

ONLINE WORKSHOP
SCHOOL NURSE ROLE IN COMMUNICABLE DISEASE MITIGATION

SELF-DIRECTED MODULE 3

Using Evidence to Guide Practice

for Communicable Disease Mitigation in Oregon Schools

This nursing continuing professional development activity was approved by Oregon Nurses Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. Approval valid through 07/30/2022.

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PRESENTATION TRANSCRIPT

Addendum (discussion notes slides) and references are listed at end of transcript.

[SLIDE 3.1] Welcome to the online workshop School Nurse Role in Communicable Disease Mitigation. This workshop is presented in partnership between the Oregon School Nurses' Association and the State School Nurse Consultant in the Public Health Division of the Oregon Health Authority.

[SLIDE 3.2] Module 1 focused on the nurse role in Oregon schools, Module 2 focused on resources. So we've arrived at Module 3.

[SLIDE 3.3] Module 3 of our Communicable Disease Mitigation workshop focuses on using evidence to guidance practice.

[SLIDE 3.4] As we talked about resources for the school nurse, we recognize that school nursing is a unique specialty that occurs at the intersection of health and education, and that we have multiple sources for the guidance school nurses need. We have local resources including other school nurses, school staff and community members, and we have resources from state agencies and professional practice organizations. Even with all these resources, there will be situations that require evaluation of data, evaluation of evidence, to determine what the best practice will be.

[SLIDE 3.5] Evidence-based practice is a cornerstone of safe and effective health care. Many nurses in Oregon schools come from clinical settings where there was a wall of JCAHO regulations and Lippincott procedures, reviewed by health care committees. In the educational setting – the nurse rarely has that wall of guidance. Instead, they are one of the few health experts in that setting. There is increased reason and opportunity for the nurse in that setting to actively participating in finding those answers that guide practice.

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[SLIDE 3.6] When applying health guidelines to specific school scenarios, nurses must consider evidence. For example, state laws on school health services require that schools have “space to isolate the sick or injured away from the rest of the student body” and public health guidelines further define requirements to have an isolation space, but those guidelines stop short of providing floor plans or other precise details. Nurses help determine how and when to provide individual care, how and when to screen for symptoms, and how to support immunization requirements. Addressing scenarios for specific school settings or specific students, requires understanding not just the guidelines, but the evidence behind those guidelines.

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[SLIDE 3.7] Being familiar with evidence can help the nurse verify and clarify how to apply public health guidelines locally. This process is familiar to most nurses when it comes to doctor’s orders. Nurses don’t follow orders blindly. Nurses are trained – and expected – to review orders, and to question orders that are unclear or might be unsafe. That expectation is written into Oregon’s Nurse Practice Act law. To review orders, a nurse needs to know what questions to ask – is this the right dose? Does this treatment make sense for this condition? Similar to verifying and clarifying medical orders, nurses may also be reviewing guidance, and looking what actions are prescribed or required in a school setting. Nurses will consider: Does the guidance provide clear instructions that can be implemented safely for this situation? What are the risks and benefits specific to the setting? In many cases, additional information is needed. Local decisions to address specific scenarios require understanding the specific school situation and understanding evidence to support decisions.

[SLIDE 3.8] Seeking additional information, seeking evidence, is a key practice for any nurse. In seeking evidence, a nurse wants to avoid sources that are unreliable, and avoid sources that are biased – either intentionally, trying to promote a certain product or agenda – or unintentionally biased because of poor study design.

[SLIDE 3.9] School nurses are called upon to consider evidence for topics across the spectrum of health and well-being, from evidence-based ways to educate school staff, to supporting students with specific conditions, to sharing accurate information about immunizations, as well as ongoing response to the pandemic. Is evaluating evidence something that typical school nurses can do? Based on 2020 surveys, most school nurses in Oregon express confidence in reading research. But that level of confidence does vary. This Module is intended to lay a

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foundation and invite all nurses to engage in evidence-based practice to the full extent possible. We'll talk about steps in this process - the expertise required to understand how research is conducted, and to apply research findings to the school setting.

[SLIDE 3.10] The next few slides emphasize that interpreting data and conducting research requires expertise. To be clear, the focus of this presentation is not to educate people about how to conduct research, but to emphasize the importance of seeking high-quality evidence to guide practice. These slides focus on accessing primary sources, either looking at data sets or reading research studies. As a way to frame this discussion, consider how a person might interpret this bar graph. This is pulled from the Oregon Health Authority's COVID Dashboards in the first months of the pandemic. It shows that, over time, an increasing percentage of Oregon's pediatric COVID cases occurred in young people who reported no symptoms. What conclusion might be drawn from looking at that graph?

Some people might see this bar graph and think that the outcomes for children are changing, maybe the virus is mutating. But for those familiar with how data are collected there is a more logical conclusion. Testing is increasing. Another reasonable interpretation is that, early on, only children who seemed ill were being tested. As time went on, even children who didn't have symptoms were tested. This example is to emphasize that there are limitations to what bar graphs can tell us. Reading and interpreting data requires a certain level of expertise – understanding how information is collected, and what data collection does to the findings. We'll revisit this slide in a few minutes.

[SLIDE 3.11] Data interpretation requires expertise – but so does gathering the data and doing the research. This slide emphasizes that there are different types of research study. Again, to be clear, learners for this Module are not expected to memorize these different types of research. The intent in sharing them here is to emphasize that different research methods are chosen for different reasons. Observational versus experimental; retrospective versus prospective. There are a lot of different ways to set up research. For each of these study methods, there are different aspects to consider. If the study requires asking people questions, can the researcher trust people to remember and report information accurately? If we want to know whether the study results are applicable to the people around us, we need to ask how many people were included in the samples? Were the people who are included in a certain study, representative of different groups? Or did the study only include people of certain ages, genders, ethnic or racial backgrounds? As researchers are setting up studies, they must consider whether the outcomes are likely to apply to all people – to be generalizable – considering age, race, ethnicity, gender, sexuality, physical abilities, mental abilities, languages spoken, educational level, financial status, and many other attributes. And they need to do all this in ways that maintain ethical standards. Research can do lasting harm if risks are assigned unequally, such as harms we see to this day, some groups of people are more likely to distrust the medical system, less likely to get vaccinated or believe mainstream messaging, following traumas inflicted by

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people in power – primarily white cis-gendered able-bodied people - who assigned risks to certain groups of people in the name of research.

[SLIDE 3.12] Here are some examples of how those different research methods might be used. Again, learners are not expected to memorize study methods, but to recognize that there are different study methods, and that how study is set up impacts whether the research findings will be meaningful and whether they will be trusted by different groups of people.

Considering the top two examples, those are both ways that symptoms might be studied. The bar graph on the earlier slide could be part of an observational study, looking at existing records and drawing conclusions. That type of research makes sense when there is an existing condition to observe, and when it would be unethical to conduct experimental research. In that example, it would be unethical to infect children on purpose, so researchers make observations from available data. On the other hand, if researchers are trying to develop a vaccine, they don't have information to observe. An experiment becomes necessary. Conducting that sort of experiment ethically involves recruiting willing participants and ensuring informed consent for those participants to receive different doses of the vaccine, so researchers can monitor their symptoms. Some studies provide compensation for participants, or treatments if adverse reactions occur. Ethical research is critical to the discussion of health equity. Within living memory in this country, we have multiple examples of racist research practices that targeted specific groups of people, putting research participants at risk in unethical ways. It is important for the school nurse to be aware, not only of current research, but of that history. To recognize that people have different levels of trust in science and the way that scientific advancements occur. So research can be a complex process, and it takes expertise – not only to design the study, but then, to interpret the results, and once we interpret the data, to apply those results to our practice in meaningful ways.

[SLIDE 3.13] To interpret the results of studies – and to apply those results to specific settings – requires expertise. Studies aren't always going to be available that exactly match the situation we're trying to address. Understanding that there are all these different elements to consider, can help us understand why certain evidence-based recommendations exist – and why others don't. Studies require planning, funding, and human effort. Collecting information about 1-on-1 interactions in controlled situations is considerably easier, compared to understanding how things work in population settings with many different variables, settings like schools. As a concrete example - early in the pandemic, there was plenty of scientific literature on the efficacy of medical masks in clinical settings. Literature was considerably less clear about community use of non-medical face coverings to prevent disease. Setting up a study like that as an experiment would have been monumentally expensive – it would require not only entire communities using face coverings but also, large-scale tracking systems to identify where disease – or simulated spread of disease – was occurring. That's not something researchers could set up artificially. So in the early days of the pandemic, public health experts had to make

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inferences. Based on available evidence, they recommended the use of face coverings by the general public. The image on the slide is from one of multiple studies in 2020 that confirmed those inferences were correct. After reviewing data from multiple states, that study found, “There was a significant decline in daily COVID-19 growth rate after the mandating of face covers in public.” Studies that came out in 2021 reinforce that finding. In one example, counties where school mask mandates were in effect saw half the rates of pediatric COVID, compared to counties without mask mandates. In another example, individual schools without mask policies in place were 3.7 times more likely to have in-school outbreaks. A single study might not be generalizable. But study after study shows the same impact – shows how important it was for those face covering policies to be in place in schools. But for that to happen, we had to take available evidence, mostly from clinical settings, and figuring out how to translate it to a public health setting. As health professionals in the school setting, school nurses are called upon to help translate and implement measures that work within the community.

[SLIDE 3.14] When the school nurse is working to set up processes and protocols for the school, that often requires understanding the evidence behind the guidance. If school nurses have the time and capacity to seek that evidence – to look for the research – where might they be looking? State agencies including Oregon Health Authority maintain some of that data. In 2021, we have dashboards with data for decision-making in schools, specifically around COVID-19 mitigation measures. But what if your topic isn’t addressed in state guidance? Or you want more than just data, you want information about what the data means? That’s when we want peer-reviewed research. It is possible to find peer-reviewed studies through general internet search engines like Google or Bing but we also find an awful lot of advertisements and arguments and opinions. But there are certain sites and databases that nurses can search that will yield exclusively peer-reviewed research and provide data that helps inform decisions without having additional opinions between us and that primary source.

[SLIDE 3.15] To find high-quality evidence, a nurse could go straight to the search engines that house primary research sources. The earlier slide included CINAHL as an example, which stands for Cumulated Index to Nursing and Allied Health Literature. That is a database that houses research specifically focused on nursing practice. The NIH or National Institutes of Health is another great example. The NIH database PubMed is a free online resource which contains over 25 million records. To search these databases, you can enter key words just like any internet search. You can also search using “MeSH” terms, or Medical Subject Headings. You don’t have to know MeSH at all, but if you do, you can refine your searches by knowing just how to ask for the subjects of interest. [See “Introduction: What is MeSH”?

<https://www.nlm.nih.gov/bsd/disted/meshtutorial/introduction/index.html>] Those databases also permit narrower search options to hone in on the type of evidence you are seeking. Within the Cochrane Library database, there’s an entire database just of systematic reviews, those studies-of-studies that we consider to be highly reliable. For many others databases, there is a sidebar to the left that lets you apply filters. This example shows filters you can select in the

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NIH PubMed database, such as choosing to look through meta-analysis, systematic reviews, selecting recent studies - studies conducted within the past year or the past 5 years. Other filters will let you search by human subject only, by different age ranges, by other categories.

[SLIDE 3.16] Any time we are looking for evidence, identifying reliable evidence requires recognizing that there are different levels of evidence. Peer-reviewed studies are an important source of reliable evidence to informing nursing practice. Peer review means people working in the same field, who know what makes a good study, are the ones who evaluate how well a study was designed, how well it was conducted, whether the information coming out of a study is reliable. In the green zone, even higher than individual peer-reviewed studies, there are studies-of-studies. A meta-analysis or a systematic review will look at studies that covered similar topics to determine if there is a common finding. If there is, that is usually more reliable than the findings from a single study. In the red zone are studies that don't disclose their methods or have such a small sample that repeating the study with a different group could lead to very different results.

There are some types of study in which a small sample is preferred. Case-studies and qualitative research add nuance to understand of certain issues. Those smaller studies can give us personal stories that humanize the numbers and bar graphs. But if those small studies contradict the findings of larger studies or systematic reviews, they are less valuable in helping to inform practice that will be safe and effective for all members of a school community. The results from a well-planned study can be replicated by others. This is key when we are talking about population health, community health, the nurse role in a school setting. We are not interested in what happened to one person one time – we need to know what is most likely to apply to most people, most of the time – and therefore, what's most likely to be effective for any given student or school.

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[SLIDE 3.17] We have access to a huge amount of data posted on state and national sites. We have surveys and self-reported data, like the Oregon Student Health Survey. We have access to vital records, like what we’ll find posted in CDC’s morbidity and mortality weekly report. And we have weekly or daily updates about the pandemic on OHA COVID-19 data dashboards. Using these as primary sources to guide practice may fall into the proceed-with-caution zone. It can be quite easy to misinterpret data if we’re not experts in the field, or if an individual doesn’t have a clear understanding of how data were collected – just like that example of pediatric symptom prevalence on the bar graph slide. Sometimes I really want to see that data myself, but sometimes hearing or reading a secondary source, an expert in the field, may be a more reliable way to understand evidence, versus trying to interpret the data myself. If we are going to those secondary sources, how do we know they are reliable sources? Two key factors to consider when we are looking at secondary sources are level of expertise, and bias.

[SLIDE 3.18] Is the secondary source a person or group whose only agenda is the health and well-being of the population at large, or the promotion of high-quality practice in the field? Those sources are far more reliable than a business trying to sell a certain product, or even an unbiased news outlet. News is by nature biased towards that which is new or interesting. Consider the national coverage of protests or demonstrations: they don’t show images of all the boring parked cars, just the car that is on fire. If there’s new information about a disease or a treatment, news outlets are more likely to report on that, versus sharing all the established information – even if the well-established information leads to a different conclusion than what the newest study revealed.

[SLIDE 3.19] When we are talking about secondary sources, another factor to consider is whether or not we have the full picture. Is it possible we are missing key information, or that information has been hidden or skewed to make a certain point? If you recall this bar graph was shared a few slides back. The information has not been falsified, but it has been presented in a way that is misleading. First of all, note that the bar graph shows percentages but doesn’t give total numbers. The first bar on the left could represent a single child who tested positive and had symptoms - or could represent 250 children who had symptoms. Those numbers make a difference in the meaning of this information, and we have no way of knowing what those numbers are based on the image as presented on this slide. Second - this image selects only certain weeks - it’s the graph from March to June- so it’s only showing the first 15 weeks of

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data. So our data from one period of time, appears to show increasing percent of pediatric cases showing up without symptoms, and

[SLIDE 3.20] That trend leveled off mid-June. Here are that same 15 weeks, appearing now as the first 15 lines within a larger sample period. Rather than appearing to decline steeply, the percentage of children who show symptoms actually seems to be hold steady around 70%. The first weeks only showed a partial picture – and that picture was chosen to make a point.

[SLIDE 3.21] That point is, if we are not looking at a primary source, there is always a chance we are getting skewed information. If we don't have time to be reviewing actual research articles and primary data sources, we need to find reliable sources, sources that are experts in the field, sources that are unbiased – trying to present information that will truly inform the work the school nurse is doing.

[SLIDE 3.22] Bias can result from intentional misrepresentation to make a point or to support an idea, but it can also come in the form of poorly-designed studies. Research bias happens when there is a systematic error in the way a study was designed. All those different aspects mentioned earlier can show up as types of research bias. The three types of research bias shown on the screen are selection bias, observation bias, and confirmation bias. As studies are peer-reviewed, researchers will ask: Were the people who were *selected* for a certain study, representative of different groups? Are the *observations* measuring or collecting data correctly? Is the study *confirming* its own hypothesis? Recognizing the risk of bias, reinforces how important it is to refer to peer-reviewed research ourselves, and how to identify reliable secondary sources that have the expertise to guide us to those meaningful results.

[SLIDE 3.23] Bias in research is a real concern. Bias in the person reading the research is also important. School nurses need to be able to determine if what is happening in a school setting is right. Is a certain practice, the best practice? It is eminently human to search for evidence that we are correct. But when we are trying to set up school-wide supports, it is critical to be aware of that type of internal bias.

[SLIDE 3.24] Research shows us that those are most qualified to read those primary sources may also be most likely to be biased towards their own beliefs. The more educated we are and the older we get, the easier it becomes to say, "I've known this for years! Of course it's true!"

But evidence is constantly emerging, whether it's about this pandemic, or about specific treatments for chronic conditions, or about how to document and share information. When we're faced with new information, the inclination many of us have is to demonstrate our expertise by saying, "Yes, but here's what I know about that. That's not the way I've been doing that, here's how the new way is wrong." At some point, we need to be able to demonstrate expertise – not by arguing against new information, but by incorporating new information into our practice.

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How do we know which information to trust? How do we know which sources are the most reliable? I've just gone over some of those considerations – is this a primary source, is this high-quality research? Or is this a secondary source? If this is a secondary source, is it an expert in the field with no hidden agenda? Or is this someone trying to sell a certain product, or a certain view point, or just trying to get the most likes on a post, or the most views on a news story?

[SLIDE 3.25] Overcoming unconscious bias takes conscious effort. Even with the best of intentions, if we are checking up on a claim or a recommendation – we've already heard one point of view. And that pre-disposes us to be skeptical of the next thing we read that doesn't agree with what we already heard or what we think is true. We are more likely to believe information if it matches the first version of information we've heard, if it comes from a trusted source, and if it fits easily into our lifestyle. But when we are talking about the health of a school community, sticking to individual beliefs can put people at risk. Thinking back to the mask example – we've known for years that medical masks protect against respiratory diseases. Hearing new information such as, cloth face coverings used by the general public protect against respiratory illness, had some nurses saying, That doesn't match the information I know from before. And yet we have a great deal of evidence at this point: as a population-wide measure, CLOTH FACE COVERINGS do reduce the spread of disease. But even when the evidence is clear, we may dismiss it, particularly if that evidence is new to us or challenges our existing way of doing things. The challenge we face is not only to learn to recognize reliable sources, but to be ready and willing to accept the evidence presented by those sources, even if it doesn't match the first version of information we've heard. Even if it doesn't fit easily into our lifestyles.

[SLIDE 3.26] The sign of a true nurse expert is the ability to incorporate evidence into nursing practice. Because that's what it's all about. Applying evidence to keep people safe and healthy. When we're talking about using evidence to address specific scenarios in schools, school nurses are uniquely positioned to apply evidence – first, to identify what information is needed to inform decisions; second, to identify strong, unbiased evidence from reliable sources, and third, to implement measures that align with reliable evidence. School nurses know it's not just about meeting a mandate or fulfilling an order; it's about putting measures into place that actually lead to the desired impact. The school nurse can be a driving force to ensure evidence-based practices are in place in the school setting.

[SLIDE 3.27] That brings us to the end of Module 3. These online modules have reviewed the Nurse Role, Resources, and Use of Evidence to support communicable disease mitigation. This concludes Module 3: Using Evidence to Address Issues in Oregon Schools. If you can stick around for a few minutes more, we offer an addendum with notes from live workshop discussions in which nurses working in Oregon schools shared their own examples of evidence-based practice.

[SLIDE 3.28] These are references used for the content in Module 3.

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[SLIDE 3.29] The following 3 slides provide an addendum to this Module. OSNA Fall Conference 2020 offered a workshop on searching for reliable resources. Over 150 nurses from across the state participated in break-out discussions about topics of interest for which they could seek evidence, sources they trust to provide reliable information, and strategies to encourage the use of reliable resources with parents and staff in their communities. Notes from those discussions are summarized on the next three slides.

[SLIDE 3.30] Nurses shared some of the topics of interest for which they had sought evidence, or might need to seek evidence. These ranged from “all things COVID” such as vaccine updates and recommended screening practices, to issues related to students with complex health issues like diabetes care and management, seizure response, and trach care, to topics like mental health, nurse role in special education, and cultural competency, humility, and agility when serving students.

[SLIDE 3.31] Nurses shared some of the sources they trust for reliable information. These include professional organizations, from the American Academy of Pediatrics to Epilepsy Foundation, and professional school nursing organizations. Many listed public health agencies such as World Health Organization, CDC, and Oregon Health Authority. Many also listed universities and teaching hospitals, such as resources from Mayo Clinic or OHSU grand rounds. A few shared research databases or journals, and other sources such as the Echo project and most .edu websites, as well as school nurse colleagues who cite those sources. Not trusted or considered unreliable included word-of-mouth and social media, news especially if politically biased, emotionally-charged posts, and .com websites.

[SLIDE 3.32] Nurses shared some of the questions they ask before sharing information. Does the information have potential to do harm? Is the recommendation or statement supported by evidence? If there is evidence cited in a news report or other secondary source, is it peer reviewed or from multiple sources versus being from a single person or single group? And finally, who is the person or group sharing the information? Is it a person or group that is trusted to be unbiased, or do they have any conflicts of interest?

[SLIDE 3.33] Nurses shared suggestions for how they might increase use of reliable information in their schools and with communities. Suggestions included being aware that some people distrust government or official sources. Explaining facts with empathy, meeting parents and school staff with respect and understanding. They talked about seeking ways to share information that was relatable, using local images or examples when possible. Communicating in culturally appropriate ways was emphasized. Nurses also talked about considering opposing views, avoiding the echo chambers of social media. They talked about sharing digestible versions of information, accurate but easy to understand. And they talked about being aware that new evidence may lead to people to distrust recommendations, because it doesn't match old evidence. Being prepared to back up recommendations with explanations about why they

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changed can be helpful. Those are some of the ways nurses are working to bring evidence-based practices into Oregon schools.

[SLIDE 3.34] This concludes Module 3 of the workshop School Nurse Role in Communicable Disease Mitigation.

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