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ADDRESSING HEALTH MISINFORMATION, PUBLIC HEALTH SURVEILLANCE, AND INFECTION CONTROL USING PUBLIC SCHOOL NURSES

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Abstract: I*nfection prevention and control (IPC) is a critical component of public health, yet its application within U.S. K–12 schools remains fragmented, under-resourced, and insufficiently examined. Despite serving nearly 50 million students daily, public schools lack the standardized IPC infrastructure common in clinical environments, creating a significant and underrecognized public health vulnerability. This study addresses a critical gap in the literature by offering one of the first comprehensive examinations of school nurses' strategic role in leading IPC efforts within educational settings.School nurses occupy a unique position at the intersection of healthcare delivery, education, and community engagement, yet their potential to influence disease prevention, health literacy, and illness surveillance remains largely untapped. Drawing on expert interviews and field-based insights, this research identifies context-specific, equity-centered strategies that enable school nurses to operationalize IPC more effectively, particularly in underserved communities. The study highlights how institutional constraints, misinformation, and inconsistent policies limit IPC effectiveness and contribute to disparities in student health outcomes. By centering school nurses as frontline public health practitioners, this research advances a novel, practice-informed framework for school-based IPC implementation. It fills a critical void in public health scholarship by reframing schools as active sites of disease prevention and positioning school nursing offices as essential nodes in community health resilience and surveillance systems.*

Key words: *Infection Prevention and Control (IPC), Public Health Education, School Public Health Surveillance, School Nursing, Health Disparities, Community Public Health;*
JEL Codes: *I12, I18, I15, I14*

1. Introduction

Public health engineering is an interdisciplinary field that applies

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principles of engineering, environmental science, and public health to design, implement, and manage systems and technologies that protect and promote human health, particularly in communities that are vulnerable, underserved, or exposed to environmental and infrastructure-related health risks.

Infection Prevention and Control (IPC) remains a foundational element of public health. It is recognized for limiting the spread of communicable diseases, reducing hospitalization, and alleviating systemic healthcare costs through scalable, preventive strategies [1]. In highly regulated clinical environments, such as hospitals and long-term care facilities, IPC practices, from sterilization to vaccination, are standardized, embedded in policy, and reinforced through continuous staff education. However, in U.S. public schools, where nearly 50 million children gather daily, IPC implementation often lacks the structure, consistency, and psychological readiness that support its success in clinical settings [1].

Unlike clinical environments with standardized IPC protocols, schools often lack the infrastructure, training, and psychological preparedness necessary for consistent practice [1]. Within these gaps, school nurses play a pivotal role, embedding IPC measures into daily routines and leveraging trusted relationships to promote health behaviors and counter misinformation.

Beyond prevention, schools serve as crucial surveillance nodes, where nurses identify early patterns of illness through absenteeism and symptom monitoring [3]. Their capacity for rapid intervention, through hygiene campaigns, vaccination outreach, and data-sharing with public health agencies, transforms schools into proactive health partners [3]. By systematizing symptom tracking and fostering interdisciplinary collaboration, school nurses convert daily observations into actionable public health strategies [1]. Surveillance curbs outbreak and informs broader equity-driven interventions, strengthening community resilience through real-time behavioral insights [3].

Disease Surveillance Process Diagram

The diagram below outlines the key stages of the disease surveillance process, illustrating how data collection, analysis, and reporting feed into public health action and research.

1.	2.	3.	4.	5.
Data Collection	**Data Analysis & Interpretation**	**Outbreak Detection & Early Warning**	**Public Health Action & Policy Response**	**Research, Evaluation, & Feedback**

Infection Prevention and Control (IPC)

Infection prevention and control (IPC) constitutes an integrated clinical and psychological framework that mitigates infectious disease transmission through systematic interventions [1]. Beyond sanitation, IPC embeds behavioral training and surveillance into institutional habits, shaping cognitive and procedural norms, such as hand hygiene and patient isolation, that protect against healthcare-associated infections (HAIs) and foster psychological safety [1].

Effective IPC enhances recovery, reduces readmissions, and promotes emotional well-being while lowering healthcare costs

[1]. Visible adherence to IPC protocols builds patient trust, increasing compliance with care regimens and accelerating community reintegration [1]. As Tsioutis and Karageorgos [1] emphasize, strong IPC infrastructures yield personal and systemic health benefits. IPC is essential amid pandemics, antimicrobial resistance, and vaccine-preventable diseases [1]. Its success depends on aligning interventions with social norms and trust structures and embedding preventive behaviors into daily routines to create resilient, agile healthcare systems [1].

Darrell Norman Burrell Equity-Centered Infection Control Framework

This visual framework presents a comprehensive, equity-centered approach to Infection Prevention and Control (IPC). The model emphasizes universal protocols and tailored interventions to protect vulnerable populations in school, community, and healthcare environments. It consists of six interconnected stages designed to guide institutions in implementing IPC strategies that are inclusive, adaptable, and sensitive to the social determinants of health.

1.	2.	3.	4.	5.	6.
Community Assessment	**Inclusive Planning & Co-Design**	**Accessible Health Education & Messaging**	**Targeted Implementation in High-Risk Areas**	**Equitable Surveillance & Feedback Loops**	**Policy Advocacy & Sustainability**

The proposed IPC framework operates as a cyclical, interconnected process where each stage informs and refines the others, fostering continuity, reflexivity, and community resilience.

Community Assessment anchors the framework by identifying structural barriers faced by marginalized populations, ensuring IPC strategies are contextually grounded rather than one-size-fits-all.

1. Inclusive Planning and co-design engage diverse stakeholders, including nurses, public health officials, families, and students, to create culturally attuned, community-endorsed interventions that foster ownership and long-term adherence.
2. Accessible Health Education & Messaging emphasizes delivering linguistically inclusive, culturally sensitive communication through trusted messengers and multimedia tools, recognizing health literacy as essential to behavior change.
3. Targeted Implementation in High-Risk Areas prioritizes resource deployment where vulnerability is greatest, operationalizing equity by addressing spatial, environmental, and economic barriers.
4. Equitable Surveillance and feedback Loops employ disaggregated data collection and community-driven feedback to dynamically adjust interventions, ensuring transparency, responsiveness, and sustained trust.
5. Policy Advocacy & Sustainability translates community-informed IPC insights into structural change, institutionalizing equitable practices through funding, staffing, and accountability measures.
6. These stages transform IPC from a technical protocol into a community-centered, equity-driven public health strategy.

1.2. School Nurses as Defenders

School nurses are pivotal in countering IPC misinformation, leveraging trust and daily proximity to foster clarity and emotional reassurance [1]. Unlike external officials, they are embedded within school culture, enabling them to address confusion arising from inconsistent policies and conflicting public narratives, particularly in under-resourced districts [1]. Rather than relying solely on factual correction, nurses employ psychologically responsive strategies such as bilingual Q&A sessions, visual aids, and culturally attuned messaging to reframe beliefs and reinforce emotional safety. By translating clinical guidance into accessible, resonant communication, school nurses empower informed decision-making rooted in trust rather than fear. They enhance IPC compliance through sustained engagement and cultivate a resilient public health culture, critical bridges between institutional policy and individual behavior [1].

1.3. Problem Statement

School nurses are integral to infection prevention and control (IPC), extending their roles from clinical care to countering misinformation, promoting culturally responsive education, and monitoring illness trends [2]. Despite daily student congregation, IPC protocols often remain inconsistent, especially in high-risk areas like athletics, where misinformation exacerbates vulnerabilities [2]. School nurses address these gaps through targeted health literacy initiatives that reshape misconceptions via psychological reframing rather than confrontation. As surveillance agents, they also track absenteeism and symptom clusters, linking clinical insight with public health reporting [3]. School nurses transform schools into resilient public health hubs by uniting education, intervention, and surveillance. This study addresses the limited research on how nurses operationalize these roles to guide behavior, correct misinformation, and mitigate disease outbreaks [2–3].

1.4. Overarching Research Question

What are the best practices and strategies for public school nurses to operationalize infection prevention and control (IPC) strategies to address health misinformation, conduct real-time disease surveillance, and manage outbreak response in public school settings?

1.5. Purpose Statement

This qualitative study aims to understand the best practices of how school nurses can influence infection control regarding health misinformation, disease surveillance, and outbreak mitigation in public school settings, focusing on the roles of school nurses and nursing offices through the insight of subject matter expert interviews. This research aims to identify existing gaps in IPC strategies, develop targeted interventions for addressing these deficiencies, and establish a framework for integrating public schools and public school nurses into broader public health surveillance systems. Through an interdisciplinary approach, the study will explore how IPC measures and collaboration with public health authorities can reduce the prevalence of communicable diseases, such as skin infections, among school populations and contribute to community health resilience

and combating misinformation and disinformation.

1.6. Significance of the Study

This study addresses a gap in Infection Prevention and Control (IPC) and public health surveillance in U.S. public schools, key sites for influencing health behaviors [1]. Integrating healthcare into education supports global efforts to reduce disease spread and promote equity. School nurses are examined as critical agents who operationalize IPC and extend health behaviors into communities. The study also explores how nurses counter health misinformation, undermining trust and effective responses. Through culturally responsive education and critical thinking development, nurses correct misinformation and foster resilience. Finally, the research highlights schools as strategic surveillance hubs, where early illness detection and coordinated response strengthen infection control. It informs policy and workforce development by demonstrating how school nurses build public trust and institutional resilience [1].

2. The Essential Contributions of School Nurses to Student Health and Education

School nurses are critical to school health systems, integrating clinical care, education, and crisis management to promote physical and emotional well-being [4–7]. Beyond treating illnesses, they conduct daily surveillance, detect early outbreaks, and instill preventive behaviors essential to students' cognitive and emotional development [4–6], [8–10]. Nurses bridge healthcare gaps in underserved communities through culturally competent outreach, building trust, and expanding access [4–5], [8–10]. During crises such as COVID-19, they led testing, vaccination, and emergency coordination with clarity and empathy [4–7]. School nurses sustain resilient, equitable public health infrastructures by aligning infection control, mental health support, and health education [4–10].

2.1. School Nurses and the Psychology of Misinformation and Disinformation

A mis-infodemic poses a serious psychological and public health risk, marked by the rapid spread of false information during crises [11]. While social media can disseminate official health guidance, it amplifies emotionally charged misinformation, such as vaccine conspiracies, and often outpaces evidence-based communication [12]. These narratives gain traction because they offer emotional comfort amid uncertainty, even as they erode trust and promote harmful behaviors [11–12]. Misinformation thrives not merely from knowledge gaps but from psychological vulnerabilities. Fear heightens reliance on heuristics and social conformity, leading individuals to favor group-aligned narratives over critical analysis [13–14]. Algorithms further entrench these beliefs by mixing false claims with credible content, reinforcing emotional over scientific reasoning. Within this landscape, school nurses serve as frontline defenders against misinformation. Their trusted presence enables them to counter false narratives through culturally sensitive, empathetic education. Nurses strengthen media literacy, alleviate fear, and promote resilience by addressing myths in parent meetings, classrooms, and health communications. Through fact-based,

trust-driven engagement, they help fortify school communities against future misinformation threats [11–14].

2.2. Theoretical Foundations

Lewin's Change Management Model

Kurt Lewin's Change Management Model offers a psychologically grounded framework for orchestrating systemic change, particularly pertinent in public school environments where Infection Prevention and Control (IPC) practices necessitate cultural and behavioral realignment [15]. Structured around the stages of Unfreeze, Change, and Refreeze, the model delineates the psychological mechanisms underpinning sustainable transformation [16–17]. In the Unfreeze phase, school nurses might leverage infection trend data, such as increased skin infections among student-athletes, to evoke cognitive dissonance and mobilize stakeholders toward urgent action, effectively demonstrating the risks of inaction as articulated by Bultas et al. [2]. The Change phase fosters the internalization of new behaviors through targeted interventions, including structured hygiene education, collaborative planning between nurses and coaches, and feedback-driven infection monitoring systems, which collectively mitigate resistance through emotional reassurance and clarity [16–17]. Finally, the Refreeze stage institutionalizes these practices by integrating IPC protocols into school health policies, onboarding procedures, and cultural celebrations of health outcomes, thereby normalizing preventive behaviors and ensuring their persistence [16–17]. Through its emphasis on psychological readiness and systemic reinforcement, Lewin's model empowers educational leaders to combat fragmented IPC practices, align stakeholder commitment, and embed sustainable health-protective behaviors within the fabric of school communities [15].

The Health Belief Model (HBM)

The Health Belief Model (HBM) provides a psychological framework for understanding health behaviors in school-based IPC efforts, emphasizing how perceptions of susceptibility, severity, benefits, barriers, cues to action, and self-efficacy shape preventive practices [18–20]. School nurses operationalize these constructs by advancing health literacy and countering misinformation through culturally responsive education [18–20]. Nurses promote behavior change by reframing perceived susceptibility and destigmatizing infection risks, particularly in high-contact environments like athletic programs [18]. They reinforce perceived severity by linking illness to academic and family disruptions while addressing barriers through evidence-based, multilingual communication [18]. Informational forums further strengthen trust and facilitate public health engagement. Through daily integration of HBM principles, school nurses cultivate resilient health ecosystems where preventive behaviors are normalized, trust is reinforced, and communities are empowered to navigate public health challenges [18–20].

Stakeholder Theory

Stakeholder theory provides a psychological framework for understanding how organizations balance competing interests, emphasizing the involvement of students, families, educators, and healthcare professionals in IPC efforts [21–23]. School nurses,

embedded in daily school life, navigate trust, resistance, and misinformation by identifying psychosocial barriers and tailoring culturally responsive interventions [22]. Nurses foster emotionally safe communication through multilingual workshops and collaborative initiatives, demystifying IPC practices and building relational trust [22–23]. By operationalizing Stakeholder Theory, school nurses strengthen community health literacy and embed sustainable infection prevention behaviors within school cultures.

Canoe Theory

The Canoe Theory, a metaphor in organizational behavior, underscores the psychological necessity of shared vision, collaboration, and individual accountability for cohesive group action [24]. In school-based Infection Prevention and Control (IPC) offers a compelling framework: as paddlers must synchronize to steer a canoe, so too must school nurses, educators, students, and families align efforts to sustain health safety [24]. School nurses anchor the shared vision by translating public health mandates into relatable goals, such as promoting a "Clean Hands, Safe School" initiative that normalizes preventive behaviors. Collaboration materializes when stakeholders, like athletic trainers and teachers, reinforce IPC protocols through consistent, coordinated actions, fostering cognitive trust and collective efficacy. Accountability, personal and social, emerges when individuals recognize that behaviors, mask-wearing, and symptom reporting impact communal well-being. Visible modeling by school leadership further solidifies these shared norms. Through health literacy initiatives, nurses strengthen this alignment, counteracting misinformation with culturally attuned, empathetic communication. By embedding IPC efforts within a Canoe Theory framework, school communities can move in a unified, resilient pursuit of collective health [24].

3. Methods

This study employed a qualitative phenomenological design to investigate school nurses' lived experiences and expert perspectives on infection prevention and control (IPC) practices amid health misinformation, disease surveillance, and outbreak mitigation. Phenomenology was selected for its capacity to elicit nuanced, context-rich insights, which are particularly valuable in capturing the dynamic, non-clinical realities of school-based healthcare delivery. Centering school nurses' experiences foregrounds an often-overlooked dimension of public health infrastructure, addressing the need for evidence that integrates nursing leadership into educational policy and IPC systems. Data were collected through individual semi-structured interviews with seven public health nurses and seven public school nurses, each with over five years of professional experience. This qualitative method enabled a deep exploration of participants' strategies and challenges, capturing complexities that quantitative measures could not adequately reveal.

3.2. Justification for Qualitative Interviews

Qualitative interviews are particularly suited to investigating complex practices like school-based IPC, offering the flexibility to elicit detailed, context-specific narratives [25]. Unlike surveys, semi-structured interviews encourage open-

ended dialogue, allowing researchers to uncover layered insights and probe for deeper elaboration. This method fosters candid reflection, especially among public health nurses navigating varied institutional environments, community dynamics, and resource constraints, thus capturing the nuanced realities shaping IPC implementation [25].

3.2. Benefits of the Qualitative Approach

The qualitative methodology provided distinct advantages in understanding IPC practices:

- Open-ended questions allowed participants to share experiences in their own words, facilitating a deeper exploration of organizational, social, and individual factors shaping IPC practices.
- This approach captured the complexity of IPC implementation in schools, elucidating how resource constraints, community dynamics, and institutional policies interplay to affect outcomes.
- Prioritizing participants' voices fostered a sense of ownership, empowering nurses to share insights often overlooked in quantitative studies.

3.3. Data Collection and Interview Process

A semi-structured interview guide, informed by literature review and public health consultation, was developed to explore participants' experiences with IPC implementation, barriers, and outcomes. This flexible format maintained thematic focus while allowing emergent topics to surface. Interviews, conducted in person or via secure video conferencing based on participant preference, lasted approximately 60 minutes and were audio-recorded with consent to ensure transcription accuracy. Ethical standards were rigorously upheld: participants received detailed study information, provided informed consent, and were assured of their right to withdraw without consequence.

3.4. Data Collection Questions

Domain 1: Health Literacy

1. **What strategies have you found most effective for improving infection-related health literacy among students or families, and why do you believe they work?**
   (Focuses on identifying actionable, proven approaches in the school setting.)
2. **What new or additional opportunities do you believe exist for school nurses to expand their role in improving health literacy around infection control?**
   (Aim to uncover innovative, underutilized, or aspirational practices.)

Domain 2: Misinformation

3. **What are the most effective methods you have used to correct health misinformation related to infection control in your school community?**
   (Targets concrete best practices in message delivery, framing, or outreach.)
4. **What additional supports or resources would enhance your ability to prevent or respond to health misinformation in the future proactively?**
   (Focuses on identifying system-level opportunities for strengthening capacity.)

Domain 3: Public Health Surveillance

5. **What tools or techniques do you use to track illness trends, and which have been most effective in supporting timely and accurate infection surveillance?**
   (Seeks to identify high-impact surveillance practices with real-world utility.)
6. **What improvements or innovations would help school nurses contribute more effectively to disease surveillance efforts?**

(Aim to uncover unmet needs and forward-looking possibilities.)

Domain 4: Public Health Response

7. **Based on your experience, what response protocols or actions have been most effective for managing infectious disease incidents in schools?**
   (Designed to pinpoint repeatable practices that lead to positive outcomes.)

3.5. Data Analysis

Interview transcripts were analyzed using thematic analysis, beginning with familiarization and open coding in NVivo, guided inductively by the data, and informed by sensitizing concepts. Two researchers independently coded initial transcripts, achieving 90% inter-coder agreement, with discrepancies resolved through iterative discussion and codebook refinement. Codes were synthesized into themes using constant comparison, ensuring internal homogeneity and external heterogeneity to preserve analytic clarity. Credibility was strengthened through member checking, while triangulation with IPC literature and institutional policies contextualized findings. Reflexivity was maintained through journaling, bracketing, and regular peer debriefing.

3.6. Sample Size and Data Saturation

Purposive sampling recruited seven public health nurses and seven school nurses, each with over five years of experience, to ensure contextual relevance. Data saturation was achieved by the ninth interview, strengthening credibility [26–27]. Methodological rigor was reinforced through member checking and triangulation, ensuring a trustworthy and contextually grounded analysis.

3.7. Data Collection Results from Interviews

To align with the study's aim of identifying best practices among experienced school and public health nurses, the final analysis prioritized themes reported by at least eight of fourteen participants. This threshold enhanced the findings' credibility and practical relevance by emphasizing field-validated, transferable insights. Although phenomenological research values individual narratives, thematic convergence was essential for distilling actionable guidance for policy, training, and IPC resource allocation.

The results were as follows:

Prioritize Hand Hygiene as a Foundational Practice - (14 out of 14 participants mentioned this concept)

The interviews emphasized the critical role of hand hygiene in infection prevention within schools. Schools should establish robust handwashing protocols supported by educational campaigns highlighting the importance of proper handwashing techniques. Strategically placed visual reminders, such as posters near sinks, and ensuring the availability of

hand hygiene stations can further promote adherence. School nurses and nursing offices are central in promoting compliance by conducting regular hygiene workshops and integrating hand hygiene lessons into health education programs. Nurses can also oversee the strategic placement of hand hygiene stations and monitor supply levels to ensure they remain functional. Continued reinforcement of these practices by school nurses, even amid resource constraints, is essential to achieving sustained compliance among students and staff.

Participant Quote

"Look, we can talk about all the fancy protocols in the world, but if we don't get the basics right, like making sure kids are actually washing their hands, everything else falls apart. I've seen classrooms with broken soap dispensers for weeks, and no one has said anything. What we need are reliable hand hygiene stations that are always stocked and visible reminders that reinforce the habit. Even just colorful posters near sinks or student-led announcements can make a difference. It doesn't have to be complicated; it just needs to be consistent and reinforced often."

Health Education and Awareness Campaigns (14 out of 14 participants mentioned this concept)

School nurses can address health misinformation and disinformation about Infection Prevention and Control (IPC) by implementing targeted education and awareness campaigns within public schools. These campaigns can include interactive classroom presentations, workshops, and health fairs aimed at educating students, parents, and staff about evidence-based IPC practices. By tailoring these initiatives to meet their school community's specific needs and concerns, nurses can ensure that accurate information about hand hygiene, respiratory etiquette, vaccination, and the importance of staying home when ill reaches a broad audience. These efforts help counter misinformation by offering accessible and credible explanations, fostering a culture of knowledge and trust.

Participant Quote

"People think kids just absorb health information from posters or a five-minute classroom announcement, but it doesn't work like that. If I don't get down at their level and talk about germs like they're tiny villains we can defeat together, they tune out. I've had to make up handwashing songs, use glitter to show how germs spread, and even role-play coughing into your elbow. And with parents, it's all about trust. I've sat on cafeteria benches with moms who were scared of vaccines because they saw something on Facebook. That's when you lean in, answer questions gently, and explain the science without making them feel judged. But to really make these campaigns work, I need more than good intentions. I need time in the school day, a team to help, and support from leadership to make health education part of our everyday routine, not just an emergency response."

Collaboration with Public Health Authorities Campaigns (13 out of 14 participants mentioned this concept)

Collaboration with local public health authorities is another essential strategy that school nurses can use to combat misinformation. By maintaining regular communication with these agencies, school nurses can provide timely updates on IPC guidelines and protocols, ensuring that their school communities are

informed with the most current and reliable information. This partnership allows school nurses to access and distribute credible educational resources, such as posters, brochures, and social media content, that are tailored to address the specific misinformation circulating in their communities. Additionally, this collaboration strengthens the alignment between school policies and public health recommendations.

Participant Quote

"When COVID first hit, I felt like I was playing telephone with outdated info. Parents had questions, teachers were scared, and I was still waiting for guidance that made sense. That all changed when our local health department assigned a liaison just for school nurses. Suddenly, I had a person I could text or call with real-time updates. We started getting flyers in multiple languages, toolkits for vaccine clinics, even infographics I could post on the school's Facebook page. That partnership made me feel less alone and way more confident when I had to talk to families who were hearing all kinds of stuff online. But to keep that going, we need regular meetings, not just during crises. We need someone from public health at the table when we're planning school health activities, and they need to see us as frontline partners, not just last-minute messengers."

Policy Advocacy and Implementation (11 out of 14 participants mentioned this concept)

School nurses have a unique opportunity to influence and advocate for policies that prioritize accurate information and effective IPC measures within schools. They can work with school administrators to develop and enforce health policies that promote sanitation, vaccination, and adherence to IPC protocols. By advocating for resources such as handwashing stations, personal protective equipment, and training programs for staff, school nurses can ensure that schools are equipped to follow best practices in IPC. This proactive policy advocacy helps create an environment where evidence-based measures are seamlessly integrated into daily routines, reducing the risk of misinformation taking hold.

Participant Quote

"You can have all the science in the world, but if there's no school policy backing it up, it's just a suggestion. I remember pushing for hand sanitizer in every classroom after a bad flu season, and it took three months, two proposals, and way too many emails to get it approved. That's when I realized we have to be at the table when policies are being written, not just when they're being enforced. I started meeting with my principal monthly and worked with our district nurse team to write a standard IPC checklist. We made it part of our school safety plan, just like fire drills. But to keep this going, we need administrative support, district-level buy-in, and, honestly, time carved into our roles to do this kind of advocacy. Nurses can lead the charge, but we need more than a clipboard, we need a seat at the table, resources, support, recognition, and increased compensation to do this very important public safety work effectively and successful."

Enhance Training and Utilization of Personal Protective Equipment (PPE) - (14 out of 14 participants mentioned this concept)

Proper PPE usage is a key element of disease prevention, necessitating regular training programs for school nurses and staff. Simulation-based exercises can improve knowledge and compliance with PPE protocols. As leaders in health education, school nurses should organize and facilitate these training sessions, tailoring them to specific school needs and public health guidelines. Nurses can collaborate with local health departments to address challenges such as inconsistent training schedules and limited resources. By maintaining an inventory of PPE and establishing usage protocols, school nurses ensure that PPE remains a reliable tool for infection control during outbreaks.

Participant Quote

"When COVID first hit, half the staff didn't even know how to put on a mask properly, let alone take it off without touching the front. I had teachers pulling their masks down to talk and custodians reusing gloves across classrooms. It wasn't their fault; they just hadn't been trained. That's when I realized: if we're gonna expect people to use PPE right, we have to show them how and explain the why behind it. So, I started holding mini-trainings, right in the break room or during staff meetings. We did hands-on demos with real scenarios: how to glove up, where to toss used PPE, and how to spot when supplies are running low. But honestly? To keep this going, we need more consistent scheduling, supplies that aren't on backorder, and buy-in from leadership that this isn't just a one-time event. It's ongoing. PPE isn't just gear; it's behavior, and behavior needs practice."

Develop Comprehensive Outbreak Management Plans - (14 out of 14 participants mentioned this concept)

Effective outbreak management requires schools to have clearly defined protocols for case identification, isolation procedures, and communication strategies. School nurses should lead the development of these plans, leveraging their clinical expertise and working closely with health departments to create actionable and evidence-based protocols. Nurses are crucial in promptly identifying cases, coordinating isolation measures, and liaising between schools, families, and local health authorities. Their role includes training staff in outbreak response procedures and providing ongoing guidance during implementation, particularly in resource-constrained environments.

Participant Quote

"Outbreaks don't give you a heads-up. They just show up. I've learned that if we don't have a plan ready, we lose precious time figuring out who's calling parents, where to isolate a student, or how to report the case. That's why I pushed to create a step-by-step outbreak response plan for our school. I sat down with custodial staff, teachers, admin, and even the PTA, so the plan wasn't just mine. It was ours. We built in communication scripts, supply checklists, and even a flowchart for contact tracing. But we're still missing key pieces, like enough subs to cover when staff have to isolate or a private room that doesn't double as a storage closet. Having a plan doesn't mean we have all the resources, but it gives us direction when everything else feels uncertain. What we need now is district-wide consistency, more training time, and respect for the fact that health planning is essential, not optional."

Integration of IPC Education into the Curriculum - (9 out of 14 participants mentioned this concept)

Integrating IPC education into the school curriculum is another way school nurses can address misinformation. Nurses can collaborate with teachers and curriculum developers to ensure accurate and age-appropriate IPC content is included in health and science lessons. This approach reinforces key IPC concepts and promotes consistency in messaging throughout the school. By embedding IPC education into the learning process, school nurses can create a foundation of knowledge that empowers students to identify and reject misinformation while promoting lifelong health literacy skills. Interactive methods, such as gamification and digital applications, can effectively educate students about infection control. Some activities could also include webinars and podcasts. Apps that engagingly teach handwashing or mask-wearing have been shown to increase adherence to hygiene practices. School nurses can work with educators to integrate these tools into health education curricula and evaluate their effectiveness. By providing access to these resources in the school nursing office, nurses ensure equitable distribution and offer additional support to needy students. Nurses can also monitor student engagement with these tools and suggest adaptations to improve their reach and impact.

Participant Quote

"One of the biggest problems we face is that IPC is treated like an emergency lesson, something we scramble to teach when there's an outbreak. But it should be part of what kids learn all year. Imagine if every grade had a mini health literacy unit, age-appropriate, tied into what they're already doing. I've used games and apps where students 'beat the bacteria' to teach proper handwashing, and it works. They remember it better than any poster I hang up. But to do this well, I need support. I need time to co-plan with teachers, access to apps that don't cost a fortune, and backup from administration that IPC education matters just as much as math drills. When we make it fun, relatable, and routine, we give students tools they'll carry for life, not just for this year's outbreak."

Establish Peer-Led Hygiene Programs - (10 out of 14 participants mentioned this concept)

Peer-led initiatives foster accountability and healthy behaviors among students. Programs that designate student hygiene ambassadors can promote widespread adherence to infection prevention and control (IPC) practices. School nurses can recruit and train these ambassadors, providing them with resources to lead demonstrations of proper handwashing techniques and reinforce healthy practices among their peers. By mentoring student leaders, nurses empower them to serve as role models and create a culture of personal responsibility in disease prevention.

Participant Quote

"You'd be amazed how much more kids listen to each other than to adults. I can tell them to wash their hands till I'm blue in the face, but when their classmate stands up and leads the routine before lunch, suddenly, it clicks. We started a Hygiene Hero program with fifth graders. They kids wore little badges, helped refill sanitizer stations, and ran handwashing demos for the younger kids. To make it work, I had to carve out time to train them, just 20 minutes once a week during

lunch, where we talked about germs, proper mask use, and how to be encouraging without being bossy. I gave them laminated cheat sheets and created a reward system that recognized their efforts. If we want this program to grow, we need teacher buy-in, time during advisory or homeroom, and supplies we can count on. But when kids lead the charge, hygiene becomes part of the culture, not just something I nag about."

Strengthen Training for School Nurses and Staff - (14 out of 14 participants mentioned this concept)

Continuous education for school nurses and staff is vital to maintaining up-to-date IPC knowledge. Schools should develop partnerships with local health departments to access expert-led training modules. School nurses should spearhead these efforts by coordinating training sessions, disseminating educational materials, and mentoring other staff members. This ensures that all personnel are equipped to handle emerging public health challenges and implement surveillance and prevention measures effectively.

Participant Quote

"Let's be real school health changes fast. What we knew last year might not apply this year, especially when new viruses or guidelines come out. I've had teachers ask me if they should wear gloves to handle a runny nose or if hand sanitizer works as well as soap. That's not on them; that's on the system, not keeping everyone in the loop. What we need is regular, hands-on training, not just emergency emails. I'm talking about setting up short monthly refreshers led by nurses using real school scenarios. We could run a quick demo on PPE one week or how to track symptoms or recognize early signs of flu another. And it must be part of staff PD, not optional or last-minute. We could also tap into public health departments for expert-led workshops and get some ready-to-use toolkits. It would make a world of difference. Knowledge is power, but only if you give people time and space to learn."

Foster Community and Parent Engagement - (14 out of 14 participants mentioned this concept)

Extending IPC practices beyond schools through community and parent engagement is essential for comprehensive infection control. School nurses should organize outreach events and provide educational resources to parents, reinforcing infection control measures at home. Nurses can amplify these initiatives by collaborating with public health organizations and addressing challenges such as inconsistent parent participation. School nurses can also facilitate communication between the school and parents, offering guidance on managing illness at home and preventing its spread.

Participant Quote

"You can't build trust with families during a crisis if you haven't built the relationship first. I've found that most parents want to do the right thing. They need clear, non-judgmental info from someone they know. During RSV season, I posted and shared a video I made in our nurse's office explaining symptoms and when to seek care. Parents thanked me because it felt personal and understandable. To really engage the community, we've got to meet them where they are. That might mean sending info home in backpacks, setting up a table during school events, or even calling trusted faith leaders to help share messages. We also need flexible options for working families, like evening Zoom

Q&As or bilingual health newsletters. It's not about adding more work but rethinking how we connect. If IPC is going to stick beyond the school walls, it starts with making families feel seen, heard, and equipped."

Integrate Technology for Efficient Data Collection and Sharing - (8 out of 14 participants mentioned this concept)

Technology plays a crucial role in school-based disease surveillance. Schools should adopt digital platforms for tracking health metrics, ensuring data is accurate, secure, and accessible to health departments. School nurses can oversee the use of these platforms, ensuring that data is collected consistently and analyzed effectively. By working with IT staff to address privacy concerns and ensure compliance with regulations, nurses enable real-time data sharing and rapid responses to public health threats.

Participant Quote

"Right now, I track illness trends on sticky notes and spreadsheets, and honestly, that's just not cutting it anymore. There's no easy way to see patterns or share what's happening with our local health department fast enough. We need a secure digital system that lets me log symptoms, absences, and health office visits in real-time. The practical steps? First, we need user-friendly software that doesn't take hours of training. Then, the district needs to loop in IT early so we're compliant with privacy laws like FERPA and HIPAA. And please, make it mobile-accessible so I'm not tied to my desk whenever I need to enter data. With the right tools, I could catch a flu cluster early, flag high absentee rates, and even send alerts to teachers and parents before things spiral."

Establish Transparent Communication Channels - (14 out of 14 participants mentioned this concept)

Clear and consistent communication between schools, health departments, and the broader community is essential. School nurses should serve as designated liaison officers, managing information exchange and informing stakeholders about surveillance findings. By supporting transparent messaging through newsletters, digital updates, and community forums, nurses reinforce cooperation and accountability among all involved parties. School nurses should develop "myth versus fact" initiatives, conduct age-appropriate Q&A sessions, and train student peer ambassadors to address misinformation among classmates. These approaches should be visually engaging, culturally affirming, and grounded in empathetic communication to foster trust. To respond proactively to misinformation, nurses should request district-level support for accessible, culturally adapted materials and training in social media monitoring, crisis communication, and digital health literacy. This equips them to counter false narratives before they take root.

Participant Quote

"When there's an outbreak or even just a rumor about one, if families don't hear from us quickly, they'll fill in the gaps with whatever they find online. That's why I started sending out a weekly "Nurse's Note" in our school newsletter. It's short, clear, and always includes something like a health myth-buster or a reminder about things like handwashing or when to keep kids home. To keep communication clear, I worked with the principal to ensure I had a 5-minute slot at staff meetings, and we

built a template to email parents immediately when there's a health concern. We still need more district support templates in multiple languages, effective training on using social media, and a shared platform where I can update staff and families in one place. Communication isn't just about getting information about building trust before the panic starts."

Conduct Regular Evaluations and Refine Surveillance Strategies - (14 out of 14 participants mentioned this concept)

Schools must evaluate the effectiveness of their disease surveillance efforts through metrics such as reduced absenteeism and timely outbreak containment. School nurses should lead these evaluations, analyzing data and coordinating feedback sessions with stakeholders to identify areas for improvement. By refining strategies based on these insights, nurses ensure that surveillance programs remain adaptive and responsive to the evolving health needs of the community.

Participant Quote

"We had this big push for symptom tracking during COVID, but once things slowed down, so did the follow-up. I kept thinking, what's the point of collecting data if no one's asking whether it's helping us prevent anything? So, I decided to start small. Every quarter, I meet with our team to ask, 'What worked? What didn't?' We looked at our response times, missed cases, and even how long it took to notify parents. Then, we tweaked the process, added color-coded tags for symptoms, clarified when a teacher should alert the nurse, and made a shared online form easier to fill out. But to keep it going, we need the district to support tech that talks to each other and makes evaluation a routine, not a crisis response. We have the frontline knowledge, but it just needs to be part of the plan, not an afterthought."

Outbreak Management in Schools - (14 out of 14 participants mentioned this concept)

Rapid case identification, isolation protocols, and stakeholder communication are critical to effective outbreak management. School nurses play an integral role by coordinating isolation measures, advising on containment strategies, and acting as public health authorities' primary point of contact. Their ability to identify gaps in preparedness and advocate for additional resources ensures that schools are better equipped to handle outbreaks.

Participant Quote

"During the last flu season, we had over 40 students out in a single week, but no one realized how bad it was until I pulled the data and flagged it. That's when I learned how important it is for the nurse to be the point person when an outbreak hits. I coordinated isolation procedures, sent letters home, and worked with our custodial staff to sanitize high-touch areas twice a day. To make it all run smoothly, I built a quick-response team that included the assistant principal, a teacher rep, and our facilities lead. We met briefly every morning during the outbreak. If I could wave a magic wand, every school would have outbreak kits ready, a dedicated isolation space, and district-approved parent templates ready to go. The first step? Give nurses a voice in emergency planning; we see the gaps and know how to fill them."

Athletic-Related Outbreaks - (13 out of 14 participants mentioned this concept)

Preventing athletic-related outbreaks requires a strong emphasis on personal hygiene and equipment cleanliness. School nurses should educate athletes and coaches on proper hygiene practices and oversee routine skin checks for athletes involved in contact sports. Nurses play a critical role in minimizing outbreaks by collaborating with athletic staff to establish cleaning protocols for equipment and enforcing policies to exclude contagious athletes from participation.

Participant Quote

"We had a ringworm outbreak on the wrestling team that spread fast because no one was checking skin before practice, and the mats weren't being cleaned properly between sessions. I stepped in and worked with the coach to create a pre-practice checklist, quick visual skin checks, sanitizing gear, and making sure each athlete had their own towel and water bottle. It wasn't perfect at first, but it stuck once we made it part of the routine. The key steps were getting coaches on board, training them on what to look for, and having a clear policy about when athletes should sit out. We also posted laminated reminders about hygiene in the locker room, and I kept a stash of antifungal cream and gloves ready in my office. To really make this sustainable, we need ongoing training for coaches, parent info sessions, and dedicated funds for cleaning supplies and replacement gear."

Food-Related Outbreaks - (11 out of 14 participants mentioned this concept)

Preventing food-related outbreaks involves ensuring proper food handling and hygiene practices. Nurses should also lead food allergy management programs. School nurses should work with cafeteria staff to provide food safety training and monitor compliance with hygiene standards. By facilitating regular inspections of food preparation areas and collaborating with local health departments, nurses help maintain a safe environment for students.

Participant Quote

"I had a third grader go into anaphylaxis after another student shared a cookie at lunch. It turned out the cookie had tree nuts. That moment changed everything for me. I realized food safety isn't just a cafeteria issue. It's a schoolwide issue that nurses have to help lead. I run food allergy training twice a year for all cafeteria workers, teachers, and even recess aides. We cover EpiPen use, reading labels, and food storage protocols. I also do surprise walkthroughs of the prep areas and check food temps and allergen separation. But I can't do it alone. We need systems. To handle it, you have a standing safety checklist, train all food handlers with your district's backing, and partner with your local health inspector so you're not reinventing the wheel. Create a clear allergy action plan, share it with families, and put visual allergy alerts on lunchroom seating charts. If we treat food safety like we treat fire drills, with structure and urgency, we'll save lives and build trust."

Influenza-Related Outbreaks - (14 out of 14 participants mentioned this concept)

School nurses should organize annual influenza vaccination drives and monitor flu-like symptoms among students and staff. Nurses should emphasize respiratory hygiene through educational campaigns and ensure that classrooms and communal areas are well-ventilated. By

providing educational materials to families, school nurses help reinforce infection prevention practices at home.

Participant Quote

"One thing I've learned? You can't wait for flu season to start teaching respiratory hygiene. It has to be built into the culture. I start every October by visiting each class and doing a fun demo of how to wash hands, how to spot flu symptoms, and why staying home when you're sick isn't 'giving up; it's being a team player. I track flu-like symptoms daily and send weekly updates to staff so they know what to watch for. I also meet with custodial staff to make sure high-touch surfaces are being cleaned more often, and I ask teachers to keep windows cracked whenever possible for better airflow. The key is to start early, educate often, and create a flu playbook that includes a teacher checklist, a communication plan for families, and a quick-response isolation protocol. It doesn't take a big budget; it takes a coordinated effort and a nurse who's willing to lead the charge."

Pandemic-Related Outbreaks - (14 out of 14 participants mentioned this concept)

School nurses should lead the development of pandemic response plans, ensuring coordination with local health authorities. Nurses can monitor health trends, distribute PPE, and promote social distancing measures during active outbreaks. By offering counseling services and facilitating virtual learning platforms, nurses address both physical and mental health challenges posed by pandemics.

Participant Quote

"During the pandemic, I wore a lot of hats, including being a nurse, contact tracer, counselor, and tech support. What got us through was having a clear, nurse-led plan. I held weekly check-ins with local health partners, monitored student absences like a hawk, and worked with teachers to identify students showing stress or illness early. We set up a 'calm room' for kids struggling emotionally and created a virtual learning packet that included health checklists, video updates, and tips for parents. I also ran Personal Protective Equipment (PPE) training for staff and kept backup supplies in my office so we never ran out. I started by drafting a response plan with my admin and public health reps. Second, hold a table-top exercise every semester to walk staff through it. Third, assign a nurse-led pandemic team with roles like communications, supply management, and student support. Don't wait for the next crisis. Build the system now so you're not scrambling later."

Infection Control Audits - (10 out of 14 participants mentioned this concept)

Nurses can lead infection control audits. A nursing infection control audit is a structured evaluation process conducted by nurses to assess the effectiveness of infection prevention and control measures within a given environment, such as a school. These audits involve a detailed examination of the sanitation practices and facilities, focusing on how well they align with established best practice standards. During an infection control audit, nurses assess various aspects of the school's hygiene infrastructure, including the availability and proper maintenance of handwashing stations, appropriate cleaning agents, and the overall cleanliness of high-touch surfaces and shared spaces. By systematically comparing the observed practices with evidence-based guidelines, nurses identify

areas of non-compliance or gaps that may compromise infection control. The findings from these audits enable schools to address deficiencies, implement corrective measures, and improve their overall capacity to prevent the spread of infectious diseases. Through this process, nurses create a safer, healthier environment for students and staff while ensuring accountability and adherence to public health standards.

Participant Quote

"When I first started doing infection control audits, I'll be honest; I wasn't sure how much of a difference they'd make. But then I walked into a bathroom with no soap and sinks that hadn't worked for weeks. That was a turning point. I realized we needed to stop assuming everything was fine and start inspecting like it mattered because it does. We have a public safety duty and obligation to do what we can to protect these kids. I worked with the custodians before implementing the auditing process to get their insight and develop trust by collaborating so that I could gain their buy-in and support for why we were going to do this and why it was important. I do walk-throughs monthly with a checklist covering bathrooms, handwashing stations, classroom supplies, and even locker rooms. I take pictures, document gaps, and share a short report with the principal and custodian team. We meet, fix what's urgent, and set goals for the next review. A successful audit is not just a clean report; it's walking into a classroom and seeing every kid using sanitizer without being reminded or a janitor telling me they've added extra cleanings based on my feedback. That's when I know we're not just checking boxes but protecting our kids and keeping them safe. It's one of the most important and rewarding duties of being a school nurse.

Employ real-time symptom and absentee monitoring tools (9 out of 14 participants mentioned this concept)

School nurses should systematically track classroom absenteeism, daily symptom checklists, and nurse office visits using color-coded dashboards or health record flags. These techniques provide early warning of illness trends and support data-informed decision-making.

Participant Quote

"We used to rely on gut instinct to tell when something was spreading. When I noticed more kids in the nurse's office, it was already too late. That changed when I started using a simple color-coded spreadsheet. I'd log symptoms by classroom, and once we saw a pattern, like a cluster of kids with sore throats or fevers, we flagged it immediately. I trained teachers to send me daily counts and symptom notes and synced it with our attendance system. The goal isn't just to collect data. The key is to spot trends before they become outbreaks. Success looks like catching a flu cluster in one grade before it jumps to the others or alerting custodians to deep clean a classroom before more kids get sick. To do it right, you need staff buy-in, simple tools that don't overwhelm anyone, and weekly check-ins to look at the numbers together. It's not fancy. It's just consistent, and it works."

Expand digital surveillance integration with local health departments (9 out of 14 participants mentioned this concept)

Nurses should implement mobile-friendly reporting tools that allow teachers and parents to submit health observations securely. Data should feed

into district-wide surveillance platforms and be shared with local public health agencies for coordinated, community-wide tracking.

Participant Quote

"We used to be in the dark when something started spreading. By the time I called the health department, they'd already heard it from a dozen other schools. So, I pushed for us to start using a shared platform where I could log flu-like symptoms or clusters of strep throat in real-time. Now, when I see a pattern, like a spike in pink eye in third grade, I log it, and within minutes, our district health team and local public health office get the update. It lets them respond faster, and it makes me feel like we're part of a larger safety net. What really made it work? Getting teachers to do daily symptom reporting using a simple mobile form and making sure it didn't take more than 30 seconds to complete. Success is when we're not just treating illness. We're preventing it across the whole community."

Participant Quote

"The biggest game-changer for us was introducing a secure, app-based tool that let parents report their child's symptoms from home. If a student had a fever or cough, I'd know before they even walked into the building. That info fed directly into our district's dashboard and alerted our local health department if it crossed certain thresholds. We were no longer a silo. We were part of a larger public health team that could actually see trends and stop outbreaks early. The tech didn't need to be complicated. The tools need to be user-friendly and must be accessible. We offered it in multiple languages and trained parents during back-to-school nights. A successful approach is when teachers stop you in the hall and say, 'That form helped me know which kids to keep an eye on,' or when your local public health nurse says, 'Thanks to your data, we were able to prep clinics early this year.' That's when you know the system is doing what it's supposed to, keeping people safe before they even realize there's a problem."

4. Conclusion

School nurses contribute to advancing health equity by integrating clinical care, health education, and disease surveillance into underserved school environments [28–29]. Functioning as adaptive communication nodes, they translate complex medical data into culturally responsive guidance that strengthens family autonomy and community health literacy [28]. Their role in early detection of infectious outbreaks and in addressing health misinformation fosters renewed public trust in preventive interventions, reinforces vaccination uptake, and enhances systemic crisis preparedness [28–29]. As embedded agents within educational infrastructures, school nurses serve as operational anchors in decentralized public health networks, positioning schools as resilient, community-centered health platforms. This underscores the urgent need for sustainable investment in school-based health systems as a critical component of equitable and socially responsive public health engineering [28–29].

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