Leslie Kernisan: 00:02 Hello, everyone. Welcome to Better Health While Aging, a podcast that gives you strategies and information about improving the health and well-being of older adults. We discuss common health problems that affect people over age 60, the best ways to prevent and manage those problems, and we also often address common concerns and dilemmas that come up with aging parents and other older loved ones, like what to do if you're worried about falls or safety or memory, or even the quality of an older person's healthcare.

Leslie Kernisan: 00:44 I'm your host, Dr. Leslie Kernisan. I'm a practicing geriatrician, so that means I'm a medical doctor specializing in geriatrics, which is the art and science of modifying healthcare so that it works better for older people and for their families. In today's episode, we are going to be talking about a very common issue that affects millions of older adults, and that is hearing impairment and hearing loss. Our special guest to help us with this topic is Professor Meg Wallhagen, PhD, who is a professor of gerontological nursing at UCSS School of Nursing. She is a nationally recognized expert on hearing loss. Over the course of her career, she's been involved in research, in advocacy, and in lots of education related to this important topic. She has also been on the board of the Hearing Loss Association of America since 2010, and is actually the immediate past chairperson of their board.

Leslie Kernisan: 01:39 Since I know so many older adults and families have concerns about hearing loss and questions about what can be done, I'm just delighted that Professor Wallhagen was able to join us today on the podcast. In fact, since this is a pretty big topic and she is so knowledgeable about it, she agreed to do a two-part interview that we'll be sharing in two back-to-back episodes. Today in part one, we're going to focus on what to know about hearing loss and how to be assessed, and then in part two, we'll focus on what can be done about hearing loss, including what to know about hearing aids and other options for managing this issue.

Leslie Kernisan: 02:15 Meg, welcome to the show.

Meg Wallhagen: 02:17 Well, thank you so much for having me on the podcast. I'm really pleased to be here and to share information on

hearing loss, which as you know is a passionate interest of mine.

Leslie Kernisan: 02:26 Yes. So, I always love to start by inviting our guests to share a little bit about their background, and I think you may be the first geriatric nurse or gerontological nursing professor that we've had, so this is also a great opportunity to tell the audience a little bit about this profession, but tell us how did you become interested in geriatric nursing? What was your career like, and how did you end up developing this focus on hearing loss?

Meg Wallhagen: 02:55 Well, really and truly it evolved, I have to say that I started out as a three-year diploma graduate many years ago now and sort of went the long way to get back and get my BS and then master's, and finally my doctorate at the University of Washington, but my interest in hearing loss and geriatrics, I became very interested in care of older adults and chronic illness management right before I went to Seattle and to work on my doctorate at the University of Washington. I had worked in acute care mainly up to that time and taught at California State University Chico, but I realized that there was certainly a growing number of older adults and the issues around management of chronic illness was of major concern to me and how various kinds of policies affected the way in which we could manage conditions that older adults and their families were experiencing. That's kind of how I got interested in geriatrics.

Leslie Kernisan: 03:52 Yes. So really quickly, maybe you can explain a little bit to the audience what it means to get a doctorate in nursing, because I think that's actually not something that everybody understands.

Meg Wallhagen: 04:02 Right. Well, it's a very interesting question because the PhD that I got is sort of focused on research, but of course it comes from the research that we do, especially in nursing, focused on practical clinical issues that we see as important to deal with because as nurses, we're really interested, again, in managing a family and the older person and how you live with various kinds of conditions, not just a cure basis. There are different, I don't want to call it "levels," but different educational experiences that

people have related to their doctorate. Normally now, there's not many diploma programs, but most of them are baccalaureate or now we're moving more and more towards master's, and then there's two different kinds of doctorates, one which is more like a medical doctorate that's called the Doctorate of Nursing Practice, the DMP, and then there's the PhD, which is a little bit more of an academic type of doctorate, which focuses on not just the practical but the teaching academic mission, and also doing a lot of research.

Leslie Kernisan: 05:15 It sounds like with this focus on the person and the family and how people live, that's kind of naturally a good fit with the healthcare of older adults.

Meg Wallhagen: 05:24 Oh yes, it definitely is.

Leslie Kernisan: 05:26 So, it's our sort of special secret in geriatrics, but it sounds like it's something that the nursing profession is, by nature, already more oriented towards.

Meg Wallhagen: 05:36 Right. That's true.

Leslie Kernisan: 05:37 So now hearing loss, yes. Tell us how you became interested in hearing loss in particular.

Meg Wallhagen: 05:42 Again, that was really an evolution, which I'm excited now that I moved in that direction, but it evolved after I finished my doctoral study and came down to the University of California in San Francisco. I really became increasingly interested in the impact that hearing loss had on older adults and the fact that practitioners really didn't know a lot about hearing loss or pay attention to it. As a matter of fact, I went back to some of the books and I would read that, "Oh, make sure their hearing aids are in place," so I started asking colleagues if they knew what that meant and how to work with hearing aids, and they really didn't. So, realizing the impact that hearing loss and what the data showed in terms of the ways in which hearing loss affected older adults, both in the clinical setting but also certainly with their families. I became really interested in focusing on that in terms of making a difference if I could in terms of access and in terms of training or educating practitioners about its importance.

Meg Wallhagen: 06:45 I also became very aware because I was interested in policy that Medicare, the fact that Medicare does not cover hearing healthcare or hearing aids really was a barrier to care of older adults in this particular setting because it sort of dictates so much of what other insurance companies do. As I say, that's sort of starting my journey.

Leslie Kernisan: 07:08 That's so interesting. Now, so many people also have personal experiences with hearing loss, and that sometimes drive them to start to study an issue. Did you have any personal experience for yourself or in your family with hearing loss?

Meg Wallhagen: 07:22 No, not directly. I mean looking back really far, I think my father probably had some hearing loss, but that was not something that was really cognizant of per se; it was more like he wasn't paying attention, and I think at that time, there wasn't a great deal of attention either to hearing loss. I really don't have it. I have tinnitus, which we may talk about later, but I don't have significant hearing loss at some point.

Leslie Kernisan: 07:51 You just noticed it was a common issue affecting older adults and their quality of life, and that there was an opportunity, there was a gap in terms of what we were offering as health providers.

Meg Wallhagen: 08:01 It was very under-addressed in healthcare professions.

Leslie Kernisan: 08:04 I think also what you mentioned about your father, that you hadn't thought of it as hearing loss per se, right, that it was just him not paying attention. That's something that maybe a lot of people can relate to, and maybe that's what's happening with providers too, right, is that it's being kind of waved off as so common in older people, and in fact, it's an important issue that needs to be addressed.

Meg Wallhagen: 08:27 Right, right. Very true.

Leslie Kernisan: 08:29 Yes. So I think a lot of people in the audience know that hearing loss is common, but maybe we can just briefly review some of the statistics. Before we do that, how do you as an expert in this, because at this point, you have

researched this topic and wrote about it for years, but as an academic, how do you define hearing loss?

Meg Wallhagen: 08:50 What I like to share often is that from a very technical standpoint, hearing loss is defined by the results of an audiogram. That's the assessment that you get when you go to see an audiologist. During that exam, the audiologist will assess whether the individual hears specific sounds or frequencies or tones at different levels of loudness. As we get older, we tend to become less able to hear the high frequency sounds, and you can think of high frequency sounds as those produced by a siren or an alarm. Well, low frequency tones are produced by, say, a drum. Why is loss of the frequency sounds so important? Well many of the consonants, thing's like the S's and the F's and the th-es and the sh-es, they tend to be more high frequency while vowels, A, E, I, O, U, those kinds of things tend to be more low frequency. Consonants, what's really interesting is consonants help us make words understandable why low frequency sounds contribute more to audibility. When consonants aren't heard clearly, we may feel we hear because we are hearing something, but we're not getting all the information. People think that other people are mumbling, or we end up misinterpreting the word because we only get parts of it.

Meg Wallhagen: 10:12 This is really an important point because often, hearing loss is considered something like a decrease in sound, but hearing loss is not like wearing ear plugs. It's not just a decrease in sound; it's a distortion of sounds. That's why many individuals will say they can hear that people are, they complain that people are mumbling or that they aren't speaking clearly, and they have trouble with accents. It's also why the audiogram really doesn't fully capture the experience of hearing loss. It just identifies what frequencies are not being perceived and how loud the sound has to be at a specific frequency to be able for one to hear it.

Meg Wallhagen: 10:53 Now as an aside, you can actually Google what's called a "speech banana" to get an idea, a visual showing, of where those various sounds fall in frequency. It's kind of interesting.

Leslie Kernisan:	11:04	Oh. Well we'll find it and link to it in the show notes. So there's a speech banana that shows what is the frequency of certain common speech sounds.
Meg Wallhagen:	11:11	Right, right, especially since there's a part of the audiogram that is most pertinent, if you will, to talking to people, to audibility and to communication. It's kind of interesting, and they make it yellow. It's a banana.
Leslie Kernisan:	11:27	Yes, it sounds fun. So it sounds like what you were getting at is that what happens to people is, as you said, it's not just a muffling or like they're wearing ear plugs. It's because it's certain frequencies that are affected, it ends up distorting the sound in a way that often makes it hard to understand speech.
Meg Wallhagen:	11:44	Correct, correct.
Leslie Kernisan:	11:45	So when the person who's affected says, "I can hear," they're, in a way, right because they're still hearing plenty. They're just missing certain key parts that allow them to distinguish things clearly.
Meg Wallhagen:	11:57	Right. What also happens because it's a high frequency, the things that they also miss which are really important to be aware of are-
Leslie Kernisan:	12:04	Is women voices shouting.
Meg Wallhagen:	12:06	Yes, right. Women's voices, children's voices, grandchildren's voices, but also important safety things like sirens and alarms and fire alarms. One of the things people should be aware of if they have hearing loss is they make different kinds of alarms and equipment for your home if you need it in order to alert you if you are missing those high frequencies.
Leslie Kernisan:	12:35	That's so interesting. Different alarms can be bought at lower frequencies.
Meg Wallhagen:	12:40	Yes, Yes. They have other things for it depending on how significant your hearing loss is.

Leslie Kernisan:	12:46	I've often heard experts mention that since hearing loss is actually really a distortion that shouting or speaking louder does not necessarily help.
Meg Wallhagen:	12:57	No, no. You sort of make the distortion louder. You may want to talk a little bit louder, but in general, shouting does not help.
Leslie Kernisan:	13:06	Well we'll talk more about what does help in part two, but very briefly, what about speaking more slowly? Does that help?
Meg Wallhagen:	13:13	That can help, yes. Certainly facing the person, we'll talk more I think about strategies that you can use in terms of communication, but not distorting it so that it sounds unnatural, but at least speaking clearly, enunciating, and facing the person so you are speaking clear. You're obviously not putting your hand in front of your mouth so the person can see your lips and stuff like that. There's relatively simple strategies that can help individuals at least hear somewhat better if we use them effectively.
Leslie Kernisan:	13:45	Yes, and I would think that speaking more slowly, if nothing else, just gives the person more time to decipher what somebody is saying because part of hearing is, I know I feel that way when I'm listening to somebody who has a very strong, unfamiliar accent, or if I'm listening to something on a bad loud speaker that has distorted, is I have become aware that I have to actually mentally decipher.
Meg Wallhagen:	14:09	And it takes a lot of effort.
Leslie Kernisan:	14:10	Right. So having a little bit more time for that can probably help as well. Is there a certain threshold for how much the frequency has to be impaired to qualify as hearing loss?
Meg Wallhagen:	14:22	They usually look for adults over 25 decibels, which a decibel is a form of loudness, if you will. Some people go higher than that, for 40, but it ranges from what they call mild hearing loss, which is around 25 [inaudible 00:14:36], and then 40 becomes more moderate, and then as you get higher, you get into the more severe range. The issue is, that number often is an average of what you can hear at

different levels across several frequencies. It doesn't always give off a good idea of the experience that you're having in terms of real life, and so knowing the situations that are more difficult for you becomes an issue, but yes. When you're looking at an audiogram or something where you've had your hearing tested, they will talk about a pure tone average. That's the frequencies across a certain number of frequencies when they average the loudness, if you will, and it comes up with something like 25 or 40 or higher.

Leslie Kernisan: 15:25 Now that we've talked about how hearing loss is defined, again, we know it's common, but how common is it? Can you give us a range or a statistic?

Meg Wallhagen: 15:35 Well there's various numbers they've bene throwing around in some of the total numbers. I think the exact number varies depending on whether you're defining it by self-reported or by objective audiograms, but in general, it does certainly become increasingly common as we get older. Hearing loss serious enough to make understanding speech more difficult effects nearly two-thirds of persons aged 70 and over.

Leslie Kernisan: 15:58 Wow, that's really quite a lot. Then, do we know if it's becoming more or less common than it has been historically? I ask because we know some other chronic illnesses and impairments have been going up or down in prevalence over the decades. Any information on how hearing loss frequency might be changing?

Meg Wallhagen: 16:20 Again, I think the research differs a little bit on how they define it and whether they look at high frequency hearing loss or what often would've bene defined as hearing loss using the frequencies that are more audible to persons who are younger, but [inaudible 00:16:36] high frequency hearing loss, it seems to be getting more common. There's some data that came out and said maybe it wasn't, but there's more data recently that has focus concern on younger adults especially, and there's concern about people running around with earbuds in and so forth. That said, I think some of the places where people were exposed to noise before that put them at a higher risk have become [inaudible 00:17:03] because of standards.

That's, I think, been helpful, but in general, I think it seems to be going up in younger individuals, so we're very concerned about that.

Leslie Kernisan: 17:12 Right. So on one hand, we might have more exposures or triggers that put people at risk earlier in life, and then I imagine that to a certain degree, just with people living longer. The longer you live, the risk probably goes up as you get older right?

Meg Wallhagen: 17:28 Yes, yes. Unfortunately, that's true.

Leslie Kernisan: 17:31 Yes. Is there such as thing normal age-related decline in hearing abilities just the way a lot of other physical function declines somewhat as people get older and some amount of it is considered "normal?" Do we have something analogous when it comes to hearing?

Meg Wallhagen: 17:47 Whether you wish to call it, what I might say is "normal" or "usual," our hearing acuity does decline with age, but how severe is gets and when one starts to have real problems with hearing is affected by a lot of other issues. Some people really do age to fairly high ages without significant hearing loss, so we know that there are other things that do affect it, but yes. There seems to be a normal or usual decline in our hearing acuity across time.

Leslie Kernisan: 18:18 Well certainly when it gets to the points where you're having difficulty understanding speech of people who are in your social environment or work environment, no one wants to call that normal, even if it is extremely common because people get-

Meg Wallhagen: 18:33 Right, right.

Leslie Kernisan: 18:34 Right. Well I want to talk more about what puts people at risk and what causes it in a moment, but before we get into that because I feel like that gets a little bit into the evaluation, maybe we can review why it's such an important issue to address. Because beyond the fact that people might be saying, "What?", and having some difficulty discerning sounds, why are we so concerned about it as health professionals and as a public health issue.

Meg Wallhagen:	19:01	Well, of course I have my bias in this regard, but in truth, data are increasingly supporting why this is such a major health-related issue. Hearing loss is related to so many things in terms of isolation, because you really can't participate in the kinds of activities you might want to. It's also related to depression. It's certainly related to difficulties with our family and social relationships because people can't talk to us easily and quite a big of effort, and increasingly, we're also documenting its effect on our cognitive capacity, which probably makes some sense in that just like a muscle or anything else, it needs use. So, when the neurons or nerves or something are not getting the stimulation, they're basically going to say, "Well, I might as well do something else." They do not stay as acute as they would if they got the stimulation.
Meg Wallhagen:	20:01	That makes a difference, and I think that the risk factors for problems for things like, delirium is more common if one becomes acutely ill and has hearing loss or has surgery, and also falls have been related to hearing loss, possibly because the hearing in the vestibular or the balance component in the ear are so closely aligned. There may be some factors there, but also because you're getting miscues from your environment. Hearing can be so important to grounding us where we are in space. So without that, we tend to have potentially more problems with falls.
Leslie Kernisan:	20:42	Right, right. So definitely linked to what we call "worrisome health outcomes" in a way. Falls, losing mental capacities, higher risk of delirium that worsen, usual confusion that people develop often in the hospital or when they're very sick, and then you mentioned also just the social aspects that it's associated with: isolation, depression, and you also mentioned it affects families, right?
Meg Wallhagen:	21:07	Oh yes, yes. Really and truly, hearing loss is a family issue and also I think a society issue because it's not just individuals who are affected by it, but it's relationships. Trying to hear when you have hearing loss takes a lot of effort, unfortunately; it's very tiring, but it also is difficult for persons who don't have hearing loss that are interacting to try and use the strategies that they might be

more effective in terms of communication, remembering to use those strategies. They get frustrated because they have to repeat all the time, or people might miss messages like, "Gee, I don't remember hearing you say that we had to go so-and-so at such-and-such" because they really didn't hear it or they misunderstood the timing.

Leslie Kernisan: 22:08 Right. Well I think it's important to bring these up because I feel like that on one hand as professionals, certainly professionals who study it as you do and from a public health perspective, it's such a significant, important issue to address, and I think you've probably experienced this too, but I think as healthcare providers, I mean yes; healthcare providers don't pay enough attention, but we've also all had the experience of older people kind of blowing it off, right? When their family bring it up or when their provider brings it up, whereas there are some health issues that seem to motivate people to try to get help, that seems to be one of those where often, if the provider is attuned to it being important, you're often there trying to persuade the older person to address it.

Meg Wallhagen: 22:57 Right. I think it's a very hard issue. We do find that people end up not talking to each other as much and people not being aware that their partners may not be sharing information because they just feel it takes too much time or it's too much effort. I think in terms of people not appreciating it, unfortunately there remains a significant stigma around hearing loss and wearing hearing aids. I find that very sad because I think that one, people who address their hearing loss are really, I think, letting other people know that they're interested in what the person's going to be saying. They want to stay engaged. It does, well we'll get into it; I think the issue, it does take some work to work with hearing aids, but I think the benefits in most cases are just so valuable for individuals. As I say, they become so isolated, which is kind of sad to se when it's not necessarily necessary.

Leslie Kernisan: 23:58 Yes. Well we're going to get more into the hearing aids and things that can be done in part two, but just briefly, this is actually one of those problems where especially if it's addressed earlier, it is possible to intervene and help people hear better normally.

Meg Wallhagen: 24:14 Yes. I think there's more data that suggests, I mean I think if you continue to stimulate the input, because we really hear in our brain, in the auditory sensor in the brain, but it can't make sense of something if it's not getting adequate signals. So, it needs the peripheral part of your hearing to send it adequate signals, and that's what we want to correct. We want to make those signals as clear as we possibly can, and there are not a lot but some data that certainly show that if you do it early enough, your speech recognition may stay better than if you wait too long, because the brain, again, gets used to not hearing sounds, and it becomes harder then to go back to hearing different sounds and making sense of them.

Leslie Kernisan: 25:03 Right, right. We'll talk more about it in part two, but you mentioned just that hearing aids take some time to get used to and to work with for them to work well with you, and I think the other thing about doing it earlier is that I see people often addressing this like, or families trying to address this quite late when a person has already become quite frail or has a lot of health problems or has developed dementia, and that's just a time when they have less energy and bandwidth, right, to engage in that process of learning to use these aids.

Leslie Kernisan: 25:38 So I wanted to highlight that because I think a lot of people kind of wave it off when they're in their sixties and seventies, and it sounds like that's really a missed opportunity because if they have hearing loss, it sounds like it's better to address it earlier before it can have all these other health impacts, well impacts on their health and on their families and social life, and on that part inside the brain, as you were saying, that is involved in processing what comes in through your ears. If you don't give it enough to process or the right things, if you don't use it, you start to lose it.

Meg Wallhagen: 26:12 Right.

Leslie Kernisan: 26:13 Maybe actually you can now talk a little bit about what exactly causes it. I mean you mentioned that it's a change in being able to discern certain frequencies, but there's a term that I'm sure you're familiar with, that most of it is called "sensory neural hearing loss." Can you explain a

little bit what that means and what we think causes most of this, I'll call it "garden variety" age-related hearing loss in older adults?

Meg Wallhagen: 26:40 Well in terms of sensory neural, that's sort of just a big term for the fact that it affects the small, tiny, little, very, very wonderfully designed hearing sensors in the inner ear. They're tiny little hair cells and there's several different kinds, but basically, they respond to those different frequencies that we have in our environment. That's part of the sensory organ that then transmit to the nerves, and the nerves then transmit that data to the brain. Essentially, neural basically means it's the inner ear and the nerves that serve hearing that are affected. That's different from what is sometimes called "conductive hearing loss," which can be caused by changes in the very tiny little bones in the ear. They can become stiff and not transmit sound very well, or of course the more common thing is wax, unfortunately. [inaudible 00:27:42], but it's wax that gets in the way. That's usually, thankfully, a fairly easy correction, but that is more of a conductive loss because the sound is not even getting to the inner ear to be sense.

Leslie Kernisan: 27:57 Then you said the tiny bones in the ear can stiffen. Is that very common? Is that a factor in the hearing loss of most older adults, or is that a less common cause?

Meg Wallhagen: 28:10 I'm sure that there's some changes in the little ossicles, as they call them. The little bones. They're the tiniest bones in our body. They're wonderfully designed, but they do probably become a little bit stiffer. If you have more of a pathological condition like otosclerosis or some other kinds of conditions like that where there really is a change and they become very stiff and more immobile, then there's a different kind of intervention that you might need to have to have that corrected.

Leslie Kernisan: 28:38 In the audiology visit, they can discern between these two?

Meg Wallhagen: 28:45 Oh yes, yes. Actually, the practitioners can discern with some tests too between a conductive and sensory neural hearing loss-

Leslie Kernisan:	28:53	The tuning fork thing.
Meg Wallhagen:	28:55	Yes, the tuning fork…kind of a gross assessment, but you can get an idea that there is a conductive loss. More common is the sensory neural loss for most of our hearing loss with aging.
Leslie Kernisan:	29:11	Well I certainly think, I think often the primary care providers aren't even looking in the ears. Even though I think there's often the sensory neural hearing loss going on, if they also have wax and you can take that out and improve things a little bit, why not? Low-hanging fruit, you know? Aside from getting older, have we identified specific factors that can cause these inner ear sensory cells to stop working as well?
Meg Wallhagen:	29:41	Oh yes. The big thing is really noise. That is a major factor, and of course there was always the debate about whether we had hearing loss or it was always noise exposure, but certainly noise exposure is a very negative thing for your hearing. There's more and more data that suggests, which is why I worry a lot about these very noisy stadiums that feedback the noise and keep increasing the noise or going out to noisy places all the time, and having these rock concerts, or whatever. If you damage your ear, sometimes you'll come away from that and you'll have some ringing in your ears or some other kinds of maybe decrease or change in your hearing, but it goes away or pretty much goes away, but what they've shown is that there can be ongoing damage at the cellular level after what you think your hearing comes back. There's probably some chronic damage going on.
Meg Wallhagen:	30:44	Noise exposure is a pretty significant issue, and I worry a lot about that for younger persons who might me exposed to a lot of noise, and we like everything so noisy. There are some regulations, at least at work, but even there if you're chronically exposed to noise, that can be difficult, and of course sudden noise, very loud [inaudible 00:21:08]. That unfortunately is one of the problems with many of our veterans who have been exposed to blast injuries. Those cause permanent damage to their hearing often. It's one of the most common causes of hearing loss in veterans, which is really unfortunate.

Meg Wallhagen: 31:27 The other things that can cause damage is exposure to ototoxic kinds of agents, ototoxic meaning toxic to the ear, but things like chemotherapeutics, if we're exposed to those, or certain antibiotics that we have for illnesses, especially if you're taking some things more chronically or you have multiple types of episodes, and also the non-steroidals, the kinds of things that we get over the counter to treat pain. Not acetaminophen so much, although there's some data that suggests maybe it has some effect, but more of the non-steroidal kinds of things, like Advil. I don't like to put names on them, but all of those types of medications have risk for ototoxicity. We just don't have as much data about taking some of these medications. They've never thought that taking low doses were necessarily negative, but we don't have a lot of data on the fact that if you take them long-term. I just worked with a doctoral student who did show that long-term, it seemed like these medications were problematic for long-term hearing loss, but we need more data on that.

Meg Wallhagen: 32:39 If you can minimize exposure to ototoxic agents, and unfortunately at work, some people are exposed to various kinds of autotoxic fumes. That's an issue for individuals. I guess you would say that's a thing that practitioners should check for once in a while, is what type of exposure the person has had in terms of their work, or if you happen to be a hunter or you happen to do other kinds of things that you're exposed to loud noises across time, that can impact your hearing.

Leslie Kernisan: 33:10 Then do you know, is there a benefit in identifying that earlier when people are in their forties and fifties? Do we know if then changing their lifestyle, I guess, might affect what happens afterwards? I know for many chronic conditions or impairments, we often try to notice it earlier so that we can kind of change the trajectory, right?

Meg Wallhagen: 33:31 Right. I don't think there's enough data that says, you can't probably reverse what's started, but certainly if you know that you've been exposed to some things, minimizing, just like minimizing your exposure to noise is certainly critical and wearing earplugs, wearing protective devices when you're in noisy locations. I wear earplugs all the time when I'm at a fitness center because all those machines seem so

noisy to me, so I'm a little paranoid about wearing ear protection, if you will. I think ear protection is really important, and if you're in an environment where you are exposed to toxic agents, I think there are probably regulations around some of that. I'm not as familiar with some of the OSHA regulations, but I think there has been an effort to make sure that the work environment is a little more protected from those kinds of agents. If people work out in the fields, if they're exposed to toxic agents because they do farm work or other kinds of things, that can be a problem.

Leslie Kernisan: 34:34 So because some of those toxic exposures, which I think of as affecting people's breathing-

Meg Wallhagen: 34:40 Yes, they do.

Leslie Kernisan: 34:41 It looks like they can also affect their hearing.

Meg Wallhagen: 34:43 Yes, unfortunately.

Leslie Kernisan: 34:43 Then, I guess some acute illnesses also, but it seems like that's more common for younger children.

Meg Wallhagen: 34:52 Yes. Unless it's something that affects the central nervous system as we get older, and I think the acute illness for older adults, what affects the hearing is probably the antibiotics and the therapeutics that we're exposed to to treat it. For younger children, unfortunately certain kinds of acute illnesses like measles and those kinds of things are one of the reasons for hearing loss as well. We want to minimize the kinds of acute as well as chronic-

Leslie Kernisan: 35:21 Yet another reason to vaccinate.

Meg Wallhagen: 35:23 Yes, right. Yes, it's not benign. Measles isn't benign unfortunately.

Leslie Kernisan: 35:29 No, no. It's not.

Leslie Kernisan: 35:31 Okay, well let's talk now a bit about how hearing loss should be screened for or otherwise detected. Now I know that some of your research as been on, and you alluded to this before that, that primary care providers are often

under-assessing hearing loss, under-addressing it. Right? They're overlooking it. How common is it for it to be overlooked, and why do you think this is?

Meg Wallhagen: 35:53 The data suggests, and it does vary, but only between 20% and 30% of primary care practitioners tend to screen for hearing loss.

Leslie Kernisan: 36:01 What's the recommendation for screening right now? Is there a screening recommendation?

Meg Wallhagen: 36:07 Unfortunately, the preventative services task force, in their last review, they're undergoing another one, did not come out in support of the benefit of screening for persons who didn't complain about hearing loss, but that was because they didn't have enough data and they're very data-based. There was no data that says it was harmful, but they just said that there wasn't enough data to say, "Oh yes, there's a great benefit, and part of it was that we didn't have the right data. I think now because we're seeing more and more in terms of the effects of hearing loss that I think it will support, and I'm hoping that their new criteria will say that the benefits may be for early identification because we want to prevent some of these negative outcomes, and that those data will be useful in going forward with that. I think the general things for some of the other practice sort of things really should be screening at some routine level, especially for older adults or people who are at risk for hearing loss, whether it's genetic or noise exposure or anything else, or just the fact that they're over the age of 60 and we know that it becomes so much more common.

Meg Wallhagen: 37:29 So, if we screened yearly just like we might do for any other condition that is of concern, I think it would be really helpful. I think the other thing for screening for me is that if a health professional tells someone, "You know, looks like you may have some hearing loss. This is a really important health issue. I think it would be really helpful for you to get assessed and see if we can get this treated," I think it's more affective than, it's unfortunate but true, than having your partner or someone else just say, "By the way, go get your hearing tested." So, I think screening is positive from that standpoint, and I think it might help

with the stigma because it's, again, a health issue, and we want to minimize the health effects.

Leslie Kernisan: 38:19 Yes, and also, if there were just more people using hearing aids, then I think people would feel less singled out by it or something. It also occurs to be that I think what we're trying to move towards in geriatrics, as I think you're aware, is this idea of regularly assessing function, right? Not just for diseases, but asking people if they're having any difficulty doing certain key things that are necessary for living your life, including moving around easily, seeing, hearing-

Meg Wallhagen: 38:53 Right, right.

Leslie Kernisan: 38:54 Thinking, memory. I know that some of the, with the Medicare annual wellness visit, not that everybody does it actually because I think it doesn't fit in very easily still to the workflow for providers, but I think the idea is that we would move towards these assessments where you ask if people are having difficulty with these common things, and that it's not so much checking for disease but that hearing certainly falls within that. That would be another way that would be another way that we could maybe notice, and again with the idea of prevention helping people maintain the maximum independence and quality of life and ability to participate in things.

Meg Wallhagen: 39:35 Yes. What saddened me was how much, in terms of one of the studies we were doing, that people had almost said, "Oh, I've heard enough." They almost disengage, and I don't know if it's partly because of the effort of trying to change behaviors or because one of the issues we see with hearing loss is it really does come on slowly, and so people just are not aware of what they're missing. I certainly have had people share after they've gotten hearing aids is that, "Oh, I can hear the birds." They suddenly hear things they just haven't been hearing for ages.

Leslie Kernisan: 40:12 Right. So there when you say, "People say 'I've heard enough,'" you mean patients or older adults, not the providers.

Meg Wallhagen: 40:18 No, this is the older adult. I think [inaudible 00:40:24] to the fact that they don't go to the effort, and I find that sad but I think it is something we need to work on in terms of the fact that it's a family issue and it's possible that if we could have individuals see how important it is for other people in their lives to be able to communicate with them. As one person said it after they got their hearing aids, "Well, my spouse loves these too," meaning because all of a sudden, their relationship changed in a way that there wasn't so much tension.

Leslie Kernisan: 40:59 Yes, Yes. Well I know part of the work you've done is you helped develop and then test a brochure to give to people to help them, encourage to get this addressed, and I want you to tell us about that, but maybe really briefly before we go into that, because we were talking about screening, can we just briefly review for the audience, how should hearing loss be screened or detected, and then once it's detected by screening or preliminary report from family, the older person, or whatever; it is a reasonable screen to do in primary care, what would be the next steps?

Meg Wallhagen: 41:37 I mean, my goal is obviously to be able to screen in a way that we identify people with early loss, but if the practitioner even just asked the question, "Do you have difficulty hearing?", or asked if they had problems with the phone, or in talking, or if they said, "What?" a great deal, or if somebody else told them that they had problems with hearing, those kinds of things, or they could use a questionnaire in a room or something and just have them check it before they came into the clinic. Ideally, we would include something that would be more objective because people often deny they have hearing loss. If the practitioner would use, say, a finger rub test or some other modality just to see, and it's more standardized because it doesn't mean rubbing your fingers right next to the person's ear because if they can't hear that, they really have hearing loss, but-

Leslie Kernisan: 42:39 I was going to say, it's not a particularly high frequency, right?

Meg Wallhagen: 42:42 No. But if they use a…well, we have a standardized sort of approach, or I know some people used to use a whisper

test. You have to do that in a standardized way, and there are now more and more apps that are coming out where you can actually screen with sounds that, although a lot of those are not yet that standardized as such, but there are more mechanisms that I think are very simple to use that would allow someone to more objectively define the fact that the person has a hearing loss. If they did that in primary care, then they can be referred to get more thorough care going forward.

Leslie Kernisan: 43:20 So let's say that they get a very sort of simple, practical screen like, "Do you have any trouble hearing? Does anyone in your family say you have trouble hearing? Any trouble on the phone or with your grandchildren?", and they say yes, so then what should ideally happen next?

Meg Wallhagen: 43:38 One would hope that you would be referred for more thorough assessment. That would be, I think the recommendation that you get assessed so that you can confirm the type of hearing loss that you have and the level of hearing loss that you have, and I think that would, again, provide reinforcement, if you will, for the person to understand why it's so important to hear, to emphasize that it is. Then, they would be referred probably to an audiologist. Hopefully an audiologist, but there are different types of persons who can fit hearing aids or whatever, but the audiologist does a full exam on the person. That would really be the next step.

Leslie Kernisan: 44:28 Yes. So check for ear wax-

Meg Wallhagen: 44:30 Yes, check for ear wax-

Leslie Kernisan: 44:32 And even if there is ear wax, especially I guess if it's been going on for a while, probably still have age-related hearing loss, and then audiology. Remind me, does Medicare cover audiology exams? I know they don't cover hearing aids.

Meg Wallhagen: 44:47 No. If you get referred, right now this is a big controversy going on, but if you get referred, you can get the test as a diagnostic procedure. You can actually go to your audiologist, but you have to sign a big waiver that says, "I agree to not being seen" and all this other kind of stuff,

		but they will not cover. If you get referred, you get the diagnostic screening, but once you know you have hearing loss, they won't cover other things. There are some exceptions to that; there are some Medicare Advantage programs, and that's where you sign over your Medicare to a program that specifically can add more things to your-
Leslie Kernisan:	45:37	Medicare HMOs.
Meg Wallhagen:	45:38	Yes, sort of thing. They may add a benefit, but in general, Medicare does not. Actually, if you look at the Medicare law, there's a statutory clause in there that says, "We can't cover hearing healthcare or dental or," unfortunately, "eyeglasses" and stuff like that.
Leslie Kernisan:	45:59	That's crazy. Why is that? Do we know?
Meg Wallhagen:	46:03	The reason when Medicare came into being in 1965, it wasn't designed to do what it's doing now. It really was much more acute care focused, so it made sense probably, plus it was very much a compromise because a lot of the physicians and others didn't want it. There were a lot of things that had to be modified to allow it to come into fruition. We probably are lucky to have what we have, but it does mean, unfortunately, that in order to change Medicare coverage, we have to change the law. There are certainly efforts; we've been moving and trying to get that, and I think we're inching that way.
Leslie Kernisan:	46:44	So for the time being, the audiology exam, which is necessary to find out which frequencies are impaired and how severe it is, is really, it sounds like, an important step in terms of then determining what kind of treatment or management or adaptation could be offered. That audiology exam is not covered unless the health provider makes a referral for a diagnostic exam.
Meg Wallhagen:	47:09	Right.
Leslie Kernisan:	47:09	So I guess if people want this worked up, they need to be careful about that and be sure that their doctor or provider refers them.
Meg Wallhagen:	47:18	Right.

Leslie Kernisan:	47:19	Okay, or they need to see if their Medicare HMO, if they are in one, will cover it. So that's another actual real barrier it sounds like, right?
Meg Wallhagen:	47:31	It is, it is.
Leslie Kernisan:	47:32	People are potentially worried that they'll have to pay. Then what happens during the audiology exam? You mentioned earlier, but I guess they play different frequencies, right?
Meg Wallhagen:	47:44	Yes. If you go for a full assessment, first of course, they tend to do a really good ear evaluation and test for how well one hears or how loud the sound has to be to hear a range of frequencies. They play these pure tones, and that's just a frequency at different levels of loudness, to see if you can hear it. That creates an audiogram, but that's only part of what should be really done. The other thing that needs to be done is they should test whether you can hear different words. They'll give you a word and you have to repeat it, and they'll see how many of those that you are correct in terms of what you hear.
Meg Wallhagen:	48:32	Then, the other piece that is really helpful to do that should be done is a test of what's either called "speech-and-noise" or "words-and-noise." What that is is you hear, again, either words, so you hear the audiologist or someone talking, saying specific words that are designed for a specific way to identify the types of loss that you might have, and then they add sounds, background sounds. You have to, then, identify in the midst of the noise, in the midst of the sounds, usually a language babble of some sort, you have to identify the sounds. You have to say, "Oh, that's word," or, "That's ..." whatever it is, and see if you can, or speech-and-noise is maybe saying a statement, a specific sentence, and they, again, add noise to the background to see how well you do. The reason that can be so valuable is that that's a little more realistic. It's what you might see outside the audiologist because just sitting there and being able to hear a sound is not very realistic. It's not what you experience when you're talking to someone or in an environment with a lot of other people talking.

Meg Wallhagen: 49:48 If you do the speech-and-noise or the words-and-noise, you're getting a sense of whether the person really can understand stuff. What's interesting about those statements is that in most cases, we're helped by cues; in other words, you know what the topic is, so your brain can help you understand what someone's saying, so the topic can be helpful. The audiologist, when they use speech-and-noise or words-and-noise, you have no context, so it really does give you a better idea of whether you actually can hear in the midst of all this sound or whether you don't do very well doing that. That should really be done as well.

Leslie Kernisan: 50:34 Great. That is so helpful.

Leslie Kernisan: 50:36 Well, we're going to be wrapping up part one. I guess in closing, we mentioned before, it's come up a few times that often it's not just that the health providers themselves are, for a variety of reasons, not likely to screen or ask or notice, but that often, older adults themselves seem uninterested in pursuing this. They're either not aware, you were saying, that it's really an issue, or they, I guess, might have the perception that it's going to be hard to fix. Can you give some tips for the audience on how they can help an older person get this addressed? I think that comes up a lot as a barrier.

Meg Wallhagen: 51:17 I really do think you need to bring it up to the audiologist. One of the things I'm really-

Leslie Kernisan: 51:23 Or the health provider, you mean.

Meg Wallhagen: 51:24 Health provider. Yes, sorry. The health provider. One of my emphasis is trying to assure that the healthcare provider pays attention because they sometimes just sort of say, "Oh, it's no problem," or, "I don't hear loss" or something. They discount what's going on. I think they really need to identify and if they have hearing loss or someone tells them, to get a referral, to be able to do that. I think that it's going to be a struggle until practitioners are willing to state to the individual how important the healthcare is. I think our family members want to share with individuals that they want to hear with the individuals. They would really appreciate being able to work and understand

people and do things. It's not a cure-all; we'll go into that later, but they really need to, at least, experience that this is a family issue and they would value the individual getting a hearing assessment and seeing if it can be helped a bit by various kinds of intervention.

Leslie Kernisan: 52:44 Right, right. Then you actually helped develop and study a brochure, right? I want to share your brochure in the show notes for this before we wrap up this episode. We'll share it in the show notes for the next one too. Yes, tell us a little bit about the brochure and what you found out in studying it.

Meg Wallhagen: 53:02 We tried to see what would happen if we added the brochure in addition to screening, and the brochure is very, very simple. We wanted to make sure that the person understood why they had possible hearing loss, why they thought they could hear when they actually didn't. It's set up in terms of questions around, "What is age-related hearing loss?", "Why do I think I can hear when I don't?", and then we give the answers to the questions, but we added issues a little bit around what to expect when you go to an audiologist, which we'll talk about a little bit later, but those kinds of issues and resources that they might have, and that there are other kinds of things that are possibly available if they choose not to get hearing aids at a particular time, that they're not ready for that or whatever.

Meg Wallhagen: 53:55 In terms of communication strategies, very brief because we couldn't have lots of it, but part of it was to have people understand issues around hearing loss and what they can do about it and that there are different kinds of resources, thinking that if you start down that path of trying to do something constructive, you will continue because you will be acknowledging the fact that you're having some trouble hearing, and therefore it's important to take care of it.

Leslie Kernisan: 54:27 Right. No, I'm looking at the brochure right now and I love it. You've included things like, "What is age-related hearing loss?", "Why do I still feel I hear but often don't understand what is said?" That gets at what you were explaining to us earlier. "Isn't hearing loss just my problem

if I'm okay with what I hear?", "Why are hearing aids expensive? I heard they don't work." We're going to have you debunk that belief in part two, and also, "What are the first steps in getting assessed?" I think this is a fantastic resource. In your study, did it improve outcomes compared to just screening? What did you find out?

Meg Wallhagen: 55:04 Yes. It was a lot of issues that we ran into, but the data that we show seems to suggest that getting that brochure does make a difference in terms of individuals going and getting their hearing assessed, and they really did like the brochure. They also really liked to have someone review it because that made them much more aware of the brochure, and they didn't just toss it out, that they really read it. We're hopeful and we make sure that the person really reads it.

Leslie Kernisan: 55:39 Oh, good. Well great. I'm excited to post a link to it in the show notes because I think this can be a great resource for listeners, something that they might be able to share with a family member, right, and bring in to the health provider as they advocate to get this important issue addressed.

Leslie Kernisan: 55:58 To wrap up this part one, maybe we can just recap the key points that you have made. Hearing loss is very common and is actually important and a serious issue, even though we know that many older adults will kind of wave it off, either because it's stigmatized to use a hearing aid or they may have misconceptions about it, which you are going to clear up for us in part two, but as you were explaining, it's really important to one's social life, to one's quality of life, and also to one's health.

Meg Wallhagen: 56:28 Yes.

Leslie Kernisan: 56:29 And that we have data showing that it's linked to a higher risk of falls, of developing worse memory and thinking problems, of developing delirium. So, common and really important to address, and it sounds like your research also shows that we can't count on regular health providers to bring it up and check for it.

Meg Wallhagen: 56:51 Not yet.

Leslie Kernisan:	56:52	Not yet, but we're working on that. So in the meantime, I guess families should know that it might be necessary for them to do a little extra advocating and asking for assistance addressing this, and then you also mentioned that once a screening test has confirmed that there's a problem, the next step is to get an audiology evaluation, and that especially if people don't have Medicare or HMO that covers it, they want to be sure to ask for a referral so that it'll be covered.
Meg Wallhagen:	57:22	Right.
Leslie Kernisan:	57:24	I guess last but not least, your amazing brochure is a resource that we're going to be sharing with the audience because it's a wonderful educational resource to help older adults and potentially their families and providers understand these essential truths about hearing loss and why it's important to address it. Would you add anything else to finish off this part one?
Meg Wallhagen:	57:45	Probably not. That's quite a bit.
Leslie Kernisan:	57:47	Yes, well you covered quite a bit. Okay, well Meg, thank you got covering this and for everybody listening, we'll have resources in the show notes. Then, please come back for the following episode because in part two, we are going to be covering what can be done and what you need to know about hearing aids and other options to help older adults hear better.
Meg Wallhagen:	58:08	Sounds good. Thank you so much.
Leslie Kernisan:	58:12	And with that, I'm going to wrap up this episode of Better Health While Aging. If you have any questions about something you heard in this episode, you can post it on the show notes page for the episode. I'll also be posting some links to some of the resources that I mentioned in the episode. To find the show notes, visit betterhealthwhileaging.net and click "Podcasts" in the main menu at the top. Last but not least, if you've been enjoying the podcast, don't forget to support us by subscribing on iTunes, and if you've already done that, please leave a rating and review. This makes it easier for others to discover our show on iTunes and I would love for

the many people who are interested in health or aging or family caregivers to be able to find it and give it a chance. Thank you so much for listening. I'm Dr. Leslie Kernisan, and I'm looking forward to you joining us for future episodes.