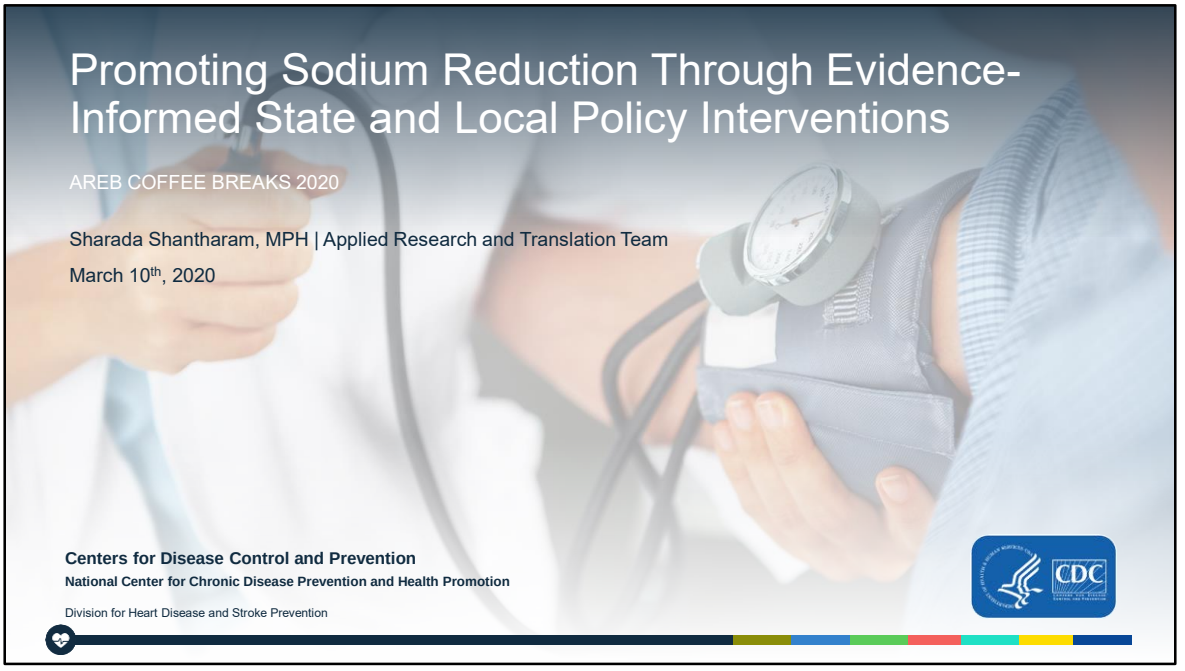
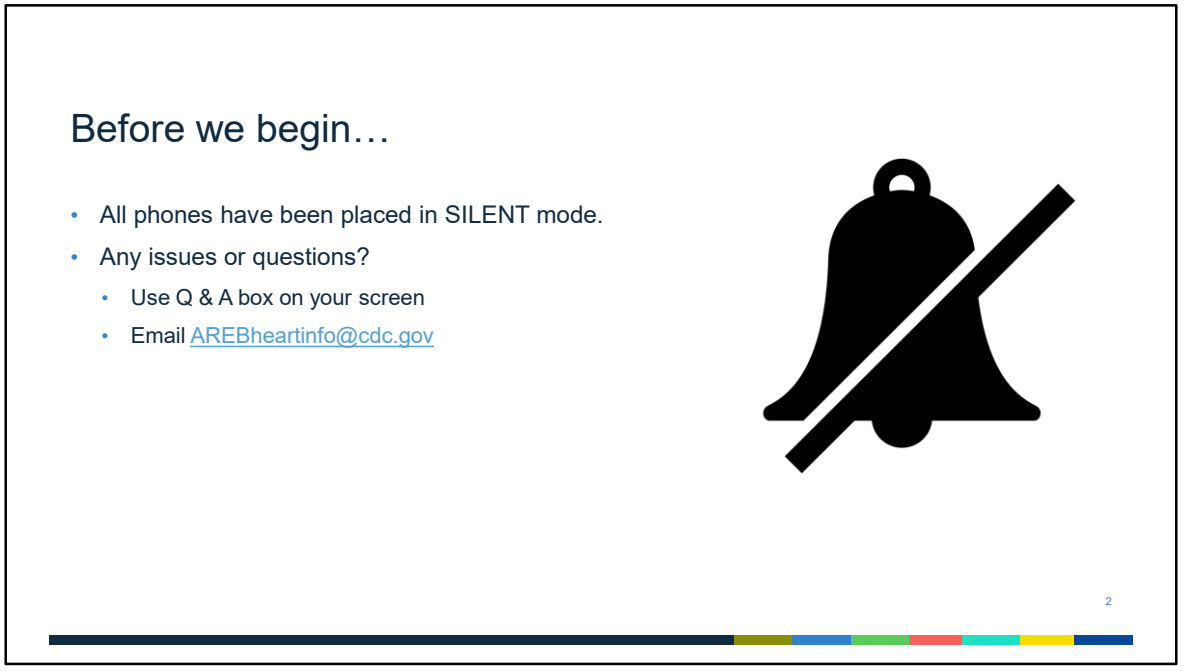


MODERATOR:

Welcome to today's Coffee Break presented by the Applied Research and Evaluation (ARE) Branch in the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention (CDC).

We are fortunate to have **Sharada Shantharam** as today's presenter. **She works as a Health Scientist** with the **Applied Research and Translation Team** (ART) within CDC's Division for Heart Disease and Stroke Prevention.

My name is **Aysha Rasool** and I am today's moderator. I am a fellow within the Applied Research and Evaluation Branch.



MODERATOR:

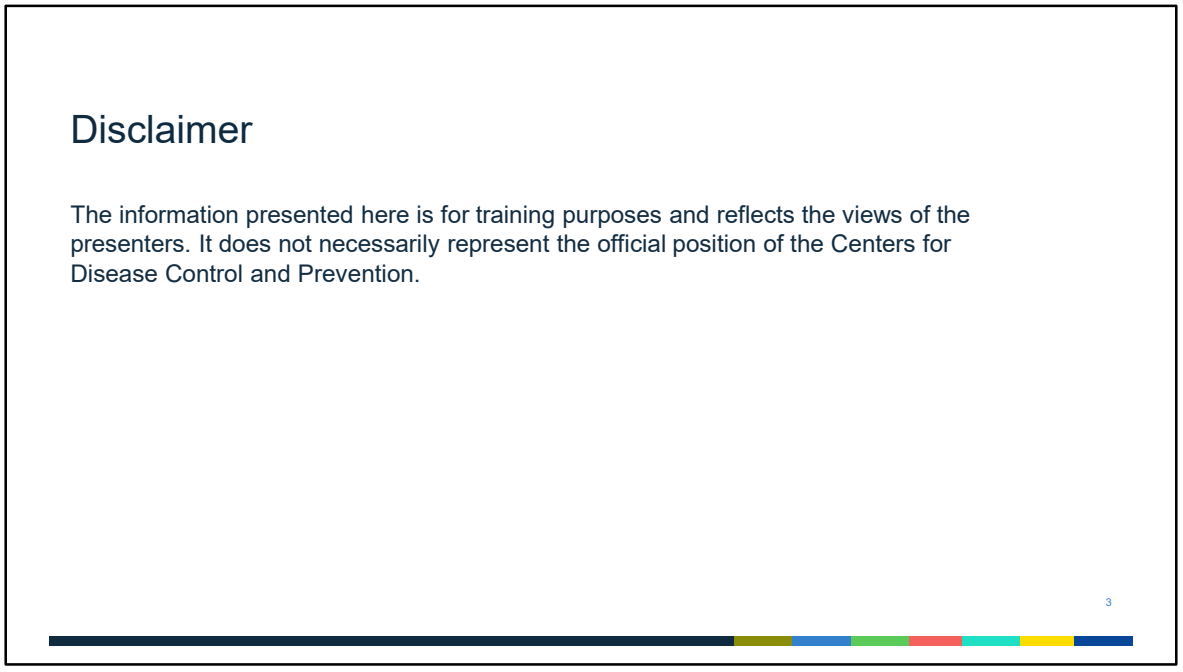
Before we begin we have a few housekeeping items.

All participants have been muted. However, to improve audio quality please mute your phones and microphones.

If you are having issues with audio or seeing the presentation, please message us using the chat box or send us an email at AREBheartinfo@cdc.gov.

If you have questions during the presentation, please enter it into the chat box on your screen. We will address your questions at the end of the session.

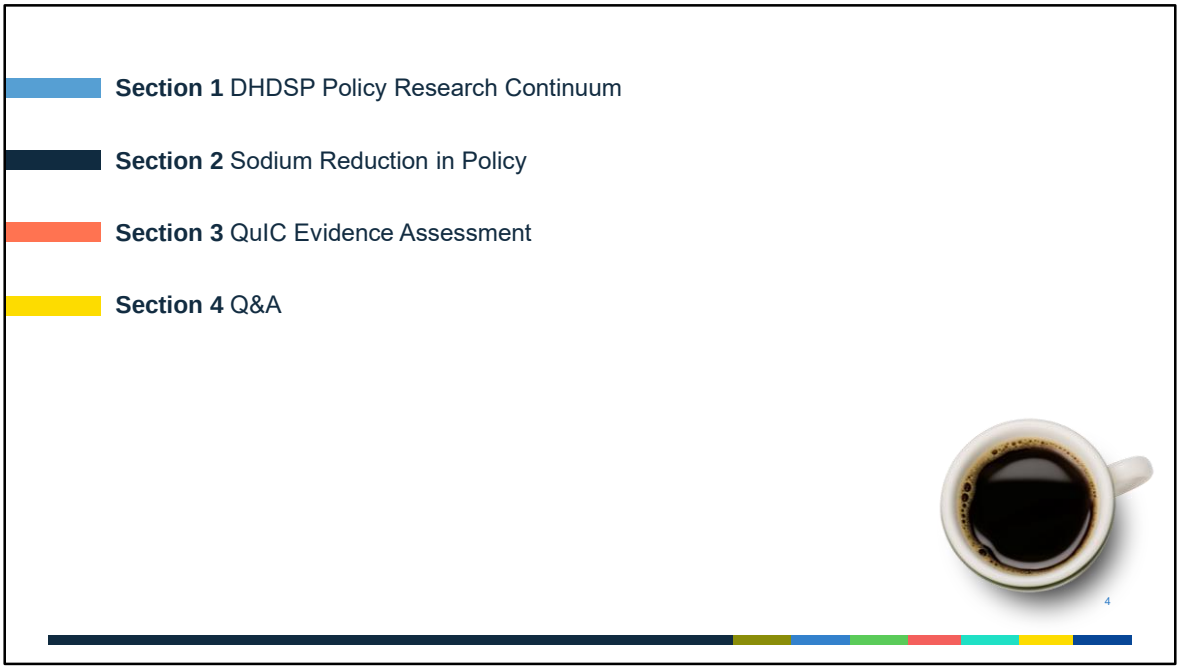
Since this is a training series on applied research and evaluation, we hope you will complete the poll at the end of the presentation and provide us with your feedback.



MODERATOR:

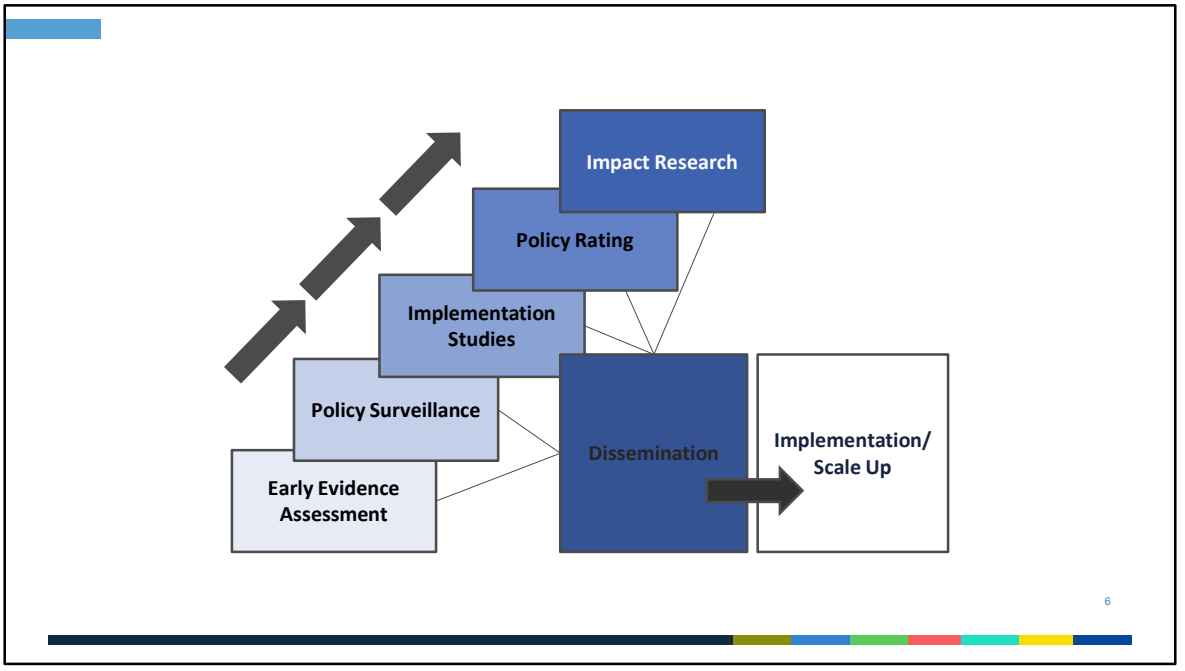
The information presented here is for training purposes and reflects the views of the presenters. It does not necessarily represent the official position of the Centers for Disease Control and Prevention.

So, without further delay. Let's get started. **Sharada,** the floor is yours.



Great! Thank you, **Aysha!** So, for today's presentation I'd like to give a brief introduction to our division's policy research continuum and the need for sodium reduction strategies, particularly in policy. But the bulk of my presentation will really focus on an early evidence assessment, called QuIC, and how state and local decision makers and public health organizations could use these results to improve sodium reduction efforts. And of course we will have time for Q&A at the end.

So, our policy research continuum…

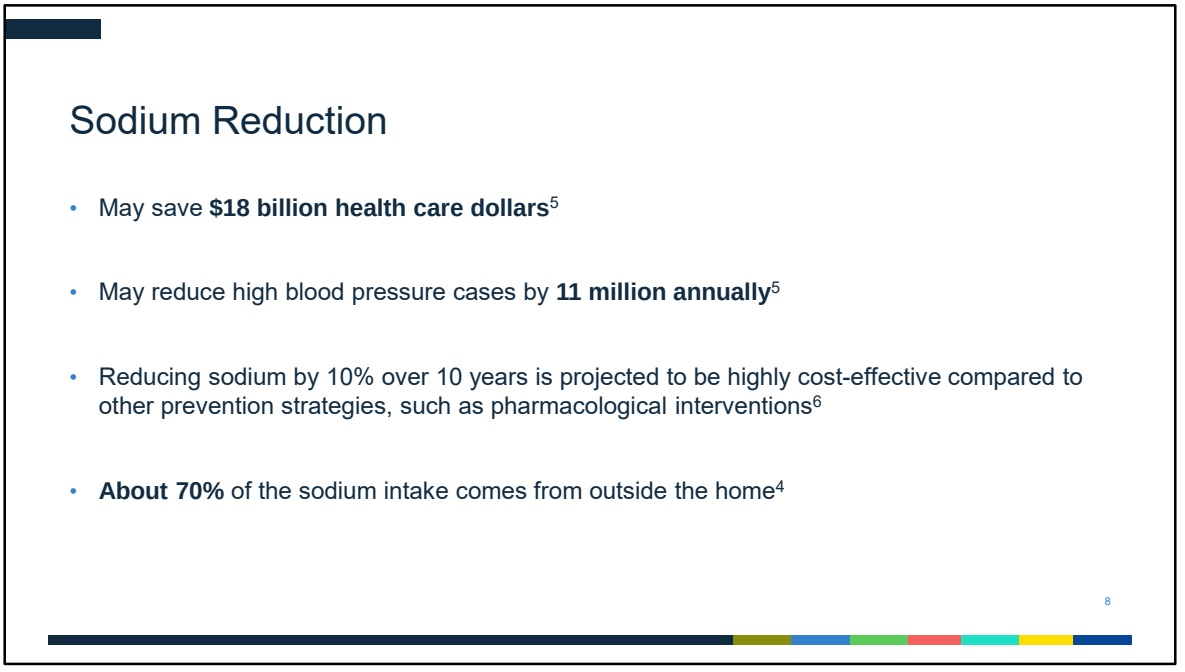


We've presented on this before (I think it was about 2 years ago) in a Coffee Break, so I'm only going to focus on a few things here.

The figure you see here on the screen shows the elements of our policy research continuum, which helps to guide our policy research. <!> The early evidence assessments and policy surveillance work happen simultaneously as they inform one another in a lot of the scoping and analysis phases. And this really ensures that our work is grounded in both evidence and real world application. It also enhances our ability to efficiently engage subject matter experts and produce timely products that are needed when taking any kind of public health action.

And so, for today's presentation, we'll be focusing on the results from our early evidence assessment on sodium reduction. So, really that first box down there at the beginning of the continuum.

And that takes us to the topic of today's discussion: how can sodium reduction be addressed in policy.

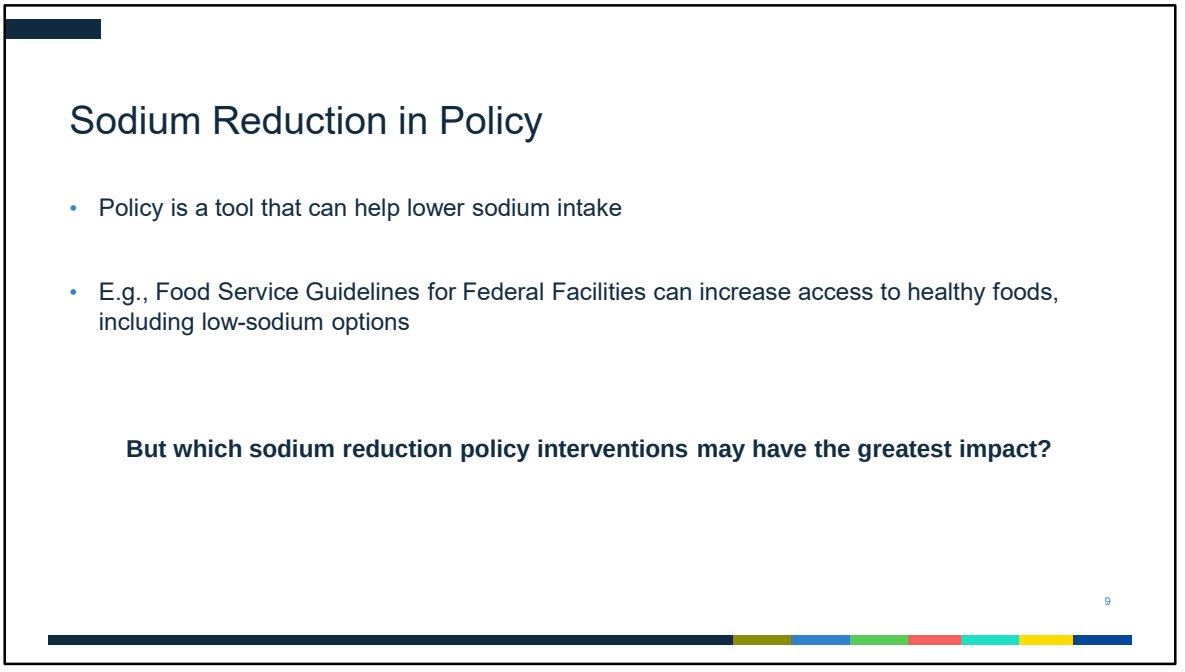


So, the 2015-2020 Dietary Guidelines for Americans recommends that American adults consume **2,300mg of sodium or less daily**. But, in 2014, American adults consumed an average of **just over 3,600mg of sodium daily**, well above the limit.

We know from research that reducing sodium is important for cardiovascular disease. It can help lower blood pressure, which is one of the largest risk factors for cardiovascular disease, and may save close to $18 billion in health care costs.

We've also seen in the literature that behavioral approaches to preventing and managing cardiovascular disease, like sodium reduction, can be more powerful than other prevention strategies, such as medications.

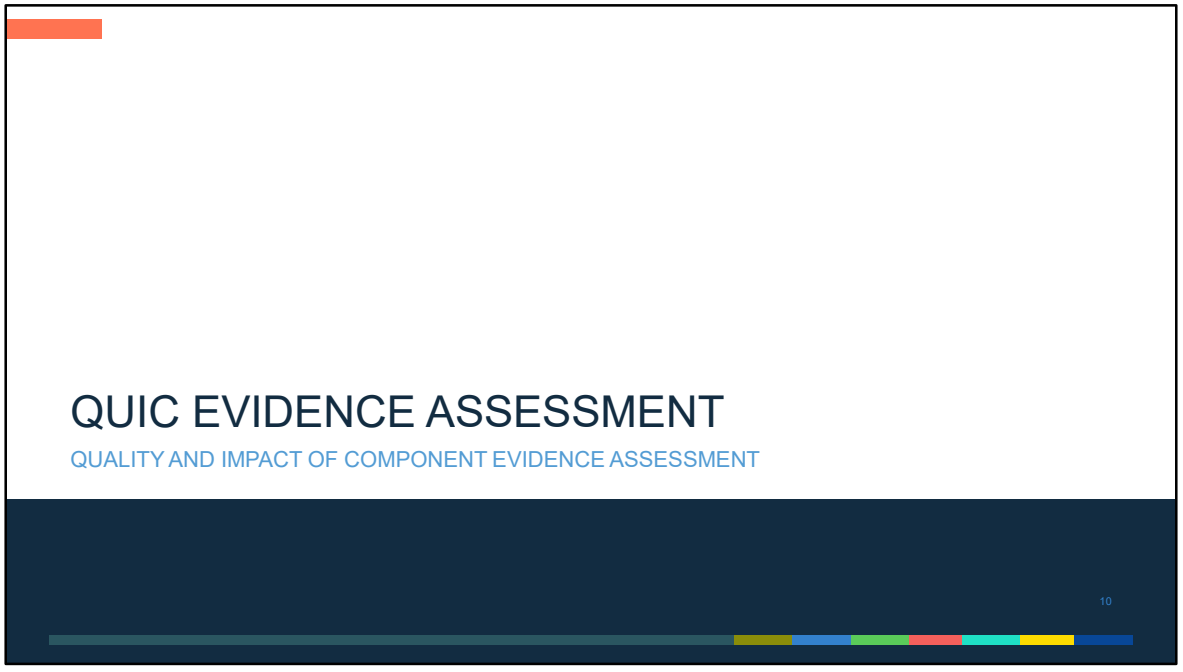
So what can be done? Well, when you have statistics like almost 70% of the sodium consumed in the US comes from outside sources, it's a little hard to figure out the best approaches. Of course, we can choose to buy lower-sodium foods, but our choices are limited when most of the sodium in our diet is decided before we even make any purchase, whether that be individual ingredients from the grocery store or whole meals from a restaurant.



This is where policy comes in: when the healthy choice is difficult for consumers as individuals. Policy is a tool that can help lower population sodium intake, by making restrictions in the foods served or placing low-sodium items in easy to reach shelves in grocery stores.

And so with that, states and localities have taken a variety of approaches to regulating sodium in our food. For example, some state and local governments have enacted laws incorporating the Food Service Guidelines for Federal Facilities as a model to develop contracts and permits in different settings like cafeterias and vending machines to increase the availability of and access to healthy foods, which include-low sodium options.

<!> So, that's what we really wanted to focus on with our assessment: what are these sodium reduction strategies at the policy level that work the best and can help consumers make healthy choices?



And this is where our QuIC assessment comes in. And QuIC stands for the Quality and Impact of Component Evidence Assessment. We focus on assessing the literature behind potential policies so we can offer suggestions for promoting population health.

QuIC Evidence Assessment

- Daily Meal Providers Serving Low Sodium Items
- Sodium Limits on Items Served in Workplaces
- Item and Menu Labeling Based on Sodium Content
- Items in Stores Meeting Sodium Limits
- Items in Vending Machines Meeting Sodium Limits
- Economic Incentives for Low Sodium Items

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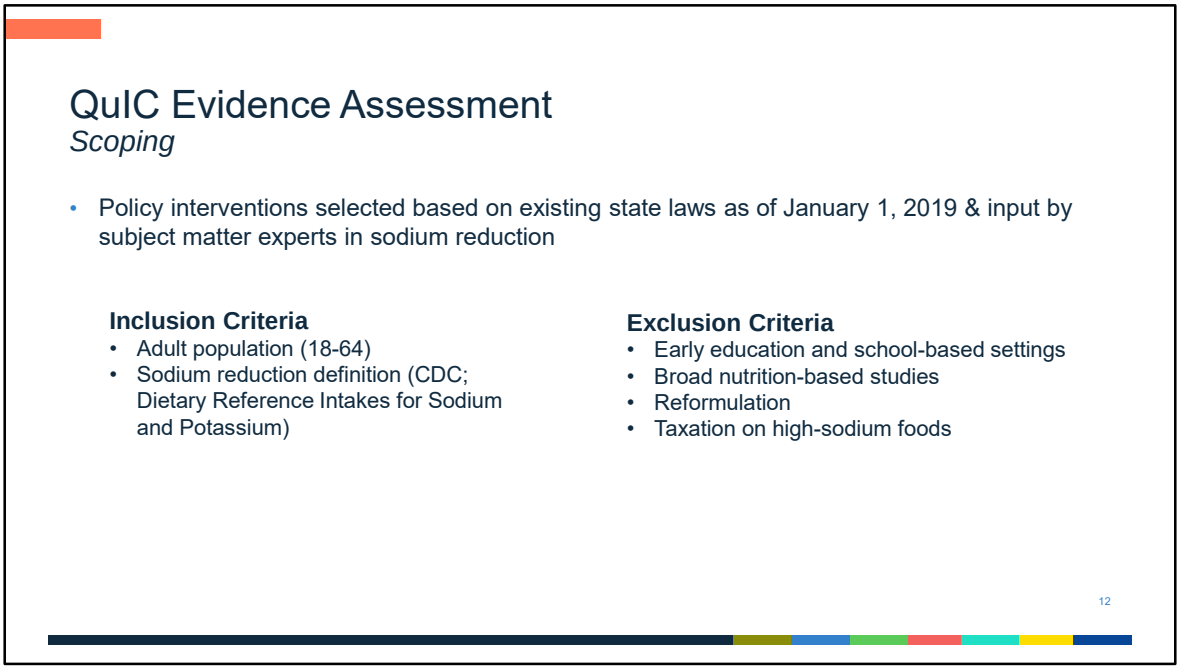
So, in October 2018, our team conducted an early evidence assessment, or QuIC assessment, to analyze the best available evidence for six different policy interventions addressed in state or local law that aim to reduce sodium intake in the US.

You can see here on the slide we focused on:
- Daily meal providers,
- Sodium limits in workplaces,
- Menu labeling,
- Items in stores and vending machines meeting sodium limits, and
- Economic incentives.

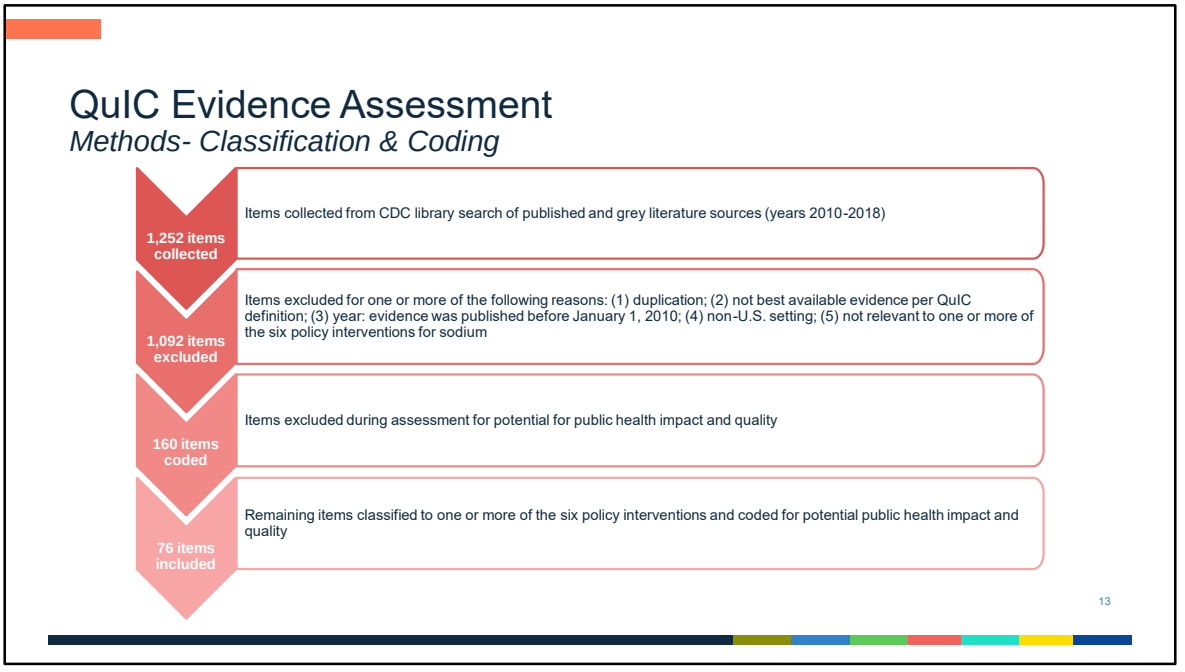
I do want to mention procurement guidelines here. For anyone not familiar with them, they're essentially mechanisms that establish how goods and services are purchased, or procured. And many organizations use these types of guidelines or policies. When looking at food and beverages, you have examples like the types of foods and drinks in vending machines on government property or school settings. In our case, four of our policy interventions can be included under this "umbrella," if you will. <!> Rather than focusing on the guidelines as a whole and analyzing them together, we looked at them by separating out the different settings to ensure the evidence base was applicable to each of the policy interventions. So, we were really trying to make it a little bit more digestible.



These interventions were decided upon based on the existence of a state or local law as of January 1, 2019 & input from subject matter experts within and outside of the CDC. We included evidence in our assessment that focused on the adult population and addressed sodium reduction, not just healthy nutrition interventions (that was one of our key distinctions – really honing in on that sodium reduction piece).

And I do want to point out that we excluded evidence set in early education and school-based settings (grades K-12). Even though there is a lot of literature in this area, particularly around vending machines in schools, because we focused on adult populations we excluded any evidence in that area.

And due to the lack of state or local laws, we also excluded evidence related to reformulation and taxation.



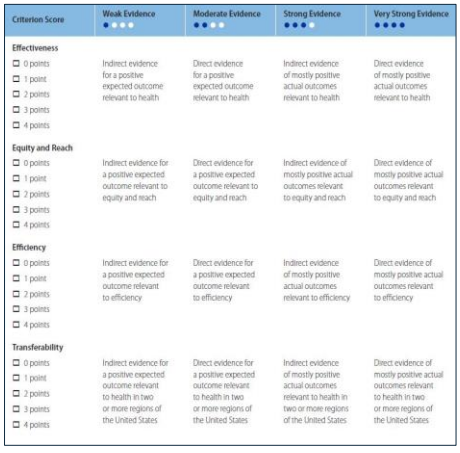
These are the results from our search strategy. We searched for evidence published between 2010 and 2018. We collected and reviewed a total of over 1,200 individual items of evidence from multiple databases and sources. This included a broad range of evidence like journal articles, editorials, recommendation papers, and even conference papers. We really try with our early evidence assessments to really expand on the continuum of evidence involved in policy research.

After we collected all of the evidence, our team reviewed them for inclusion and relevance to the policy interventions. In total, 76 pieces of evidence were relevant to assessing one or more of the six policy interventions.

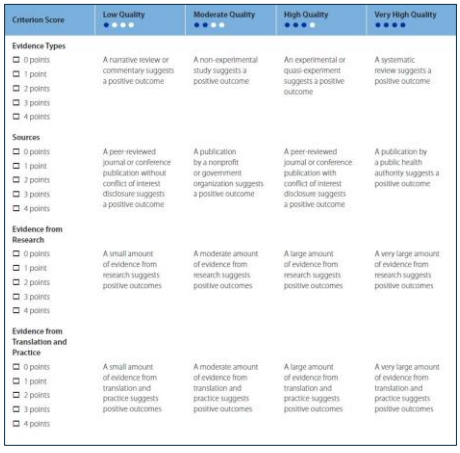
And then each piece of evidence was independently coded and later reconciled for potential public health impact and quality.

QuIC Evidence Assessment

Methods- QuIC Evidence Assessment Tool



Criterion Score	Weak Evidence ●○○○	Moderate Evidence ●●○○	Strong Evidence ●●●○	Very Strong Evidence ●●●●
Effectiveness				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	Indirect evidence for a positive expected outcome relevant to health	Direct evidence for a positive expected outcome relevant to health	Indirect evidence of mostly positive actual outcomes relevant to health	Direct evidence of mostly positive actual outcomes relevant to health
Equity and Reach				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	Indirect evidence for a positive expected outcome relevant to equity and reach	Direct evidence for a positive expected outcome relevant to equity and reach	Indirect evidence of mostly positive actual outcomes relevant to equity and reach	Direct evidence of mostly positive actual outcomes relevant to equity and reach
Efficiency				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	Indirect evidence for a positive expected outcome relevant to efficiency	Direct evidence for a positive expected outcome relevant to efficiency	Indirect evidence of mostly positive actual outcomes relevant to efficiency	Direct evidence of mostly positive actual outcomes relevant to efficiency
Transferability				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	Indirect evidence for a positive expected outcome relevant to health in two or more regions of the United States	Direct evidence for a positive expected outcome relevant to health in two or more regions of the United States	Indirect evidence of mostly positive actual outcomes relevant to health in two or more regions of the United States	Direct evidence of mostly positive actual outcomes relevant to health in two or more regions of the United States



Criterion Score	Low Quality ●○○○	Moderate Quality ●●○○	High Quality ●●●○	Very High Quality ●●●●
Evidence Types				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	A narrative review or commentary suggests a positive outcome	A non-experimental study suggests a positive outcome	An experimental or quasi-experiment suggests a positive outcome	A systematic review suggests a positive outcome
Sources				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	A peer-reviewed journal or conference publication without conflict of interest disclosure suggests a positive outcome	A publication by a nonprofit or government organization suggests a positive outcome	A peer-reviewed journal or conference publication with conflict of interest disclosure suggests a positive outcome	A publication by a public health authority suggests a positive outcome
Evidence from Research				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	A small amount of evidence from research suggests positive outcomes	A moderate amount of evidence from research suggests positive outcomes	A large amount of evidence from research suggests positive outcomes	A very large amount of evidence from research suggests positive outcomes
Evidence from Translation and Practice				
☐ 0 points ☐ 1 point ☐ 2 points ☐ 3 points ☐ 4 points	A small amount of evidence from translation and practice suggests positive outcomes	A moderate amount of evidence from translation and practice suggests positive outcomes	A large amount of evidence from translation and practice suggests positive outcomes	A very large amount of evidence from translation and practice suggests positive outcomes

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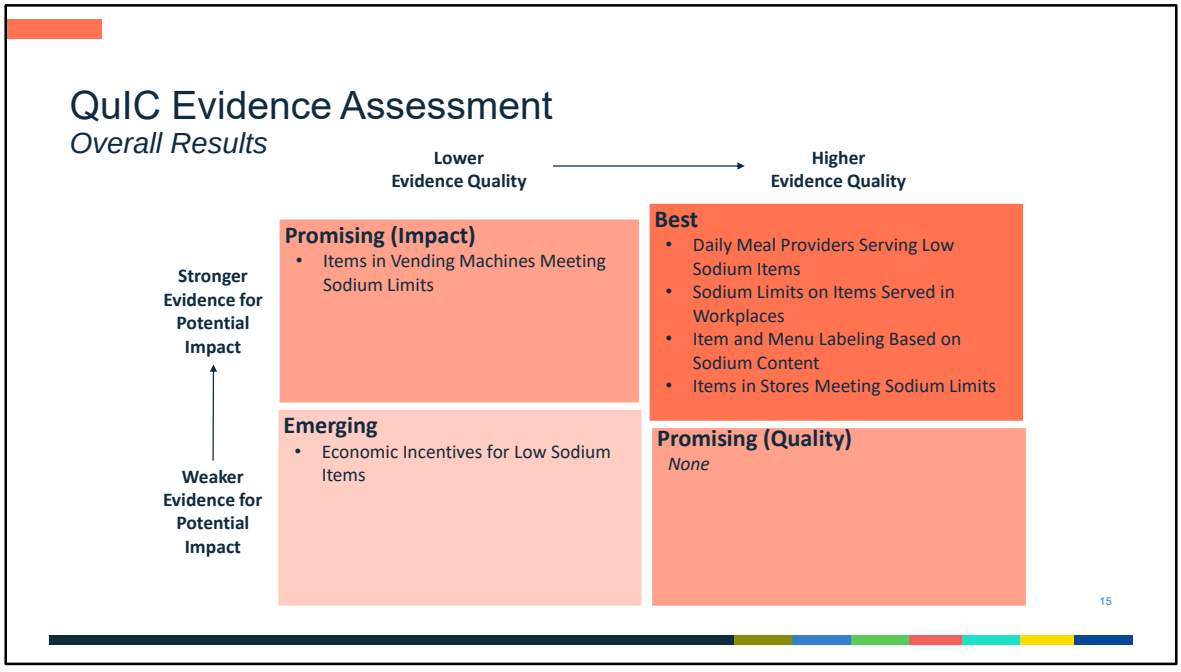
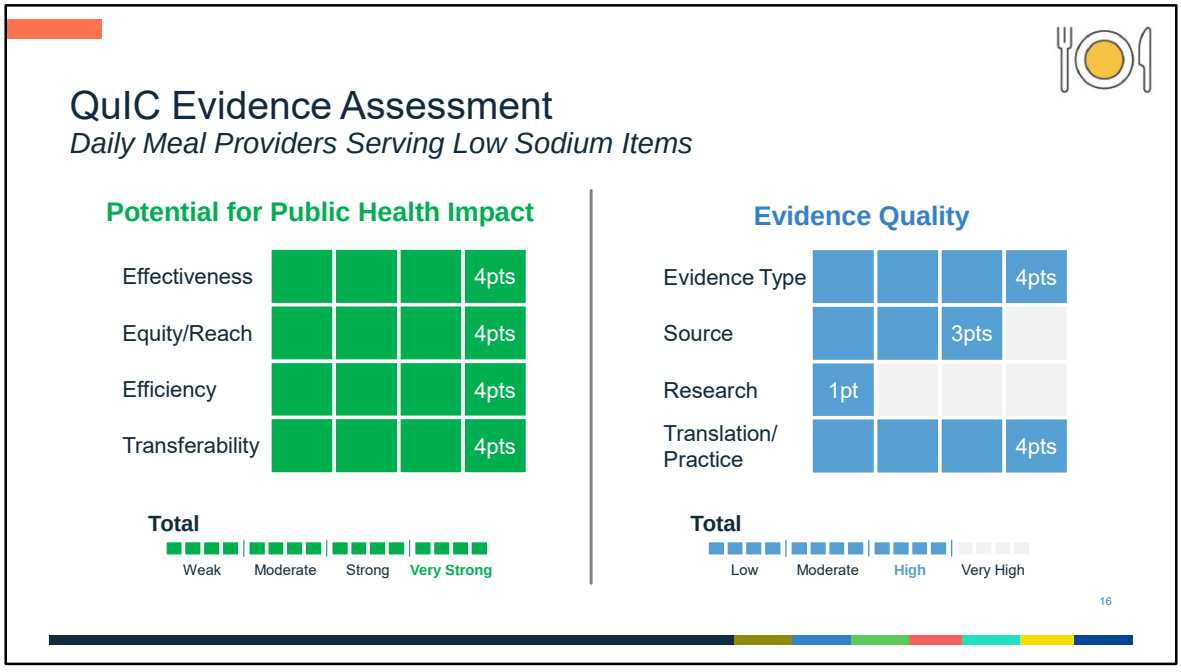
With this slide, we're getting into the coding. I'll keep this brief for the sake of time, but essentially each policy intervention's evidence base was assessed for potential health and economic impact, equity and/or reach, and transferability (positive health-related outcomes in two or more regions in the US). And then they were assessed for quality (publication source, evidence type, and if was from research or translation and practice).

After applying this tool to the evidence bases, the policy interventions were then categorized as having "emerging," "promising," or "best" evidence based on the impact and quality scores.



The figure on this slide shows those final evidence level categories. I'm going to share more detail on each of these in a bit.

State and local laws that address the policy interventions with **"best"** evidence are expected to have the greatest potential for a positive health and associated economic impact. Laws that address the policy interventions with "**promising"** or **"emerging"** evidence could also have positive impacts, but the quantity and quality of the evidence for public health impact is limited at this time.

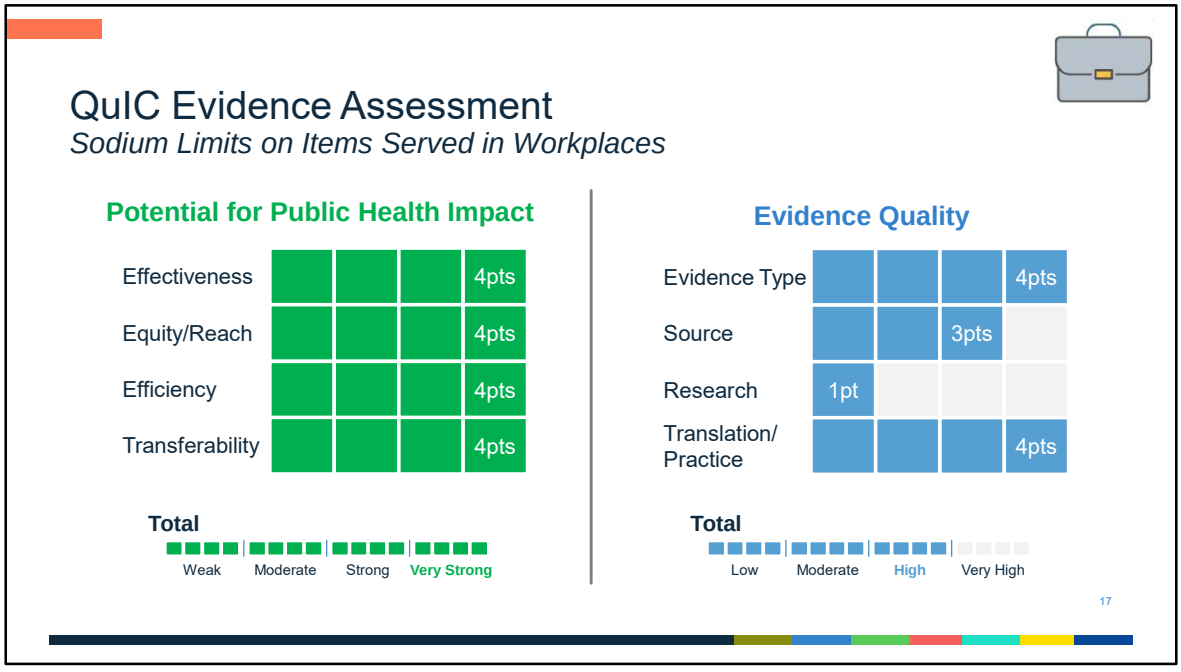


(34 studies)

The first policy intervention with "best" evidence is Daily Meal Providers Serving Low Sodium Items. We defined this as: meal service providers (i.e., organizations that provide customers with pre-portioned and sometimes partially-prepared food) who offer items that are consistent with nutrition guidance, along with corresponding nutrition education encouraging participants to adopt healthy behaviors. Based on the evidence scores, this intervention had a **very strong potential for public health impact** and **high evidence quality**.

In the literature we found reduced sodium content in items, increased availability of lower sodium content, and reduced sodium intake. The evidence also showed increased sales of reduced sodium items and improved productivity.

This is one of those strategies that could fit under a procurement guideline, since these organizations could service institutions, such as hospitals. And so we actually saw evidence of public health impact in hospital cafeterias, detention facilities, and nursing homes.

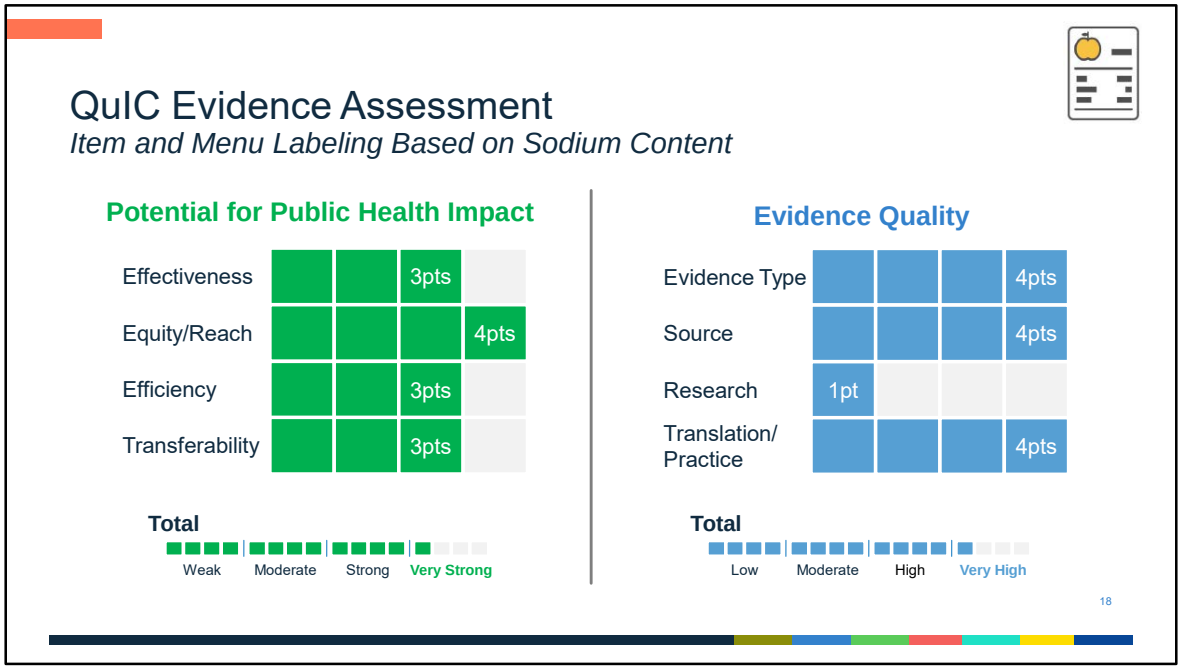


(20 studies)

The next policy intervention with "best" evidence is Sodium Limits on Items Served in Workplaces. And this had similar scores as Daily Meal Providers: **very strong potential for public health impact** and **high evidence quality**. And this can look like limiting the amount of salt in prepared foods, packaged snacks, and beverages served or purchased in worksites based on nutrition standards, increasing the availability and access of lower sodium options in areas serving employees, and restricting the sodium content in foods or beverages served at work events or meetings.

Again, because employers often contract with outside companies to secure food, this policy intervention could fit under procurement guidelines. And so with that, we included hospital cafeterias as hospital employees and staff dine in this setting. And we also saw evidence of impact in long-term care facilities, universities, and government programs.

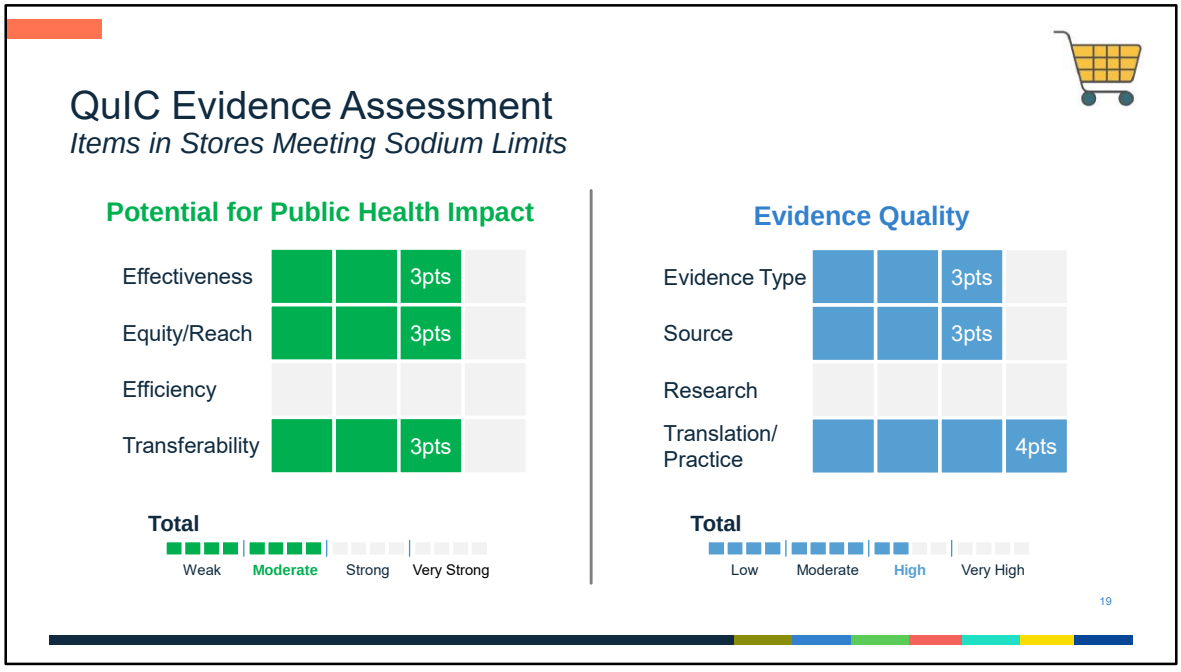
So, much like the previous intervention, placing sodium limits on items served in workplaces was linked to reduced sodium content in items, increased availability of such items, and reduced sodium intake. We also saw decreased prices of reduced sodium items and increased sales of those healthier options.



(25 studies)

The next policy intervention with "best" evidence is Item and Menu Labeling Based on Sodium Content. This can come in multiple forms, but the most common and noted in the literature are traffic lights, text labels, or scores based on nutrient content on the **front of packages** and menus. And I specifically want to point out the front of package labels as Nutrition Facts labels, which are typically on the back of items, are covered within federal law through The Nutrition Labeling and Education Act and we don't cover federal law in our analyses.

So, by providing this kind of information, graphically or through text, can positively influence consumer knowledge and purchasing decisions and reduce sodium consumption. The evidence also showed a reduced cost of items with reduced sodium content.

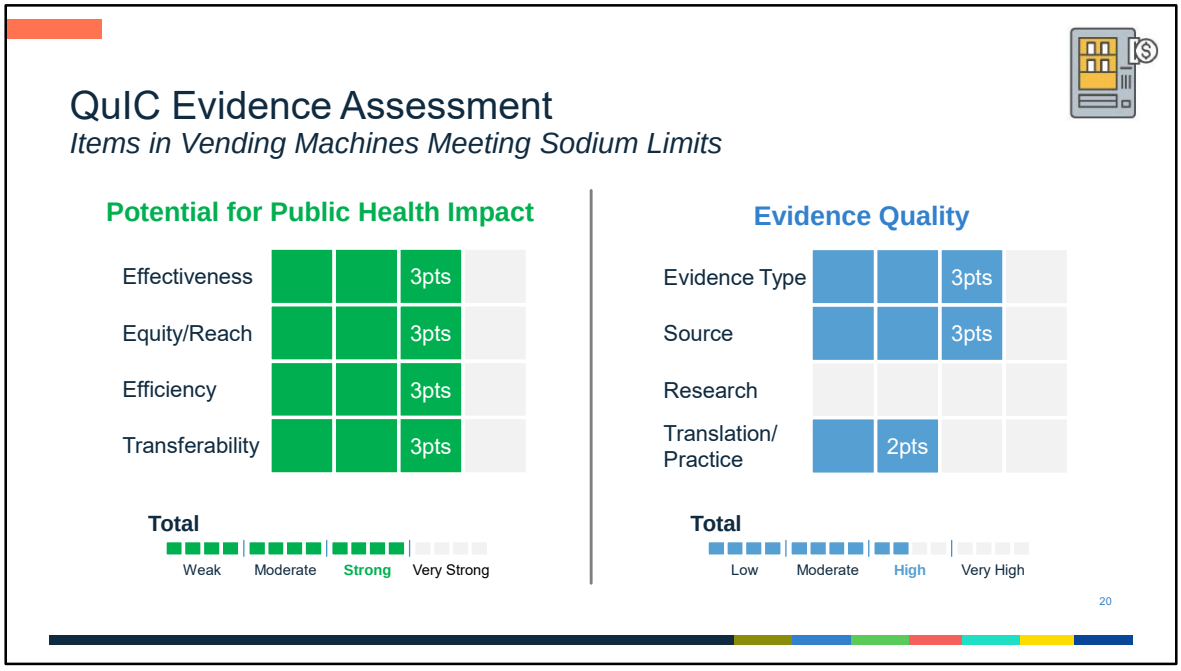


(15 studies)

The final policy intervention with "best" evidence is Items in Stores Meeting Sodium Limits. Our focus for this policy intervention involved incentivizing or requiring stores to limit sodium in the prepared foods, packaged snacks, and/or beverages they are selling.

The literature for this intervention showed a positive influence consumer purchasing habits and sodium intake. We didn't find evidence of economic impact, but we did see a focus on low-income and minority populations, so there may be evidence that we didn't find that shows a positive influence on cost.

So, this is another one that could fall under procurement guidelines, so we saw positive health-related outcomes in supermarkets, corner stores, bodegas, and convenience stores.

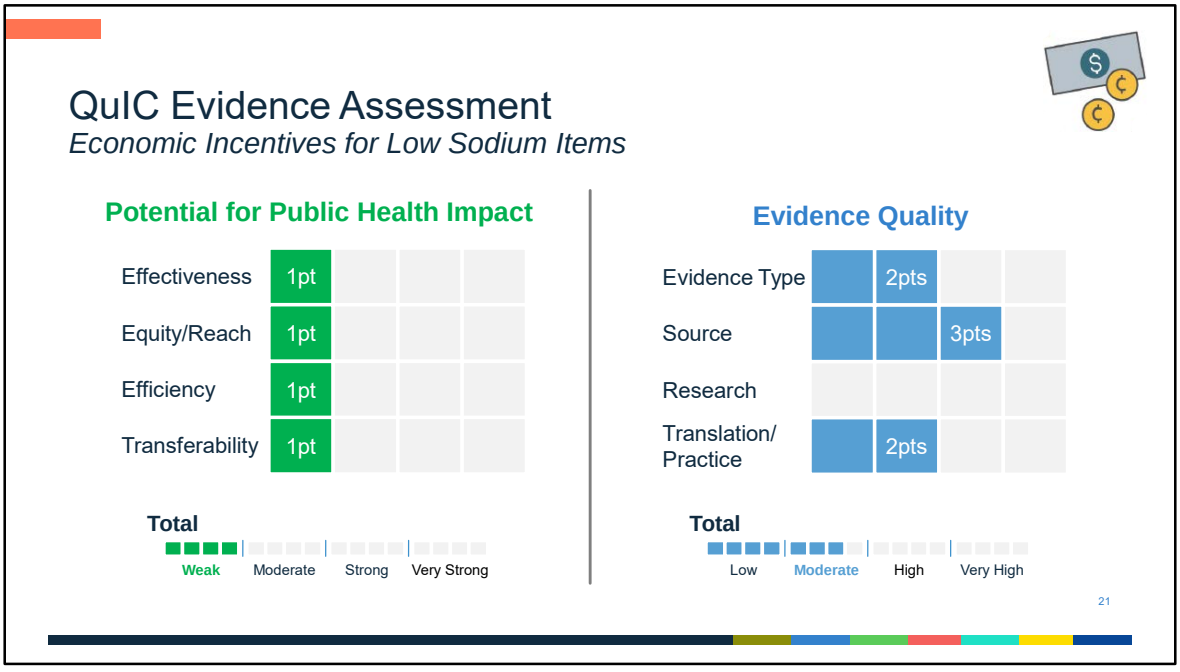


(7 studies)

So, moving into the next evidence category, “promising impact,” we have Items in Vending Machines Meeting Sodium Limits. In this one, we were really looking at packaged snacks and/or beverages in vending machines. And this is usually part of a larger strategy to increase the availability of and access to healthy foods.

This, we found, was linked with items with reduced sodium content and positive influences on consumer knowledge. The evidence also showed reduced cost and an increase in sales of reduced sodium items.

This is the last policy intervention that we focused on that fits under procurement guidelines. I think this is the most common form that comes to mind when thinking about food vendor contracts. Like I said in the beginning, we didn’t focus on school settings for grades K-12, but we did see positive health-related outcomes in hospitals, local and state parks, and state buildings.



(5 studies)

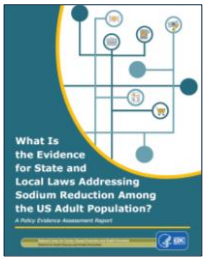
And last, but not least, we have Economic Incentives for Low Sodium Items, which we found to have an “emerging” evidence base. In this one, we focused on strategies that could potentially lower the cost of low sodium items, like subsidies and reduced licensing fees for restaurants.

With this one, as you can see, we had very little evidence around health, equity, or economic impact. And we found no positive health-related outcomes for specific populations or settings.

Now, we only ended up with 5 studies for this policy intervention. So, we did have to consider that the sheer lack of evidence likely played a major part in the low scores. There was a health impact assessment that modeled how food procurement policies, including incentives, could impact outcomes and they had some positive results. So, while there is limited evidence related to sodium reduction, the concept of economic incentives is still considered an evidence-based strategy to improve overall population dietary habits.

Summary

- 76 items of evidence assessed for 6 policy interventions
- Positive outcomes included
  - Increased availability of reduced sodium items,
  - Reduced sodium content and intake,
  - Positive influence on purchasing decisions, and
  - Reduced costs and increased sales of reduced sodium item
- Targeted populations included inmates, older adults, adults with mental illness, and low-income and minority populations



https://www.cdc.gov/dhdsp/pubs/sodium_pear.htm

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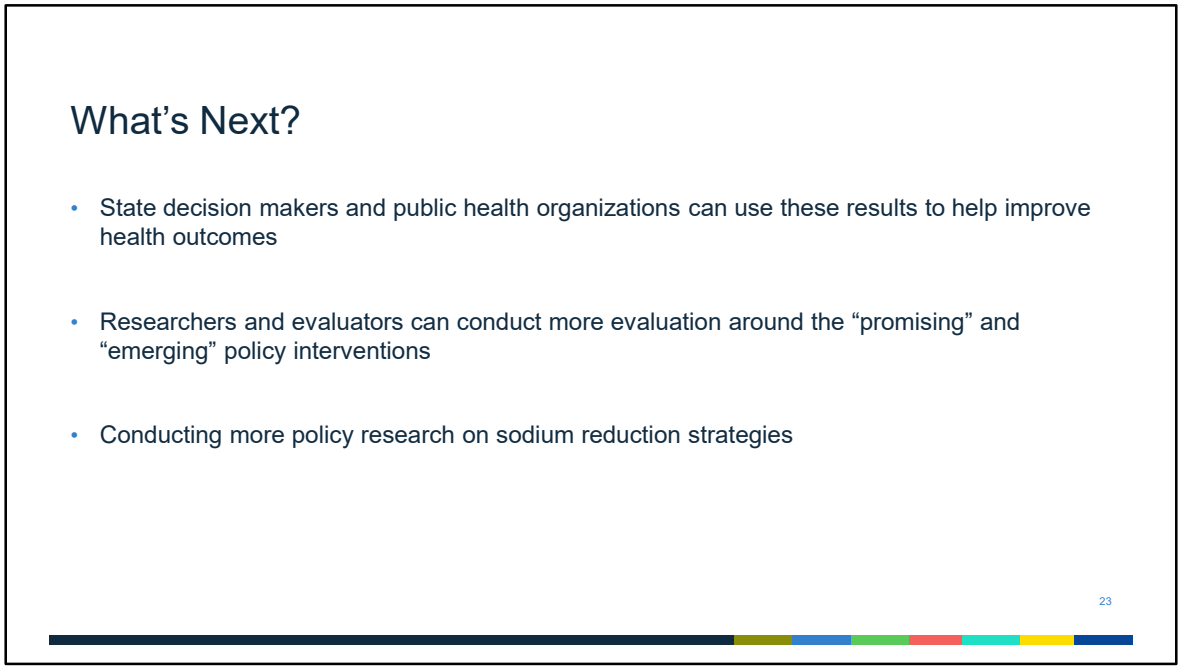
So, that was a lot of information I just gave you, so to summarize…

Our team conducted an early evidence assessment to examine 76 pieces of evidence for 6 policy interventions that focused on sodium reduction strategies. As you may have noticed, we didn't have a lot of research-based evidence (6 studies to be exact). We find this to be a pretty common trend across all of our early evidence assessments as our topics are typically new to the public health policy area. And that means RCTs and even quasi-experimental studies are not common in the evidence base.

We saw a lot of positive health-related outcomes and some economic benefits. We had one instance of an impact on clinical outcomes (cardiometabolic syndrome in item and menu labeling), however we didn't see a lot of influence in the realm of vital signs. I think this is largely due to how hard it is to test these interventions in a public setting and collecting the public's health information.

You may have seen we typically had lower scores in equity and/or reach. While we did see positive impact among certain populations, like adults with mental illnesses and low-income and minority populations, most of those scores were related to reach, so the scale and spread of the interventions.

And I think it's important to note that given the nature of these early evidence assessments, the evidence level for each policy intervention may change as more impactful, higher-quality evidence becomes available. These evidence levels are really only meant to provide an initial gauge of the current status of the sodium-specific literature related to the selected policy interventions. So, down the road, a lot more can come out and the evidence base categories could shift.



So, what's next? What can be done with all of this information?

Well I think first and foremost, these results and the report can be considered a decision aid tool that summarizes evidence-informed interventions supporting sodium reduction.

So, state decision makers and public health organizations may consider presenting this information, along with facts about sodium consumption and existing nutrition policies, to state and local public health agencies, health care providers and payers, and really anyone interested in improving health outcomes.

Researchers and evaluators could help to build stronger evidence for those "promising" and "emerging" policy interventions. They may consider reviewing these findings for evidence gaps to be addressed in future studies. Some gaps we've noticed and may want to focus on in the future include:

- Food deserts: how do these kinds of policy interventions impact areas lacking in healthy foods or lack healthy food providers?
- Clinical outcomes: how do these policy interventions affect clinical outcomes? I mentioned that sodium reduction can impact hypertension rates, thus lowering the risk for cardiovascular disease. But we didn't have any evidence that tied these policy interventions to the clinical outcomes (outside of the one study on cardiometabolic syndrome). So, there's a lot that can be done here to really make and solidify that connection to high blood pressure.

And last, but not least, is to conduct more policy research on sodium reduction strategies. Our team just published an article last month that I highly recommend you read. I have that listed as the first article in the next slide of suggested readings.

Suggested Readings & Citations

1. Sloan AA, Keane T, Pettie JR, et al. Mapping and Analysis of US State and Urban Local Sodium Reduction Laws. *Journal of Public Health Management and Practice*. 2020;26:S62-S70. doi:10.1097/phh.0000000000001124.
2. Cogswell ME, Loria CM, Terry AL, et al. Estimated 24-Hour Urinary Sodium and Potassium Excretion in US Adults. *JAMA*. 2018;319(12):1209-1220. doi:10.1001/jama.2018.1156.
3. Eckel RH, Jakicic JM, Ard JD, et al. 2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk. *Circulation*. 2013;129(25):S76-S99. doi:10.1161/01.cir.0000437740.48606.d1.
4. Harnack LJ, Cogswell ME, Shikany JM, et al. Sources of Sodium in US Adults From 3 Geographic Regions. *Circulation*. 2017;135(19):1775-1783. doi:10.1161/circulationaha.116.024446.
5. Polar K, Sturm R. Potential Societal Savings from Reduced Sodium Consumption in the U.S. Adult Population. *American Journal of Health Promotion*. 2009;24(1):49-57. doi:10.4278/ajhp.080826-quan-164.
6. Webb M, Fahimi S, Singh GM, et al. Cost effectiveness of a government supported policy strategy to decrease sodium intake: global analysis across 183 nations. *BMJ*. 2017;(356):i6699. doi:10.1136/bmj.i6699.

24

And so, that's really it! Overall, I hope you can use these results in your work and daily lives and you can find more detailed results in our report on our division website. I'll make sure to add the link to the chat box.

And these are just the suggested readings I mentioned; I encourage you all to read through them to learn more about this topic.

I think, now, I'll turn it back over to **Aysha** for any questions!

MODERATOR:

At this time, we'll take questions, but first we'll check to see if any questions have come in through the Q&A box. If you have questions, please type them below in the chat box.

***If NO questions*:** Well, I can start with a few.

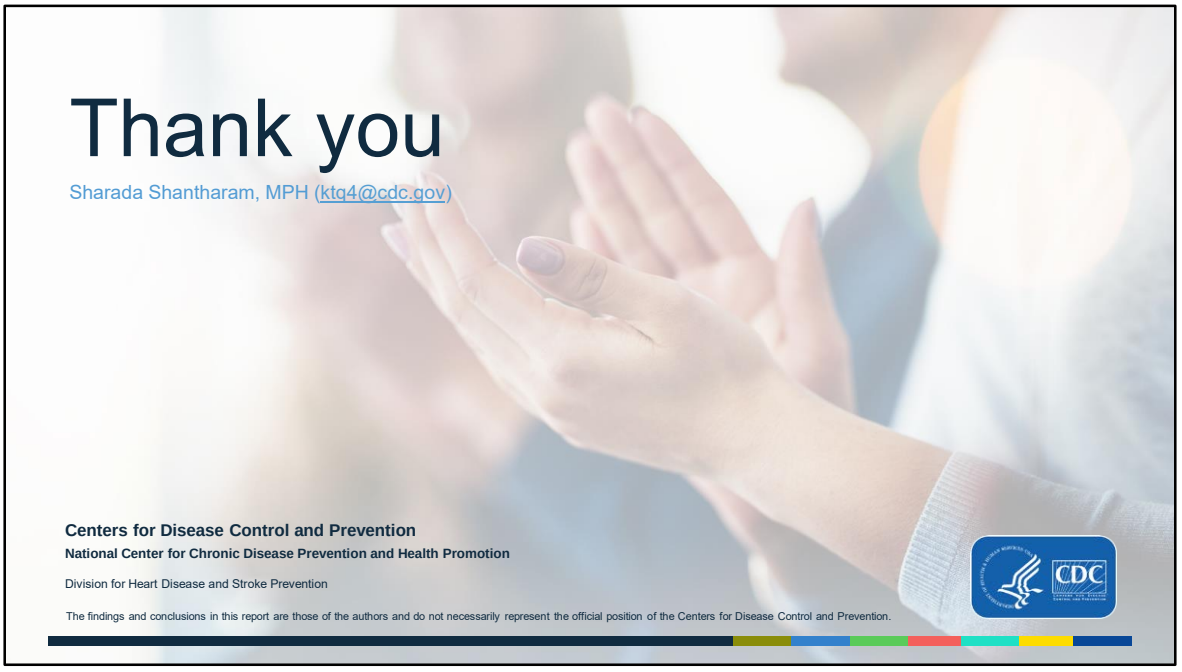
1. Did you analyze or see any specific sodium limits in the evidence?

   Yea, good question. So, for most of these policy interventions, we did find interventions using specific limits. Sometimes they used the Dietary Guidelines (2,300mg per day), some focused on limits per servings, and some actually had limits based on the types of foods. There was one piece that had a, sort of, stoplight system where green foods had lower sodium and yellow foods had higher limits. I think that one was modeled after some guidelines specific to concessions stands and vending machines. I mean, there's a whole plethora of different sodium limits out there and different approaches. But if you want the specific details, I suggest you visit the report on our division's website for more information.

2. Is there any intention to conduct more research in this area? With the policy research continuum, I saw there were boxes for implementation and impact studies.

   Another great question. Like I mentioned, we've already completed the surveillance work in this area. But what I didn't mention, was that our legal team looked at both state and local laws. Typically, we focus our work at the state level, but because so much of this sodium work is done at the local level, they expanded their analyses to the twenty most populous cities and counties. I think there's a lot of interest to do more research in this area, like those

implementation or impact studies, but we have to be careful about how we approach it (e.g., do we want to continue looking at the state and local levels, should we focus on a subset of these policy interventions, or should we combine those that could fall under the procurement guideline umbrella). I welcome any and all ideas, but I think we need to be strategic and think more through the scoping before moving forward.



MODERATOR:

Thank you for participating in today's coffee break. Please contact **Sharada Shantharam** at the email provided if you'd like more information on today's topic. Please stay with us for two short polling questions about today's coffee break.

Moderator present poll question. Make sure to read the following after presenting each.

The **[first, second]** question should be showing, it read **[read question and potential answers]**

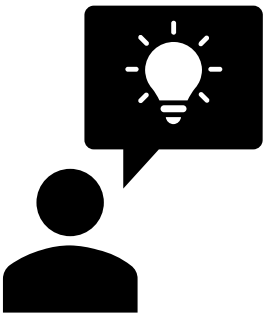
Please respond with the appropriate answer at this time.

The level of information was
Too basic
About right
Beyond my needs

The information presented was helpful to me.
Yes
Somewhat
No not at all

Reminders

- All sessions are archived and the slides and script can be accessed at https://www.cdc.gov/dhdsp/pubs/webcasts.htm
- If you have any questions, comments, or topic ideas send an email to AREBheartinfo@cdc.gov



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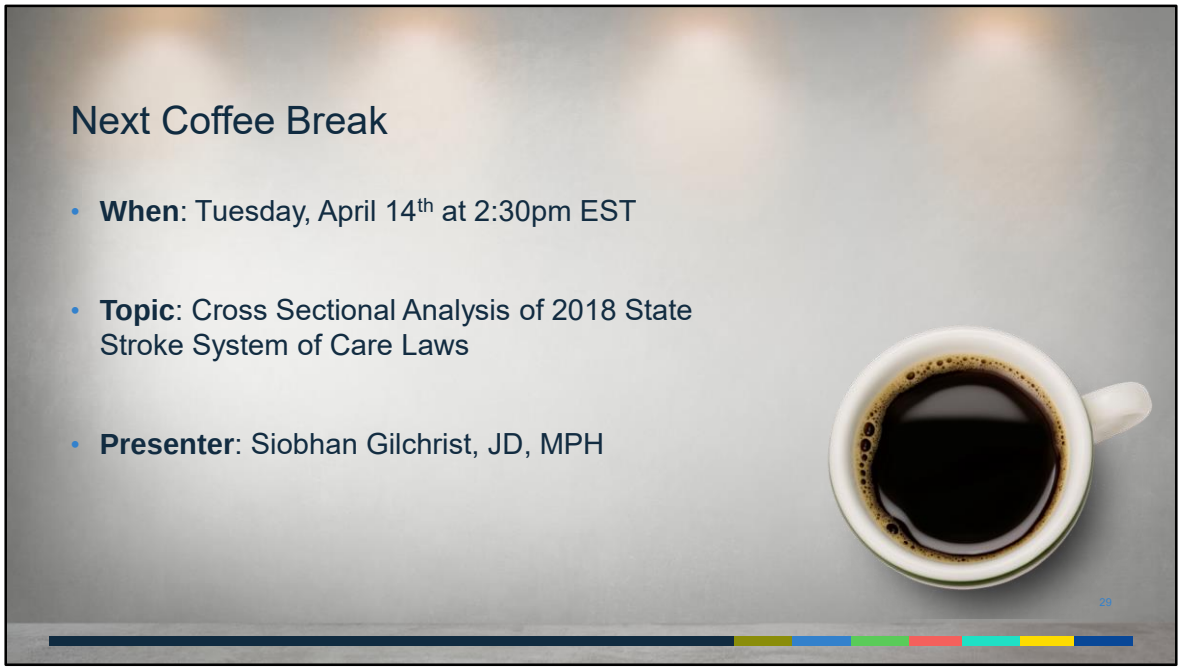
MODERATOR:

Thank you for your participation!

If you experienced technical difficulties such as slides not moving please let us know.

As a reminder, all sessions are archived and the slides and script can be accessed at our Division website at the link shown. Today's slides will be available in about 3 weeks. The February 2020 Coffee Break, Journey Wisely: A Process for Identifying Emerging Topics and Pursuing Knowledge Translation, is available now at the link on the screen.

If you have any ideas for future topics or questions about any of our presentations, please feel free to contact us at the listed email address on this slide, AREBheartinfo@cdc.gov.



MODERATOR:

Our next Coffee Break is scheduled for **Tuesday, April 14th at 2:30pm** and will be focused on **Cross Sectional Analysis of 2018 State Stroke System of Care Laws.**

Thank you for joining us. Have a terrific day, everyone. This concludes today's call.