

Office Of Disease Prevention and Health Promotion
Healthy People 2020: Who's Leading the Leading Health Indicators?
Environmental Quality Webinar, December 17, 2012, 12:00 p.m. ET

MODERATOR: Good afternoon everyone and thank you for registering to the webinar on the Leading Health Indicators. You are now in listen only mode. Please use the Q&A feature on the right hand side of your screen to submit any questions. You can also follow live Tweets from Healthy People. The handle is '@' sign, gohealthypeople, all one word. And we encourage you to tweet your questions live using the #LHI. Your questions will be answered at the end of the webinar. I'd now like to introduce Carter Blakey, Deputy Director of the Office of Disease Prevention and Health Promotion at the U.S. Department of Health and Human Services.

CARTER BLAKEY: Welcome to the twelfth installment of the monthly series, "Who's Leading the Leading Health Indicators?" Each month the series highlights an organization, state or community addressing one of the Healthy People 2020 Leading Health Indicator topics. The series includes a monthly webinar, e-mail bulletins, and active conversations via Twitter and Linked-in. So what are the Leading Health Indicators? For four decades Healthy People has provided a comprehensive set of ten year objectives that have served as a framework for public health activities at all levels and across the public health community.

Healthy People is about understanding where we are now and taking informed actions to get to where we want to go over a ten year period. Addressing these public health challenges, such as tobacco use, access to health services and overweight and obesity will help us reduce some of the leading causes of preventable death and major illnesses. These indicators are organized under 12 topics, allowing us to focus in on a specific topic each month over the past year. This month we're focusing on the critical issue of Environmental Quality.

During today's webinar you'll hear from distinguished speakers. Dr. Don Wright is the Assistant Secretary for Disease Prevention and Health Promotion at HHS. He will give you an overview of this month's LHI topic, Environmental Quality, and present the latest data for the Environmental Quality LHI. Mr. Bill Wiley will discuss Maricopa County's success in improving reducing exposure to unhealthy air by implementing a monitoring and response system and providing the community with timely notifications of potential health risks.

Then also during today's webinar and during the roundtable discussion we'll be joined by Dr. Steven Kleeberger and Mr. David Mintz. Dr. Kleeberger is the Director of Environmental Genetics Group within the National Institutes of Health and an expert on the health effects of air pollution. Mr. Mintz is a Statistician at the Office of Air Quality Planning and Standards within the Environmental Protection Agency and an expert on the Air Quality Index. We're excited to have these distinguished speakers here today, as well as our guests who will be joining us later.

I'd like to remind you that during the course of this webinar you may submit your questions to our speakers and panelists using the chat feature at the right of your screen. We'll address these questions during our roundtable discussion. So with that I'd like to introduce Dr. Don Wright. So Don the show is yours.

DR. DON WRIGHT: Thank you, Carter. Before we hear from Mr. Wiley, I'd like to give you a brief overview of this month's Leading Health Indicator topic, Environmental Quality (or Exposure to Unhealthy Outdoor Air). An environment free of hazards, such as secondhand smoke and various forms of air pollution helps prevent disease and other health problems. Implementing and enforcing environmental standards and regulations, monitoring pollution levels in human exposures, building environments that support healthy lifestyles and considering the risk of pollution in decision making, can improve health and quality of life for all Americans.

The Healthy People 2020 Leading Health Indicators for Environmental Quality are Air Quality Index or AQI exceeding 100 and children aged 3 to 11 exposed to secondhand smoke. Maintaining a healthy environment is central to increasing quality of life and years of healthy life. Poor outdoor air quality can be attributed to both natural sources of pollution such as dust from wind storms as well as human generated sources, such as emissions from vehicles. The health effects of poor air quality include respiratory diseases such as asthma, cardiovascular diseases and changes in lung function and even death.

While many factors contribute to poor indoor air quality, secondhand smoke is one of the most pervasive of these pollutants. During 2007 through 2008 approximately 88 million non-smokers were exposed to secondhand smoke in the United States. In adults who have never smoked, secondhand smoke can cause heart disease and/or lung cancer. Breathing secondhand smoke can be harmful to children's health as well and has been associated with asthma, sudden infant death syndrome, bronchitis, and pneumonia and ear infections.

So what are the health effects? Exposure to outdoor and indoor pollution can cause both short term and long term health effects, including damage to the immune, neurologic, reproductive, cardiovascular and respiratory systems. Decreasing air pollution and eliminating exposure to secondhand smoke are important steps in creating a healthy environment and improving the health of all Americans.

The number of people with asthma continues to grow. One in 12 people, about 25 million or eight percent of the population had asthma in 2009, compared to one in 14, about 20 million or seven percent in 2001. Asthma cost the United States about \$3,300 per person with asthma each year from 2002 to 2007. More than half, 59 percent of children and one-third, 33 percent of adults who have had asthma attacks missed school or work because of their asthma in 2008. On average in 2008 children missed four days of school and adults missed five days of work due to their asthma.

In 2009 there were almost a half a million asthma-related hospitalizations, two million asthma-related emergency department visits and nine million asthma-related doctor visits. Asthma is triggered and exacerbated by environmental factors such as outdoor air pollution and secondhand smoke. By addressing the two Environmental Quality LHIs, secondhand smoke and outdoor air quality, we can help individuals reduce or eliminate exposures to these triggers. Safe air, land, and water are fundamental to healthy community environments.

In the next few slides I'll provide you the latest data on Environmental Quality Leading Health Indicator. Healthy People 2020 objective, tobacco use 11.1 tracks the proportion of children aged 3 to 11 who are exposed to secondhand smoke. Although many groups including the total population have met this

target, note that the target is based on a four year estimate and the most recent 2009-2010 two year estimate will be replaced with a more stable number in the upcoming years.

Among racial and ethnic groups, Hispanic children ages 3 to 11 had the lowest rate, at 30.7 percent of exposure to secondhand smoke. The rate for non-Hispanic Black children was 67.8, more than twice the rate of Hispanics. And the rate for non-Hispanic White children 41.7 was nearly one and a half times that for Hispanics. Children born outside the United States were less likely to be exposed to secondhand smoke than children born in the United States, 18.7 percent versus 43.2 percent. The rate of children born in the United States was nearly two and a half times the rate for children born outside the United States.

Lastly, among insurance groups, children aged 3 to 11 with private health insurance had the lowest rate of secondhand smoke exposure at 31 percent. Children with public health insurance 55.8 percent had nearly two times that rate. And children with no health insurance, 46.5 had about one and a half times the rate of secondhand smoke exposure.

The number of Air Quality Index weighted people days declined 44 percent, from 2.2 billion to 1.2 billion between 2006 and 2008 to 2009 through 2011, meeting the Healthy People 2020 target of 1.98 billion. However, this trend cannot be tested for statistical significance. While the data indicates that the target has been met monitoring over the next decade is crucial to ensure progress continues. Although the AQI is highly dependent on local, seasonal and annual variation in weather, air quality has been improving substantially for several decades.

I would now like to turn the podium over to Mr. Bill Wiley, who will talk about the system in Maricopa County created to identify and respond to manmade dust pollution instance with the goal of reducing the number of days this region exceeds the federal health standards for air pollution. Mr. Wiley.

BILL WILEY: Good afternoon or good morning, depending on where you are. I'm pleased to talk with you about our Rapid Response Program, where we're trying to get to those incidents of outdoor air exposure to particulate matter, particulates. Next slide.

A little background on Maricopa County. The county is 3.8 million people. We're larger than seven states to give you some idea of the mass, how big the population is. And our population is larger than 23 states, so a very large county. And most of you probably know the county as the place where Phoenix is located or Scottsdale, if you come here to vacation. So it's a very large area.

With that we're in serious nonattainment for particulate matter, PM10. And I'll do a little background on that. Nonattainment means we haven't been meeting the standard since 1996. So this is the EPA health based standard, we have not been able to meet it for PM10 since 1996. And in fact PM10, if you want to get some idea is particulate matter 10 microns in size or less. To give you an illustration of that if you were to take one of your human hairs and slice it crosswise seven times, one of those pieces would be on the size of PM10. So we're talking very small particulates.

All people are exposed to both natural and human caused dust. And because of that we have to try to deal with both of those. The natural is a little harder to deal with here in the desert Southwest because we have large storms that blow in, and oftentimes we have little that we can do to try to prevent those.

That said, we have adopted 130 control measures on sources of particulates. Those are things like controls on agriculture, controls on construction activities, controls on roads, leaf blower restrictions, those kinds of things. And we put those in a plan and we sent that to EPA to say here's how we're going to come in compliance and meet that health-based standard.

With that, we realized that we also have to have some way to respond when something happens unexpectedly. And the Rapid Response Program, which I'm going to tell you more about today, is designed to try to prevent anything that we believe is being caused by human cause activities. We are also asking EPA to understand that some of the things are outside our control and you may have seen some storms on national television last year or the National Geographic this year, September issue, these things called haboobs. It's an Arabic word I think for giant dust storms. These are pretty much outside of our ability to control.

And the next slide shows a picture of that. This was in the National Geographic in the September issue. It actually happened in 2011. This is one mile high and 50 miles wide and it's blowing in from the south of the Phoenix area. And essentially all we can do under these circumstances is tell people to take shelter and prevent their exposure as much as possible. Next slide. The Maricopa County Air Quality is essentially a local EPA for air quality issues. And you can see some of the things we do, monitor network, Trip Reduction Program, permits, etc. Next slide.

What I wanted to focus on today was our Rapid Response Program. And this program is designed to be compatible with our State Implementation Plan for particulates. The State Implementation Plan is what we put together, the entities here that are responsible for air quality to give to EPA to say here's how we're going to come into attainment, how we're going to meet the standard. So our intent of the plan is to reduce exposure from the particulates due to human caused activities.

So the Rapid Response Program, if something were to happen, what can we do to prevent the health exceedance as quickly as possible. Secondly, we wanted to figure out some way to let people know that conditions are not safe for them, to try to minimize their exposure. And then we wanted to see how many people we can get involved in the program, so that they can help us solve this problem, because obviously just one regulatory agency can't do this.

All right, here are the keys. The keys were that we needed to have more accurate real time data. And typically most agencies collect data on an hourly basis. And after an hour by the time you respond people will have been exposed two, or three hours oftentimes and that just wasn't acceptable. We needed a quick analysis. If we can get quicker data in from the monitors can we determine hey, we need to get out there and do something? And so that was really critical.

In addition, once you determine that there was a problem, how do you get the word out? How do you let people know to protect their health? How do you get people out there to solve the problem? So that was really critical to us.

And again we're looking at human caused events. We're looking at mitigating the activities or stopping activities that are causing the problem. And then ultimately, we don't want this to happen again. We want some education. We want some ability to say here are some controls that are needed, implement those next time, so we don't have to do that again. Next slide.

Well, here's the structure of our program. We went from this hourly data that I told you that most agencies look at to real time monitoring. We can actually get the data on a second by second basis. We tend to average it over a five minute basis because that takes out of the anomalous spikes that you see. But we get the data very rapidly; once it hits the threshold to an Air Quality professional who can look at it and say, wow, this is something that we should solve; it's human caused.

And when the alert comes to the Air Quality professional they look to say hey, is it weather caused, is there a way that I can tell it's weather caused? Is there something happening out there? You can tell by how the spike on the data goes up, whether or not it looks to be human caused or not. And then they look at it for a period of about five minutes and if it is deemed to be human caused we send an alert out. An alert is something like a reverse 911, so within the area of where we have this monitor that's going high, we will send an alert out to people within that area saying hey, do something, do what you can to try to reduce this exposure, something's causing this. And I'll give you some of the data in a few minutes. Next slide, please.

So what happens when you send an alert out? Typically people do things. If you have no ability to control the problem, you'll try to minimize your exposure. If you have an ability to control the problem or you were the cause of the problem, you'll do something to try to reduce the problem. Here's an example of somebody putting water down on an area that's very dusty that could get into, be measured by the monitor. But there's a whole litany of things that you can do, things for blocking roads, you can do fencing, you can prevent trespass, and I'll show you some slides on that in a minute. You can actually halt activities; if they're causing a problem you can actually stop the activities for a period of time until say the winds have dropped down. Next slide.

I think one of the critical key things that makes this successful is just the number of entities involved. We have entities from our state environmental agency, our county planning organization, that's MAG, Maricopa Association of Governments. All cities and towns are involved. We have health partners, hospitals and schools, and health agencies. The media's involved. We have a list of other entities that are involved from the Farm Bureau to our rock products, you know, sand and gravel operations, home builders, contractors, off-road vehicle associations, on and on and on. In fact, we have over 6,900 parties involved with this. Not all at each monitor, but at selected monitors where they may be have some activity. Next slide, please.

So what have we done so far? Since inception, which is about a year and a half ago, we've sent out 18 alarms. So we've looked at the data, it's come in, something's going on. Out of those 18 alarms we've prevented, we believe 12 exceedances. And when I say we believe we prevented 12 exceedances, sometimes we don't have the data to verify. We have three where we can verify that we prevented; the others went down for some reason. And it's partly because by the time an Air Quality inspector gets out there, the problem has subsided.

And so again you can see the data, 12 exceedances avoided. Early on in the program we sent out alarms on those big dust storms. We realized that there was very little that we could do, so we're trying not to send them out if there are these huge storms that happen here, these natural events. We also had one circumstance where we were unable to prevent exposure above the health limits. And it went

overnight. This was 11 pm at night. It went overnight until a few hours in the next morning. Unfortunately we had some exceedances. So we haven't been successful every time. Next slide, please.

So what are the key findings? The partnerships. The fact that we have so many people involved with us and everyone is about the air quality. And they're concerned for different reasons. Some are concerned about their health. We all breathe the air and we all contribute to the problem. But some are also concerned about the economic consequences if we stay in nonattainment, and that can be substantial.

What we found is that it's created some lasting relationships and the lasting relationships often expand into other projects, things like field guides and educational efforts, and some research projects. So those have been really critical moving forward.

System improvements; in order for us to build this system we had to upgrade our monitoring system. We went from landlines to wireless on our monitors; wireless modems. We've had to upgrade our computing capability, so that we could process that data very quickly. We've had to expand our reverse 911 system. It's called GovDelivery, so that we get these notices out very quickly. So, the system improvement part of this is very important to this.

We also realized that we didn't want to alert everybody every time. Again, you heard earlier that this is a very large county. But the alert may be one monitor in one location. Those are the people you needed to get alerted, so that they could respond or they could take appropriate action and you didn't want somebody 50 miles away, because our county's that large, have them alerted because it wasn't going to affect them. Next slide.

This program has received some recognition. That National Association of Counties gave us an award for this program in July of 2012, recognizing that it was unique and really trying to respond to circumstances that we could control. We also received an EPA Excellence Award in September of this year. And you know some of our partners, one of those being the Associated General Contractors acknowledged this in their national newsletter. So it's been a very well received program by many people. We're very pleased by the partnerships that we've developed here and the fact that we've been able to actually reduce some exposure. Any questions?

CARTER BLAKEY: Thank you Mr. Wiley, and thank you Dr. Wright. I'd like to now invite participants who have not already done so to send their questions through the WebEx Q&A feature or via Twitter using the hash tag LHI and many thanks to those of you who have already sent your questions in. I'd like to remind you that we're also joined at this point by Dr. Steven Kleeberger from the National Institutes of Health and Mr. Mintz from the Environmental Protection Agency.

But before we turn to the Q&A I'd also like to let you all know that you'll be prompted to fill out a survey about your experience with this webinar during the Q&A session. I encourage you to complete the survey so that we can improve our future webinars in our series and thanks again in advance for your feedback. So we already have a stack of questions that have come in. And actually I'd like to turn to Dr. Wright to answer the first question. You mentioned the connection between air quality, secondhand smoke and asthma, I'm interested, the viewer, the participant is interested in any data that you might have to address population disparities concerning asthma.

DR. DON WRIGHT: Thank you Carter, and thanks for the question. Certainly, reducing health disparities and hopefully someday eliminating health disparities is an important goal of the Healthy People initiative. I have a couple of slides here that point out the health disparities associated with hospitalizations for asthma and emergency department visits. In the slide that is currently listed here, the disparities are graphically represented.

I think, as I mentioned earlier, asthma is triggered and exacerbated by environmental factors, such as air pollution and secondhand smoke. Without question asthma is a serious public health concern and asthma disparities are a key issue that needs to be addressed. Hospitalizations for asthma among children and adults ages five through 64 varied in 2007 by sex, race, and health insurance status. As you can see, the rate for females at 13.8 per 10,000 was more than one and a half times the rate for males at 8.2 per 10,000.

The rates for Blacks were 22.8 per 10,000 and that was more than three and a half times the rate for Whites, which was 6.4. Rates also varied by health insurance status. Those with private insurance had a rate of 6.4 per 10,000, which was the lowest rate among health insurance status groups. The insurance uninsured rate had a rate of 8.0 per 10,000. And those with public insurance had a rate of 29.8 per 10,000, more than four and a half times the rate of those with private insurance.

Moving to the other slide I had, we focus on hospital emergency department visits associated with asthma. Hospital emergency department visits for asthma among children and adults age five to 64 varied in 2005 to 2007, again by sex, race and ethnicity, and health insurance status. The rate for females of 69.3 per 10,000 was more than one and a half times the rate for males at 44.6. Among racial and ethnic groups the non-Hispanic White population had the lowest rate at 37.1 per 10,000.

The rate for Hispanics was more than one and a half times the rate for non-Hispanic Whites. And the rate for non-Hispanic Blacks was more than five times the rate for non-Hispanic Whites. Rates also varied by health insurance status, and those with private insurance had a rate of 30 per 10,000, the lowest rate among the health insurance status group. The uninsured had a rate of 64.4 per 10,000, more than twice the rate of those with private insurance and those with public insurance had a rate of 151.6 per 10,000, almost five times the rate of those with private insurance.

CARTER BLAKEY: Thank you very much. Dr. Kleeberger, if you're on the line, I'd like to send the next question your way.

DR. STEVEN KLEEGERGER: Sure.

CARTER BLAKEY: Can you tell us if there are some people who may be more vulnerable to the effects of air pollutants than others? Or is it a level playing field?

DR. STEVEN KLEEGERGER: So that's a great question and a lot of research has been done on that question in particular. And I think we all have to understand that there are actually many factors that can contribute to vulnerability to almost all of the air pollutants that we are considering; so socio-economic status is an important determinant of susceptibility or vulnerability. If you live in poor neighborhoods, you are oftentimes more likely to be exposed to high levels of air pollutants. Preexisting

disease is another important determinant, as we've heard asthma is one of those. But cardiovascular disease, diabetes, obesity, these are all factors that are important.

It's been determined over the relatively recent years that a genetic background can also have an important impact on whether you are very susceptible to air pollution and the effects of the pollutants or not. So there are a number of factors that can contribute. Others include gender and age. So the playing field is not level. In fact, some people are much more vulnerable or susceptible to the effects than others, for any number of reasons that I've just described.

CARTER BLAKEY: Thank you very much. And now Mr. Mintz, are you on the line?

DAVID MINTZ: Yes, I am.

CARTER BLAKEY: I have a question for you. Is every city required to report the AQI?

DAVID MINTZ: No, they're not actually. Only cities that have populations greater than 350,000 based on the 2010 census data are required to report the AQI for the day. However we do have air quality monitoring in many more areas and most other areas where we have air quality monitors actually do report a daily AQI.

CARTER BLAKEY: Thank you very much. Mr. Wiley, I have one for you. How do you respond to other kinds of pollution?

BILL WILEY: We track all the criteria of pollutants plus more. We have a total of actually 40 plus monitors here in the county and we track those. The difference here is your ability to respond. Things like ozone build up over time and over distance. In fact, we see here in the Phoenix metro area impacts from Southern California occasionally and so you know ability to stop it is a little bit more difficult. That being said we always put out warnings to people to let them know as you've heard from some of the other panelists you know health exposure varies among individuals in different populations, so we're always putting out alerts to people to reduce their exposure whenever that happens.

The one thing that we're working on expanding this program on is related to fine particulates. Believe it or not we use fireplaces here in the desert southwest, occasionally it gets cold, but we tend to use that during holiday events, and what we've found is that for fine particulates we can modify this program slightly to determine where we can send our inspectors when we have no burn days. So we are able to expand that to fine particulates and help us manage our resources.

CARTER BLAKEY: Great, thank you. And we also have actually quite a few questions for you. A lot of participants appear to be interested in knowing what your secret was to engaging a wide group of entities crossing sectors. How did you pull in all these other entities, whether they were entities within the county or other state and local groups?

BILL WILEY: Very good question. One of the important things here is that the stakeholders must have a reason to be involved. And some people are involved because of their health concerns and they're worried about, you know, their kids' athletic activities or they have you know compromised immune

systems. So you have people involved naturally because they have personal health or familiar health issues. And so they have some interest in being involved.

Others may be involved more, because of economic activities. When you are in nonattainment for a health standard, you have the threat of economic controls that may adversely affect your business. And so a lot of these participants also have that. And it's interesting, I believe, that those that had economic concerns also had personal health concerns. And so they all got together and to be candid this has developed over a period of time, the support for this program, since we've been working on plans for attainment, and over time we've had more and more support. And the consequences are just bad.

Let me tell you what could happen. You know this is an area that construction has been very important to it. One of the potential sanctions was the loss of federal highway funds. Our local planning association said loss of that highway fund was the equivalent to 215,000 jobs that could be lost. You can see the economic concerns where people said hey, that's my livelihood. So part of it was health-based, part of it was economic-based. Regardless of why it was there they all participated and they all supported the program. And we thank them for that.

CARTER BLAKEY: Great, thank you very much. Mr. Mintz we have a couple questions for you. Can you tell us how the AQI is related to the National Air Quality Standards, if it is related?

DAVID MINTZ: Sure, sure, that's a good question. The EPA sets national standards for six outdoor air pollutants. And Mr. Wiley had mentioned particulate matter that's one of them. And particulate matter has two indicators, PM10 and then the PM2.5 that was mentioned just a minute ago as well being even smaller particles than PM10. We also set standards for ozone, sulfur dioxide, nitrogen dioxide and carbon monoxide. All of those except for lead are part of the Air Quality Index. Lead is excluded primarily because it does not have a short term standard, something that we can relate on a short term basis.

Most of the standards require several years of data, two or three years of data before you can assess whether a monitor in a given area meets the standard or not. And that relates to the nonattainment term that Mr. Wiley used earlier when he was indicating that Maricopa County was in nonattainment for PM10. And obviously the general public doesn't want to wait two or three years to find out if they live in an area with good air quality or not, and so the AQI was developed as a communications tool to provide daily air quality information to the public.

So the levels that are used in the Index are related to the levels that are prescribed in the National Air Quality Standards. Typically the level of 100 for the AQI is set at a level that's equivalent to the short term standard for one of those pollutants, so that if you see a daily level that's higher than that then that equates to a color code of orange. The AQI's color coded. Green is good, yellow is moderate, orange is unhealthy for sensitive groups and then there's red, which is unhealthy for the general population. And then purple which is very unhealthy.

And there's even a hazardous range that typically we don't see these days except in extreme, extreme air quality events.

CARTER BLAKEY: Thank you. And Dr. Kleeberger, there are some more questions for you.

DR. STEVEN KLEEGERGER: Okay.

CARTER BLAKEY: Can you tell us what the role of air pollutants is on existing lung diseases, such as asthma?

DR. STEVEN KLEEGERGER: So that's a very good question and it's also a very complicated question. First of all, there have been many studies that have shown that air pollutants can exacerbate preexisting diseases. Asthma is one of the examples that has been discussed already. In particular children are very affected by air pollution exposure if they have asthma. Older adults with compromised immune systems may also be at risk to the effects of air pollutants. And recent, although somewhat controversial, studies have also suggested that exposure to air pollutants, in particular ozone, can cause chronic lung diseases.

A number of studies have suggested that exposure to ozone in fairly high concentrations, especially in those who are exercising or playing sports may have an increased risk of actually developing asthma as a function of being exposed to ozone. So there are a number of factors that can contribute, as I said, age is one of those, the amount of exposure that you get. And gender, too can have an affect or can influence how an individual responds to these exposures.

CARTER BLAKEY: And here's another one for you, Dr. Kleeberger, does one air pollutant have a greater health effect than another?

DR. STEVEN KLEEGERGER: So that too is a good, but very complex question. And so in general, I think most health experts would agree with this that largely particulate exposures have effects on cardiovascular but also respiratory diseases. But cardiovascular diseases have been associated very strongly with exposure to particulate pollution. Ozone, on the other hand, has been associated largely with effects on the respiratory system. The respiratory system is exposed, as you all know, to everything in the air.

Ozone is very volatile and very reactive and it largely reacts with the lung lining to cause affects in the lung. Particulates, on the other hand, can in fact get from the lung into the circulation and may affect the cardiovascular system through that route. Other air pollutants, largely like the nitrogen dioxide and sulfur dioxide, have affects mostly on the respiratory system, so whether they have greater health effects or not is very debatable, but they certainly can have different health effects.

CARTER BLAKEY: Thank you very much. And Mr. Wiley I'd like to turn back to you for a few questions. To what degree can the dust related weather events that Maricopa County has experienced be tracked back to some degree of human activity outside of the county or perhaps even outside of the state, and, there is another part to this question, what interventions are recommended to combat this?

BILL WILEY: Well, that's a complex area and unfortunately a little bit outside of a county's control. We have the ability to work within the county. We do talk with our state and the EPA, on areas outside of the county. And some of those belong in their jurisdictions as they come in. But I couldn't tell you what the causes are because we've not had the specific ability to be involved in that outside the county. So that's a little bit harder.

In terms of exposure prevention, I mean, regardless of whether it's natural or human caused we will put out alerts and ask people to try to do what they can to reduce their exposure. For example, if you're an athlete and you have a running regimen, it may be that on this day you don't want to run, whether it's particulate matter or ozone or some other pollutant. Likewise schools, I saw one of the other comments was do we do something to notify schools? We're involved in the flag program. And EPA has this program where schools put up different colored flags according to the Air Quality Index. And so they may have indoor gym class rather than going outside.

So you can try to prevent exposure regardless of the cause. Looking at the cause outside of our jurisdiction is a little bit hard for a local county.

CARTER BLAKEY: Okay, well thank you for trying to answer that question for us. I have a question here that I'm not sure if it should go to Mr. Mintz or Dr. Kleeberger. So I'll let you both take a stab at it. What are the air quality effects from forest fires, both in terms of short and long term effects?

DR. STEVEN KLEEGERGER: So I'll take a stab at that. This is Steve Kleeberger. There are a number of potential health outcomes due to forest fires and in particular those who fight them. So exposures to particulates as a function of the fire can affect the people who are fighting the fires. There can be particulates generated from the fires that will migrate if you will due to the winds to neighboring states and can in fact contribute to the overall particulate burden as well as the public health burden of forest fires. So, yes, they can impact and do impact public health as a function of those fires.

DAVID MINTZ: And this is David Mintz. I have nothing to add. That's a perfect answer.

CARTER BLAKEY: Okay, great. I'm glad you agree on that. I think we are out of time. But I'd like to go back to Mr. Wiley, there are many, many questions asking about the specifics of your program and why it was so successful, so here's one question that can kind of help answer all of those. Have you developed any educational materials as part of this program or do you have toolkits or other resources?

BILL WILEY: We have a litany of educational materials that we've been developing, not necessarily specifically as part of this program, but as part of our Air Quality Program. We've got a comic book that we're working on with a nonprofit right now, to educate you know smaller children on here are the things that you can do and here are some activities that you do that cause problems, because we realize that in order to change behaviors, which is often what we're trying to get to, you have to reach to the younger levels.

We work with the local school district to train teachers for third and eighth grade so that they can incorporate that within their curriculum. And this is part of the science curriculum that they're already required to teach. So we're working with teachers. We're working with specific industries. In fact, we received an award working with our construction industry on a guidance document and a field guide, How to Reduce Dust in your Operations. And the field guide is such that you can put it in your pocket and pull it out, an actual operator say of a back hoe or a large truck.

So those are just some of the examples. We're working on a couple of other field guides for other industries right now. So there are lots of things that you can do. The Rapid Response Program was just

the mechanism for getting the alerts out and asking people, hey, step up now, step up now and do what you can. And we frankly think it's been very successful.

CARTER BLAKEY: Thank you. And then I'd like to thank all of our speakers today and participants for giving us your time and your expertise. And thank you to all of you who joined in via the webinar function. We hope that you'll continue to tune in for the LHI series into 2013. Healthy People is looking for real stories from organizations that are working to make its goals a reality. So if your organization is doing great work on specific Leading Health Indicators we do want to hear about it. So please go to <http://www.healthypeople.gov> to submit your story.

You can follow us on Twitter or join the Healthy People 2020 Group on Linked-in to continue the conversation on this LHI topic, Environmental Quality and to learn more about LHI. To receive notices about upcoming events and learn of some future dates of what to expect in the coming year, please sign up for our e-mail announcements on the Healthy People website, <http://www.healthypeople.gov>. And now on behalf of HHS, I would like to say thank you to today's presenters and to everyone who has been involved in planning and implementing this webinar. Thank you.

MODERATOR: Thank you ladies and gentlemen for joining us today in the twelfth segment of the LHI webinar series. Your session is now ending. You may now disconnect.

[END OF FILE]