

ADRD Webinar One Recognizing Signs and Symptoms and Assessing and Diagnosing ADRD-20150311 1800-1

Female Speaker: Good afternoon and welcome to the first webinar in Alzheimer's disease and related dementia's three part webinar series. We are pleased that many of you have joined us for today's live presentation of webinar #1 Recognizing Signs and Symptoms and Assessing and Diagnosing ADRD. Please note that this webinar is being recorded and we will share the link with you as soon as it becomes available after today. Also if you have not already done so we encourage you to register for the remaining two webinars in this series. Look for registration detail for the webinar very soon. Today's webinar presentation features Dr. Todd Goldberg, Associate Professor, Chief of Geriatrics, Geriatrics Fellowship Program Director, Department of Medicine, at the West Virginia Health Sciences Center, Charleston Division at Charleston Area Medical Center. Dr. Goldberg also serves as the medical director for the Edgewood Summit Retirement Community and Eastbrook Skilled Nursing Facility in Charleston. Dr. Goldberg has been a key contributor in numerous publications focused on Alzheimer's Disease and Related Dementias (ADRD) and is heavily involved in supporting the efforts of the West Virginia Geriatric Education Center. Due to the high volume of participants we will keep all lines muted throughout today's webinar and many of you are likely listening through your computer speakers as well. We will be featuring some polling questions throughout today's webinar. We encourage you to participate in each call if you are able to do so by typing your answer in the chat box feature which is located on the right side of your WebEx player. Finally, so that you have an opportunity to ask questions and share your input we ask that you submit your questions through the chat box feature again located on the right side of your WebEx player. We will get to as many as time allows after Dr. Goldberg concludes the presentation, again we want to thank you for joining us today and without further ado it's my pleasure to introduce Dr. Todd Goldberg.

Dr. Todd Goldberg: Alzheimer's Disease and Related Dementias (ADRD). This is a 1-1/2 to 2 hour lecture divided into two 25 to 50 minutes session over two different WebEx session. We have funding through the West Virginia Geriatric Education Center to provide interdisciplinary training to different audience on this topic, so we are trying to take into interest to physicians, nurses, PAs, social workers, anyone involved with dementia care and services, hopefully wherever you are, *[Indiscernible]*[00:03:00] to you.

The objectives of this lecture are to help you recognize the signs and symptoms of Alzheimer's disease and related dementias, describe the steps necessary to assess for and diagnose ADRD when present, describe the general strategies for managing ADRD in the context of other health conditions and to recognize caregiver burden and depression and help provide resources for Alzheimer's caregivers who suffer from significant caregiver burden or depression.

There are few polling questions to interact with and first is just find out who you are and so what is your profession and specialty, physician or physician in training, mid level practitioner which is PA/NP, be a nurse, be a social worker, be a nursing home or other healthcare administration, and someone from government or insurance industry or other.

Okay, now the first real question, true or false, is dementia is normal or universal in aging, does basically everybody gets dementia if they live long enough, you think the answer is A, yes or B, no. I would say the answer is no, a lot of people get dementia as they get older but not everyone. To prove that here is a news item from 2008, a 115-year-old woman one of the oldest woman in

the world if not the oldest who died in Amsterdam in 2008 was mentally normal and autopsy revealed normal brain with little or no evidence of Alzheimer's disease, which means *[Indiscernible][00:05:14]* it's perhaps an exceptional or extreme example but it does make the point that Alzheimer's and dementia are not universal and they are not considered to be normal aging, we all know people in the normal 80s and 90s who are mentally sharp, so although dementia is common and I will tell you shortly how common, nevertheless the *[Indiscernible][00:05:38]* not normal, not just part of aging and not inevitable.

Here is my next polling question. Is Alzheimer's disease one of the leading causes of death in United States or not? Is it A, the #1 cause of death in America. B, the #6 cause of death in United States, C, #3 cause of death in United States or D. None of them above, or five, maybe it's not applicable if you think Alzheimer's doesn't really cause death and do people really die from Alzheimer's per se? I would say the answer is yes and that Alzheimer's can be fatal disease and a direct cause of death and according to US government statistics the opinion is answer is B, Alzheimer's is officially reported to be the 6<sup>th</sup> leading cause of death in United States of America, that's what we see in the chart in the next slide.

So, here is the official list of top 15 of leading causes of death in the US as reported by federal government and National Center for Health Statistics, but it isn't quite related to your statistics but it hasn't changed lately and so I haven't updated the slide, the Alzheimer's is and typically and officially listed as #6 in the last year as well and some experts feel it's even higher maybe #3 because some people who really die of Alzheimer's perhaps die of pneumonia etc., so by this view, Alzheimer's is the true underlying cause of death and I believe that's true, it is fatal because eventually the patients has reached the end stage and become bedridden unable to eat or talk and eventually die of ultimate deterioration even the immediate cause appear to be aspirational pneumonia or sepsis or something of that nature, that's just the final symptom. Alzheimer's is actually higher than diabetes now, Alzheimer's is #6 and diabetes is #7 and it's probably not related to Alzheimer's but it is sad that in this day and age it is the top 15 causes of death continue to be accidents #5, suicide #10, and homicide #15, not much that we can do about as doctors except maybe better treatment for depression and continue to remind everyone not to drink or text or take selfies while driving and what we hear about that in the news.

Here are actually some of the latest available mortalities in 2011 during the *[Indiscernible][00:08:40]* for couple of years but this is published in the American Cancer Society, annual cancer statistics report in CAA Cancer Journal for Clinicians January 2015 issue, which just came out a month ago, you should actually see a circle, all ages, first column Alzheimer's disease is listed as eighth leading cause of death in men and fifth in women, so that's actually 6 overall and not surprisingly people over 80 fifth in men and third in women right behind cancer and heart disease. That's a lot of people and lot of death, very common. How come among the living it's estimated that there are 8 million people having dementia of all type in the United States, about 5 million with Alzheimer's type specifically and about 40000 to 50000 in West Virginia, in state registry which I will show you in a minute and again Alzheimer's alone is listed as fifth leading cause of death overall in the United States and sixth leading cause of death in 65 and older and *[Indiscernible][00:09:55]* traumatically in year 2050 as shown in the graph on the right side, there are projected to be 13.8 million people with

Alzheimer's in the US by the year 2050, the cause is dramatic increase in cost even trillion of dollars.

Here is another slide on prevalence. I don't think the rate or percentage of old people that get Alzheimer's disease is increasing per se and it's more that it goes up with age and more people are living longer, so here are some figures from something called East Boston Study from JAMA, the Journal American Medical Association from 1989, over 65 only about 5 to 10% have dementia or Alzheimer's. Over 85 it was 43% which is really scary actually, these researchers actually went from door to door and did mental status tests in East Boston near Logan airport which is sort of amazing what they could do with that, that's why it's called the East Boston study, the lifetime risk of Alzheimer's disease is felt to be about 17% in men and 20% in women, only about 4% of Alzheimer's cases under 65 which is called early onset or increasing dementia.

And another reason that Alzheimer's is so well known these days because of President Regan and so many other famous people who were diagnosed with it and died of it over recent years, so instead of just saying people are old and senile everyone now recognizes the diagnosis of Alzheimer's and related dementia but these are just some famous people that were reported to have Alzheimer's, people with Alzheimer's, again Regan, movie actress Rita Hayworth, British Prime Minister Margaret Thatcher, Charlton Heston who played Moses in the Ten Commandments, *[Indiscernible]*[00:12:01] who played Columbo, and country singer Glenn Campbell.

Here is polling question #3, have you seen or are you familiar with or have you used the West Virginia Alzheimer's Disease registry that I mentioned, just put in A. yes, B no and obviously there is no correct answer to that one. If you answered yes, I suspect for a while you also answered no, if you want to read about this topic later I would suggest that you get the West Virginia Medical Journal special issue on Alzheimer's disease and related dementia the May June 2011 issue which is still available for free on the West Virginia State Medical Association website, there is an article by myself and Dr. Griffith on vascular versus Alzheimer's disease and one is about the state Alzheimer's disease registry and you actually have the data is pictured here on the right, you can download, print and fax or patient's chart or there is a website where you can enter the information if you sign up for access.

This is the actual website for the West Virginia Alzheimer's Disease Registry, just Google that term to find it, this is run by the Blanchette Rockefeller Neurosciences Institute abbreviated BRNI in Morgantown which is on the campus of WV Health Sciences Center right near WV Memorial Hospital but it is a separate private foundation and research organization and not officially part of WVU or if I understand it, the Rockefeller family endowed BRNI in memory of under Jay's mother Blanchette who died of Alzheimer's, so he was actually honored for this at the Alzheimer's Association Annual Rockefeller award night in Charleston past year just before he was hired from the senate and there is a picture from that event, May 29, 2014.

This is an important concept, there is a spectrum or course of continued cognitive impairment if your brain has whatever causes Alzheimer's which will show in a minute and like any disease it starts slowly and develops over time. It may not be noticeable at first but it's there, it's in a preclinical stage for a while and if you are unlucky it will eventually lead to mild cognitive

impairment and MCI and eventually full blown Alzheimer's disease dementia and remains indistinguishable from normal aging at first but eventually you will notice that – So actually this can happen with different brain disease, not only Alzheimer's but also Lewy Body disease, vascular dementia, Parkinson's disease dementia, frontotemporal dementia, Huntington disease, normal pressure hydrocephalus, alcoholic dementia, and anoxic/traumatic brain injury, and there is an old word for dementia due to brain injury in boxers called dementia pugilistica, pugilism was an old fashioned word for boxing, and if you have infection causes of brain deterioration which is Creutzfeldt Jacob disease which is caused by Prion similar to mad cow disease or scrapie and even HIV can cause a form of dementia, but we are going to stress Alzheimer's for now because again it's most common and important we know the most about.

What exactly is Alzheimer's disease or AD, the neurocognitive deterioration as first described in 1907 by Dr. Alois Alzheimer who was a German neuropathologist actually in a 52 year old woman who I will show in the next slide and pathological findings at autopsy of the patient, he found these abnormal structures which we now call B-amyloid plaques and neurofibrillary tangles which are Tau protein. So there are emerging biomarkers for Alzheimer's which are based on these amyloid and Tau protein which can be detected in the blood in the CSF and by PET scan, these are all early research findings and there is nothing like this that is clinically available or useful yet unfortunately.

This is actually a picture of Dr. Alzheimer and his first patient with AD and ironically the first patient with Alzheimer's disease or AD was Auguste Deter AD and this picture is from the medical journal which we discovered and published our case record in 1997 and rest of the information from my favorite medical journal, which does have some very good information even though you are not supposed to use it as an academic reference. So, Auguste Deter was actually born in in May 1850 and died in April 1906 when she was only 56 years old and she was married to a man named Karl Deter in the 1880s or so and together they had one daughter. And she had a pretty normal life as a wife and mother until during the late 1890s, she started showing symptoms of dementia. She was only in her 40s. After many years, she became completely mindless, muttering to herself and she died in April 1906. She was the first person actually diagnosed with Alzheimer's Disease and Dr. Alzheimer sent her brain to study and he drew pictures of these little abnormal structures that he found in her brain. Of course we didn't have micro craft in those days.

Now what he did was he presented a case report on this patient and of course it was published in the German medical journal which name I can't pronounce, in 1907, the article had to be translated into English and of course Dr. Alzheimer didn't say Aha! I discovered Alzheimer's disease, first of all he didn't really invent or discover something that hadn't been known before, but he was probably the first to report and describe a case and analyze neuropathology and he presented a case report which he just called a peculiar disease of the cerebral cortex. He didn't name it himself, after seven more similar cases were reported in the years after 1907, eventually his colleagues particularly the famous German psychiatrist started calling it Alzheimer's disease and for many years it was considered rare form of senile dementia and so remember that originated case of the German woman in 50, in 1960s it was recognized that basically the same thing clinically and pathologically dementia is seen in older people leading to the term SDAT, senile dementia of Alzheimer's type.

This is the neuropathology of SDAT or Alzheimer's disease, which we now know as neurodegenerative disease, which the cerebral cortex become filled with these abnormal structures which Alzheimer drew but we now have photomicrograph that they look like this, senile or amyloid plaques which are extracellular lesions and neurofibrillary tangles which are intracellular paired helical filaments that are predominantly in hippocampus and temporal cortex. They are composed of abnormally phosphorylated tau which is an actual normal component of microtubules and with brain deterioration appears to cause the symptom or syndrome of dementia.

To clearly define our term, Alzheimer's is a type of dementia, what exactly is meant by the word dementia, it used to be started synonymously with insanity, but now it is referred to syndrome of chronic degenerative usually irreversible cognitive impairment usually in the elderly that is sufficient to impair the person's ability to function and carry out activities of daily living. It has the current definition of dementia and used medically. Some authors have recently established a ban in the word dementia as being vague and pejorative just like the word senility used to be, dementia is a syndrome not a disease, with Alzheimer's being the most common specific cause and DSM V usually determines neurocognitive disorder which is more literally accurate but harder to say.

Literally the word dementia comes from the Latin de plus mentis, which is the going away or absence of the mind and that's what it is, so again dementia is a term like heart disease which is generic and described as a group of disease, not a specific disease, and Alzheimer's is the most common specific disease that causes dementia and this is something patients and families often have, what's the difference between Alzheimer's and just dementia, so you have to say that dementia is a more general term from the loss of cognitive skills, the brain doesn't work, there has to be specific disease or reason that the brain doesn't work, which is usually Alzheimer's disease, if you have dementia without having Alzheimer's it is different type, you cannot have Alzheimer's without dementia.

Clinically how do we specifically decide Alzheimer's disease or dementia of Alzheimer's type or STAT which is by the way ICD code 294.1, 331.0 with Alzheimer's plus dementia both diagnosed. Most commonly used clinical definition is from the diagnostic and statistical manual of the American Psychiatric Association, DSM IV, but it hasn't really changed in DSM V and DSM defines Alzheimer's type dementia as follows.

1. Dementia: which by definition again development of multiple cognitive deficits, memory impairment, inability to learn new information and recall previous information, and at least one of the following, cognitive disturbances: aphasia which is a language disturbance, apraxia which is inability to carry out motor activities despite basically intact motor function, agnosia which is failure to recognize your name or identify objects despite intact sensory function, you can see something but you can't name what it is and disturbance in executive functioning which refers to planning, organizing and following instructions .
2. Course is characterized by gradual onset and continuing decline although irreversibility or prognosis is not inherently classified in the definition. It usually is irreversible.
3. Cognitive deficits cause significant impairment in social or occupational function and represent a significant decline from previous level of functioning, this is what makes it dementia



as opposed to normal or just low based intelligence or education or some developmental disability, it's a change from what it used to be. What makes it clinically Alzheimer's is essentially dementia with any other cause.

4. Cognitive deficits are not due to other central nervous system conditions, systemic conditions, substance induced conditions, delirium, or any other mental or psychiatric disorder, so Alzheimer's is a sort of diagnosis of exclusion, you have not rule out every other neurologic or psychiatric cause, and this is the current definition according to DSM IV and the new DSMV uses the term neurocognitive disorder but the criteria is basically unchanged.

Here is actually a picture of the DSMV which came out in 2013 and you will see that the diagnostic criteria are basically unchanged on what they call a major or mild neurocognitive disorder and a neurocognitive disorder for dementia can be due to Alzheimer's disease or temporal, Lewy body, vascular, etc., etc., the other recent diagnostic guidelines for ADRD or Alzheimer's disease come from the Alzheimer's Association and National Institute of Health. These were originally published back in 1984 at the NINCDS-ADRDA criteria with German Neurology and the author of Marshall Folstein author of Folstein mini-mental status exam, his name will get back to later. Folstein said in the abstract at that top that it will revive more information becomes available and that apparently took 27 years.

Most important thing from the 1984 criteria is that they divided Alzheimer's disease into three categories. The basic rule was you have to definitely diagnose Alzheimer's disease and really have pathological proof to call it definite AD, otherwise you should call it probable or possible AD. So probable AD is dementia established by clinical examination, progressive worsening of memory and cognition, no disturbance of consciousness, onset between 40 and 90, absence of other disorders that could account for the deficits. Supported by impaired ADL, perhaps family history, normal/nonspecific labs/EEG/CT. When we see the term probable AD clinically where the word comes, clear liable diagnoses and probable AD, about 90% is based on this criteria, it is pretty simple. If you have dementia it's probable, possible, definite AD or some other disease, and there is no such thing as MCI or biomarkers at that time. In 2011, 27 years later, what is now called the Alzheimer's Association and National Institute of Aging, had diagnostic criteria that now subdivides Alzheimer's disease into three articles, describing three substages beginning with preclinical disease which by definition cannot be used clinically. Then mild cognitive impairment to AD then full blown dementia AD or Alzheimer's disease dementia and there is another article on pathological criteria for Alzheimer's disease diagnosis.

We have been using guidelines which are really different than previous ones are Core Clinical Criteria for Dementia or Cognitive or behavioral neuropsychiatric symptoms which interfere with the ability to function at work or in normal daily activities, represent a decline from previous levels of functioning and performing; and are not explained by delirium or any other major psychiatric disorder. Cognitive impairment is detected and diagnosed through a combination of history taking from the patient and a knowledgeable informant, and some kind of objective cognitive assessment, either a bedside mental status examination or neuropsychological testing by psychologist. That should be performed when the routine history and bedside mental status examination cannot provide a confident diagnosis.

Probable Alzheimer's disease meets criteria for dementia, and has the following additional characteristics: Insidious onset, gradual onset over months to years, not sudden over hours or days; again that would be delirium and usually have a clear-cut history of worsening of cognition by report or observation; the initial and most prominent cognitive deficits are evident on history and examination in and maybe able to further categorize as amnesic presentation which means predominantly memory and language presentation which is the most prominent deficits are in word-finding, but deficits in other cognitive domains should be present. Visuospatial presentation: The most prominent deficits are in spatial cognition, agnosia, impaired face recognition, etc, and executive functioning which refers to impaired reasoning, judgment, and problem solving which is of course most important thing and this is what makes a person unable to function safely and rationally not just forgetting stuff.

You should not use the label "Probable AD" if there are substantial signs of concomitant cerebrovascular disease, or features of other types of dementia such as Lewy bodies, frontotemporal dementia; or semantic variant primary progressive aphasia, these are types of frontotemporal dementia or evidence of another concurrent, active neurological disease, or a some other non-neurological medical comorbidity, psychiatric problem or use of medication that could have a substantial effect on cognition.

Possible Alzheimer's disease refers to a case where there is atypical course perhaps a sudden onset of cognitive impairment or insufficient history or objective documentation of progressive decline. You can also use this term when you have what appears to be an etiologically mixed presentation, perhaps concurrent Alzheimer's and cerebrovascular disease, or features of dementia with Lewy bodies other than the dementia itself, or evidence for another neurological disease or a non-neurological medical comorbidity or medication that could have a substantial effect on cognition. Definite AD which is really a pathological diagnosis showing the tangles which we pictured before.

Again this is the list of some of the non-Alzheimer's neurodegenerative disease that also cause a dementia type of syndrome, none of which are treatable except the latter two, HIV or normal pressure hydrocephalus, again we have vascular dementia, Lewy Body, Parkinson's, frontotemporal, Huntington's, Creutzfeldt-Jakob, HIV and among others.

Again all of these diseases have website and criteria and support group and association just like we have the Alzheimer's Association, actually a Lewy body dementia, look at their website, on the lower left is a photomicrograph of Lewy body which is a different kind of abnormal cell structure in the brain which actually used to be typical of Parkinson's disease and is found in the basal ganglia of the brain and primarily causes motor problems, you can get dementia and Parkinson's and you can have diffuse Lewy body in the cerebral cortex that gives dementia that's similar to Alzheimer's, we may have some slightly different characteristics. There is progressive dementia with deficit in attention and executive functioning and may be not prominent memory impairment as in classic Alzheimer's. The Lewy body disease, fluctuating cognition, recurrent hallucination, and parkinsonian features and sleep disorder and severe sensitivity. Patient may have syncope and loss of consciousness or autonomic dysfunction and hallucinations, visual and spatial abnormalities and other psychiatric disturbances that maybe more psychotic and you can't get antipsychotic medications because they are *[Indiscernible]*[00:34:44] because they have a

dopamine deficiency like patients with Parkinson's and clinical diagnosis of Lewy body disease can also be probable or possible based on different symptom combination.

It is also an association for frontotemporal dementia, there are several subtypes of frontotemporal dementia including tic disease, primary progressive aphasia and dementia and progressive supranuclear palsy or PSP, cortical basal degeneration or CBD and FTD. These are all considered in the category of frontotemporal dementia because pathologically they affect primarily the frontal and temporal lobes of the brain and they have the common characteristics of involving the Tau protein that I mentioned before in the microtubule that some people actually call *[Indiscernible]**[00:36:00]* Tau protein in this case is an amyloid protein which is predominant in Alzheimer's.

There is also Clinical/Pathological Criteria for vascular dementia which is basically dementia and evidence of cerebrovascular disease clinically/brain imaging and they must be reasonably temporally related after a stroke and in brain imaging clinically there are: large vessel strokes, small vessel or subcortical disease, and/or leukoencephalopathy, basically any kind of cerebrovascular lesion even including AE or anoxic encephalopathy, there are no specific radiologic tests for vascular dementia but if you don't see any ischemic or vascular changes in the brain that pretty much rules out vascular dementia. There is no rule that you only have to have one thing at a time that you can certainly have mixed dementia which is Alzheimer's disease plus cerebrovascular disease and it can be probable, possible or definite.

One final cause of non Alzheimer's dementia you have to mention is normal pressure hydrocephalus or NPH which is a classic example of irreversible or treatable dementia. This was first reported in 1965 in New England Journal of Medicine by Hakim and Adams, here is the latest article on this from the American Family Physicians Family practice journal, September 2004, actually that's a very good journal for geriatrics, they have a lot of new articles. I don't think we really see this too often but we talk about it a lot, and occasionally we see a patient with a classic triad of dementia, gaze disorder or incontinence or even just large ventricle on MRI like you see in the picture and the only way we can really tell they have this or it responds to treatment is by draining CSF cerebrospinal fluid with an LP or lumbar puncture or drain or shunt. Theoretically if you find this a week before the people has irreversible brain damage, it could be curable with brain surgery, it will be a good thing to look for and be aware of. On the other hand lot of people who are demented and incontinent can't walk very well and certainly not everyone with triad has MCH or should have brain surgery. Surgery is a shunt by the way a ventriculoperitoneal or VP shunt, and this is a picture on the lower right, what might look a drain of brain fluid into the abdomen but obviously that is dangerous surgery, putting a tube in the brain and the tube can get clogged or infected.

Clearly there is a long differential diagnoses list of diseases which can cause dementia/cognitive impairment. Alzheimer's is definitely not the only one, although I would say repeatedly it is one of them. The diagnosis of Alzheimer's without a brain biopsy is supposed to rule out any possible cause of cognitive impairment. We are looking for other treatable or irreversible causes, which is long list. Recent meta analysis from Clarkfield from Canada concluded that only about 11% of the dementia cases have potentially irreversible or treatable cause and a much smaller percent truly reverse. I seldom see a patient get better from a diagnosis of dementia and I think



most of the things are on the list and are probably not causing true dementia but more like an acute illness related decline in mental status, rather than chronic brain degeneration. Like, hypoglycemia, that's not dementia, even the person maybe confused for a while. Maybe it's more delirium or metabolic encephalopathy in most of these cases, but everything you should rule out before they diagnosed dementia or Alzheimer's.

Okay, short of true dementia there is this Mild Cognitive Impairment (MCI). This is when there is a concern regarding a change in cognition either in patient or in the comparison with the person's previous level. There is measurable impairment in one or more cognitive domains usually memory, but preservation of independence in functional abilities so they are not demented, again remember the definition of dementia is decline to the point that the patient can no longer function independently. So in MCI the cognitive changes should be sufficiently mild that there is no evidence of significant impairment in social or occupational functioning. They are there in that spectrum, in the lower right, they are not quite dementia yet and may or may not ever become dementia. And MCI because other domains of cognitive function may be involved, it is important to test more than just memory, executive function, language, visuospatial skills, and attention control.

This is a slide of Mild Cognitive Impairment from the Alzheimer's Association and again is a definition of the Alzheimer's Association and the American Academy of Neurology. You might want to think about MCI as perhaps some borderline or true dementia condition with impaired memory and ADL yet, but many or most people with MCI do eventually go on full blown dementia and there is no proven treatment to prevent MCI to progressing into true dementia.

So that brings us to the next topic of Polling Question. Should we screen all older patients who walks into our office who hasn't been already tested or diagnosed with some kind of formal memory test, there are mini-mental status test and Mini-Cog, etc. So, A. Yes B. No. The answer is controversial but according to the US Preventative Task Force it is B, No, there are lot of interest in dementia screening but there are pros and cons, pros will be early diagnosis and perhaps opportunities to get to know earlier, increase supervisor, maybe potential opportunities for participating in clinical trials, but the cons are increased anxiety/depression, if you were told you have MCI or Alzheimer's that would be very frightening, you need to label the serious condition, that should no longer affect our emotional well being or perhaps your ability to get insurance or drive or job and really not able currently to change the course of illness, as you see from when we discussed available treatments in the next section. That sort of dictates the purpose of screening if you can't really do much about the diagnosis.

Therefore US Preventive Services Task Force which is a major government related organization which review prevention and screening modality, they said routine screening for dementia is not recommended, insufficient evidence and this was originally issued in 2003, and reaffirmed in another article in the Journal of Internal Medicine and USFDA website just last year and a half ago, October 2013 but physicians especially PCPs do need to be vigilant and identify those patients who might be at risk or concern, or some have problems even if the patient has no complaint and also even though it was not recommended by the US Preventive Services Task Force Medicare AWV which was introduced by Obamacare, the Affordable Care Act in 2010 does include a cognitive screen if you are going to bill through that type of visit as a provider.

There is no specific instrument required but MINI-COG has been suggested as a quick screen which I will show you in a minute.

So here is the actual US Preventive Services Task Force recommendation on screening for cognitive impairment which came out in the Journal of Internal Medicine last year actually in 2014 and online in late 2013 and in the print journal in March 2014, and they state again the insufficient evidence to assess the balance and benefits and harms for cognitive impairment which means *[Indiscernible]* selectively screening. Many of us do think that recognition of dementia is important and we should be vigilant if there are any symptoms or concern by the patient or family. A recent study did show that even mild subjective memory complaints were associated with increase rate of later cognitive decline and dementia. Don't tell people that's normal and not to worry about it, you take it seriously and do test them even if you have the slightest concern even if you don't routinely screen everyone just because they are over 65 and again you do have to include cognitive decline if you do a Medicare annual test.

So if you are going to screen apparently recommended brief screening test called Mini-Cog which includes giving the patient 3 words to remember, having them draw a clock and then remember the 3 words, very simple and easy takes only a few minutes, requires no equipment, except a piece of paper and pencil and it is relatively uninfluenced by education or language, pretty much everybody knows what a clock looks like, maybe some day maybe no one will know what a digital clock looks like.

Even by itself the clock drawing test or CDT is very interesting and revealing. If we ask a patient to draw the face of a clock, the old fashioned clock with hands, not a new kind of digital clock with all the numbers in the hands showing 10 minutes after 11, whatever arbitrary time you want with dementia and impairment of executive functioning and visual spatial reasoning it would be pretty interesting such as these actual examples from two real patients I saw recently. First patient on the left is 101 year old lady in a nursing home and when I asked her to draw the face of a clock and put the hands 10 after 11, she didn't put any numbers in but the hands were in the right place and she drew this. The second patient I told indicated the time was 9:30, so that's what she did, no hands, spherical 9 and 30, numbers all the way around 12 to 18, indicative of dementia, it is ultimately a good test for driving capacity but you can't a decent clock, they shouldn't draw it because it shows neural deficits in visual spatial reasoning executive functioning.

Now for a score test, mostly for many years, is the Folstein Mini-Mental State Exam or MMSE, as I am sure you know, it's a 30 point scale originally published 1975 in a Journal of Psychiatric News and very widely used, and scores correlate well with worsening cognition. However, copyright issues have created confusion or concern about using this test, because actually the author I mentioned before Dr. Marshall Folstein is now after all these year claiming that it has always been copyrighted by him and no one can use it without paying royalty or purchasing official forms from the company. So I haven't heard of any one really getting in trouble, partly because of it and partly because there are newer better tests. Some geriatricians are now using two alternative similar 30 point test, St. Louis University Memory Screen or MOCA Montreal Cognitive Assessment Test and both of these are exclusively free and in the public domain basically copied easily off the internet without learning or dealing with copyrights. MOCA

Montreal Cognitive Assessment Test which I find a little harder and St. Louis University Memory Screen, again those three public domain are in the MMSE which are also similarly scored with 30 points in total and 20 or less indicating dementia. 21 to 26 indicates mild cognitive impairment or mild neurocognitive disorder and maybe very mild dementia, and you can very easily find forms online and print them out and save them by just searching both tests.

Other than the 30 point mini-mental test there are several staging and grading systems for Alzheimer's and other dementia, clinically we often say it's just mild to moderate or severe corresponding to roughly 0 to 10, 10 to 20, and 20 to 30 on a mini-mental test. This is also called the clinical dementia rating test. another more detailed and common stages is the seven stage scale, which has been called the Global Deterioration Scale GDS or functional assessment staging test by Reisberg of NYU. The stage is normal, preclinical, and mild to moderate to severe dementia and very severe dementia, late dementia end stage VII. That's when the patient is usually bedridden and can't speak or eat which is really become a bad situation and they qualify for hospice care. That's why the staging is somewhat important to know because FAST Stage VII equals hospice eligibility. So when trying to diagnose the stage of dementia and what is the type of dementia we will start with clinical presentation, the patient and family and caregiver will have difficulty functioning, maybe they are repeating themselves, forgetting to take their medicines, not preparing meals and getting lost, etc, that sounds pretty obvious really that they have dementia ,but what else do you have to do to verify the diagnosis and make sure there is no treatable cause or cognitive impairment, then it's really dementia which is sort of by definition and progressive neurologic deterioration, you don't want to call it that if it's not. In addition to a history and physical and lab looking for evidence of other neurological or medical or metabolic condition, the key thing I really want to stress is carefully review all the medications the patient takes. Because there are so many medications not all of which are on the web that can cause memory loss or confusion and this is one thing that might get the patient better, if you give medication tranquilizers or whatever, particularly anticholinergic or anything sedating like benzodiazepine, valium, Librium, Ativan, Xanax, although for dementia I have definitely got some patients better or less worse by just continuing on unnecessary or harmful medications, so look at this list carefully and try to avoid these types of medicine in patients that have dementia.

To complete a medical workup, basic labs, CBC, maybe sed rate to rule out inflammatory or rheumatologic condition, comprehensive metabolic panel, chemistry panel to rule out diabetes or hypercalcemia, etc., rule out hypothyroidism or hyperthyroidism, it can affect memory and behavior and sluggishness and confusion. Vitamin B12 level because B12 deficiency can cause cognitive impairment and you don't usually find anything treatable. Every patient with dementia needs to have CT or MRI at least one during the course of their illness to make sure there is nothing else majorly wrong with their brain, such as strokes, brain tumors, subdural hematoma, normal pressure hydrocephalus and you probably want to do depression screen, because depressed patients can also get confused and mentally sluggish.

The final point today is that there are many depression questionnaires you can use including the Hamilton, question inventory, PHQ9, whatever you like. Most geriatricians like the Geriatric Depression Scale (GDS) which is probably why Reisberg changed the name of the Alzheimer's staging to geriatric deterioration scale, GDS. There are two different GDS, Geriatric Depression

Scale, what originally 30 yes or no questions, later abbreviated to 15 questions, short form, and it could be either self-administered or you can ask the patient question which are all just yes or no.

Here is the last slide of today, picture on the right of 15 point abbreviated version of the GDS, 15 yes or no questions such as are you basically. Are you basically satisfied with your life? In that case no would be a depressive order, and you often felt helpless, in that case yes maybe a depressive order and you add up the depressive type answers and consider positive screen test in the short form, 10 would be significant depression in full version and 30 point version and you can easily find online as well. Here on the upper left with a picture of the Folstein MMSE, I really shouldn't show you that because of copy right issue and no one tell Dr. Folstein please, another picture on the flower left of the mini cog test, just three words and circle to draw the face of the clock, very simple and easy. That's for the patient and the caregiver.

So you have a few more minutes or comments from the live audience and otherwise the tip for today from our beautiful state capital, Charleston.

Female Speaker: Thank you so much, Dr. Goldberg for this informative presentation. Right now we are going to begin the Q&A portion of today's webinar and again I would like to remind each of you that if you have a question for Dr. Goldberg or any of our other panelists, please feel free to type that in the chat box feature which is again located on the right side of your WebEx player. Right now we have got a couple of questions, one from Cindy and Dr. Goldberg, I am going to use your line, can you hear me?

Dr. Todd Goldberg: Yes.

Female Speaker: Okay, great, so we got a question from Cindy. Cindy asks if there is any 100% certain way to diagnose Alzheimer's disease versus other types of brain diseases or dementia?

Dr. Todd Goldberg: Well, that's an excellent question, clinically we can definitely diagnose that someone has dementia given poor performance on memory test and obvious functional impairment but to say with certainty that it's Alzheimer's type of dementia can be little difficult. Again if we rule out all the other known or discernible possible causes of cognitive or memory impairment, then clinically we are safe to call it probable Alzheimer's disease but I think most experts would say that to call it definite Alzheimer's disease you really need a brain biopsy or autopsy of the brain showing the pathology to include those plaques and tangles that we showed in the slide, and I should also mention that I always tell students and residents and fellows, that there is no rule that you only have to have one thing, you can have multiple different diseases in your brain, for example you could have Alzheimer's lesions, plus mini strokes indicating vascular dementia and sometimes you call that mixed dementia and this is found commonly on autopsies so I think clinically it's a little difficult to be 100% confident that you have the correct diagnosed, they definitely have dementia and it's probably Alzheimer's and that was the term that was used in the criteria.

Female Speaker: Okay, great, thank you, we have got another question from Jeff. Jeff wants to know do people really die of just Alzheimer's and if so how?

Dr. Todd Goldberg: Okay, well, I think that they do and apparently US government statistics support that they do also since again Alzheimer's is listed as the sixth leading cause of death in official US mortality statistics, so why do you die just because you forget stuff. Well, when you get to the very late stages of Alzheimer's your brain and entire body are really so deteriorated that the patients become bedridden and stop talking and stop eating, so they eventually become weak and sick and deteriorate, and so the immediate cause of death may appear to be pneumonia or something like that or people might have before said, well, they died of a stroke or heart attack but really the true ultimate underlying cause of death is just the Alzheimer's and I guess you could say that you eventually forget how to breathe, we can keep it that way.

Female Speaker: Now we have question from Teresa, she asks has NPH always been classified as a form of dementia?

Dr. Todd Goldberg: Well, NPH was discovered in 1965 as far as Andrew Stan when I was only 5 years old, but from my reading going back to the 1980s it's always been considered a form of dementia which is potentially reversible with brain surgery, so dementia is just a word but since it is implying cognitive impairment, that's one of the main features of normal pressure hydrocephalus, NPH I would say it's a form of dementia but you could also call it a form of brain disease, but it is counted among the potential causes of dementia to look out for and that's why even though it's rare to find something you can fix, we almost always do a CAT scan or MRI in some ways dementia to make sure that we are not missing some treatable brain condition.

Female Speaker: We have a question from Gloria. She asks does the screening of a past head trauma influence the diagnosis of Alzheimer's disease?

Dr. Todd Goldberg: I would say yes in two ways, one is that people with a history of head trauma are more prone to dementia in the future and even Alzheimer's. I guess just shaking up and injuring your brain makes it more susceptible but in that case, the head trauma may be part of the cause of the dementia and the only cause, so you certainly have to be aware of that, in the history and making the diagnosis and again there is no rule that you only have to have one thing and probably the more stuff that's wrong with your brain, the more likely you are to have dementia and that will be serious dementia

Female Speaker: Sharon is asking how strong is the genetic link if any to dementia?

Dr. Todd Goldberg: That's an excellent question that a lot of people ask, I think everything is genetic to some extent, you are born in a certain way and certain susceptibilities but dementia is not usually strongly genetic in the sense that your mother has it, you have a 50% chance of getting it or anything like that, there are reports of families in which there is a genetic common cause of dementia but these are felt to be rare genetic defects, run of the mill Alzheimer's disease is not felt to be really a genetic disease. Probably if you have a family history of anything, then realistically you are more likely to get it than the average person, but it's not considered a strongly genetic disease, run of the mill Alzheimer's unless you want to be special genetic defect cohort and if you have a family member with dementia you shouldn't really worry a lot that you are probably going to get it too because you might not because the statistics again are almost



50% of the people get it if you live long enough anyway, so unfortunately yes, if you live long enough there is a good chance that you are going to get it with or without a family history.

Female Speaker: All right, our next question comes from Trenton and Trenton asks when do you send a patient with affected MCI for formal psychological testing, is establishing a baseline helpful in following patients?

Dr. Todd Goldberg: I think it is, and I do that fairly often when I use neuropsychological testing is when I am not confident of the diagnosis and I am not sure that the person really had dementia and that often occurs when I do one of these mini mental or SLUMS test and they come up with a normal or borderline score but from the family's report or the history it sounds like they have some dementia even they score normally and that shows you that these screening tests aren't 100% accurate or sensitive, so that's when I like to get more complete neuro psychological testing to get a more accurate picture and a more accurate diagnosed and yes, establishing a baseline is helpful and you may want to follow them periodically with repeating testing over time to document when they are getting worse and when you really should label them with truly having dementia.

Female Speaker: All right, our next question comes from Carrie. Carrie asks do you think dementia can be prevented or can we improve our odds?

Dr. Todd Goldberg: To some extent yes and yes, because there are many causes of dementia including vascular dementia which is a form of heart and cerebrovascular disease I think anything you can do that keeps your heart and circulatory system healthy will likely increase the odds that your brain will remain healthy too, so the usual recommendations for good cardiovascular health, keeping your blood pressure under control, your diabetes, your sugar, your cholesterol, exercising all these things, since they reduce heart attacks, they should also reduce strokes and vascular dementia and there are some studies that the rate of dementia is lower in people who have lower cardiovascular risk factors and also exercise and also higher levels of education and activity. So I think keeping your brain and body in tip top shape will reduce the risk or delay the onset of dementia. If you really have what causes those plaques and tangles to develop in Alzheimer's we don't really know what causes that, it will probably get you eventually but again since a lot of people have a mix of different causes of dementia, if you can keep the cardiovascular and circulatory system healthy and optimise your health in every other respect you might at least delay the onset of dementia and increase your odds of having a longer more healthy, more productive life, but there is not anything that is definitely been found to completely prevent dementia yet unfortunately no, and that's one of the reason why one of the screening is controversial because even if you diagnose early dementia and someone didn't realize they had, there is not really any definite way to nip it in the bud so to speak.

Female Speaker: Our next question comes from Sharon. Sharon asks if it's recommended that one gets tested if there is a strong genetic history, for example your grandmother and your mother so what tests, are there any blood tests that are done?

Dr. Todd Goldberg: There is not really any blood or other biomarkers that are currently used routinely in clinical practice. I heard of people ordering panels for the different genetic markers

that are being found to be in some of these high risk cohorts, I would consider that a fringe thing or a research thing not something that most practitioners would do and again routine screening is controversial in the average person, but if you are not the average person and you have a serious concern, I would say you should go for a thorough medical, physical or neurological exam by a doctor including some one of the basic memory screens that we mentioned and beyond that just perhaps the doctor should keep a closer eye on you than the average person but there is not really a specific genetic marker that you can tell that you are going to get it like there is with something, with Huntington disease. If there was a genetic marker just like with Huntington disease should you even do it would you want to know, why do you need to know, unless you are going to change, what's going to happen, maybe you will just get upset, maybe you can prepare things, get your fares in order, but you have a 50-50 chance of getting something and some genetic marker says that you have higher than average chance, what are you going to really do other than being scared?

Female Speaker: We have another question from Kathryn, Kathryn asks if there is an evidence based for cognitive stimulation or decreasing the risk of dementia?

Dr. Todd Goldberg: That's a really great question that I haven't looked into, there is a lot of stuff that you see nowadays, online, on internet, on TV commercial like websites that I don't want to give in advertising but the only name that I know specifically is Lumosity and the idea is that if you exercise and stimulate your brain, sort of what I said before in terms of prevention maybe it will reduce the odds of future dementia or at least keep your brain in a stronger condition as it is capable of being. So I think it makes a lot of sense but I personally have not seen a study in a medical journal that proves it, let's say you are diagnosed with mild cognitive impairment, not yet dementia, it seems to me that would be a really good thing to do to try to keep your brain in its high performing status as possible and maybe that will reduce the risk of dementia in the future. I have seen patients where it seems to help somewhat, I would love to see a randomized double blind placebo control trial of Lumosity versus nothing in the New England Journal of Medicine, but I don't know that that's ever going to happen. That would be really cool, somebody should do that, somebody in the audience should do that.

Female Speaker: All right, we have another question from Sharon. Sharon asked where can I find a list of various medications which can cause confusion and should be avoided in the elderly?

Dr. Todd Goldberg: I don't have a specific site, I got a few of the slides that I showed in different references just by Googling on the internet. If someone wants to email me, I could share some of the slides I have, I can easily find it by looking up the search terms on the internet and PuzMed [phonetic] which is the medical reference source from the US National Library of Medicine and while we are talking I am going to do a quick Google search now to see if any great reference pops out that I can share with you, but in the meantime go on to the next question.

Female Speaker: All right, our next question comes from Chris. Chris asks if most people develop some dementia before they die, isn't that considered normal rather than just a disease?

Dr. Todd Goldberg: That's another excellent question because some people feel like well it's normal everybody gets confused when they get old, it's just old age, and I would say not everybody gets demented or forgetful as they get older, so no, it's not universal, it's something that's very very common, does it make it normal. Well, maybe in a statistical sense but that's just words, I think again most doctors and geriatric experts even though it's common would not agree that dementia is normal because it's bad for you, it's a diagnoseable thing and that makes it a disease. Everybody in the world probably had a cold at one point in their life and that doesn't mean that it's normal to have a cold, it's still a disease. But again it's semantic somewhat how you want to define the word disease and normal. I also just want to point out, just in a very quick web search of drugs that cause cognitive impairment, a good website appears to be [www.worstpills.org](http://www.worstpills.org) that has a whole section on drugs that may cause cognitive impairment, also called worst pill, best pill, that's an easy web search for someone to do, public citizens, health research group.

Female Speaker: worst pill, best pill. org?

Dr. Todd Goldberg: The title of the website says worst pill, best pill. but the exact address of the website is [www.worstpills.org](http://www.worstpills.org)

Female Speaker: For everyone out there I have typed that address in the chat box, you should be able to click on that link if you would like to check out that website. Well, Dr. Goldberg, we want to thank you so much for your time today. That's all the time we have for questions at this point. I want to let everyone know that this webinar is recorded and we will provide a recording of that as soon as it becomes available on our website and we should get a link to that when it becomes available for email as well. We want to thank you for joining us in the presentation today and learning more about Alzheimer's disease and related dementia, again I want to remind you that there are two remaining webinars in the series and we encourage you to register for both of those if you haven't already done so, you will be receiving an invitation to register for the webinar very soon. Finally, I want to let you know that when you exit webinar we would hope that you would take a moment to complete the evaluation that will pop up on the screen. Your input is definitely valuable to us, and I also want to remind you to visit our website which is [www.qualityisgights-qin.org](http://www.qualityisgights-qin.org) to learn more and also to get some information about the upcoming webinars that are in the series or you can contact any of our healthcare professionals at any time. Again we want to thank you so much for your participation and hope that everyone has a great afternoon, thanks so much.

Dr. Todd Goldberg: Thank you all.