Coordinator: Welcome and thank you for standing by. At this time all participants are in a listen-only mode. During the Q&A session if you would like to ask a question you may press star 1 on your phone. Today's conference is being recorded. If you have any objections you may disconnect at this time. Now I would like to turn the meeting over to Alva Ferdinand. You may begin.

Shawnda Schroeder: Hello everybody. This is actually Shawnda Schroeder and I will start with our introductions today. I am the principal investigator of the Rural Health Research Gateway, which is also referred to as Gateway. Today the Rural Health Research Gateway is hosting a webinar entitled Have Healthy People 2020 Benchmarks for Leading Causes of Death Been Met in Rural and Urban Areas.

For those of you who aren't familiar with the Rural Health Research Gateway, Gateway is a website that provides easy and timely access to research and findings of our federally funded rural health research centers dating back to 1997. Our goal really is to help move new research findings of these research centers to various end users quickly and efficiently.

The Gateway website can be used to find abstracts of current and completed research projects, publications resulting from these projects, and any information about the research centers themselves as well as the individual researchers, including those representing today. Following today's presentation this webinar will be posted on the Rural Health Research Gateway's website.

You can find Gateway at www.ruralhealthresearch.org. I've also shared that link on the left hand side of your screen today. You can even join our

Gateway alerts so that you receive periodic email updates when we have new publication or when we have free webinars like the one we're hosting today.

You can follow us on Twitter. You can like our page on Facebook and then you'll receive daily notifications about rural health research. We have muted all the lines today but I encourage you to use the Q&A chat box at the bottom of your screen if you have any questions. And at the end of today's presentation the HRSA operator will open the meeting to questions on the line. And those that are written in the chat box will read by me if there are no more calls on the line.

If we do run out of time the remaining questions in the chat box will be sent to our presenters and responses will be shared back with all of you when we share the archive. Thank you again for joining us and I'm going to now to present our four - introduce to you our four presenters.

First we have Timothy Callaghan. He's an Assistant Professor in the Department of Health Policy and Management at Texas A&M University and the Director of Evaluation for the Southwest Rural Health Research Center. He has a PhD in Political Science from the University of Minnesota. His research focuses on the linkages between policies, politics and public attitude with an emphasis on health policy and politics.

His research also studies rural health in America and he has ongoing research examining chronic diseases, community health records, telehealth and medical malpractice in rural America. His research has appeared in journals such as the American Journal of Public Health, the Journal of Rural Health and the Journal of Health Politics, Policy and Law, Social Science and Medicine and many other outlets.

Dr. Alva Ferdinand is an Assistant Professor in the Department of Health Policy and Management and the Deputy Director of the Southwest Rural Health Research Center at Texas A&M University School of Public Health. She's generally interested in the impact of laws on public health outcomes. She's been actively developing a research agenda that incorporates her interest in public health policy issues.

She's examined issues on the impact of tax exemption status on the provision of community benefit among various hospital ownership types, the relationship between neighborhood built environments and physical activity and the effects of texting while driving bans on roadway safety.

She's additionally examined variations in the burden of chronic disease across the urban-rural continuum, including cancer and diabetes. Dr. Ferdinand holds a law degree from Michigan State University College of Law and a Doctor of Public Health Degree from the University of Alabama at Birmingham.

Kristin Primm is a 3rd year doctoral student in Health Education in the Department of Health in Kinesiology at Texas A&M. She's interested in the underlying social and environmental factors influencing health disparities including geographic differences and access to preventative and specialty care services utilization and quality of care.

Kristin received her Masters of Public Health with a concentration in Health Policy and Management from the Texas A&M School of Public Health in May 2017 and is a currently a doctoral research assistant at the Southwest Rural Health Research Center housed within Texas A&M School of Public Health where she's supports research on regional disparities in chronic

diseases, morbidity and mortality, highlighting differences across the urban/rural continuum.

And last but not least we have Marvellous Akinlotan, a doctoral research assistant at the Southwest Rural Health Research Center. Dr. Akinlotan recently received a PhD in Health Services research in the Department of Health Policy and Management at Texas A&M University. Her research at the center focuses on investigating cost and non-cost barriers to cancer screening among uninsured population and understanding the relationship between rurality and the chronic disease outcomes across the four census regions in the United States.

Dr. Akinlotan's research also involves evaluating the impact of public health insurance on emergency room visits for dental condition, dental insurance uptake among working adults, cost effectiveness analysis of dental sealant and preventable hospitalization for dental conditions. She holds a Dentistry degree from Nigeria and a Master Public Health degree from Texas A&M University. Thank you to this great team for joining us today and I'll turn it over to all of you now to share your research.

Alva Ferdinand: Thank you Shawnda, this is now Alva. Thank you all for joining us today and howdy. As you heard we're going to be presenting in the next few moments some work that we've been doing looking at progress that we've made toward Healthy People 2020 benchmarks specifically looking at whether this progress is consistent between urban and rural areas.

We'd like to start by acknowledging our collaborators on this project. They are not presenting today but they certainly played an equal role in pulling this all together and they are Dr. Jane Bolin who is the Director of the Southwest Rural Health Research Center, Ms. Blanca Macareno who is a doctoral

student here at Texas A&M University and Dr. Ju Sung Lee who is a recent graduate of our doctoral program and is now at East Tennessee State University as a faculty member.

We'd also like to acknowledge our funding source before we jump into charts and graphs. We have been financially supported by the Federal Office of Rural Health Policy within HRSA and within the U.S. Department of Health and Human Services and we'd just like to say that the information, conclusions, opinions that you hear shouldn't be construed to be an endorsement by this agency and these offices. And none of the researchers have any conflicts of interest.

So many of you are probably familiar with Healthy People machine but just in case we have individuals on the line that are not familiar with Healthy People, we'll just spend a few moments giving you some background. So Healthy People is an initiative that was put together by Health and Human Services and it really is meant to help us track over decade long periods of time how well we've been doing with certain health indicators.

And the objectives that are set in Healthy People are not arbitrary but are actually based on science and encourages collaboration between researchers, public health practitioners and other entities to really bring awareness to certain disparities that we have, on certain leading causes of death and to also identify national priorities so that we are collectively working toward the same goals.

And so Healthy People has existed for three decades. We're currently in the iteration of Healthy People 2020 which was launched in December of 2010. So, as you've probably been cued into by now based on our title and our roles here at the center, what we've been doing over the last year is looking at how

much progress we've made toward Healthy People 2020 national mortality objectives for the seven leading causes of death. And these leading causes of death are diabetes, suicide, heart disease, stroke, cancer, unintentional injury and chronic obstructive pulmonary disease or COPD.

And in particular we've been interested in seeing how progress towards these goals have varied across the urban-rural continuum. So overarching research question is how much progress have we made in urban and rural areas of the United States in meeting Healthy People 2020 mortality objectives for the seven leading causes of death? And just as a quick plug-in we are putting a chartbook together that is national in scope and we anticipate that this chartbook is going to be published in 2020 by the Federal Office of Rural Health Policy and the Southwest Rural Health Research Center.

Just to give you an idea of our standard sample and data sources, we used mortality data from the National Center for Health Statistics which can be found on the Center for Disease Control and Prevention's Wonder platform. We used the years 2007 to 2017, 2017 being the year in which we have the most recent data. And we used mortality rates that were age adjusted and reflect the number of people that died from each cause that we'll present today per 100,000 people living in a given area.

So for diseases, cancers, suicide, heart disease, unintentional injury and stroke, we used the underlying cause of death from 2007 to 2017. For diabetes we used multiple causes of death between these years to be consistent with Healthy People 2020 standards and for COPD also to be consistent with Healthy People 2020 standards, we used deaths that occurred as adults aged 45 or older and for all of these we pulled ICD-10 codes.

I'll get us kick-started with diabetes and what we'll see here are what our rate was in 2007 and how they've trended over time through 2017. In 2007 there was 74 age-adjusted deaths per 100,000 population and the Healthy People 2020 target was 66.6. So what we'll see here listed in these indented bullets is sort of how that pattern has changed over time. And what you'll notice in 2017 is that we were still at 69.2 meaning that we hadn't quite met the goal and so the unanswered question how does this trend vary across the urban/rural continuum.

Now just to give you some orientation to the graph that you will see in this presentation what you'll see here are lines that represent six levels of rurality and if you are really just looking to be quick and concise in your understanding of these graphs, what you can do is focus on the non-core and micropolitan areas which we'll collectively refer to as rural areas. And so those lines are the red and mustard lines and then all other colors represent urban areas.

And you can sort of see which colors go with which areas, so large central metropolitan areas right through to non-core. And the dashed line is going to represent what the Healthy People 2020 target is for each of the leading causes of death. So with that said, for diabetes what we'll notice is that rural areas had not met the Healthy People 2020 goal for diabetes mortality and in fact were trending away from the goal with large fringe metropolitan areas starting well below the goal and continuing to decline.

When we broke this down by gender, diseases diabetes death by gender, what we'll notice is that women in urban areas largely met the goal around the 2009 mark and many of them actually started well beneath the goal. But women in rural areas, while they had sort of grazed the goal in 2014 and 2016 actually had been moving away from the Healthy People 2020 target.

Now in looking at men what we'll notice here is that regardless of level of rurality all men were still not meeting the Healthy People 2020 goal by 2017 but you'll notice that rural men in particular were farthest away from the goal and were actually moving away from it by 2017. And then looking at race what you'll notice here very quickly is that Blacks regardless of their level of rurality in terms of residence had not met the goal by 2017.

And you'll also notice here that micropolitan men in particular were Black men, or micropolitan Blacks -- I apologize -- were furthest away from the goal by 2017. When looking at other races, Whites in urban areas have largely sort of hovered around the goal, those in large fringe micropolitan areas being furthest beneath the goal but rural Whites again were not quite at the goal just yet.

And in working with them by region, what we'll also quickly notice is that the South really has struggled to meet the Healthy People 2020 benchmark particularly rural residents of the South being furthest away from the goal and again trending away from the goal. But what we'll see is that rural individuals regardless of the census region were not quite meeting the goal by 2017.

Just to provide some key takeaways from this, mortality rates in rural areas appear to be moving further away from the Healthy People 2020 target which is not something that we ideally want to see. Men at all levels of rurality are still struggling to meet the goal. Women in urban areas largely have, and women in rural areas are close but are not quite yet at the goal.

In terms of race, Asians and Whites in urban areas and Hispanics in large fringe metropolitan areas have actually achieved the goal, but all other racial groups at all other levels of rurality have not and diabetes mortality is

particularly high in the South but as I mentioned a few moments ago all rural areas regardless of census region have not quite met the goal. The urban Northeast appears to be doing the best in terms of diabetes mortality but the West appears to be emerging as a new point of concern.

So having said all of this I will now turn the mic over to Kristin Primm who will continue upon with heart disease.

Kristin Primm: Thank you Dr. Ferdinand. So looking at Healthy People 2020 objectives for heart disease we can see at that in 2007 the death rate for heart disease was 129.2 age adjusted deaths per 100,000 population. And the Healthy People 2020 target was to reduce heart disease by 20% by 2020 which would produce a target rate of 103.4 age adjusted deaths per 100,000 population.

So looking at the statistics nationally we can see clear evidence that death from heart disease are declining from 109.2 in 2011 to 92.9 in 2017. So nationally it looks like the goals for heart disease are met but we are curious if these trends differ across the urban/rural continuum.

So looking at overall age adjusted heart disease death we can see that there's an obvious decline in heart disease mortality for all rurality levels and heart disease mortality rates are generally highest in the non-core and micropolitan areas and lower in the large central metropolitan areas. In 2007 death rates across all rurality levels remained well above the Healthy People 2020 target but by 2017 the only level that did not meet the Healthy People 2020 target were the rural areas so the non-core and the micropolitan areas.

Looking at age adjusted heart disease deaths by gender, overall we can see that both sexes have achieved significant declines in heart disease mortality over the past decade. However it's quite clear that heart disease mortality

rates were higher among males relative to females. In fact male heart disease mortality rates across all rurality levels were well above the Healthy People 2020 target in 2007 and all levels remained above the target by 2017 despite the decreasing trends.

So for female heart disease death rates in non-core and large central metropolitan areas did not meet the goal in 2007 but by 2017 all levels of rurality for women met the Healthy People 2020 goal for heart disease. And for both sexes death rates were generally highest in the non-core or the most rural areas.

Looking at age adjusted heart disease death by race, we can see that in general all racial groups experienced declines in heart disease regardless of rurality level, we can see that heart disease death rates were lowest among Asian individuals and highest among Black and White individuals.

For Black individuals specifically all rurality levels were above the Healthy People 2020 target in 2007 and despite decline all levels except for the large fringe metro areas did not meet the Healthy People 2020 target. We have a similar story for White individuals. In 2007 all rurality levels were above the Healthy People 2020 target and by 2017 the goal was met by all levels except for the rural areas so the non-core and the micropolitan.

For Hispanic race in the non-core micropolitan and large central metro areas were above the Healthy People target in 2007 but by 2017 all levels had achieved the target. And for Asians in 2007 all levels were below the target and they only decreased. So by 2017 they achieved the Healthy People target.

So moving on to - to age adjusted heart disease death by region, we can see that rates were generally in the Northeast and South and lower in the West and

in 2007 all rurality levels across all regions, rates fell above the Healthy People 2020 target. By 2017 the West emerged as the only census region where all rurality levels met the Healthy People 2020 objective for heart disease.

For the Midwest and the South all levels except for the non-core and micropolitan areas met the Healthy People goal by 2017 and you can see in the Northeast the large central metropolitan areas had much higher rates than the other levels and despite significant decline the large central metropolitan areas along with the micropolitan areas did not achieve the Healthy People 2020 goal.

So looking at overall takeaways for heart disease, we see that nationally the U.S. has generally succeeded in achieving its Healthy People 2020 heart disease objective. Rural America has experienced significant improvement in heart disease mortality but have not yet achieved the Healthy People 2020 goal. Women at all rurality levels did achieve the Healthy People 2020 goal while men across the urban/rural continuum have yet to achieve the goal.

Hispanics and Asians as well as Whites and Blacks living in the large central metropolitan areas achieved the Healthy People 2020 goal but more work is needed for Blacks and Whites living in rural areas. In terms of census region we saw that the West had the most success in achieving the Healthy People 2020 target while more work is needed for the rural South. So I am going to move along to suicide mortality.

So here we see that in 2007 the age adjusted death rate for suicide was 11.3 age adjusted deaths for per 100,000 population and the Healthy People 2020 target goal was to reduce suicide - the suicide death rate to 10.2 deaths per 100,000 population.

However looking at progress towards the Healthy People 2020 goal over the years we can see that clear evidence that suicide death rate is actually increasing over time from 12.3 deaths per 100,000 population in 2011 to 14 suicide deaths per 100,000 population in 2017. So we are interested to - to see if these differences vary across the urban/rural continuum.

So looking at overall suicide deaths per year it's apparent that suicide is on the rise in the United States and that there are wide differences across suicide deaths across the urban/rural continuum. In particular we can clearly see that suicide death rates increased as locations became more rural and less urban with non-core areas showing the highest suicide mortality rate and large central metropolitan areas displaying the lowest overall age adjusted suicide mortality rates.

While suicide rates in large central metropolitan areas were the only level to have reached below the Healthy People target, in 2007 the study increases resulted in rates above the Healthy People 2020 target by 2017 across all rurality levels. Looking at death rates for suicide by sex it's apparent that males face a greater burden of mortality from suicide compared to females.

In particular male suicide rate fell above the Healthy People 2020 target in 2017 and remained above this target by 2017. Female suicide rates across all levels were below the target in 2007 and although there were increases they did meet the Healthy People 2020 target by 2017. And we can also see that suicide deaths for males have a wider spread across the urban/rural continuum. However for both sexes it looks like the gap between urban and rural areas is widening over time.

So looking at age adjusted suicide death by race, we can see that progress towards the Healthy People 2020 target differed across racial groups with Blacks having the lowest suicide death rates and Whites having generally the highest. In 2007 the Healthy People 2020 target for all rurality levels was met for Hispanic, Blacks and Asians and by 2017 Blacks and Hispanics met the Healthy People 2020 objective across all rurality levels.

Similar story for Asians except for by 2017, all levels except for the micropolitan areas met the Healthy People 2020 goal and for Whites I've mentioned before they appear to be faring worse in terms of suicide mortality with rates exceeding the Healthy People 2020 goal at the start of 2007 and continued to be above the Healthy People 2020 goal in 2017.

Looking at age adjusted suicide death by region, we can see that suicide mortality has increased across all census regions. However it's quite apparent that the West has a wider gap between urban and rural suicide mortality. For the South and the West suicide rates across all levels were above the Healthy People 2020 target in 2017 and remained above the target by 2017. Similar story for the Midwest except for in 2007 they had large central metropolitan areas that met the goal but however with increases no areas had met the goal by 2017.

And in the Northeast we can see that the large fringe metro and the large central metropolitan areas did meet the goal of 2007 and those trends remained pretty constant so they were the only level to achieve the Healthy People 2020 goal by 2017. So in conclusion nationally we're seeing increasing trends in the suicide death rate and therefore overall the United States has failed to achieve the Healthy People 2020 goal for suicide.

Suicide is most problematic in rural areas and among the White individuals so combating increasing trends in suicide death should be a national priority and efforts should be targeted towards those living in the West - western census region specifically. And now I'm going to hand it off to Marvellous who's going to talk to you all about cancer.

Marvellous Akinlotan: Thank you very much Kristin. Looking at cancer mortality the Healthy People 2020 goal was to reduce the cancer mortality rate by 10% from about 180 cause of deaths per 100,000 population in year 2007 to 161.4 deaths per 100,000 population in 2017.

Looking at the statistics there's clear evidence that this goal is being achieved because nationally between 2011 and 2017 the overall cancer mortality rate fell by almost 10% nationally. However we want to know whether this decline in cancer mortality holds across the urban/rural continuum.

This graph provides an overview of the overall cancer mortality rate by year across rural/urban continuum. We can see that between 2012 and 2017 cancer death rates met the desired target across all urban categories. However with regard to rural residents the Healthy People 2020 target was not met at all throughout the study period. In fact after 2017 the age adjusted cancer death rate was about 7 to 10 points away from the prescribed target in rural areas.

Looking at cancer death by gender and rurality we can see that cancer death rates have declined sharply among males but definitely males in metropolitan areas. Nonetheless at 2017 the desired Healthy People 2020 target was met among males across rural/urban continuum. In fact the age adjusted cancer death rate among rural male residents was about 40 points away from the Healthy People 2020 target.

With regard to women the cancer death rate remained well within the desired target throughout the study period. Looking at race in this graph we provide an analysis of cancer death rates by race and ethnicity. Consistent with the overall cancer mortality trends we show in various lights, cancer death declined among all racial groups across the rural/urban continuum. However after 2017 the Healthy People 2020 target had not been achieved among rural Whites. Urban Whites actually met the goal in 2015.

Looking at Blacks we can see that the target was not met at all except for Blacks in large fringe metropolitan areas. On the positive side cancer mortality rates for Hispanics and Asians remained within the desired target throughout the study period. Looking at census regions we can see that obviously some progress over time has been achieved.

However the cancer mortality rates have remained above the target in rural areas of the Northwest, Midwest and South. What is concerning about the South is that over the ten year study period the White disparities between rural and urban areas remain unaffected. Actually in year 2017 the age adjusted cancer mortality rate in the non-core South was about 35 points higher than that of the large central metropolitan areas, showing this provides evidence that there is much work to be done in the rural South with regards to cancer mortality.

In summary it is evident that the Healthy People 2020 cancer mortality goals have been met in urban areas. Rural areas have made good progress but still have more work to do. Regarding gender there is need for continued improvement especially among men toward meeting the goals and pertaining to race Blacks and rural Whites are still lagging behind in meeting the goals and with respect to census regions the rural South is farther away from the cancer mortality goal.

We'll now turn to an analysis of the Healthy People 2020 objectives for stroke. As you can see in the year 2007 the age adjusted stroke mortality reached 43.5 deaths per 100,000 population and so with a going recognition of the burden of stroke the Healthy People 2020 goal was to reduce stroke mortality rates by 20% with a target of 34.8 deaths per 100,000 population - per 100,000 population.

Looking at our statistics we can see that nationally there's been minimal progress in meeting the target for stroke mortality. That said it is important to see whether there's been any progress made across the rural/urban continuum. This graph presents the overall stroke death by year and we can see that rural areas still have the highest stroke mortality rate and are farthest from the Healthy People 2020 target although generally after 2017 none of the rural/urban categories had met the target.

Actually between 2012 and 2014 large central and large fringe metropolitan areas achieved the Healthy People 2020 goal but from 2015 stroke mortality rates began to rise and moved away from the target in the large central and large fringe areas. Looking at stroke mortality by gender, we can see that stroke mortality declined significantly amongst males and females across rural/urban continuum.

However males and females in rural areas had consistently high stroke mortality rates compared to those in urban areas. Again the trend revealed in the previous slide is evidenced here. Among males and females the stroke mortality fell within the target between 2012 and 2014 in large central and large fringe metro areas but began to move away from the target in 2015 and that trend continued in 2017.

This slide also shows the stroke mortality rate across the racial - among all racial groups across rural/urban continuum. We can see that stroke mortality declined among all racial groups across the rural/urban continuum during study period except for Asian in non-core areas. For Whites speaking of the target the Healthy People 2020 target was met only in large central metro areas.

It is offering that Blacks across the rural/urban continuum did not only fail to meet the target but had disproportionately high stroke mortality rate compared to other racial groups. Hispanics achieved the target in 2015 while only Asian residents in urban areas met the goal. Again looking at stroke death rates in census regions we can see that the Healthy People 2020 target was met in the - across all the rural/urban categories in 2016.

As with cancer, the South still had a proportionately high stroke mortality rate and was farthest from the Healthy People 2020 target up to 2017. Overall the Midwest, South and most of the West census region had not achieved a goal as of 2017.

In summary it is evident that minimal progress has been made toward achieving the Healthy People 2020 goal for stroke and important work remains at all levels of rurality. With regard to gender the target has most been achieved among men and women. Pertaining to race stroke mortality remains disproportionately higher among Blacks regardless of where they live and also 2017 the target was also illusive for rural Whites but achieved among Hispanics.

Pertaining to census region the goal was not achieved at all in the South and was farthest from the goal for the target in the rural South. I would now hand

over to Tim to continue the analysis of the Healthy People 2020 goals for unintentional injury.

Timothy Callahan: Thank you, Marvellous. The next leading cause of death explored for Healthy People 2020 was unintentional injury. While a wide variety of accidents that can result in death exists, the majority of these deaths are caused by motor vehicle crashes, poisoning and falls. Healthy People 2020, the baseline rate of unintentional injury death was 40.4 age adjusted deaths 100,000 per population and the 2020 target was 36.4 deaths.

When we compare unintentional injury mortality rates across years we can see clear evidence with national failure in achieving the Healthy People 2020 goal. The rate increased pretty steadily over time and as of 2017 the rate was actually 49.4 deaths. That said it's important to see how progress varied across levels of rurality.

We begin to do that in the next graph here. When we look across levels of rurality it is clear that a national failure to achieve Healthy People unintentional injury mortality goals is on the cross levels of rurality. Mortality rates for highest in the rural non-core areas at the start of the Healthy People 2020 analysis period remain the highest in rural America today.

Importantly while urban centers started the period of analysis having already achieved the goal of 36.4 age adjusted unintentional injury deaths they've since moved away from the target and now fail to achieve the Healthy People 2020 expectation. As of 2017 no level of rurality had achieved the Healthy People 2020 objective.

Next in looking at gender for unintentional injury we see that for men unintentional injury mortality started above the Healthy People 2020 target for all levels of rurality and has remained well above the target today. Among men there's been a sharp increase in unintentional injury mortality starting around 2015.

For women urban areas started 2007 having already achieved the 2020 target and remain below the target today with modest increases compared to men over time. Importantly women in non-core areas have not achieved the Healthy People 2020 goal and women in micropolitan areas have seen increase in mortality that has pushed them from achieving the goal to failing the goal as of 2017.

Next we explored unintentional injury deaths by race. Results from 2007 to 2017 indicate that Asians across levels of rurality and Hispanics in urban areas have achieved the Healthy People 2020 goal for unintentional injury while other groups have not. Unintentional injury mortality is highest among Whites, particularly in rural America where there's been no progress towards reducing the White unintentional injury mortality in the past decade.

Among Whites and Blacks there's also clear evidence of the growing unintentional injury mortality in recent years as saw among men in the prior graph. While Blacks in rural remained above the Healthy People 2020 target the entire period of analysis small and medium metro areas made some progress in earlier years of analysis before seeing increase mortality push them above the Healthy People 2020 target.

Finally when looking across regions only large central metro areas in the West had achieved the Healthy People 2020 mortality goal as of 2017 so all the levels of rurality across the four regions, only large central metro in the West

had achieved the goal. The non-core South and the non-core West had the highest two unintentional injury death rates for mortality.

Mortality patterns are also - they also mirrored each other in the Northeast and Midwest. In both the Northeast and Midwest mortality rates have risen steeply in the past two years although 2007 mortality rates are higher in large central metro of the Midwest than they were in the Northeast. Similarly urban parts of both regions started the period of analysis having already achieved the 2020 goal but has since moved above the 2020 target for unintentional injury death.

Wrapping up unintentional injury nationally the U.S. has been moving away from Healthy People 2020 unintentional injury goal. While unintentional injuries are increasing for all residents along rural/urban continuum it is notably highest among residents of non-core and micropolitan rural areas. While women in urban areas have largely stayed under the goal women in non-core and micropolitan rural areas had not met the goal in 2017.

Additionally men regardless of their level of rurality were far away from the goal with rural male residents furthest away from the goal and sharply increasing rates in the past two years. Notably across levels of rurality we're moving away from the unintentional injury goal with non-core micropolitan residents the furthest away.

Finally the last topic we looked at for our webinar here today was COPD, chronic obstructive pulmonary disease. COPD includes a group of diseases like emphysema and bronchitis that result in breathing problems for up to 16 million Americans who have this disease. In the 2007 baseline year there were 113.9 age adjusted deaths per 100,000 from COPD and Healthy People hoped to reduce that rate to 102.6 by 2020.

In looking at yearly progress we can see minimal progress in achieving that goal. Rates actually went up for COPD between 2007 and 2011 and have oscillated around 2007 target since. The 2007 rate was 113.9 and as of 2017 it's 113.4 so really we're quite close to where we started. That said like with other topics we wanted to see how this was across levels of rurality.

When examining COPD mortality over time across levels of rurality it is first clear that COPD mortality is much higher in rural areas than it is in urban areas. The large central and large fringe metropolitan areas had both achieved the Healthy People 2020 goal by 2017. Rural areas had made little progress towards the objective. Importantly COPD mortality is highest in micropolitan and small metro areas as opposed to in the most rural non-core.

This is the only topic we've looked at where the most rural non-core wasn't the highest rate. Importantly COPD mortality rates are largely stable over time at each level of rurality. After an initial increase in mortality between 2007 and 2008 mortality rates were largely flat over time.

Analyzing trends in COPD mortality from 2007 to 2017 across gender reveals the importance of looking at differences in COPD mortality across men and women and levels of rurality. Overall it appears COPD mortality rates are consistently higher for men than they are for women. The differences are particularly stark in rural America where male mortality rates are consistently between 170 and 190 and female mortality rates barely exceed 140.

Interestingly differences across levels of rurality are more stark for men. In other words the gaps between mortality rates in rural and urban areas are much larger for men than they are for women. Interestingly looking at trends over time does not suggest potential improvements for men—it does suggest

potential improvements for men but perhaps more importantly, potentially worsening rates for women over time.

When looking at race we can see that progress in meeting the mortality goals across race levels of rurality reveals that it's much higher among Whites than for any other racial group. Whites of all levels of rurality except large central metro had failed to achieve the Healthy People 2020 target for COPD and trends over time suggest that little progress was made other levels of rurality for Whites.

Hispanics and Asians by comparison are doing quite well. Hispanics and Asians at all levels of rurality started having achieved the Healthy People 2020 mortality objective for COPD and those mortality rates have stayed largely consistent over our period of analysis. Rates for Blacks are slightly higher than rates for Asians and Hispanics but show a similar pattern with most levels of rurality starting below the target line and staying there throughout the decade.

Finally looking at COPD across regions we can see that urban areas in the Northeast have consistently the lowest COPD mortality rates in the country while the rural South has the highest COPD mortality rate in the country. By 2017 the most urban large central metropolitan areas had achieved the Healthy People 2020 COPD mortality goal in all four census regions. The large fringe metros had only reached the target in the West and the Northeast and medium metros had only achieved it in the Northeast.

When analyzing just the most rural parts of the country -- the non-core -- it appears COPD mortality is lowest in the Northeast, highest in the South with non-core in all four regions performing better than micropolitan or small metro areas and again this is unique to see COPD unlike our other topics.

Some takeaways for COPD, nationally the U.S. has made minimal progress in achieving the Healthy People 2020 COPD goal. While residents of large central and large fringe metro areas have achieved the goal, residents in all other areas had not with residents of micropolitan and small metropolitan areas being furthest away from the goal and the non-core coming in 3rd for furthest away.

Men were substantially further away from the goal than women with men in non-core and micropolitan areas furthest away. Hispanics, Blacks and Asians have largely met the Healthy People 2020 COPD goal. Whites however had only achieved the goal in large central metropolitan areas, the highest among the Whites in rural areas.

So after looking at these seven topics, some of the leading causes of death we have pieced overall takeaways. The first overall takeaway is that rural America continues to lag behind urban America in achieving Healthy People 2020 mortality objectives. The rural South is a particularly problematic area for the topics here today specifically for diabetes, cancer, stroke, COPD and heart disease which have the highest rates of the South.

By comparison the rural West appears to be a problem area for suicide. Across different topics men appear to lag behind women in achieving Healthy People 2020 goals and that is something we need to think more closely about moving forward. Interventions aimed at reducing deaths from leading causes of disease in rural America are needed to help rural America achieve the Healthy People 2020 goals.

Moving forward we need to have more thorough consideration of rural America when crafting Healthy People 2030 objectives and Healthy People

2040 priorities and that might just be taking into consideration where rural America is now as they craft those new goals but potentially even setting separate benchmarks for rural America given the status they have compared to urban areas as of today.

We would like to acknowledge the support of several other individuals who didn't necessarily contribute to this webinar here today but were nonetheless helpful in dumping ideas off of throughout our process. We'd like to thank Johanna Alfier from the National Center for Health Statistics along with Brigham Bastian and Lauren Rossen. We'd also like to thank Melonie Heron from the CDC, Sirin Yaemsiri from the USGAO and Ernie Moy from the U.S. Department of Veteran Affairs.

Finally you have our contact information here for Dr. Alva Ferdinand and myself. We have the phone numbers and emails where you can reach us at and I believe we're going to pass it back to Shawnda now who will open it up for a Q&A.

Shawnda Schroeder: Great, thank you for all of that information and yes I would like to ask the host to open up for questions.

Coordinator: Thank you. At this time we will begin the question and answer session. To ask a question please press star 1 on your phone and record your name clearly when prompted. To withdraw your question, please press star 2. One moment for our first question.

Shawnda Schroeder: Thank you. And while you all call in with questions we do have two in the chat box so I'm going to begin with one. Marvellous this was asked and entered into the Q&A box when you were presenting your cancer takeaways around Slide 31. And the question asks the data are showing that women have

much lower mortality rates compared to men in these cause of death categories. Are these not the top causes of death for women and if these are not them what are the top causes of death?

Marvellous Akinlotan: Yes. Cancer is considered for in generating those graphs we have considered all forms of cancer but of course the top causes of death for women would be lung cancer and colorectal cancer and breast cancer. But we didn't specifically consider those three leading causes of death; we looked at the generality of all cancers combined.

Shawnda Schroeder: Yes, thank you. And then another question, this is asked at the very end here about Slide 49 when discussing the COPD takeaways. The question asks what were the population interventions to try to achieve these goals? And I would actually broaden that to say what do we know about interventions that occurred to help to achieve the Healthy People 2020 goals?

Timothy Callaghan: I think the first thing we need to recognize, why we're doing the seminar today is that we need to recognize where the problem areas exist. And beyond that I think that interventions that are appropriate probably do vary by disease sites that we're talking about here today. I think the reality across all of them however is that more resources are needed in rural America.

Alva and I have done considerable research not just on these topics but more broadly on rural America and one the biggest hindrances is the lack of resources that rural America has as far as providers and hospitals and quality of care. There's also issues related to transportation as a big issue and quite frankly resources would be the number one intervention so that we could address provider shortages and quality of hospitals so that we can maybe reduce some of these deaths and lean towards more long term diseases that don't necessarily result in death quite so quickly.

Shawnda Schroeder: Thank you. Do we have any calls on the line?

Coordinator: I'm not showing any questions yet but once again if you have any - if you would like to ask any questions please press star 1.

Shawnda Schroeder: And in the meantime while we wait for possibly anyone who has a question to call in I do just want to share again that today's webinar, the recording, the transcript and the slides from our presenters will be available on the Rural Health Research Gateway and you can sign up to receive email notifications when we have future webinars and when we release future products.

With that said I can tell you that if you're looking for the contact information for the presenters today and if you're interested in other work that they've done like that they're alluding to, you can visit their page on Gateway as well and find all of the work that they've done at the Rural Health Research Center so I encourage you to do that as well. I will check in one more time if there are any other questions on the line.

Coordinator: I'm showing no questions at this time.

Shawnda Schroeder: Great. There is one other that just shared. Are there state level resources available for suicide data?

Alva Ferdinand: So one of the things that we can do, we actually within our center have access to about 16 states through H-CUP, the Healthcare Cost and Utilization Project through ARC. In that emergency - state emergency department database we can actually pull ICD 9 and 10 codes over time. I believe we have data from 2007 to 2014 for about 16 states. So we don't have all states in our possession

primarily because these data cost a lot of money and so over the years we've been fully just adding to the collection so that's one example of a state level resource that I can think of to look at suicide.

Shawnda Schroeder: Any other questions on the line then?

Coordinator: I'm not showing any questions at this time.

Shawnda Schroeder: We do have one other that is typing. I would mention too that the National Center for Health Statistics have suicide mortality by states on their website. But you won't have access to the actual data so HCUP would be far more - HCUP data are going to be actual data that can be run and reviewed with the ICD codes. However if you're just looking for mortality rate by your state then find that through CDC's National Center for Health Statistics.

Timothy Callaghan: Enter the Wonder platform as well.

Shawnda Schroeder: Yes absolutely.

Alva Ferdinand: Thank you, Shawnda, that's excellent.

Shawnda Schroeder: Okay. Well I'm going to give all of you about five more minutes of your day and I thank you again for a very informative presentation and the slides will be available. If you have other questions for Gateway myself you can contact me. But otherwise if you do have questions for our researchers I'm going to volunteer for them and say please reach out to them and ask your questions. Thank you to the four of you for presenting.

Timothy Callahan: Thank you.

Alva Ferdinand: Thank you for hosting us.

Shawnda Schroeder: Have a great day everybody.

Woman: Goodbye.

Coordinator: This concludes today's call. Thank you for your participation. You may disconnect at this time.

END