[MUSIC PLAYING]

KAREN GLASSER SCANDRETT: Good morning. I'm Dr. Karen Scandrett. And I'm a geriatrician and a primary care doctor at the Shadyside Senior Care Institute. I am also the program director for the geriatric medicine fellowship here at UPMC Presby Shadyside. I'd like to start by thanking Dr. Donahoe and the Department of Medicine for inviting me to speak today.

Just a little bit of background. I found my way to geriatric medicine when I was in residency, in a primary care internal medicine track at Cambridge Hospital in Massachusetts. I was lucky enough to be involved with a geriatric house calls program during my residency for my second continuity clinic. And I just became hooked in caring for older people. At some point I realized that not everyone loved to visit with old ladies in their houses or reorient delirious people in the hospital at one in the morning. So I figured I'd found my niche.

I went on to Harvard's geriatrics fellowship training program and also completed a Master's in Public Health. And while I was doing that I became really interested in assessing quality of life, improving quality of medical care for older adults, and, specifically in long term care facilities, and also health care equity for older adults. My first faculty position before coming to Pittsburgh was at Northwestern University, where I directed educational activities for residents, medical students, and fellows at our long term care site. And upon joining UPMC I've been involved in geriatric trauma care, hospital care at Magee-Womens Hospital, skilled and long term care at Heritage Place, and for the last two years I've returned to my roots in primary care outpatient medicine.

So let's get started. My learning goals for us today are to have all participants be able to describe a framework for health promotion in the very elderly, to selectively implement preventive care guidelines, and to apply patient-centered care principles to chronic disease management of older patients. With each of these learning goals I'll emphasize a biopsychosocial approach to well-being. Rather than give you a list of things to recommend, I want to share an approach. I have no conflicts of interest to disclose. I do want to thank my friend and colleague, Dr. Dave Pasquale, who has an interest in this topic and has shared his encyclopedic slides with me as I prepared. So thank you, Dave. I'm also indebted to Dr. Eric Rodriguez. He speaks very philosophically and eloquently on this topic, and he's really stimulated my thoughts about it.

So let's start with some definitions. Who are the very old? People joke that the very old are those who are 30 years older than yourself. And at this point in my life I think that's a pretty good rule of thumb. Although, demographers are a little more specific. And they think of the oldest old as those between 85 and 99. After 99, once you hit 100, you're a centenarian, so you're no longer the oldest old.

This demographic is increasing in numbers. You have probably seen the histograms that show the shift in our population density toward the very old. And that's true for several reasons, among them, biomedical research and technology have made huge advances in treatment of chronic disease. So, many more people reach their golden years. Now, whether peoples' span of good health matches their longevity is another matter. A final point. This is a very diverse group. Some have chronic disease that has kept them-- that has been kept at bay. And others are more robust. So you have people who are frail to-- ranging from frail to retired and extremely dangerous, or people that have multiple comorbidities or are winning medals.

So next, how do we define preventive medicine? So when someone's 92, what are we preventing? Well preventive medicine is commonly understood as three types of care. One is primary prevention, which is to avert the development of disease like vaccinations. Secondary prevention focuses on early detection and treatment of asymptomatic disease, like cancer screening or osteoporosis screening. And tertiary prevention is identifying established conditions to prevent morbidity or functional decline. And in older adults I think of this as chronic disease management.

So morbidity is kind of an interesting thing in older adults. What is disease, and what is normal aging? There's a lot of overlap between these two. One example of age-related impairment would be, like, presbyopia. We all get that around age 40-- 40 to 50. Another might be normal age-related memory impairment. Examples of pure, disease-related morbidity would be from something like sickle cell anemia or cystic fibrosis that cause morbidity without the help of aging. But most of the other conditions that I can think of are here in the middle. And this is where our spaces is, as internists and geriatricians, we're always balancing the things we can control with the things we can't.

In addition, there are some things we can sometimes help our patients control. Preventive medicine, I think, is also about implementing, coaching, and encouraging those things that improve health. And importantly, this is not the same thing as eradicating disease.

So let's talk about what we mean by healthy aging. I don't like this term for a few reasons. And also it's a little bit of a moot point at 85. One reason I don't like the term healthy aging is that it implies there's something called unhealthy aging, which sounds a little punitive to me. I think we all simply age. Some people age with chronic disease, others don't. Second, the idea of healthy aging implies it is in our control. Most of the time it's not. People who reach 90 without chronic disease are people who reached middle age in pretty good shape. As Dr. Rodriguez says, those people chose the right gene pool.

And we know enough about social determinants of health to attribute earlier onset of chronic disease to factors like zip code. There are neighborhood factors like walkability, grocery stores, transportation, the effects of systemic racism causing higher levels of stress throughout the lifespan. Health literacy can also contribute. And limited access to resources can contribute to poor health choices.

And here's an example from Pittsburgh. This is a neighborhood map. I love maps. People know me, they know that. These are food deserts in Pittsburgh, and neighborhoods where there's also very little public transportation. So our older adults who are growing up in these food deserts and neighborhoods without resources are much higher risk for early development of chronic disease and poor health later in life. But overlying all of this is the concept of resilience, including both the personal and community resources to thrive in spite of it all. And that's what I really love to promote.

So I know there's a body of literature about resilience. There's academic studies on resilience. There's a host of self-help books about developing good habits, being happy, succeeding at work, et cetera. Short of providing psychotherapy to our patients I don't know what we can really do. But I think one of the most important things we can do is understand who are the people in our older patients' life. Social ties have many functions. Most of the time these connections serve all kinds of purposes. Some people cut our toenails. And incidentally, long toenails can become a fall hazard for older adults without functional support. So the toenail job is a pretty important one.

Some relationships are primarily for emotional support. And while some social ties may be emotionally-draining, research shows that older adults who are most embedded in a social network have less disability and morbidity than their isolated peers. Even before COVID there was chatter about loneliness as an epidemic. In fact, there's loneliness minister in the UK just for this purpose, as in a government minister for the problem of loneliness in the UK. And a lot of this has been exacerbated in the last 18 months by COVID. Loneliness is associated with poor health behaviors and health outcomes, including early mortality, cognitive impairment, and dementia, medication treatment adherence, et cetera.

And many older adults express a need to be-- to continue to be useful, or are engaging in life review. This is another important aspect of the social connections, and it's a function of social connections. These folks are processing decisions they've made in life. They're processing the impact they've had on other people. And researchers call this legacy work. And it's very important to well-being toward end of life. So another great resource that I wanted to share, and I included it in the enduring material, is the Stanford Letter Project, which includes templates for letters that older adults can write to the people who are important to them, to express these thoughts and related thoughts toward the end of their life.

Turning to physical activity. Another thing I'd like to discuss with all my older patients is their level of activity. Aerobic activity obviously is good for cardiopulmonary conditioning, but also for cognitive and mental health and better sleep, which supports both of those things. And it indirectly helps people remain independent in their homes. I generally encourage my patients who are able to walk to take a walk every day. This tends to be a habit developed over a lifetime. So I don't think I'm changing behavior at age 90, but I still explain the benefits and maybe it encourages the caregivers who are in the room.

Also for those who are able I suggest balance exercises like Tai chi or dance to prevent falls. And this also provides an opportunity to connect with others socially, which is even better. Finally, I'm big on core exercise because I have a lot of patients with chronic pain, and these exercises are really helpful-- especially chronic back pain. I use the Epic SmartText for low back pain and I put it right on their ABS. I tell people to do this on their beds if they cannot get up from the ground, which many of them can't. And I have also begun referring them to chair yoga. I just have them Google, chair yoga on YouTube, for my folks who are shut in. Anything that strengthens the core, helps them extend their reach, I consider to be a functional gain.

Next I want to talk about preventive guidelines. These are the things we should do to prevent disease or prevent progression of asymptomatic disease in our very old patients. I think the key frame here is time. So we want to think about time to benefit of the immunization or the recommendation. We think about the time to benefit at the screening test, so in a currently asymptomatic person, what's the expected course of an illness that at this point is undetected? And what's our patients estimated lifespan? And I commend you for this, the compendium of-- the compendium of predictive tools that are on ePrognosis. The researchers at UCSF put together a whole bunch of tools that help us determine where our patients fall, in terms of disability and/or setting of care. And since doctors are pretty bad at predicting this, as research has shown, it's nice to have kind of a gut check with some validated tools to think about where our patients are.

This website also has useful tools to think about talking about this. And we don't want to say something like, well, according to this calculator you have a 30% one year mortality. So I don't think you need to have this test. That's not really language that's going to go over very well in the office. But focusing on what matters most to the patient and working together to achieve these goals is a much better approach. One more thing about this research from the deprescribing literature suggests that it may be better to talk about avoidance of risk rather than lack of benefits. People seem to resonate more with the idea that you're helping to prevent a risk of something them that-- there's really no point.

In terms of immunizations I think we can agree that they provide benefit almost immediately. So time to benefit is short. And for our older patients the ACIP recommends the following. And I know you're familiar with these. I'm going to just zip through it a little, highlighting just a few things. Tetanus affects 60% of those-- 60% of the people affected by tetanus every year are over the age of 65. So this is a group that really does need this vaccination. And it's once every 10 years.

The Pneumovax obviously reduces invasive infections 56& to 75%. In our population they have revised the recommendation for Prevnar to just be given just to people at high risk, including diabetics, alcoholics, people with advanced organ disease, smokers, and frail. So that does include our folks who are over 85. And they should receive the Prevnar vaccine a year after the PPS, the Pneumovax.

Zoster affects 33% of people, and it has an 8 to 10-fold increase in late life. The vaccine reduces incidence of disease or neuralgia by 90% in those over 70. So this is another one that people really should get. It has more side effects, so just be cautious and aware in older people that it can produce a lot of pain when it's given. But I try to really coach them through that and encourage compliance with it. Flu shot also, obviously, high dose annually. Over 90% of flu-related deaths are in the greater than 65 population.

And as we've seen with COVID, this is the population that's also most affected by COVID. All frail older people should receive a booster vaccine now. Keep in mind the ability to develop cellular immunity wanes as people get older. And so vaccines may not be as effective as in younger individuals. And this doesn't change the recommendation at all. But it does mean that younger people must be vaccinated to protect older adults and others who are immunocompromised. I know I'm speaking to the choir here.

OK. Next we'll turn to screening. Obviously, first we think of cancer screening, since the risk for any type of cancer increases with advancing age. And as we discussed before, time to benefit and risk are more of a consideration with these screening tests. This is where shared decision-making is so important. The patient's values and preferences with regard to invasive treatment, including surgery, radiation, chemotherapy, and the risk of future dependence are very important to understand when we're making recommendations for screening.

And what are the harms? Well, false positives lead to emotional distress. They lead to discomfort or possible procedure-related harm from multiple procedures. Overdiagnosis of conditions that are likely to remain subclinical result in invasive and burdensome treatment that may not make any difference at all. So these are the reasons that we're cautious.

I'm sure you're familiar with these screening guidelines. These are from the A's and B's, and I threw in prostate cancer just for yuks. And I'll just review. You see that there are firmer age-- that there are firm upper age limits on screening for almost all cancers. So you see that the upper limit for colorectal is actually class C for between 76 and 85. There's an upper limit on lung cancer at 80, on prostate cancer at 70.

What I wanted to comment on is breast cancer, which is very much individualized with a time to benefit estimated at just under 10 years. 9.7 I think is what I read. So I have many women who are older than 75 who are very interested in continuing with screening mammography. If they're reasonably active with few co-morbidities I think it's appropriate to continue, as long as treatment is consistent with their goals of care and they have a, what I think would be a 10 year life expectancy. So by 85, this is a very small number, but there are women who really are interested in continuing.

Generally, colorectal screening requests don't come up because people are really relieved to have to stop doing this as a screening procedure. So I'm never-- I'm never kind of talking people out of colorectal screening. However people are willing to undergo evaluations if they have symptoms, which is a different category.

Now a word about osteoporosis. I draw your attention to this yellow area here, which is where osteoporosis begins. And this is our median bone mass as people get older. So age follows along here. So you see right around 85 or so, most of our women are going to be in the osteoporosis range. Screening for osteoporosis is recommended for all women over 65 and every five years thereafter. And there's no upper age limit on it. At some point it's going to cross into monitoring osteoporosis.

The risk of fracture increases with age. And the one year risk of mortality I put here, this is from hip fracture. And it increases with age. So you see, 23% over 80 and 28% one year mortality over 90. I want to point out that people break other bones besides their hips. And their mortality risk from other traumatic, low velocity fractures is even higher. So they break their necks, their ribs, their pelvis, or any combination of those, and osteoporosis is definitely a risk factor for breaking those things.

Indications for treatment include a diagnosis of osteoporosis based on a T-score of less than 2.5, or a FRAX score-- and this is the link up here to the FRAX calculator to see what your patients score is-- showing this level of risk would indicate treatment, or a prior fragility fracture. So, low velocity fracture of the wrist or the pelvis or what have you. The time to benefit for treatment is two years. So this is why even in my old patients I continue to encourage screening and treatment if they're positive for osteoporosis.

Next I want to talk about the annual wellness visit. So this is a nice opportunity to screen for other common age-related conditions, although I often-- in our practice, our nurse practitioners do the annual wellness and we do the acute chronic visits. So I don't always do this visit myself. And I'll address a lot of this screening stuff in the process of my scheduled follow-up visits. I want to highlight here, this is the list of things that are suggested to be covered. It's not an exhaustive list. I think if you go on to the Medicare website they will give you more details on specifically what needs to be documented.

I want to highlight here, dental, vision, and hearing. Because those are things that I intervene on there in the office. They are things that I will refer out for further evaluation. It's important we talk about them because sensory impairments are hugely important to independence, social connection, and quality of life. And that's what I'm really interested in talking about with my patients in the office. In particular, presbycusis is not always recognized for its significant impact on social relationships and also on cognition. So remember to send your older patients to audiology for comprehensive screening assessment. Intervene early on this to optimize quality of life.

Dentition and dental problems also are a quality of life issue impacting older adults, both cosmetically and socially and nutritionally. So think about going to a church supper with broken teeth or loose dentures and how that would feel. And also think functionally. When your teeth hurt or your dentures don't fit there are fewer palatable foods available, and people start to lose weight. So dental care is really important and something that we need to encourage our patients to follow up on.

ADLs and IADLs have gotten a lot of publicity recently. I think they have a good PR person. So we won't belabor this slide too much. I just want to show you the Barthel index, which has one, two, three, four, five, six, seven, eight, nine, 10 domains. And is, kind of in my opinion, more of a research tool. The Katz index is similar. It has the six domains that we're most comfortable with or familiar with for ADLs, which is bathing, dressing, toileting, transferring, incontinence, and feeding. And the eight-- the IADLs, which are the instrumental activities of daily living, which includes, as you see here, using phones, shopping, food prep, housekeeping. Everything that keeps people independent in their home are the IADLs.

Changes in IADLs and ADLs warrant further explanation or assessment. Is it a physical problem that can be addressed with therapy or an assistive device? Is it a cognitive issue requiring more oversight or supervision? Does the patient or family need resources or support? Independence is so important to so many of our-- to so many people. And our colleagues in PT and OT are experts in assessing and problem-solving around these impairments. So if the patient is homebound due to illness or impairment they will be eligible for home nursing, PT, and OT. And it's really helpful to get boots on the ground in the home to see what's going on, with the medications, with home safety. And I encourage review of these functional abilities and appropriate referral.

Nutrition in the elderly is a big topic. I won't spend much time on it here, could be a whole separate talk. Bottom line is significant weight loss is 10% over one year, or 5% over six months. And also be aware of a BMI over 35, which is a marker for undernutrition. People can be quite overweight and yet malnourished. They are sarcopenic and become disabled with this condition. And in this case I'll frame the issue of nutrition and my intervention as increasing activity level and increasing strength. I never encourage my older patients to try to lose weight because they just end up restricting calories. And they need the calories to have energy and to move and to avoid further muscle wasting.

The Mini Nutritional Assessment is-- I'll also tell people what their caloric needs should be. So I'll tell my women, 1,600 calories a day, men 2,200. And they have an increased need for protein and calories as they get older because of their increased metabolic rate. So they need a lot of protein, especially to heal wounds. And I'll also check vitamin B12 and vitamin D as surrogate markers of malnutrition, and also because I can do something about them. I pay attention to appetite, new medications, and mood when I'm considering reasons why people may be malnourished. And the Mini Nutritional Assessment which I have linked here is helpful because not only gives us a score to drill down further, but it also points to factors that are involved, like the ability to chew or swallow, their mobility, and the presence of a cognitive or psychiatric disorder.

Cognition is important. It's an interesting topic because the US Preventive Services Task Force rated screening for cognitive impairment in the community-dwelling population over age 65 as an "I," for insufficient evidence. And classically, cognitive assessment has been done for patients who present with concerns either from themselves or their families about their memory or their cognition. I think Medicare got a little ahead of the USPSTF on this one, because cognitive screening is included on the list of things that we're supposed to go over on the annual wellness visit.

And in this case, I think that the Mini-Cog is an appropriate test. It's very brief. Research is currently being done to establish what testing method should be used, and we use the Mini-Cog here. RAND is actually conducting a study on this right now. Mini-Cog is a three word registration. And I always remember the three words because I would forget them myself. So I use apple, table, and penny, that's what I learned. Then they do a clock draw and then the three word recall. And if more than one word is missed on recall or the clock is incorrect, either the contour or the numbering, or the setting of the hands, then further screening is recommended at a follow-up visit.

And for the follow-up visit we use the MOCA. And I love the MOCA. It's highly sensitive for detection of mild cognitive impairment. And it detects change across multiple domains of functions. So you see here, executive, visual, spatial, memory, attention-- oops, this was naming, I guess-- memory, attention-- these tasks, language, abstraction, delayed recall, and then finally orientation. And those all give you a different sense of what's going on in the brain.

Mood disorders are prevalent in older adults. Estimates range between 1% and 5% in the general population, although in minority populations, chronically ill, it's much higher. Minority populations and/or chronically ill, it's much higher, with prevalence up to 25% in nursing facilities, for example. Older adults have high rates of suicide, with men over 85 having the highest completion rate of any demographic in the country. I'm going to say that one more time. Men over 85 have the highest completion rate of suicide of any demographic in the country. So this is definitely something that we want to screen for. We use the PHQ-2 followed by the PHQ-9 to screen for depression. The PHQ-2 with a score of over 2 has a 97% sensitivity, 67% specificity in adults. And follow up with a PHQ-9 over 10 is 61% sensitive and 94% specific. So these two things together can really help hone in on those who are at high risk for depression.

So, alcohol and substance use disorder often go undetected. I'm not sure that the prevalence is high, but they do go undetected, and that is certainly high for older patients. Incident substance use disorder is less common than recurrence of prior disorders. So think of a retired person whose lifestyle has recently changed, or they've recently been widowed or bereft and they resume prior habits. That would be considered a recurrence of substance use disorder. Stereotyping of older adults and the stigma associated with substance use also play a role in underdiagnosis. Functional impairment and cognitive impairment may obscure the role of substance abuse in their presentation.

I usually start with talking about how much they drink, tolerance-- remember, drinking habits may not have changed, but pharmacokinetics and pharmacodynamics have changed with age. There is age-related changes in organ function. There's changes in body composition, that means there's more alcohol kind of left in the system. There is polypharmacy, and there's comorbidities that also play a role in the effects of alcohol on the body with age.

So I'll start with these recommendations that-- these are the amounts that are safe. And I'll go from there to explore people's use and their thoughts about cutting back. And the brief behavioral counseling that you're familiar with, the FRAMES counseling, which is basically motivational interviewing, is effective for patients. I'll talk just briefly about tobacco. Time to benefit is short for quality of life improvements with tobacco use. However, I recognize if somebody is 90 and they're still smoking and they've not died from complications, like vascular disease, COPD, or cancer, they've kind of already outlived our expectations. So I understand that having this conversation may not be a high priority.

Though, aside from the vascular disease and pulmonary function benefits, which are immediate from smoking, it also improves smell and taste. So if they're losing weight, consider the role of smoking, or the cigarette smell in the house is kind of diminishing their appetite and contributing to their weight loss. And this can also be an encouragement for caregivers in the home who are smoking, to think about quitting. It's just one more piece of information they might need to make that final decision to quit.

Sleep is a common quality of life complaint that I encounter in the outpatient setting. It's not included in the list of health issues. But it's something that I think of as being very important in preventive medicine. Sleep difficulty is often brought up as a chief complaint in my office. It can signal central or obstructive disease that can lead to long-term cardiovascular effects or neurological complications such as depression, cognitive impairment. Poor sleep can exacerbate chronic pain.

In addition, for my patients with dementia, sleep disorder contributes to behavioral disturbance and it adds highly to caregiver burden. So for people that want to stay at home, addressing their sleep issues is really important. So as a first step I provide counseling regarding sleep hygiene, including the four rules of the brief behavioral treatment, including establishing a consistent waking time, reducing overall time in bed, going to bed when you're sleepy, and getting out of bed if you're not sleeping in 30 minutes.

Let's talk about preventive medications very briefly. I'm sure you're aware of these guidelines that were recently revised as more data in the older population has become available. So now, aspirin is not used for primary prevention in people over the age of 70, because of the outweighed risk of GI bleeding on aspirin. And statins, the jury is still out about primary prevention. There was a VA study done in 2019 that showed there was all-cause mortality benefit for veterans. The general population studies are ongoing and are due to be completed, I believe, in 2022. So put a pin in that one.

Deprescribing dovetails a lot with chronic disease management. We know that most of our guidelines are written with one disease in mind. And evidence supporting these guidelines is by and large-- has excluded older adults and those with multiple morbidities. So application of guidelines to our patients really is an art. We do our best to extrapolate from this evidence to fit our patients with multiple comorbidities, and fit them to the outcomes that are most important to them.

And when it comes to medications I think we often err on the side of overprescribing. The single most important predictor of an adverse event in our older populations is the number of medications they're prescribed. Aside from this, medications also cause side effects like fatigue, lightheadedness, nausea, gait instability, bradycardia, and that's just cardiac meds. So think about it. In addition, the overall medication regimen may be complex and burdensome just by virtue of being so long and large. And for these reasons I'm always looking for medications that can be stopped.

To help with this, these three questions should be considered at every visit with an older patient. Is there an indication for every medication? Is there time to benefit? And was this prescribed as part of a cascade to treat the side effects of other prescriptions? As we embark on discussing deprescribing, we of course keep in mind the balance that we discussed earlier. What matters most to my patient? How do they view their health? What is my best guess of their life expectancy? How do I view their health, their illness burden, their treatment burden, and their time to benefit?

And I commend to you the resources from the ePrognosis website that I showed you before, and also the toolkit from the IHI, which is wonderful. It's the age-friendly health system guide to using the four M's in the care of older patients. And these are specific tools for addressing these four M's of mobility, mentation, medication, and what matters most. And they have lots of resources attached to the toolkit.

Let me just expand this model for you. I love this graphic. It's from researchers at Yale looking at deprescribing. I think it also applies to other health interventions that we offer to patients toward end of life, or who are older in general. It starts over here with gathering the information you need to have a good discussion, what matters most to the patient as I've hammered on, what's their treatment burden, and how do they perceive their treatment burden, and what do we think is their trajectory of illness. And when you're talking about what matters most, it's really helpful to think about a SMART goal, just like you would in QI, a specific, measurable time frame-anchored goal that they want to work on, and that you can discuss.

Then you move to step two. You're identifying the key trade-offs of what you're going to recommend. Say you're going to recommend-- say the goal is patient who wants to go out for lunch with her friends once a week like they always did, but now she has to check her fingerstick before lunch, and she's supposed to give herself insulin. And she's worried that she's not going to be compliant with her insulin treatment if she goes out for lunch. So you're going to have a discussion about that, the key trade-offs, and you're going to probably discuss de-intensifying her insulin regimen at the age of 85.

Then you'll do serial-- once she agrees with you that this is what she wants to focus on to achieve her SMART goal, you're going to conduct your therapeutic trials. So you are going to deprescribe slowly, stop that medication or taper it usually. PPI is another good example of a medication that can be tapered and see what happens. You're going to assess the progress based on your goals, your SMART goal. Were you able to go for lunch? How'd it go?

Really important to align other clinicians here. So if you're deciding to prescribe some cardiac medications, for example, a patient who's fatigued and their heart rate is beta-blocked down to 60, and you want to liberalize the beta blocker a little bit, aligning yourself with the cardiologist so that you're together on that recommendation based on the patient's wishes is really important. You do your serial trials. You may deprescribe a few things. And then you can stop. And then the next year or so you revisit what matters most. What's the treatment burden? What's our what's our trajectory? And you can start the process again. I just love this model for thinking through all the steps in this process of talking with our patients about deprescribing.

So to review. I hope that I have reviewed a framework for health promotion that starts with the things we can't control, which are genes, the things that our community and our society at large need to work in controlling, which are the social determinants of health, and the things that we might be able to control, which includes resilience factors like good social connections, positive relationships with other people, and exercise, and a healthy diet as able. We've talked about implementing, selectively, prevention for very old patients. Especially remembering the time to benefit of the intervention and their health span and lifespan ahead of them.

And we've talked about, how do you find out what matters most? And-- with the recommendation to talk about risk and avoiding risk of harm from our interventions, not futility of the things that they think they might need. And it's really important to get everyone on board. Caregiver, patient, and any other physicians or clinicians who are involved in caring for the patient, so that we can all be together on working toward what matters most for our patients.

Thank you for your attention and I look forward to answering questions at our next session. Thank you.