>> Good morning, everyone, and welcome to our 2019 State
of Health Equity at CDC forum.
Building Equity and Community Resilience
in Public Health Emergencies.
Sponsored by the Office
of Minority Health and Health Equity.
I'm Craig Wilkins, senior advisor within the office
and I'll be serving as your forum moderator.
It is an honor to welcome each of our special guest speakers
and discussions and to each of you for joining us this morning.
And for those of you joining us by IPTV.
As noted on the agenda, the purpose of today's forum is
to apply a health equity lens
to public health emergency preparedness, response
and recovery activities through deliberate communication
and interdisciplinary partnerships.
I had the pleasure of being part of a small planning committee
that put this forum together.
My sincere appreciation and gratitude is extended to each
of them for all of their hard efforts
in the planning of this event.
Their names are printed on the agenda,
but I would like for them to stand
as I read off their names very quickly and then recognize them
with a round of applause.
Dr. Leandris Liburd.
Dr. Boyett, Catherine Deron Burton, Julio de Santali Pierre,
Kayla Johnson, Ma Ohiri, Captain Bobby Roselinia,
Dr. Ross who's not here today.
Dr. Aaron Thomas, Dr. Patty Tucker,
Jo Valentine and Dr. Amy Walken.
[Applause]
So again, on behalf of this committee and our office,
we appreciate your attendance and participation.
On today's agenda, we'll have two opening presentations
and then two panel discussions consisting
of two presenters and a discussion.
The discussion will be providing brief reflective comments
after the panel presentations,
and then facilitate a 15-minute question and answer session.
At the end of the second panel discussions,
we will have a closing synthesis panel where each
of the presenters will be invited back
up to share any final comments, recommendations
and to answer any final questions.
Before we begin today's forum, a few housekeeping items.
I you didn't register before you came in, please do so.
For those of you who are participating by IPTV,
you will be able to email your questions to OMHHE@cdc.gov.

We have staff who will be monitoring this for questions.
On the agenda you will also note we will have one official break
and although it is a short break,
we would appreciate you being respectful of the time,
returning back to the room, since we want to stay
on schedule as much as possible because we have a full agenda.
If you need to step out before then or afterwards,

we would ask you do so in between the presentations
and panel sessions to lessen distraction for our presenters.
On behalf of the office, we would appreciate you completing
and returning a brief evaluation that's designed
to provide feedback about this forum.
If you are registered for the conference,
you will receive a link
to an evaluation survey in your email box.
For those viewing the forum on IPTV,
we may not have your registration information,
so please go to OMHHE's internet site, click on Events,
then click on 2019 C form, and the survey link will be
at the top of the page.
The evaluation will be available right after the forum ends today
and will be open until next Friday, February 8th,
up until 5:00 PM for you to submit your responses.
We really value your feedback
and your responses will be completely anonymous.
For those of you interested in continuing education credits,
you can look on the screen or note on the back
of your agenda the link where they will be available.
The activity and passcode is also noted there as well.
And if you haven't already done so,
please silence your electronic devices.
Throughout this morning,
I'm here to answer any questions that you might have.
Now I have the distinct privilege of introducing
to Dr. Leandris Liburd and Rear Admiral Dr. Redd.
Yeah. Dr. Liburd?
[Applause]
Dr. Liburd currently serves as director for the Office
of Minority Health and Health Equity at CDC.
And Rear Admiral Stephen Redd is deputy director
for the Public Health Service and Implementation Science
and also serves as director of the Center
for Preparedness and Response.
Please welcome them for the opening remarks.

>> Good morning, everyone.
>> Good morning.
>> And I add my welcome to Captain Wilkins,
to the seventh State of Health Equity at CDC forum.
We couldn't be more excited or more pleased
by the response to this year's forum.
That will situate public health preparedness and response
in the community-centered health equity framework.
I think yesterday I was told we had around 270 registrants.
And that's absolutely a record for us,
and so we're very excited about the interest
and the participation.
I also want to thank our guest speakers for their participation
in this important convening, and for their willingness
to share lessons learned in emergency preparedness
from a variety of unique perspectives.
I also want to acknowledge Captain Wilkins
and his leadership in bringing together the planning committee
and building the kind of relationships we need

to advance the science and practice
of health equity at CDC.
So please join me in giving him a hand.
[Applause]
So for those who are new to the forum, what is the state
of health equity at CDC forum?
We describe it as an agency-wide assembly
to examine CDC's progress in the implementation of policies,
programs, surveillance and research that contributes
to reducing health disparities and achieving health equity.
Pursuing health equity is, relatively speaking,
a more recent goal in public health.
For some it is viewed as an aspiration, a lofty vision.
And for others it is a definable set of actions
that when taken together create communities
where all people have the opportunity
to attain the best health possible.
We come to the pursuit of health equity at the intersection
of action and aspiration.
For example, to advance health equity at CDC,
we must first believe that it is possible for all people
to attain their best health possible,
and then we must identify indicators, measures and tools
for monitoring trends and health disparities
and health inequities.
We must identify criteria based on the best available evidence
for best practices in achieving health equity across a range
of public health conditions.
We must promote policies
that support reducing health disparities
and achieving health equity.
And we must clarify and promote organizational structures
that facilitate the integration of health equity
in programs and research.
The presentations that we will hear today will provide
real-world and actionable examples of what it means
to apply a health equity lens in public health emergencies.
I look forward to all that will be shared today
and how we might use this knowledge
to achieve CDC's mission.
So welcome again and I know you're going to get a lot
out of today's gathering.
And thank you for your participation.
[Applause]

>> Good morning, everyone.
Let me welcome everyone to this forum on behalf of Dr. Redfield.
As Leandris described, this is one in a series of meetings
to try to bring focus to our work
in eliminating health inequity,
or bringing health equity to our nation.
And it really is a testament to our belief that we have
to take deliberate action to improve health equity,
that this is not something that is going to happen on its own,
that our overall public health efforts are going
to somehow achieve health equity without that deliberate action.
I think this is a case where the rising tide doesn't necessarily

rise all boats.
And so today's meeting is a way to bring some focus to that.
I would like to say that we really are needing
to put more energy into this in the domain of preparedness
and responses to health emergencies.
When I worked in the Influenza Coordination Unit,
it was a big part of our activity.
And I felt that we really hadn't achieved what we needed
to in order to make sure
that when a pandemic came we had really done everything
that needed to be done.
I would say that in a health emergency, kind of the currency
that we need to address is that of information.
That people need information to take action
to protect themselves and to do the things
that will reduce the impact of the health emergency.
And there are two barriers that we face and that we need
to overcome in working in the health equity zone.
The first is one of trust.
And for historical reasons, the lack of confidence
that many populations have, that when the government
or the establishment recommends a certain course of action,
that that's what you really should do.
So that area of trust is very important.
The other area is one of capacity.
So if you don't have access to transportation
and the recommendation is to evacuate,
that's going to be a problem.
So I think that's another area that we need to work on,
is making sure that when we make a recommendation,
the groups that we're making the recommendation,
actually have the capacity to do the thing
that they're being recommended to do.
And that can be a functional limitation,
or it can be access to resources.
So again, let me welcome everyone.
I want to especially welcome our guests
who have travelled from afar.
Dr. Rodriguez from Puerto Rico,
Mr. Stripling from New York City.
And I don't see Dan Dodgen out there from Washington,
but he's on the agenda, so I'm assuming
that he'll be here as well.
Thanks very much.

[Applause]

>> Our first presenter this morning,
as she comes forward, is Dr. Amy Walken.
Dr. Walken is the senior advisor for at-risk populations here
at the Center for Preparedness and Response here at CDC.
Dr. Walken focuses on improving the resilience
of at-risk populations to natural
and human-caused disasters, disease outbreaks
and other adverse events.
She provides scientific expertise
for emergency preparedness and response activities.

Since joining the CDC in 2002,
Dr. Walken has led numerous national
and international outbreak investigations
and emergency responses.
Her research experience includes vulnerable populations
and emergencies, health impacts of extreme weather events,
community health assessments, chemical
and radiological terrorism and toxic epidemiology.
Hard to say that word.
Dr. Walken has authored more than 75 peer-reviewed articles
and book chapters on disaster epidemiology,
environmental epidemiology and surveillance.
She received her doctor of public health
from the University of North Carolina Chapel Hill,
her master's of science in public health
at Emory University, and her bachelor's degree
from the University of Georgia.
Please join me in welcoming Dr. Walken.
[Applause]
>> Thank you, Craig.
Good morning.
I'm Amy Walken.
I'm the senior advisor for at-risk populations
with the Office of Science and Public Health Practice,
the Center for Preparedness and Response.
This morning I'm going to talk about preparing and responding
to emergencies through a health equity lens.
And the goal is to frame the rest of the talks
that we're going to hear this morning.
So before I talk about the subject, I always like to talk
about terminology because a lot of people
like to use different words
and are comfortable with different terms.
And I want to make sure that we're all on the same page
for which parts
of the population we're trying to address.
So at-risk populations refer to individuals or groups of people
who may not be able to access
and use the standard resources offered
in emergency preparedness response and recovery.
And we know from previous emergencies --
and we see this for every single emergency regardless
of the type.
And including the most recent hurricane emergencies
that we went through --
have shown that there are certain groups of people
who face disproportionate risks.
Some people like to use the term individuals
with access and functional needs.
You'll hear this term from FEMA and from ASPR.
And in the next few slides I'll go through that term.
And sometimes we just group them all together and talk
about populations that are specifically at risk,
and I'll explain why we do that as well.
So access and functional needs address a broad set
of needs irrespective
of a specific status, diagnosis or label.

This term is very useful when you're trying
to allocate resources and you need
to know what exactly the needs are.
So for example if you have an American Red Cross shelter
and you're triaging people coming in,
knowing that an older adult is coming
in doesn't tell you a lot of information.
It doesn't tell you what their needs are.
However, if we can look specifically
at their access needs or their functional needs,
we can know where to allocate those resources.
So access needs are based on access to social services,
accommodations, information, transportation, medication.
And function-based needs are restrictions or limitations
on an individual that may require assistance before,
during or after an emergency.
And often the CMIST framework is used
to determine who these people are.
And so CMIST stands for communication,
maintaining health, independence, support
and safety and transportation.
Communications.
This is individuals who may have limitations that interfere
with the receipt of and response to information.
So for an example, this may include individuals
who are deaf or hard of hearing.
If they cannot hear the information that we are trying
to give them, they cannot take protective actions.
Likewise, individuals who have limited English proficiency.
So it's important that we're pushing out our messages
in the languages that people are speaking.
But not just to make translations,
but to have cultural translations as well.
We need to make sure that our messages are in line
with their culture and our interventions are in line
with the cultures as well.
Maintaining health.
So individuals who require assistance
in managing their chronic disease, receiving medication
and treatment or operating medical equipment
to sustain life.
Domestically, from natural disasters the thing we see the
most in emergencies is exacerbation of chronic disease.
And so we need to think about what we can do
for these populations.
So we might think
about individuals with chronic disease.
We might think about pregnant/post-partum women.
So this brings up a good point,
that these vulnerabilities are temporary.
They may not be something that you have over your lifetime,
and during the course of your life this may change.
You may have a certain vulnerability
that you have today that you don't have tomorrow.
Independence.
Individuals who function independently,
as long as they are not separated from their devices,

assistive technology or service animals --
so for example we might have individuals
with a disability or older adults.
Support and safety, this is individuals
that require additional personal care assistance,
experience higher levels of distress
or support for personal safety.
So this includes both your physical health as well
as your mental health.
This may include groups of people like children,
depending on their age and their developmental abilities.
And individuals with cognitive limitations.
And finally we have transportation.
This one is pretty self-explanatory.
Individuals with transportation needs because of age,
disability, injury, poverty, legal restriction
or those without a vehicle.
So you see there's health reasons that factor in here.
There are social reasons that factor in here.
So this might include persons that are dependent
on mass transportation or persons with disability.
So the CMIST framework allows us to figure
out who these people are, especially during a response.
However, it can be difficult ahead of time when you're
in the planning stage to figure
out who fits nicely into these buckets.
We don't have very good databases for this.
We have some databases.
For example, we have Empower which is an HHS tool
that has Medicare beneficiaries that are electric-dependent.
And that only includes about 2.4 million people,
so that's a small amount of people that we're thinking
about when we're thinking about at-risk populations.

So we also talk about populations as a whole
because these numbers are a little bit easier to enumerate.
We can use databases that we have such as the census
and other surveys to figure out who fits
into specific categories based
on socio-demographic characteristics.
And we know that there are certain populations --
these may be referred to as at-risk populations
or vulnerable populations.
Some people don't like those terms.
A lot of people do not like to consider themselves vulnerable.
But we do know that these populations suffer
disproportionate harm in a disaster.
So you might be thinking about children, older adults,
racial and ethnic minorities.
And this population approach allows planners
to enumerate these populations based
on census data and other surveys.
And we have tools such as the Social Vulnerability Index
which we'll hear Dr. Breysse talk about in a few minutes.
It's also important to consider that each
of these vulnerabilities I'm talking
about are overlapping and intersecting.

So we cannot think about them separately, but race, poverty,
access to healthcare for example overlap.
And we have to think about their interrelationship
to one another.
So now I want to move into talking
about inequities and emergencies.
So we know that there is unequal access to resources
and opportunities in this country.
That is also coupled with unequal exposure to hazards.
For example, low-income
and predominantly minority communities may have less access
to resources in terms of wealth, power or healthcare.
Those same populations may be more prone
to a natural disaster and other threats.
So for example, communities of color are often situated
in vulnerable areas as a result
of discriminatory housing practices.
This has happened both historically
and is still happening today.
Hurricane Katrina cut across racial and socioeconomic lines.
We know it impacted much of New Orleans.
However, neighborhoods and people
with the most severe damage were communities of color living
in poverty and lacking services
and infrastructure needed to recover.
So not only are certain populations being impacted more
during the actual event, but it's also more difficult
for them to cope or to recover due to a lack of access
to resources afterwards.
So I want to bring up this map that shows the intersection
of vulnerability and hazard.
And I've pulled this from the National Environmental Public
Health Tracking Network which sits in the National Center
for Environmental Health where Dr. Breysse leads.
And I pulled up two maps.
One came from the Social Vulnerability Index,
and I pulled up the poverty score for Georgia.
And you'll see the areas
in yellow are areas of high poverty.
And then I pulled up a flooding map and so these are the areas
that are more likely to flood,
and the dark orange are those areas more likely to flood.
And you'll see the intersection between the two areas,
so those who have less resources are also more likely
to experience a flooding event.
So now I want to talk about a health-equity lens.
As you heard Dr. Liburd say, that we are starting
to apply a health equity lens to chronic disease management,
to disease management.
That has been recognized.
And now we want to move to apply the same lens
to public health emergency preparedness response
and recovery.
And this is to address disparities to ensure
that we're not inadvertently creating them during our
response and our recovery and our planning activities.
And also that we're not exacerbating them during

an emergency.
So there's underlying vulnerabilities and we want
to make sure that we're not exacerbating those.
So there's many barriers
to address disparities and vulnerabilities.
I'm just going to highlight a few,
and Dr. Redd had mentioned some of these.
One of these is a layered disaster.
So as I mentioned earlier, hazards tend to harm segments
of the population that were already disadvantaged before
a disaster.
There's differential vulnerability for people
where they work, where they live and where they play.
Government mistrust, this is what Dr. Redd brought up,
that there is historical and current mistrust
of the government and institutions.
So if we're using the government and certain institutions to get
out our messaging, they may not be received
because there's not a trusting relationship there.
Diverse communities often do not feel respected
and they may not have the political power
to garner their necessary resources.
Organizational resilience.
There's a lot of organizations out there
that address the day-to-day needs of at-risk populations.
However, these organizations themselves are often vulnerable.
So often these are nonprofit organizations
or nongovernmental organizations.
When these organizations go through an emergency,
they may exhaust their yearly budget for a response
and are not able to continue to provide services.
So we need to make sure that those
who are helping these populations
on a day-to-day basis are resilient.
And misconceptions.
In the past, people with disabilities
for example may have been perceived as unable to care
for themselves, unable to function in daily activities
and unable to make decisions about their health and welfare.
We know this is not true, and that there's many strengths
that we can harness from these groups.
But because of these and other misconceptions,
segments of the population are marginalized,
causing systemic exclusion from the social environment.
So now I want to talk about a couple of ways
to address these barriers
and hopefully we'll be hearing a lot more about these successes
as we hear from our other speakers.
Collaboration.
So we need to collaborate across all sectors.
So for an example, during a response, the Portland Bureau
of Emergency Management has social services
and emergency management in the same room.
So this allows them to work together
and to build off their strengths.
Engagement.
The way we engage partners in the community,

who we engage and how we engage.
So for example, the city
of Berkeley ensures their community emergency response
teams or their CERT teams mirror their community with inclusive
and accessible training courses.
So they offer it in a location where those
who are disabled can attend,
where you can get public transportation to it.
They offer it during times when working parents can come in.
They offer free childcare to make sure that those
who are going to be responding look
like the community that they're helping.
Representations.
We want representation in our organizations,
whether we're talking about research organizations,
our government organizations.
So an example is the Bill Anderson Fund
which supports students from underrepresented groups
as they complete graduate programs related to hazards,
disasters and emergency management.
And so these students receive a fellowship
to continue their studies and are mentored by other experts
in this area to help bring more students
from underrepresented groups into this field.

So now I want to flip this lens.
I've been talking about applying a health equity lens.
And there are some of you in this room who may not work
in emergency response, but the population that you work
with for example, individuals with HIV,
are going to be impacted by an emergency.
So have you thought about a preparedness lens
for these populations?
I like to say that everybody is involved in emergencies.
And so we're going to ask these questions later
on in the synthesis panel.
I just want you to plant a seed to be thinking about these.
If you're working with a specific population --
so if you work day-to-day in chronic disease for example,
have you considered how your population is impacted
in an emergency?
And while you're working to improve their day-to-day,
are you working to improve how they will cope
with an emergency?
And for those of you who have been working
in the health disparities field, how can you take your successes
and help us apply it
to emergency preparedness and response?

So in summary, there's many social, economic
and health disparities at the root of vulnerability
that persist during an emergency.
We need to address the needs of at-risk populations
in emergencies which includes improving their day-to-day life.
So can we address our social determinants of health
and harness the strength of these groups?
So for example, we know that a lot

of minority groups have very close-knit societies.
How can we take advantage of that and use it
in emergency response?
So I want you to think about how we can apply a health equity
lens to address gaps and identify individuals and groups
who need additional support.
And likewise, how can you apply a preparedness lens
to all health policies and practices
to help build resilience among those most at risk?
So I thank you.
I think we're going to hold questions
until after Dr. Breysse's presentation.
Thank you.
[Applause]

>> Thank you, Dr. Walken.
Our next presenter is Dr. Patrick Breysse.
Dr. Breysse is currently the director of the National Center
for Environmental Health and the Agency
for Toxic Substances and Disease Registry.
He came to CDC December of 2014
as the director of NCEH and ATSDR.
Dr. Breysse leads CDC's efforts to investigate the relationship
between environmental factors and health.
Dr. Breysse came to CDC
from Johns Hopkins University Bloomberg School
of Public Health where he was on faculty for nearly 30 years.
His primary appointment was in the department
of environmental health sciences with joint appointments
in the school of engineering and medicine.
He held leadership positions in numerous research centers,
including the Center for Childhood Asthma
and Urban Environment, the Education and Research Center
and Occupational Safety and Health, and the Institute
for Global Tobacco Control.
During his 30 years at Johns Hopkins,
Dr. Breysse established a longstanding expertise
in environmental health as well as a strong record
as a leader in the field.
Dr. Breysse collaborated on complex health
and exposure studies around the world, including studies
in Peru, Nepal, Mongolia, Colombia and India.
He has published over 225 peer-reviewed journal articles
and is a frequent presenter at scientists' meetings
and symposia around the world.
Please join me in welcoming Dr. Breysse.
[Applause]
>> Wonderful.
It's great to be here this morning.
So I'd like to talk to you about the Social Vulnerability Index
that Dr. Walken mentioned to you a few minutes ago and its role
in incorporation social vulnerability factors
into disaster management and planning.

Let me begin by introducing a group within the Agency
for Toxic Substance and Disease Registry called GRASP.
GRASP is the Geospatial Research Analysis Service Program

within ASTR.
For over 20 years, GRASP has led the application
of geographic methods for public environment health research,
and within the CDC
in the broader public health community at large.
It's a multidisciplinary group of scientists
that provide expertise and leadership
in applying geospatial information
through environmental public health, emergency management,
infectious diseases, chronic disease and injuries.
So it's important to realize here
that we can visualize a lot of data.
GRASP is a very powerful tool as you'll see for visualizing data.
And you've already seen a bit of that
from Dr. Walken's presentation.
I'll show you more.
But it's also an important analytical tool.
Remember evidence drives policy, evidence drives change.
And the ability to look at things
in a geographic setting analytically is crucial
for this.

I'll step back for a minute and just talk a little bit
about the background and the rationale
for the Social Vulnerability Index.
When it comes to social vulnerability,
there are multiple dimensions to vulnerability.
There's a physical vulnerability,
so you can be vulnerable because of where you live in terms
of whether you're on a flood plain, whether you're
in an old building, whether you're near a volcano
or on an earthquake fault.
There are also health vulnerabilities that exist.
You can be vulnerable because of some preexisting health
condition you might have.
But the focus of this talk is really
about the social vulnerability.
You can also be vulnerable, as you heard,
because of the social construct in which you live in terms
of the transportation you have,
the socioeconomic status you have.
Many of those have already been touched on today.
So all communities exhibit varying degrees of vulnerability
to potential disasters, both natural and manmade disasters.
However, it's a community's social vulnerabilities
that in many ways determine how well it responds to, recovers
and interacts with a disaster.
So the social vulnerability refers to the demographic
and socioeconomic factors that affect resiliency of communities
in order to manage these tasks.
Studies have shown that socially vulnerable individuals are often
less prepared for a disaster event, less likely to recover
from it, more likely to be injured or die.
Therefore, effectively addressing social vulnerability
to disease decreased human suffering
and reduces post-disaster cost.
This is the task that the GRASP Social Involvement Index took

on for itself.
So I don't want to go into a lot of the nuts and bolts,
but I think it's important
to understand this is a very quantitative tool.
And so what you see on the right-hand side are a series
of social vulnerability factors that we can collect
from a variety of databases.
And these 15 variables can be further grouped
into four major themes which you see in the middle box.
So these are things that deal with the socioeconomic status,
household composition, disability, minority status
and language, housing and transportation.
So these are the main domains we can use
to assess vulnerability more broadly.
We can quantify all the factors on the right-hand side
and we come up with scores.
When you come up with scores, you can begin
to be more analytical in how you address these issues.
For example, you can see
on the right-hand side there are many characteristics
that go hand-in-hand in a single event.
So to be able to quantify how these go along hand-in-hand
is important.
During the recent campfire incidents of California,
many residents who were in mobile homes were older,
so we have interaction between more than one
of these social vulnerability domains.
When these factors combine with low income,
we can see how there's a lot
of intersection among these domains in a single hazard.
So looking at how they play a role by themselves
and also looking at how they combine
to create an overall vulnerability is important.

So what I'd like to do is give you some examples
of how this looks and how this works
and how we can be quantitative about it and how we can begin
to use it to make decisions about public health.
So here we see a series of maps.
Now I'm a guy who loves maps and when we used to travel as kids,
you know, I used to sit there with the map
in my lap following us as we drove down the road.
Unfortunately, kids don't have that experience these days
because nobody looks at a map anymore.
You just turn on your phone, it tells you where to turn.
But there's a lot of important information in geography
and how things relate to where you are.
We've known for years that there are many relationships
that change over time, but we also know now
that there's relationships that change over space.
And to be able to incorporate that understanding
into decision-making is really what GRASP is all about.
It's what this Social Vulnerability Index is all about
and it's what we need to be more aggressive
at pursuing in our public health.
So if we look at the right-hand side of this graph,
you can see the four themes are mapped.

And it's a little hard to maybe read, maybe, perhaps.
But on the upper left is socioeconomic status.
The upper right is household composition.
The lower left is race, ethnicity, language.
And the lower right is housing and transportation.
So just to orient yourself, as you can imagine,
the darker color indicates a greater vulnerability.
So already we can piece together some components of what it means
to be vulnerable by looking
at where these vulnerabilities exist.
And these maps are produced at the census track level.
And so we can see that there's a lot of heterogeneity
in the vulnerability across these four different domains.
Now if we combine them all together
into an overall social vulnerability index,
we see on the left-hand side that we can look at kind
of how they all come together.
Recognizing however it's important
that areas can have a low vulnerability in terms
of one factor, and high vulnerability
in terms of another factor.
While it's important to look
at the overall vulnerability it's also important
to understand what the components are
that drive that as well.
Because you could be vulnerable with respect to one factor
and not the other factor.
That might drive what you do, what you think
and how you analyze your work.
So for example, the dark areas in housing
and transportation are areas
where additional evacuation resources need to be employed.
So if you're vulnerable in terms of transportation
and you're told to evacuate, that's going to be a problem.
So you know that already just in terms
of planning purposes you need to make sure there's resources
in order to get transportation resources
to those areas right away.
We can also note the darker areas
with socioeconomic status are areas
where additional shelter resources might be needed
because people with lower socioeconomic status might not
be able to secure additional housing.
They might have access to friends and relatives
that live somewhere else.
They might not have the resources to go
to a hotel and so forth.
So these are some examples of how we can look at these data.

Now there's an important document that I'd like to point
out to you, and this is the document you see on the right,
Planning for an Emergency: Strategies for Identifying
and Engaging At-Risk Groups.
This is a document the Center
for Environmental Health Studies branch wrote
with significant input from the SVI team.
It includes a substantial section on how to use the SVI.

So while I can't go through it in a lot of detail today,
we could talk for hours and have a whole symposium on SVI.
I think this is an important resource for those of you
in the audience who are interested in more data.
So the SVI database can be used to identify areas
of social vulnerability, target interventions.
It can facilitate decision making, it can be combined
with other data sources
to prioritize resources going forward.
It's population based, so you can target
where the need is greatest.
And it has other contextual information
that can help you understand a little bit
about a community's resilience overall which can lead
to planning purposes or resilience
as you know is a community's ability to prepare, plan for
and absorb, recover from
and more successfully adapt to adverse events.
And we know that building resilience starts before
disaster strikes.
So while we clearly see the value in this information
in the heat of a disaster response, the real value
of this is in order to target resources before the disasters
hit so that we mitigate the effects that might be caused
by these vulnerabilities.
So let's talk about a couple of examples.
So here we see a variety of maps.
These are bivariate coloropleth maps.
And what that means is they're two different colors,
and when you combine the map overlays, the combination
of colors creates a different pigment that allows you to kind
of look at where those two overlap.
And so this has two sets of maps,
so the upper right is the FEMA impact rank
and the lower right is the SVI rank during Hurricane Sam.
So the FEMA impact rank is based on surge,
wind and precipitation impacts.
These are used to assess the impacts for each county based
on the impact of the storm.
The bottom right shows the social vulnerability index.
Again, where the darker blue indicating areas
of higher vulnerability, the darker colors
in the FEMA impact also indicates greater vulnerability.
Now on the left-hand side, if you put the two together,
you can see where the two vulnerabilities map together.
The dark purple color indicates
where high vulnerability is overlapping
with high impact from Hurricane Sandy.
This is a combination that as we all recall had
devastating impacts.
Now it's important to look at the maps
and see how it plays out visually.
But as I said before, it can also be quantitative.
And a spatial cluster analysis revealed
that there was significant relationship
between the FEMA impact rank and the SVI.
Indicates there's a very quantitative relationship

between the two.
So this gives us strength in thinking that the SVI is
in fact a good tool going forward.
Now if we look at a different impact,
we look at Hurricane Harvey.

We can see that during Hurricane Harvey the SVI web page received
over 22,000 hits in the two weeks before Hurricane
Harvey online.
So this is obviously a tool that's being used a lot.
And these are some data generated not
by us but by Harris County.
And so similar to what I did before,
the maps on the right-hand side show the four domains,
and the map on the left-hand side shows the overall
vulnerability index.
You can see that there are many vulnerabilities
that overlap going forward.
The darkest areas on the left map --
there are isolated areas as we've talked about before,
particularly in the dark blue spot in the northwest borders
of this county, or the high housing vulnerability.
And lower scores in most of the other things.
So that doesn't mean we ignore those areas,
but we have to focus on those areas where it's most important.
So more importantly, this Harris County used these data to look
at mortality and morbidity.
I don't have these data.
The state of Texas has these data.
But they found for example that approximately half the deaths
that were in census tracks with an SVI
in the highest quartile mean
that with SVI we can expect more mortality.
They saw a similar result in terms of morbidity.
So going forward we can also see not just
where there's the greatest impact, but also it leads
to health disparities as well.
Now this is an example that's probably closer to home.
This is in Georgia and it looks
at heat-related morbidity and mortality.
So similar to what we saw in some of the other storms,
we can look at the overlay
between on the left-hand side evening visits,
on the right-hand side mortality.
And we can look at areas where there's high morbidity
and mortality, areas
where there's high social vulnerability.
If we get to the bottom line of this graph,
we can see that with every 10% increase in SVI,
the rate of heat-related ED visits increase by 20%.
So again, the ability to be quantitative
about this relationship is key.
For every 10% increase in overall SVI,
the heat mortality rate increased by 30%.
So heat events are going to be with us now --
they're going to be a regular part of our life.
And so planning for these, using these data to identify

where the morbidity exists, where the mortality exists.
And how it relates
to vulnerabilities tells you what you need
to do to intervene.
So this is crucial for public health moving forward.
Now there's many partners who work with ATSGR
in using these data, and we list some of them on this slide here.
We don't have time to go through all the different roles,
but the social vulnerability index has a big following
across the public health community.

So in conclusion, disasters
and emergencies are an everyday part of the world.
In many cases what we used
to consider a rare event is now a more common event.
So extreme heat events, wildfires now are things
that we deal with every year.
Historically, these events were rare,
but now they're more common and they're more complex.
This makes the SVI tool even more important.
Every part of the nation and the world is constantly being
affected by these events.
For more information, please visit the SVI website,
interactive maps, at SVI.CDC.gov.
To see more examples of how this is being used, you can look
at some of the publications listed on that website.
Lastly, I'd just like to thank the people who are responsible
for developing the index.
You see them listed here,
so Andy Dent is the director of the GRASP program.
Erica Adams, Elaine Halsy, Bert Flanagan
and Greta Wells are all important contributor
to the GRASP program.
So with that I think we can move to questions and answers.
[Applause]
>> Thank you, Dr. Breysse.
So for questions we have the mics
in the middle aisle there on opposite ends.
And then if we want to open questions to IPTV.
So the floor is open for questions for Dr. Walken
and Dr. Breysse at this time.

>> Thank you for those really fantastic presentations.
So a question about the SVI, how often is it updated?
Is it a continual updating because things change,
gentrification happens?
How often do you keep that current?
>> Yeah. So the SVI is produced with databases
for years 2000, 2010, 2014, 2016.
And so it relies on the census and other data.
We're looking at producing a 2018 database once those data
are available going forward.
So as the census data becomes available,
we will revise the SVI index going forward.
So currently it's the most recent data are based
on the 2016 data.

Everybody's always shy in the morning.

Somebody's moving down.
If those of you who don't have microphones at your desk,
you can step to the microphone in the aisles.
>> Sorry, it took me a while to lumber down the stairs.
This is a question for the first speaker.
I noticed that you mentioned that you do have a focus
to some degree on the resilience of responders.
I was wondering if you could elaborate a little bit more
on that and what you do around that area.
>> Yeah. In the Center for Preparedness and Response,
so not out of my group, out of DEO --
I don't know if any of them are here today.
Yeah, I do see some of them.
There is a big focus on responder resilience.
We want to make sure that we are thinking about our responders,
that they're going out the door as capable as they are
and have the proper training and that we supply support
to them during a response.
And through NIALS and the ERN system, there's ways
to register responders and then track them and follow them
so that you can watch their resilience.
And then it's an important piece
when they come back home too for them as well.
So recognizing that they're going
through a traumatic event potentially as well.
And that event could be reengaging some previous trauma
that they've had also, so it's very important to think about.
>> I'm sorry, I think I misunderstood
and thought you were talking about those out in the states.
>> Yeah.
>> Okay. Like state-based public health.
But to that end I also wanted to then --
I'm sorry, that wasn't a setup question.
I also wanted to put a plug in for --
I just became the team lead
of the resilience program that's associated
with our occupational health clinic.
And I will have to say that before I knew about the job,
I didn't know they existed and I think
that that's probably very prevalent across the agency.
So we're working on trying to improve that.
But I was also curious what others in the states do
and I'm sorry, I think I thought
that was what you were referencing.
But this is an opportunity to let CDC folks know
that there is a dedicated resilience program that's based
in the occupational health clinic.
>> Yeah. I'd love the opportunity
to hear more about that later.
Thanks.

>> Good morning.
Great presentations.
Thank you.
I wonder if the vulnerability index includes populations

like those that are incarcerated and those that are undocumented.
Because we know they're around, and how do you account
for those populations?
>> Well, I think the undocumented populations are a
challenge because there's not a lot of data
on them by definition.
But there are opportunities
where there's not natural based data for a state
to include special factors about vulnerability.
And so if a state was willing to incorporate data
where they have it available, they could certainly do that.
And with respect to the incarcerated populations,
I believe it's everybody, but I don't know for sure.
But that would be an important group to consider.
>> Thanks.
[Inaudible]
>> Thank you.
>> I'm going to try again here.
Can you give us some examples
of where states have used the SVI database in preparedness
and how has that helped the state level response,
or national response?
>> Yeah, so the Harris County example's I think a
perfect example.
Where they looked very carefully during the 2017 hurricane season
where the damage was, where the vulnerabilities were,
where the morbidity was, where the mortality was.
And they were able to focus resources aggressively
in those areas where they think they needed them more strongly.
So I think that's a good example.
And if you want to refer to the website,
I think you can see more examples of how states do it.

There was a comment up front.
>> Yes. Hi.
Good morning.
Excellent presentation.
I want to share with you my experience in Puerto Rico.
We reached the community leaders
of the federal population groups,
and we found there more information that we can do it
by assessment by people that go
and interview members of that community.
Because the community leaders know the needs of the community,
knows the person that really is [inaudible] and helps us
to figure out how we are going
to address the problems of the community.
Because the problems
of the community are different [inaudible].
The problem that is in one community is not the same
in the other community.
It could be a water source, it could be accessibility
to healthcare, you name it.
So I think that maybe in the future we have to involve more
of the community leaders in this type of interval,
because we can get more fresh and real-time data
about the real situation of those communities and the people

who are more vulnerable.
>> Thank you.
I think that's well taken.
In fact, this data was meant to be used
by local public health officials to drive the response
and to work on preparedness activities.
>> I just want to comment on that.
We do say all disasters are local, because we recognize
that these are national systems that gives us a starting point.
But we have a research project right now
which is actually piloted in Puerto Rico
to collect information from local leaders.
And so at the end of this research project there will be
an app that local leaders can use to help find out how to get
that local information from your community leaders,
whether they're lay leaders, elected officials.
Because we know that is the best information that you can get
and should be used to drive response.
So thank you for mentioning that.
>> Great presentations.
My question is with the SVI, has there been any effort to partner
with say for example local non-governmental organizations
as a way to give aid?
So using SVI as a way to kind of promote aid --
because I know there was I think almost $1 billion given
for the Houston hurricane
and people were saying they weren't sure
where to I guess put the aid.
>> Yeah. I think there's lots of examples with that.
So they worked with the Catholic charities,
they work with a group called Direct Relief
to create an interactive map identifying vulnerable
populations during the Houston hurricane response.
They even worked with a legal services corporation
to provide legal services
to disadvantaged populations as well.
So I think there's a host of examples
where there's nonprofits that can use this information as well
to help guide their efforts.

[Inaudible]

>> So that's a great question.
Certainly it is one of the at-risk populations
that we need to consider.
Not only do they have a lack of resources,
but they're often marginalized.
They don't have the political power to garner resources.
There can be language barriers, and we call them --
some people call them hard to reach populations,
but we need to make more effort and we also need to make sure
that there's policies in place
that people can access the resources we're giving.
A lot of times that's an issue.
For example in California during the drought, they were giving
out water, but undocumented people didn't want
to come get the water, afraid about other repercussions.

So it's really important.
And when we're putting out recommendations and policies,
making sure that everyone has access
to them including our immigrant population.
So no easy solution, but definitely
on the minds of everyone.
>> Keep in mind that SVI is a tool, right?
And it's designed to incorporate data where those data exist
in a platform that can be useful for policymakers,
private citizens, nonprofits to address these issues.
And so as a broader societal issue, we need to kind of think
about how do we gain access to data on immigrant populations?
And if those data become available,
it would be relatively straightforward to incorporate
that into the SVI tool.

>> Okay, one final question.
Go ahead.
>> Yeah, thanks.
It's not really a question, more a comment.
Thank you for the great presentations
and all the great work with the SVI and so on.
I just wanted to comment on a couple things
that have already been said as far as SVI being used
by this state, for instance in Texas.
They were concerned about immigrants
and undocumented people and so even though the data
as Dr. Breysse said is difficult to really get
and incorporate completely, there are local organizations
who already work with these groups
and who try to reach out to them.
And so when we were in Texas we were able to meet
with those groups and they were able to use an SVI map
to also sort of incorporate
where they knew these people worked and lived.
And so it's useful in that case.
Another point I think that Dr. Walken was making was that all
of these organizations -- it's not just up to public health,
it's not just up to emergency management, but we realize now
after Texas and Puerto Rico and USVI and these other things,
that there's a whole broad range of sectors as Dr. Walken said
who didn't know that they were involved in emergency response
and recovery until these really large-scale events took place.
And all of the sudden we realize that we have Department
of Housing and Department of Aging
and these other organizations
who weren't ready to do this really.
But that their role is so important
because they're the ones who are protecting a lot
of these populations before an event takes place.
So that's an important I think lesson that we've learned,
particularly in the 2017 year.
And just lastly, I think
when the question is how do we reach these people,
the other thing we need to learn is where are these folks
and how are they getting information?
So in Texas for instance, some of these folks,

the day laborers collected in a certain place in the morning.
That's where they were and that's
where they needed to be reached.
Other folks say in some communities it's in churches.
In Texas we found out that there was a large Vietnamese group,
fisherman, coastal folks, who were not going to come
to the disaster resource centers.
And so we found out where they were and tried
to get the appropriate people to go
and address the community leaders there.
So I mean, it's all interconnected but I thank you
for the presentations that I think will set a good stage
for the rest of the morning.
Thank you.
>> Okay, thank you.
Again, I want to thank Dr. Walken and Dr. Breysse
for very important presentations.
[Applause]