: The group of participants issued single-vision glasses experienced 8% fewer falls. Further study found that with appropriate counseling, providing of single-vision eyeglass lens glasses for older wearers of multifocal glasses who take part in regular outdoor activities is an effective falls prevention strategy.

www.senioradvisor.com

Finally, consider this article found on the Senior Advisor blog, which you may access at the link above.. It was followed by several seniors who had posted comments saying they had long suspected that their progressive lenses had been contributing to their falls. The article is intended to be read by lay people, but as front-line, dispensing opticians, we can certainly benefit from the information:

"Did you know that seniors who wear their bifocals when walking outdoors raise their risk of falling? Researchers also recommend that older folks not wear bifocal glasses on stairs for the same reason. The link between bifocal lenses and an increased risk of elder falls may be news to many of us, and it's not the only way vision correction tools can trip up older users. Here's what geriatricians and researchers recommend for seeing clearly and staying upright.

Use the right glasses for your activity.

More than one study has found that bifocal wearers over age 65 are more likely to fall when wearing their bifocals on walks, during outdoor activities, and when going up and down stairs. The glasses-related fall risk appears to be highest when wearers are doing things outside at least a couple of times a week, according to an Australian study published in the *British Medical Journal*. Study participants of similar age who switched to single-vision glasses for these activities were slightly less likely to fall overall—and were *40% less likely* to have a fall than the outdoorsy group that wore bifocals.

Eye doctors say this is because bifocals, which are handy for close-up and middle-distance activities like reading and watching screens, make it hard to see clearly near wearers' feet when they're up and moving around. That puts bifocals wearers on the go at greater risk for missing steps and curbs and for tripping over unexpected objects.

Bifocals aren't the only lenses that can create mobility challenges for wearers.
A study presented at the 2014 American Academy of Optometry meeting found the larger a senior patient's change in prescription, the more likely the patient was to fall with the new lenses. The presenter, Dr. Susan Leat (a Professor Emerita at the University of Waterloo, School of Optometry and Vision Science) recommended talking with patients about safe movement with their new lenses and possibly implementing big changes in lenses in stages to allow wearers time to adjust safely.

Discuss options with your eye doctor.

Let your eye doctor know if you've had any falls since your last visit and if you've been feeling off-balance or clumsy when you're walking around. Ask your doctor about single-vision glasses for you to use on walks and during outdoor activities. Whether or not you use bifocals or progressive lenses, ask if your doctor has any other recommendations for preventing falls related to vision changes or faulty depth perception.

Reduce your glasses-related risk of falls. Doctors have a few recommendations for making sure your eyewear works for you, not against you.

- Get a pair of single-vision distance lenses for walking around and climbing stairs—and put them on before you start moving. (Participants in one study were more likely to fall when they were changing glasses while walking.)

- Take extra care moving around when you're getting used to lenses with a new prescription, whether they're bifocals or not. Changes in your new glasses, while better for your vision, can translate into changes in depth perception that might cause you to clip table edges or misjudge doorways.

- See your eye doctor for an exam whenever you notice changes in your vision, especially your depth perception.

- Keep your glasses clean—smudged or dusty glasses can impair your vision no matter what kind of lenses you wear.

Bifocals and other corrective lenses are great tools for better vision. Use them for the right activities and they can help keep you from falling, too

IV Startling Statistics

On the outside chance that the articles and information appearing in Section III (above) have not convinced you of the need to optically address this problem with our at-risk and older patients. Before I offer some specific things for you to recommend to them, consider these latest statistics available from the Centers for Disease Control (CDC):

- The leading cause for non-fatal visits to emergency rooms every year is an unintentional fall.

- In 2016, the overall number of such visits was nearly 10 million! (9,369,406 to be exact.)

- Of those nearly 10 million visits, fewer than 1 million (748,053 to be exact) were patients between the ages of 25-34.

- Of those nearly 10 million visits, over 3 million (3,037,550 to be exact) were patients over the age of 65.

- Of those more than 3 million senior emergency visits for falls, just over 85% of the patients were wearing multifocal glasses when they fell.

- Of all those visits to the emergency room, more than 800,000 patients were admitted to the hospital for extended care.

- The deadliest year on record in the United States in terms of death due to falls was 2020. How many people died due to unintentional falls that year? 42,114 to be exact. That's more than the number of people who died in motor vehicle accidents that year, at 40,698.

- Among US residents ages 65 and older, the rate of death from falls continues to climb steadily, having increased by 31% between 2007 and 2016, and growing at a particularly rapid rate among those aged 85 and above, according to the CDC. (This author believes that a contributing factor to that increase is the rise in progressive lens use among these age groups.)

- While death rates from falls increased for all age groups, the 85-and-older category recorded the most dramatic rise between 2007 and 2016, from 9,188 deaths in 2007 to 16,454 in 2016. The 65-to-74 age group recorded 2,594 falls-related deaths in 2007 and 4,479 in 2016; the 75-to-84 age group saw an increase from 6,552 deaths in 2007 to 8,735 in 2016.

- Men had higher rates of falls-related deaths than did women—73.2 per 100,000 men compared with 54 per 100,000 women. Researchers believe the gap may be attributable to "differences in the circumstances of a fall," with men tending to experience falls that lead to more serious injuries, such as those sustained in a fall from a ladder or as the result of alcohol consumption.

- As the population of people 65 years of age and older increases in the United States, health care providers can address the rising number of deaths from falls in this age group by asking about fall occurrences, assessing gait and balance, reviewing medications, and **prescribing interventions**. (Prescribing interventions by opticians will be the subject of the next section,)

- Better prevention efforts also may result in health care cost savings as well: An earlier CDC report estimated that expenditures on nonfatal falls in the US reached nearly $50 billion per year.

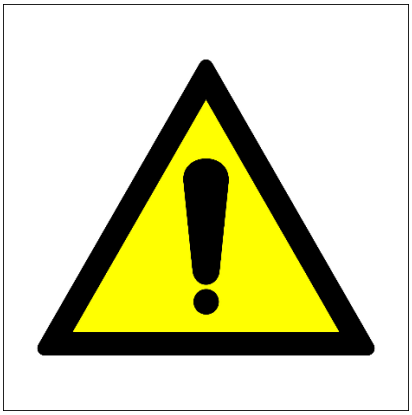
V What's an Optician to Do?

As stated earlier, the most effective way to get the conversation started is to simply get the conversation started. Maybe consider including a question or two about falling on your Patient History form. Certainly, at the very least, it should become part of your Lifestyle Dispensing conversation with all older patients. Based on my own anecdotal experience, you are

going to find that most of your older patients will be receptive to your concern and be open to taking reasonable steps in helping to mitigate the risks of falling. Realize, if you include your patient, their family members, and close friends in the conversation, 90% of them will be able to relate. You will start to be surprised by the sheer number of patients who tell you about someone close to them who was seriously injured or died due to a fall.

Talk to them about the concept of image jump and its ramifications. Talk to them about the ramifications of the unusable area around the periphery of their progressives. Believe me, they understand all about it. Remind them, too, of what happens when they accidentally try to focus on something "out to the side" of their progressives. And it's worth reminding ourselves (and mentioning to the patients) that all those possibly problematic characteristics of multifocals become even more of a problem as the add power increases. Whose add power increases? Older people. An 80-year-old, with a +3,00 add, who walks with a cane – the perfect candidate for single-vision glasses.

And just to be perfectly clear, I am advocating what your patient needs is a second and/or third (one clear/one sunglasses) pair of single-vision-so-I'm- less-likely-to-fall glasses!



WARNING:

Notice I said these are single-vision-so-I'm-less-likely-to-fall-glasses. Be VERY careful not to represent them a single-vision-so-I'm-guaranteed-never-to-fall glasses. An ECP needs to be very careful how he or she presents the features and benefits of eyewear products. Case in point: In England in 2017, The General Optical Council reprimanded Boots Opticians with a £40,000 (that's about $46,000) fine for a "misleading advertisement about Boots Protect Plus Blue (BPPB) lenses."

The optical regulator found that there was potential for patients to be misled by the multiple overstating claims about the harms of blue light and the benefits of its BPPB lenses in an advertisement that was published in *The Times* in January 2015.

The Advertising Standards Authority (ASA) received complaints about the content of the advertisement, including claims that blue light from LED TVs, smartphones and energy saving light bulbs caused damage to retinal cells over time, and that BPPB lenses protected against blue light from these sources. The authority found that these claims were misleading and unsubstantiated, and thus issued the fine.

What's an Optician to Do? (continued)

So, once you've convinced your patient that a pair of single-vision glasses is a good multiple pair investment, what should be some of their characteristics?

- They should be single-vision, distance glasses. They are meant to be used driving, walking, and while engaged in outdoor activities. Frankly, they are indicated for all activities where near vision is not of paramount concern.

- If they are not for sunglasses, they should be perfectly clear, with a good quality anti-reflective (AR) coating…unless they shouldn't be. By that I mean, of course, a good AR lens is the optimum standard, but if in your judgment the patient has demonstrated an inability or unwillingness to keep the AR coating in pristine condition, then do not recommend it. Clear, unencumbered vision is the goal here, so let's not risk that with a cheap AR coating that will degrade over time.

- Thin temples.

- High-mounted temples – preferably above the line-of-sight.

- Slightly larger eye (2-3 mm) size than usual.

- A little more (1-3°) face-form than usual.

- If you make a sunglass pair, consider non-polarized lenses.

Remember that FS 484, part 1 informed us that we are licensed to protect the safety, health, and welfare of the citizenry. Vis-à-vis the subject matter of this module (mitigating falls through better eyewear and lifestyle choices), that doesn't always mean selling our patients an extra pair or two of eyeglasses. So, what are some of the non-optical suggestions we can make for our patients?

- Educate and "warn" them about Transitions lenses. Be careful here because people love their Transitions lenses. Also, as people age, they tend to become more photophobic. The repeat rate on buying Transitions is north of 85%. That means that as they get older they are likely to have the attitude "I've never had a problem with them before." Inform them that even in their lightest state, Transitions lenses are not transmitting 100% of the available ambient light. Also, a conversation regarding the need to be aware of going from a bright, outdoor environment to a dark, indoor environment needs to be broached.

- Regardless of how a yellow tint seems to make things appear brighter, ANY tint absorbs at least some light, so it is counterproductive when trying to achieve optimal vision when driving at night.

- Many seniors have been living in the same home for 30-40 years. Unless they have been upgraded, the original incandescent or fluorescent light fixtures are woefully inadequate. Be sure to encourage them to upgrade to brighter LEDs, especially in hobby, reading, living, and kitchen areas.

- Suggest they forego window tinting on their automobiles. This will allow them to see a bit better when driving at night.

- Encourage patients to NOT delay IOL surgery. Get it done as soon as possible.

VI Root-Cause Analysis Revisited / Conclusion

So, in considering the case of my mom (as I identify the problem, gather information, analyze the problem, and try to "solve" the problem for future patients) I have concluded that her

fall *may* have been caused, in part, because she was wearing multifocals. Had she been wearing single-vision glasses at the time could the fall have been avoided? Perhaps. One thing is certain, however, and that is the experience had a profound effect on my practice of opticianry. I now make it a point to bring up the subject of falls, and how a separate pair of glasses might help someone else to avoid the same fate.

I hope you consider doing the same thing for your patients.

VII Final Assessment

1. Which of the following was not discussed as one of the four steps of a Root-Cause Analysis?

    a. Identifying the problem
    b. Holding people accountable through fines and/or reprimands
    c. Analyzing the problem
    d. Trying to solve the problem

2. When making a pair of single-vision “anti-fall” glasses, what was the recommendation for face form?

    a. Use about the same amount as face form as always
    b. Use a bit more (1-3 degrees) face form than usual
    c. Use a bit less (1-3 degrees) face form than usual
    d. Face form was not discussed as a characteristic of “anti-fall” glasses

3. An earlier CDC report mentioned in this module estimated the annual cost of non-fatal falls to our health-care system to be about:

    a. $50 billion
    b. $100 billion
    c. $150 billion
    d. $250 billion

4. The best type of lens to use in “anti-fall” glasses is:

    a. Flat-top bifocals or trifocals
    b. Progressive, high-definition lenses
    c. Executive lenses
    d. Single-vision distance-only lenses

5. Dr. Daniel Chang cited multiple studies that claimed first-eye cataract surgery can reduce the incidence of falls by:

    a. 3 %
    b. 33 %
    c. 50 %
    d. 75 %

6. A lens clock or lensometer that malfunctioned to cause a problem would be considered which kind of an issue when analyzing it?

    a. A tangible problem
    b. An esoteric problem
    c. An individual problem
    d. A systems problem

7. According to Dr. David Elliott, patients who are used to wearing single-vision glasses and are at high risk for falls:

    a. Should never be prescribed progressive lenses
    b. Should always be prescribed progressive lenses
    c. Should never be prescribed single-vision lenses
    d. Should always wear contact lenses

8. To which type of patient should AR lenses never be recommended?

    a. Hyperopes
    b. Myopes
    c. People who do not take care of them
    d. People who wear polarized lenses

9. The process of trying to determine the underlying reason a problem or mistake occurred is commonly referred to as a:
    a. Determinant investigation
    b. Mistake inquiry
    c. Root-cause analysis
    d. Empirical-cause analysis

10. According to a 2014 American Academy of Optometry study, which characteristic of a senior's new spectacle prescription most contributed to an increased likelihood of a fall?

    a. The bigger the change in Rx, the more likely to fall
    b. The wearing of progressive lenses for the first time
    c. The adding of astigmatism correction to a previous all-spherical correction
    d. The bigger the frame, the more likely the fall

11. In the United States, the deadliest year on record for unintentional falls was the year 2020. How many people fell that year? Just over:

    a. 32,000
    b. 42,000
    c. 62.000
    d. 82,000

12. Year after year, the most common reason for a non-fatal visit to the emergency room is:

    a. Heart attack
    b. Unintentional fall
    c. Poison
    d. Broken bone

13. The section of Florida statutes that explains the only reason opticians are licensed is to protect the safety, health, and welfare of the citizenry is:

    a. FS 484, part 1
    b. FS 456
    c. FS 120
    d. FAC 64B12

14. Of the more than 3 million seniors who visited emergency rooms to be treated for a fall, about what percent were wearing multifocal lenses at the time of the fall?

    a. 65 %
    b. 75 %
    c. 85 %
    d. 95 %

15. According to an Australian study published in the *British Medical Journal*, study participants of similar age who switched to single-vision glasses for outdoor activities were slightly less likely to fall overall—and were _____ less likely to have a fall than the outdoorsy group that wore bifocals.

    a. 20 %
    b. 40 %
    c. 60 %
    d. 80 %

16. When it comes to falls, which of the following statements is true?

    a. Men are more likely to die from a fall than women
    b. Women are more likely to die from a fall than men
    c. Men and women have nearly identical death rates due to falls
    d. Men are from Mars and women are from Venus

17. When it comes to choosing a frame for "anti-fall" glasses, which of the following statements is false?

    a. Choose high-mounted temples
    b. Choose thin temples
    c. Choose a frame a few millimeters larger than usual
    d. Always choose a metal frame instead of a zyl one

18. In a 2016 Australian study, issuing single-vision eyeglasses to multifocal-wearing patients saw a reduction in falls. What percentage saw a reduction?

    a. 8 %
    b. 18 %
    c. 28 %
    d. 38 %

19. Boots Opticians (a British optical company) was recently fined $40,000 for exaggerated advertised claims regarding:

    a. Blue light protection
    b. Eyeglasses that could “prevent” falling
    c. Polarized sunglasses that could “prevent” cataracts
    d. Macular degeneration prevention

20. Which of the following statements about seniors is true:

    a. As they get older, they tend to be more photophobic
    b. They usually don’t like Transitions lenses
    c. They prefer yellow lenses to drive at night
    d. As they get older, they tend to develop myopia