

Public Health Intervention Wheel evidence update: Transcript

You can find the presentation, slide, and instructor guide referenced in this transcript at:

<https://www.health.state.mn.us/communities/practice/resources/training/2011-wheeloverview.html>

Public Health Intervention Wheel: Evidence Update

Welcome to learning about the Public Health Intervention Wheel, 2nd edition. I am Marjorie Schaffer and together with my colleague Sue Strohschein, we completed the evidence update for the Minnesota Department of Health in 2019.

Objectives

This presentation reviews what has remained the same in the new edition of the Wheel, including foundational assumptions and practice levels; these are objectives one and two. You will also learn about changes in the 2nd edition of the Wheel manual based on new evidence since the first publication in 2001. Then you will have the opportunity to apply interventions to thinking about how public health nurses responded to the COVID-19 pandemic.

A brief history of the Public Health Intervention Wheel

Now, for a brief history: Nearly 20 years ago, the first edition of the Public Health Intervention Wheel was published by the Minnesota Department of Health. The first edition culminated from the extensive work of Linda Olson Keller and Sue Strohschein, who were public health nursing consultants for the Minnesota Department of Health at the time. The initial project was funded by a Division of Nursing grant under the federal Department of Health and Human Services.

- A key premise of the Wheel is that it addresses interventions for populations.
- The Intervention Wheel is practice-based because it originated from an extensive analysis of the actual work of practicing public health nurses—over 200 public health nurses from a variety of practice settings.
- The Intervention Wheel is evidence-supported because it was developed from a synthesis of the literature on public health interventions. The resulting Intervention Wheel was then critiqued by an expert panel of public health nursing leaders, resulting in some modifications to the Wheel, at that time.

The Public Health Intervention Wheel has been widely disseminated across the globe, starting with satellite broadcasts that explained the Wheel to large groups of public health nurses. Since then the Wheel has been featured in many conference presentations, numerous agency orientations for public health nurses, and coursework for public health nursing students. In addition, the Wheel has been used as a framework in public health nursing research studies.

Personally, I have had the opportunity to present the Intervention Wheel to nurses in both Norway and New Zealand. Public health nurses in Norway and Ireland have embraced the Wheel as a framework for nursing practice.

Framework assumptions

Here are the five assumptions are the foundation for the interventions on the wheel. These assumptions are:

1. They focus on entire populations,
2. They are grounded in an assessment of community health,
3. They consider broad determinants of health,
4. They emphasize health promotion and prevention, and
5. They intervene at multiple levels, meaning the individual/family level, community level, and systems level.

Evidence update (2019)

This evidence update was completed by myself and Sue Strohschein with the assistance of Minnesota Department Health staff, who reviewed evidence and formatted the manual for publication on their website. I would like to especially call out Julia Ashley, Kristen Erickson, and Allie Hawley March for their amazing and countless hours to ensuring a quality project.

Why did the evidence need updating?

Since the first edition was put out by MDH in 2001, we wanted to review and incorporate new evidence for each intervention into the manual. We found what I would call an explosion of new evidence as we looked into the literature. During the years since 2001, evidence-based practice is increasingly essential to justify what it is that public health nurses do, especially given changes in practice, such as health care reform, an emphasis on emergency preparedness, and changes in the public health nursing workforce.

How has the Intervention Wheel changed?

So, how has the intervention wheel changed?

- First of all, there are no changes in the number of interventions, the three levels of practice, or the five wedges.

So, what is different?

- First of all, the Wheel graphic has been updated for greater clarity.
- In the manual some of the intervention definitions have been changed, based on new evidence.
- Basic steps for many interventions have been updated based on new evidence.
- And the manual is presented in a more streamlined format to give quick access to key points from evidence.
- Also, practice examples for each intervention stay on the same topic or problem for all three practice levels for easier comparison of the differences between practice levels.

Image: Public Health Intervention Wheel (1)

Here is the updated Wheel with enhanced colors and design. You can see the levels in the circles around the wheel, and note that in the red wedge, case-finding is only in the individual level; the other four [red] interventions are at the community and systems levels. Also, with the orange wedge, community

organizing and coalition-building are not at the individual level, but only at the community and systems levels.

Wedges

Here you see the colored wedge designations. Let's take a look at how they are organized.

You see the red wedge with five interventions, and the green, blue, orange, and yellow wedges all have three interventions each.

You will find all the definitions and examples in the manual, which can be downloaded from the Minnesota Department of Health. I encourage you to use the Intervention Wheel handout or manual when applying the intervention definitions to a public health problem.

Red wedge (1 of 2)

Now let's take a more in-depth look at each of the colored wedges.

The red wedge has five interventions. Case-finding is the individual/family-level intervention for the other four interventions.

- Surveillance is about systematically collecting data to help plan a response to a public health problem.
- In disease and health event investigation, a public health practitioner analyzes that data to determine risk and how to respond to the public health threat.

Note that these are shortened definitions for the purpose of this presentations; you'll find more complete definitions in the manual and the handout.

Red wedge (2 of 2)

The other three interventions on the red wedge are outreach, screening, and case-finding.

- In outreach, the practitioner finds the populations who are at risk in order to communicate with them about the risk.
- Screening is about identifying individuals who have risk factors or asymptomatic disease conditions.
- Case-finding is about locating individuals and families who have risk factors and then connecting them with resources that can help them address those risk factors.

Green wedge (1 of 2)

The green wedge includes referral and follow-up, case management, and delegated functions.

- Public health nurses frequently use referral and follow-up to connect people in the population with resources and then evaluate the effectiveness of those resources in resolving the problem.
- Case management involves collaboration with other resources and services to help meet client needs.

Green wedge (2 of 2)

The third intervention for the Public Health Intervention Wheel in the green wedge involves delegated functions.

- For delegated functions, activities may be delegated to the public health nurse, such as giving vaccinations, or the public health nurse may delegate to another person, such as school nursing office staff or community health worker.

Blue wedge

Health teaching, counseling, and consultation are the interventions on the blue wedge.

- In health teaching, we share information through educational strategies, a very common public health nursing intervention.
- In counseling, we aim to increase a client's capacity for self-care and coping.
- And in consultation, we assist the client to find solutions to the problem through interactive problem-solving.

Orange wedge (1 of 2)

In the orange wedge, we find collaboration, coalition-building, and community organizing. Remember, coalition-building and community organizing do not occur at the individual level because they involve groups.

- Public health nurses are constantly collaborating with clients, other professionals, community members, and organizations to work together to promote and protect health for a common purpose.

Orange wedge (2 of 2)

Two more interventions in the orange wedge are coalition-building and community organizing.

- In coalition-building, public health nurses work with alliances among organizations or population groups to address a health problem.
- Community organizing takes place at a grassroots level. Public health nurses work with communities to identify common problems identified by the community and they respond together with the community to the problem.

Yellow wedge (1 of 2)

Finally, we have the yellow wedge with the interventions of advocacy, social marketing, and policy development and enforcement.

- Advocacy involves promoting and protecting the health of individuals and communities by making their health needs known and helping them get access to health and social services.
- Social marketing is used to influence health behavior change in specific target audiences.

Yellow wedge (2 of 2)

- PHNs participate in policy development to influence laws, rules, regulations, ordinances in policies that promote and protect health. They also may be involved in activities that compel others to comply with laws and rules that protect health.

There you have it – 17 interventions. They are easier to remember if you think about how they work together in the five wedges.

Three levels of population-based practice

Then you also need to consider what practice level you are addressing. Often, public health strategies will address several levels at one time. With all levels, you are constantly thinking about how the intervention is affecting a specific population, which could be a geographic population or a population with a specific health problem.

- When you are doing systems-focus interventions, you are working on changing organizations, policies, laws, and power structures.
- With community-focused interventions, you are looking at changing community norms, attitudes, awareness, practices, or behaviors.
- At the individual/family-focused interventions, you are looking to change the knowledge, attitudes, beliefs, practices, and behaviors of individuals and families.

Evidence search

You may wonder how Sue and I found the wealth of new evidence that resulted in changes in definitions and basic steps of the intervention.

- To make the search manageable, we used one database—CINAHL, the nursing and allied health database. We also searched relevant government websites that focus on public health.
- We used the term intervention along with other terms that would lead us to evidence related to public and community health.

Sources

This slide lists the major journals where we found most of our articles, and then also several of the government-related websites that we found helpful, such as CDC, NACCHO, the US Department of Health and Human Services, and of course state health departments.

Evidence levels 1 and 2

In the manual, when we identify key points from evidence, we also list the level of evidence. Evidence ranges from the most rigorous research, which is known as Level 1, to Level 5, which is the least rigorous, and includes literature review and expert opinion. Most of the public health intervention evidence comes in this manual comes from the lower evidence levels. Many public health problems are very difficult to study at the experimental level because of ethical reasons.

- So here we have Level 1, experimental studies or randomized controlled trials; we also call them RCTs; and also systematic reviews of RCTs
- And then Level 2, which are quasi-experimental studies, which are usually missing either randomization or a control group. Also at this level are systematic reviews that may include both RCTs and quasi-experimental studies or only quasi-experimental studies

Evidence level 3

- In Level 3, we have studies that are non-experimental, and this also includes qualitative studies and surveys. Also at Level 2 are systematic reviews, which may include experimental studies and quasi-experimental studies, but if any non-experimental studies are included, then it would be Level 3 for a systematic review.

Evidence levels 4 and 5

On this slide, we have the final two evidence levels; that's Level 4 and Level 5.

- Level 4 includes clinical practice guidelines, physician statements, of organizations, at the organization level.
- Level 5 includes literature reviews, quality improvement results, program evaluation, case reports, and expert opinion.

Most of the evidence for the public health interventions will be at Levels 3, 4, and 5.

Format of each intervention

I want to briefly explain the format in the manual for each of the interventions. In each intervention section you will see:

- The definition of the intervention
- Examples at all practice levels, following the same example for all the levels
- Relationships to other interventions
- The basic steps for the intervention, with an application example
- Evidence-based practice tips, which summarize the relevant evidence with the evidence levels
- And then Wheel Notes; Wheel Notes are concerns, thoughts, and challenges relevant the intervention that Sue and I discovered as we did the literature search that we thought were worthy of discussing and calling attention to for your consideration and attention
- And then, finally, a reference list

Application examples in the 2nd edition

In the updated manual you will find an application example for each of the wedges along with questions to consider and think about in how you respond or use interventions in each wedge. Examples highlight current public health issues and how interventions are used by public health nurses. For the red wedge, the focus is on cancer screening; for the green wedge, the focus is tuberculosis; school nursing practice is the focus on the blue wedge; the orange wedge focuses on risk factors that affect birth outcomes; and the yellow wedge focuses on pandemic flu planning.

Now, I just want to be sure to point out that the example in the manual for the yellow wedge is on flu and not COVID-19, although it's likely that some of their planning may be useful for the pandemic, the COVID-19 pandemic, because of a much greater complexity with the high infectivity rate of COVID-19, there were a lot of differences there, a lot of differences in the approach. I just want to make sure I call attention to that difference.

Image: Public Health Intervention Wheel (2)

How will you use the Wheel? The Wheel works as a whole in addressing public health problems and events. You generally will start with the red wedge and work your clockwise around the Wheel.

Why start with "Surveillance"? Because, in public health, everything starts with the capacity to recognize potential causes for harm and opportunities to improve public health. Depending on what your position is within your department you may spend your day working with the individual/family level on the red, green, and blue wedges. If you are your department's representative serving on a variety of committees, you're probably using the orange wedge. Even if it's not you, somebody in your department will be working at any level and all interventions to adequately respond to the problem at hand.

Application exercise

Now we will transition to applying the interventions to a public health problem. This may be done as an individual activity or, if you're working with a group, you may use the group activity instructions. Be sure to download the manual; the link is on this page, and that has all the definitions and examples and basic steps, and this will help you answer the questions in the application activity.

Application to COVID-19 pandemic

On this slide, you see the instructions for the individual application activity. First, read the problem, and then answer the questions on the following slides for each of the 17 interventions, and identify the applicable levels of practice for each.

Then choose one intervention in a wedge to expand on by applying basic steps outlined in the Wheel manual. And then, of course, use the Wheel handout to refer to intervention definitions and practice levels. Use the Wheel Manual to refer to examples and basic steps.

Group activity alternative

This slide describes a group activity alternative.

For a group activity, you may choose to divide into five wedge groups for discussion and then have each group provide a summary of that discussion.

So, in this case,

- Answer all the questions within a wedge and summarize.
- For the selected wedge(s), choose one intervention to identify the basic steps public health nurses can follow to implement that intervention. Be sure to refer to the intervention definition, examples, and basic steps in the Wheel manual.

Problem for wheel application

Here is a description of the problem for the Wheel application.

On March 11, 2020 the World Health Organization declared a world-wide pandemic of COVID-19, a disease caused the novel SARS-CoV2 virus emerging from Wuhan, China. On March 13, the USA followed suit in declaring an emergency. Statistics show that case numbers and deaths among Black, Indigenous, and other people of color are higher than for White Americans. And so the questions are: Why is this? What can be done to intervene?

Public health nursing response using the Intervention Wheel

So, what is the public health nursing response?

- Consider that you are a public health nurse employed by a large urban public health department. Choose a public health department and go to that department's website or, if you are employed, access your own county or other department website.
- Look at the CDC webpage on Health Equity Considerations and Racial and Ethnic Minority Groups.

Application to COVID-19 pandemic: Surveillance (red wedge)

For each of the following 17 slides, you will see a question for a specific intervention in the wedge. And then you can pause at each slide to respond to each question.

Red wedge interventions are extremely relevant to the COVID-19 pandemic.

So, for surveillance, here's the question: What is the current incidence and prevalence of COVID-19 cases in your county, city, or reservation for each racial and ethnic group?

Pause here to answer the question.

Application to COVID-19 pandemic: Disease and health event investigation (red wedge)

The question for disease and health event investigation is: What potential underlying factors contribute to differences in COVID-19 risk among races/ethnicities in your county, city, or reservation?

Application to COVID-19 pandemic: Outreach (red wedge)

Here's the question/activity for outreach on the red wedge: Identify three outreach strategies to reach those races/ethnicities in your community that are disproportionately affected by COVID-19. What do you need to be concerned about in developing messages of risk? Where do you go for help?

Application to COVID-19 pandemic: Screening (red wedge)

For screening, the question is: Which of the three screening strategies would you use: mass, targeted, or periodic? List a specific example for each, that you would use.

Application to COVID-19 pandemic: Case-finding (red wedge)

Now for case-finding: What happens to those individuals whose tests are positive for COVID-19? What happens to the data?

Application to COVID-19 pandemic: Referral and follow-up (green wedge)

Now we are on to the green wedge. You likely have seen referral and follow-up frequently used by public health nurses or students in response to the pandemic.

Be sure to pause after each question, to consider the answer. For referral and follow-up: Name one culturally appropriate referral source for each of the races/ethnicities in your community that are disproportionately affected by COVID-19. How do you assure the resources are used?

Application to COVID-19 pandemic: Case management (green wedge)

For case management, the question is: In the county, or where your department is, who is in a position to provide case management to members of each of these targeted groups with positive COVID-19 results? What if there are no groups or organizations designated? Then what do you do?

Application to COVID-19 pandemic: Delegated functions (green wedge)

For delegated functions, consider this question: In your department, you are given the responsibility to establish a curbside COVID-19 program and provide nasal swab tests. Is this within your legal authority to do?

Application to COVID-19 pandemic: Health teaching (blue wedge)

PHN knowledge and expertise on the transmission of infectious disease is foundational to the blue wedge interventions of health teaching, counseling, and consultation.

For health teaching, the question is: What do you keep in mind while preparing health teaching strategies for individuals and families? How about at the community level? How about at the systems level?

Application to COVID-19 pandemic: Counseling (blue wedge)

Here is a question for counseling: Consider you are working with a Spanish-speaking single mother from El Salvador. She has two elementary children in second and fourth grades with different school schedules. She works nights as an essential worker in a poultry factory. Provide an example of counseling with the mother in exploring her options for childcare.

Application to COVID-19 pandemic: Consultation (blue wedge)

For consultation: What other community agencies could you engage in conversation when trying to develop a resource for the woman you encountered in the counseling intervention?

Application to COVID-19 pandemic: Collaboration (orange wedge)

The orange wedge questions focus on how the public health nurse works with others to respond to the pandemic.

For collaboration, consider that you are assigned to your county's internal COVID-19 Pandemic Response Team. What is your general responsibility?

Application to COVID-19 pandemic: Coalition-building (orange wedge)

Here is the situation for coalition-building: You're assigned to serve on a neighborhood block organization as a representative of your department, to develop a response to COVID-19. What are your responsibilities?

Application to COVID-19 pandemic: Community organizing (orange wedge)

For community organizing, consider this situation: You're a team leader of public health nurses providing health care assessments for infants and toddlers in a community clinic serving low-income families. You and the other public health nurses learn of misinformation about COVID-19 from

those parents attending, about transmission and how to protect against it. No one is sure of the source of the misinformation. What are your options?

Application to COVID-19 pandemic: Advocacy (yellow wedge)

Now we are moving on to the yellow wedge. The use of yellow wedge interventions has the potential to reduce negative outcomes resulting from the pandemic. Working with others in the community will increase the effectiveness of these interventions.

So, for advocacy: You are part of a team deciding on COVID-19 testing sites. There are pockets of places where people live that have no public transportation or access to cars; an example is homeless encampments. What can you do?

Application to COVID-19 pandemic: Social marketing (yellow wedge)

Now consider the social marketing situation: You've been assigned as a department representative to the county's public information office. A local news outlet has reported that COVID-19 is "just like the flu" and will go away like the flu after this season. What can be done to counter this misinformation? What is your role?

Application to COVID-19 pandemic: Policy development and enforcement (yellow wedge)

Here is the example for the 17th intervention of policy development and enforcement: The governor issued a policy that everyone in public spaces must wear a mask unless under the age of two or otherwise cannot tolerate a mask for medical reasons. Your department's policy is the same but it is unclear what is meant by "anyone who has trouble breathing." You encounter a mother at her child's well child assessment who says she cannot wear a mask due to asthma. What do you do?

Application of basic steps

Now you have the opportunity to explore intervention basic steps in greater depth. For one of these five wedges (red, green, blue, orange, or yellow) select one intervention, and then review the basic steps in the manual for that intervention, and determine how you would use those basic steps in that intervention to address the COVID-19 pandemic. Be sure to allow adequate time to apply the basic steps to the example.

References

The primary reference for this presentation is the manual for the 2nd edition of the Public Health Intervention Wheel, and that can be downloaded from the Minnesota Department of Health, as well as the handout. You can also order a printed, spiral-bound copy from the Minnesota Department of Health. I've also included the reference on evidence levels from Dang & Dearholt, the Johns Hopkins nursing evidence-based practice model and guidelines book.

Contact information

Here we have our final slide, as we come to the end of this presentation; you can see our contact information and please feel free to contact either one of us if you have questions about the evidence update. I want to especially recognize Sue Strohschein, for her creation of the application questions for

PUBLIC HEALTH INTERVENTION WHEEL EVIDENCE UPDATE: TRANSCRIPT

each of the interventions. There is an instructor guide also available on the MDH website that has resources and responses to the application questions.

Sue and I are quite excited about how the Wheel can guide the thinking of public health nurses in how to use the interventions, and they really do provide a common language to explain what it is that public health nurses do in their work.

Make your practice evidence-based!

Minnesota Department of Health
Center for Public Health Practice
651-201-3880 health.ophp@state.mn.us
www.health.state.mn.us

November 2020. To obtain this information in a different format, call: 651-201-3880.

For further help with this guide or to contact the presenters, visit: [MDH: Public Health Intervention Wheel: Evidence update \(www.health.state.mn.us/communities/practice/resources/training/2011-wheel.html\)](http://www.health.state.mn.us/communities/practice/resources/training/2011-wheel.html)