Streamlining Immunization Strategies

Improving Efficiency and Effectiveness of ISPA Programming

in Ontario Public Health Units

Final Report

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How to Use this Report

This report presents a detailed process evaluation of Immunization of School Pupils Act (ISPA) programs, based on data collected from a broad sample of Public Health Units across Ontario. It was developed to support public health teams in improving the efficiency and effectiveness of ISPA program delivery, while also addressing barriers related to health equity in the populations we serve.

Given the comprehensive nature of this report, readers are not expected to review it cover to cover to benefit from its findings. Instead, we recommend that program managers and ISPA staff **begin with the Objectives and Methodology** sections to understand the foundation of the work. From there, you can **navigate directly to the sections most relevant** to your local program needs and quality improvement priorities.

If you have questions or would like to discuss the findings further, please use the contact form on https://www.kflaphi.ca/ to get in touch with the project leads.

Acknowledgements

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Disclaimer: The views expressed in this publication are the views of the project team, and do not necessarily reflect those of Public Health Ontario.

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INTRODUCTION

The Immunization of School Pupils Act (ISPA) plays a critical role in protecting public health by ensuring that school-aged children in Ontario receive essential vaccinations. Enforcing ISPA is a resource-intensive and complex process carried out by public health units (PHUs) across the province. However, there is substantial variability in how PHUs implement ISPA, along with inconsistent vaccination coverage rates. For example, reported measles vaccination rates for seven-year-olds ranged from 24.6% to 96.5% in the 2023/2024 school year (Public Health Ontario, 2025). Such disparities highlight the need for a wide-scale evaluation of ISPA processes to enhance their efficiency and effectiveness while mitigating health inequities. The impact of lower vaccination rates can be seen in the 2024/2025 measles outbreak in Ontario, which as of May 20, 2025 included 1,795 measles cases (1525 confirmed, 270 probable), compared to 101 confirmed cases of measles in Ontario between 2013 and 2023.

Vaccination programs are among the most effective public health interventions for preventing outbreaks and safeguarding community health. However, inconsistent enforcement of ISPA can contribute to inequities in vaccination coverage, increasing the risk of vaccine-preventable diseases (Orenstein & Ahmed, 2017; Salmon et al., 2015). The ISPA suspension program, designed to encourage compliance, requires significant public health resources and affects students, families, schools, and primary care providers. While these efforts can improve vaccination rates, they also raise important equity concerns. The Wellesley Institute has noted that these interventions may further burden marginalized families, exacerbating health inequities (Rosenburg J et al., 2021). Furthermore, school suspensions risk social exclusion, particularly for students and families with current or historical mistrust of the healthcare system. Ensuring equitable access to immunization and minimizing unintended consequences of enforcement policies is crucial to upholding the principles of health equity.

The COVID-19 pandemic further complicated ISPA enforcement, as routine immunization programs were disrupted. As a result, reported measles vaccination coverage among seven-year-olds in Ontario declined from 86.6% in 2018/2019 to 70.4% in 2023/2024 (Public Health Ontario, 2024). PHUs are now in a period of recovery, which presents an opportunity to assess and refine ISPA-related processes. Additionally, recent PHU mergers may necessitate the integration of different ISPA enforcement strategies, further underscoring the need for a comprehensive evaluation of existing practices. Identifying best practices and streamlining processes will not only reduce administrative burdens but also help PHUs allocate resources more efficiently to increase vaccine uptake and reduce health disparities.

Despite ISPA's critical role in public health, little research has explored how PHUs implement and manage enforcement processes, despite the program's significant demand on time and resources. This process evaluation examines the key steps involved across Ontario PHUs, identifying variations, opportunities for streamlining, and innovative approaches to improve efficiency and equity in ISPA enforcement. Drawing from the expertise and insights from public health units across Ontario, the research aimed to answer the following questions:

1. How do PHUs across Ontario implement their ISPA programming, and what are the key steps and variations in these processes?
2. What are the most time-consuming and inefficient steps within the ISPA process?
3. Have any PHUs developed or tested innovative methods to improve their ISPA processes? If so, what barriers and facilitators exist for adopting these methods across other PHUs?
4. What specific strategies are employed by Ontario PHUs to address health equity in the ISPA program, and what are the barriers and facilitators to implementing them?

The findings of this evaluation will provide actionable insights into the diverse ISPA enforcement strategies used by PHUs, highlighting opportunities for greater efficiency, effectiveness, and equity. By identifying and promoting best practices, this work aims to inform potential policy recommendations for provincial guidelines on ISPA enforcement, fostering a more consistent and equitable approach across Ontario. Additionally, streamlining these processes will enable PHUs to allocate more resources to the most impactful and critical immunization initiatives, ultimately strengthening vaccine coverage and reducing the burden of preventable diseases across all communities.

METHODS

Project

This project included a process evaluation of ISPA programs across Ontario, and was conducted by a core project group and advisory group members from Southeast Public Health, Wellington Dufferin Guelph Public Health, Lambton Public Health, Queen's University, Eastern Ontario Health Unit and Renfrew County and District Health Unit. The evaluation was made possible due to funding received from Public Health Ontario to work together on a joint initiative. The Locally Driven Collaborative Projects (LDCP) program brings together public health units – along with academic and community partners – to collaboratively design and implement applied research and program evaluation projects on important public health issues of shared interest. Given the resource intensive nature of ISPA, several public health units were interested in participating in this process evaluation to help streamline processes, advance health equity, and better reach and support the communities served regionally.

Participants

This study engaged public health staff responsible for ISPA enforcement across Ontario's public health units (PHUs). Participants included immunization managers, ISPA leads, and other personnel with direct knowledge of ISPA-related processes. Two participant groups were defined:

- **Stage 1:** A purposive sample of 7-10 PHUs representing diverse geographic regions (urban, rural, northern and mixed), governance structures (city, regional municipality, and independent), and vaccination coverage levels. Many PHUs from the core project team and knowledge advisory group participated in this stage.
- **Stage 2:** An open invitation was extended to all remaining PHUs, with the goal of adding 10-15 more units to broaden the scope and capture a wide range of perspectives.

Recruitment was conducted through direct outreach via established networks to ensure smooth participation and diverse insights.

Procedures

The study followed a two-stage mixed-methods process evaluation approach.

Stage 1: Semi-Structured Group Interviews and Process Mapping

Participants took part in online group-based semi-structured interviews designed to capture key steps in ISPA enforcement, identify process variations, and explore opportunities for improvement. Each interview consisted of one or more staff from a single participating PHU, and at least two members of the core project team (a facilitator and a visual recorder).

An interview guide developed by the core project team focused on:

- **Process Steps:** Mapping out ISPA enforcement workflows, including key roles and responsibilities (e.g., public health nurses, program assistants, data clerks).
- **Bottlenecks and Challenges:** Identifying areas causing delays or inefficiencies.
- **Success Factors and Innovations:** Highlighting practices contributing to streamlined enforcement.
- **Health Equity Considerations:** Exploring efforts to reduce inequities related to ISPA enforcement.

Each interview resulted in a co-created process map using draw.io (a freely available tool: draw.io), based on an initial high level process map created by the core project team. In addition to capturing major process steps, the maps included details on timeline, the types of staff involved, and the tools/technology used. Visual recording notes of details on the process steps, challenges, equity considerations and success factors/innovations were also kept. These maps and notes were shared with participants for validation and use in their own quality improvement efforts. Participants were also asked to provide summary statistics on their ISPA enforcement activities.

Stage 2: Online Survey

Findings from Stage 1 informed the development of an online survey distributed to all PHUs. The survey aimed to validate and expand upon interview findings, ensuring a comprehensive assessment of ISPA enforcement practices across Ontario.

Survey components included:

- Presentation of a synthesized high level process map based on Stage 1 and questions regarding any deviations.
- Supplementary questions on process steps where significant variation was observed during Stage 1.
- Identification of bottlenecks and success factors.
- Evaluation of suggested process improvements, including a ranking of the most impactful interventions.
- Description of equity-focused activities.
- Submission of summary ISPA enforcement statistics (as available).

PHUs who participated in the semi-structured interviews were included in the survey but only asked a few specific questions, such as ranking possible improvements with its rationale and ideas for any knowledge exchange activities out of this project.

Data Analysis Approach

A combination of qualitative and quantitative methods was used for data analysis.

Stage 1 Analysis

- **Qualitative Data:** Interview transcripts and visual recording notes were coded thematically in NVivo to identify patterns in process steps, bottlenecks, and success factors.
- **Process Mapping:** Individual PHU maps were analyzed for commonalities, deviations, and inefficiencies. A high-level process map summarizing typical ISPA enforcement workflows was developed.

Stage 2 Analysis

- **Survey Data:** Descriptive statistics were used to analyze closed-ended questions on process variations, bottlenecks, success factors, and improvement suggestions.
- **Thematic Analysis:** Open-ended survey responses were analyzed thematically to identify additional insights.
- **Comparative Analysis:** Survey results were integrated with interview findings to refine process maps, highlight best practices, and identify key opportunities for streamlining ISPA enforcement.

Ethical Considerations

This study was deemed low risk, as it involved the collection of qualitative data on program processes, rather than personal or sensitive information. To protect privacy through this report and sharing the findings, all data are aggregated or shared anonymously, unless permission was explicitly granted by PHUs to share their names, to prevent the identification of individual public health units (PHUs) or communities. Given the low-risk nature of the study, the Queen's University Research Ethics Board granted an exemption from a full review (TRAQ #: 6042878), confirming that a delegated ethics review was not required.

RESULTS

Summary

Initially, the goal was to conduct 7-10 process mapping interviews with a diverse group of PHUs. In the end, 11 semi-structured interviews were conducted to ensure sufficient representation from larger PHUs (henceforth known as process mapping PHUs). Included in the interviews were multiple PHUs from the GTA, and PHUs representing the north, southeast and southwest of the province. The PHUs also represented different historical vaccination coverage rates and governance structures.

All PHUs were invited to participate in the survey, 28 of 33 PHUs responded (the survey was conducted in February 2025, and so most newly merged PHUs responded on behalf of their legacy organizations, but one responded as the new single entity). In general, PHUs who had participated in the interviews were only asked a small subset of questions. Two PHUs who participated in the interview responded to the full survey (one to provide additional context, another as part of a newly merged PHU), resulting in 20 PHUs responding to the full survey (henceforth called survey PHUs). Again, the distribution of responses represented all geographic regions, sizes and governance models.

At the start of the survey and ahead of the process mapping interviews, PHUs were asked to provide background information on their ISPA process as they were able. Of those that provided information for the most recent year of data they had available (year could vary by PHU) (n=20), PHUs had between 10,000 and 90,000 students eligible for the ISPA (based on the grades they enforce in), with the median number of students being approximately 22,000. Of those students, between 900 and 19,000 received initial letters (n=16) and between 30 to 3,200 were suspended (n=12). Given the significant impacts of the pandemic on ISPA and the probability

that recovery from it could affect current ISPA processes, PHUs were asked which year they first fully enforced ISPA after the pandemic interruption (Figure 1). The majority of survey PHUs began fully enforcing during the 2023/2024 school year, with some in the preceding and following years. This was similar to the process mapping PHUs.

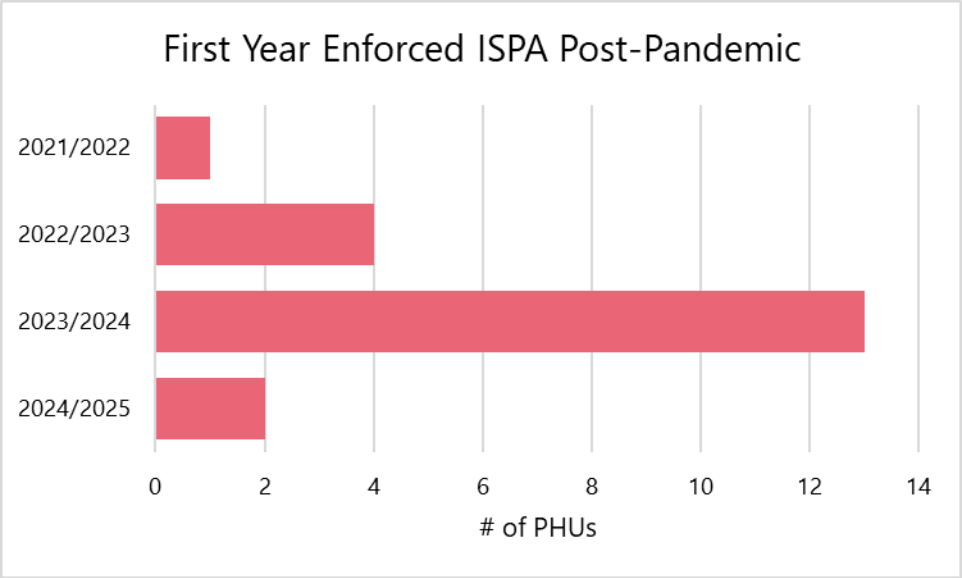

Figure 1. First year post-pandemic enforced ISPA (survey PHUs, n=20)

ISPA Steps

Through the process mapping interviews, a generic high level process map was developed (**Error! R eference source not found.**). This process map was also used to organize survey responses. The individual (often more detailed) process map from each interview was shared with the PHU directly but are not included here. The following sections will describe each of the major phases of the process map, as well as include the supplementary information collected on them within the survey.

Most survey PHUs indicated that this process map captured the main stages in their ISPA processes. Some PHUs noted that the process map didn't include their suspension prevention activities (e.g., pre-suspension letters or broad communication campaigns). For example, a few PHUs noted that they do an informal or 'mini' ISPA program during the summer to notify students in advance, or for those who will be eligible for a new dose. Other examples of activities not included are: training of staff, data analysis and reporting, decision making, and communication with primary care and community partners.

During the process mapping interviews, PHUs were asked who participated in each phase. Significant variation was observed across PHUs, so this is generally not reported here as it is

dependent on the structure of PHUs and the names of various roles (e.g., different names and responsibilities for administrative staff). It was clear that the ISPA process uses significant staff resources from nursing and administrative staff time, including some stages requiring redeployment of staff from other teams. PHUs also utilized specialist roles if they were available to them, for example: epidemiologists, data analysts, quality improvement specialists and data

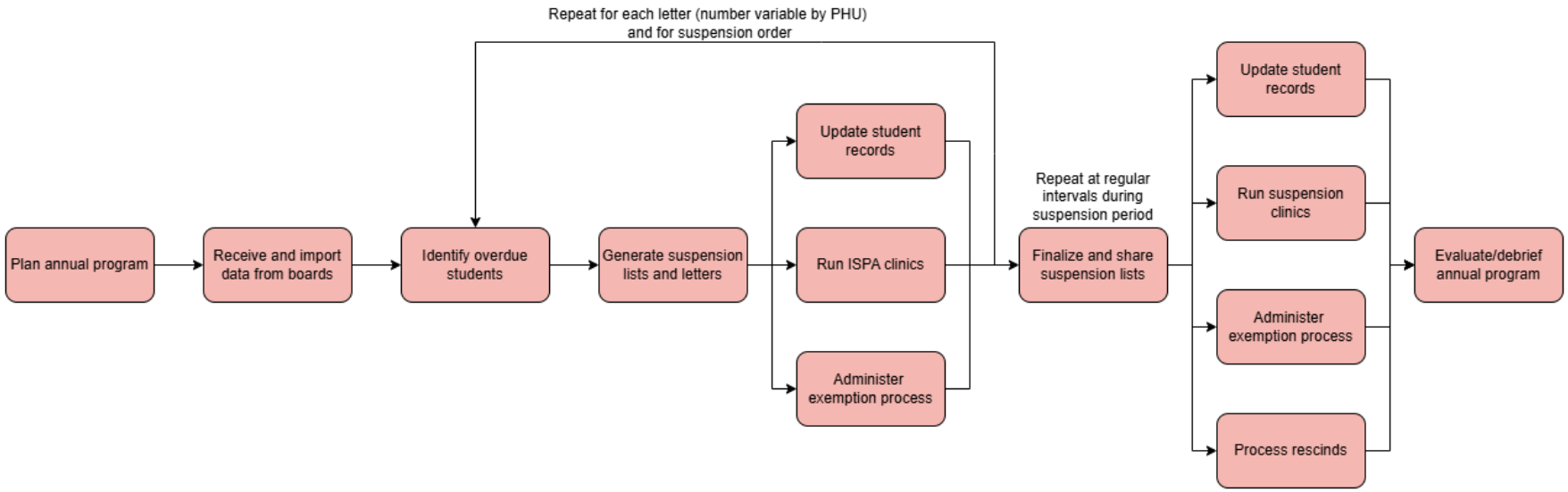

Figure 2. High-level process map

scientists, and behavioural insights, privacy and legal experts. Many stages of the ISPA process also involve senior management and/or medical officers of health.

1. Plan Annual Program

All survey PHUs (N=20) and most process mapping PHUs indicated that they had a planning phase. The planning phase occurs before the start of the yearly ISPA program and can include a variety of sub-steps—for example: determining the suspension cohorts and/or groups, establishing timelines (e.g., in Excel), making strategic improvements based on evaluations of past implementation, organizing staffing and other programming that needs to be completed in advance or concurrently, and collaborating and communicating with partners (e.g., school boards or primary care) and even parents. There is some variation in when PHUs complete the planning process, with some planning several months prior to the school year begins, and others planning a few months before the program is implemented. During the planning stage, several process mapping PHUs used data from Panorama, and some had developed custom tools to support planning including advanced scheduling tools.

As part of planning, many PHUs determine which birth cohorts will be included in the annual ISPA program, as well as the number and timing of suspension waves. Capacity is a key contributor to these strategic decisions, to ensure the plan is manageable. Sometimes, portions of the planning are done in collaboration with the school boards, which can take a significant amount of time, but increases buy-in, fosters collaboration and allows PHUs to consider important dates (e.g., PA days, exam weeks, holidays, religious holidays, private school schedules, etc.). Some PHUs have typically (pre- and post-pandemic) enforced ISPA at all ages (between 4 and 17). Others only enforce at some ages (e.g., 7 and 17). Many have had to decrease their usual enforcement ages due to 'catch-up' from the pandemic, often with the intent to build back to pre-pandemic levels. The enforcement ages for the 2024/2025 school year for the survey PHUs can be seen in Figure 3. Of the 20 PHUs, 11 enforced at all ages. Additionally, some PHUs will send notifications to additional age cohorts, but not enforce suspensions (not shown in diagram). Similarly, many PHUs began pandemic recovery efforts by one or more years of only sending notifications and not suspending students.

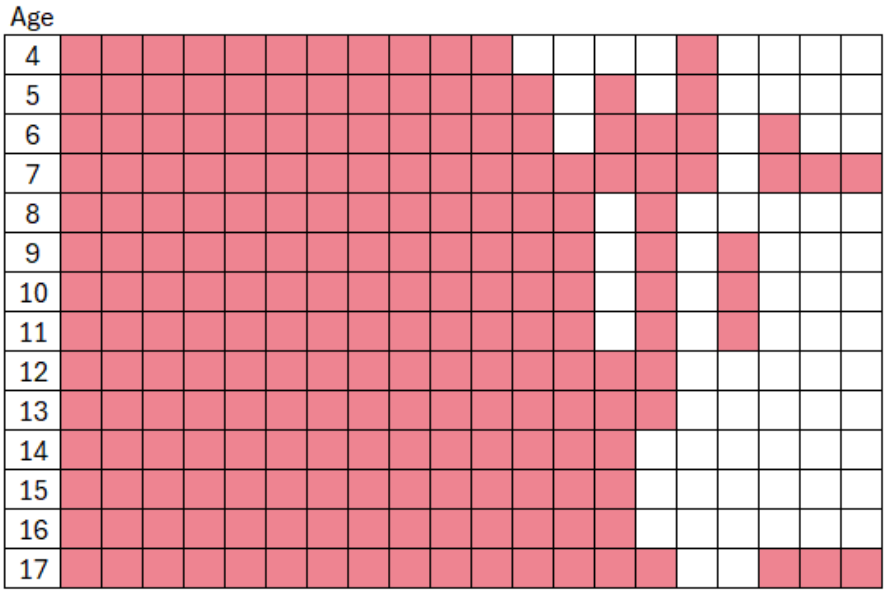

Figure 3. Ages ISPA enforced during the 2024/2025 school year. Each column represents 1 survey PHU.

In general, similar trends in ages enforced were observed in the process mapping PHUs, though some PHUs instead focused on students with no information in Panorama or other criteria rather than targeting specifically by birth cohorts.

Out of 20 survey PHUs, 13 reported not enforcing ISPA for certain schools or school boards. Examples of types of schools, school boards or students excluded include:

- Private and/or religious schools
- International exchange students
- Alternative education schools
- Schools located in First Nation communities

PHUs can either go through the ISPA process for all students at once or break the students into cohorts based on birth year, school type and/or school board. 9 of the 20 survey PHUs did all the schools together, while those that did multiple groupings ranged in the number of groupings. Several split the schools by secondary vs. elementary or by school board, and some required four or more rounds of schools. Typically, the reason for multiple rounds is too high a volume of students for PHU capacity to manage. For example, one PHU had four rounds each with 45-55 schools in them. A similar trend was observed for process mapping PHUs. On one hand, a few PHUs noted that having a single round simplified messaging for parents while one PHU required 17 rounds, and had developed custom software for determining the number, scope and scheduling of them. In both survey and process mapping PHUs, as more rounds were required, they often overlapped (e.g., one round could be receiving their 1st letter around the same time another round may be in active suspension).

2. Receive and Import Data from Board

In each ISPA cycle, schools share their updated school lists with PHU's to update student records at each school, ensuring accurate and current registration information. This phase helps PHUs establish which students remain in their catchment areas, and may be overdue for vaccinations. This phase includes: communication with the school boards to receive the STIX files, secure transfer of the files from the school boards to the PHU, any required data cleaning, and then uploading to Panorama.

Most process mapping PHUs indicated that they received the school board imports in early Fall (September/October). Some of these PHUs received multiple board imports per year; this could be later in the Fall, during the previous summer, or at regular intervals throughout the year. The timing for board imports was also dependent on other public health programs that use this data (e.g., school vaccination programs, or the dental program).

Likewise, 17/19 survey PHUs reported that they received a board import in early Fall (Figure 4), and most reported that they received imports at least twice per year and up to seven times per year. The alternate times per year were equally dispersed amongst the other seasons.

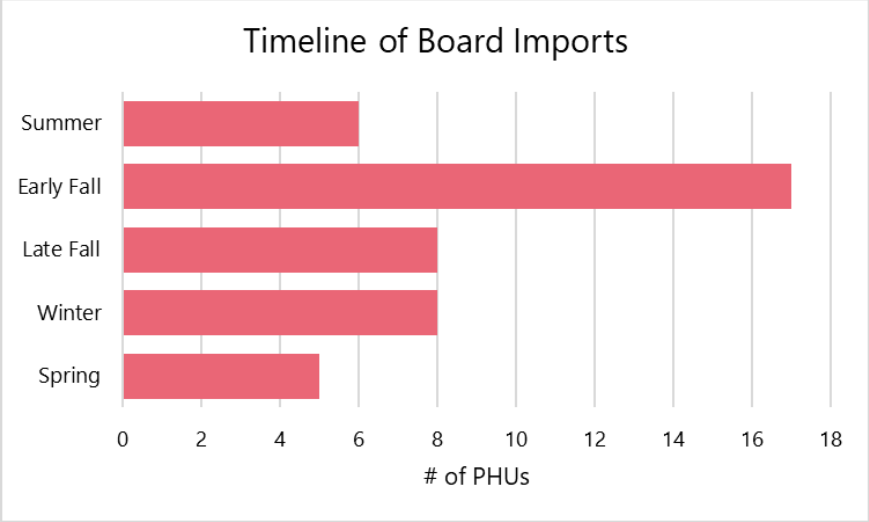

Figure 4. Timeline for school board imports (survey PHUs, N=19)

Survey and process mapping PHUs use a variety of methods to securely receive STIX files from the school boards. Some PHUs use different methods for different boards or for private schools as compared to public boards. The methods include:

- Secure file transfer service (SafeBox, Serv-U, ShareFile, KiteWorks, FileZilla, One Time Secret)
- SharePoint
- Encrypted emails with password-protected individual links

- SFTP
- Direct access to school board database

The first three were used about equally, while the last two were less common.

Process mapping PHUs indicated that there are often delays in receiving these files which can delay the whole ISPA process and require extra work from PHU staff in communicating with boards and schools. This is especially a problem for private schools. Data cleaning of these files is then required, with reconciliation between data in the files versus Panorama. Some process mapping PHUs indicated that their IT teams supported them in processing and cleaning the files.

3. Identify Overdue Students

This phase includes: using Panorama forecaster to generate lists of students who are overdue. In general, this phase was consistently implemented across process mapping PHUs and no supplementary questions about it were asked in the survey. Some of the PHUs added to this phase with supplemental planning to target activities or to further organize the annual program. A few PHUs also noted building Excel spreadsheets based on the data from the Panorama forecaster.

4. Generate Suspension Letters and Lists

This phase includes: generating the suspension lists as well as individual letters, any review of the letters, the manual tasks involved in packing the letters (e.g., printing, folding), and distributing the letters to families.

Of the survey PHUs, the most common method for generating letters was mail merge (Figure 5). For PHUs that used both, often they used mail merge to add custom features to the letters and then used Panorama for the suspension orders. The other method was a custom programmatic method (using R and LaTeX) developed by the PHU. Similar patterns were observed in process mapping PHUs. One noted that mail merge was used as much as possible because Panorama did not provide a French option and another had a custom letter generator built out of Microsoft Access. Of all PHUs, some noted that they had recently switched between methods for various reasons (e.g., needing to add new logos, method not being able to handle the volume).

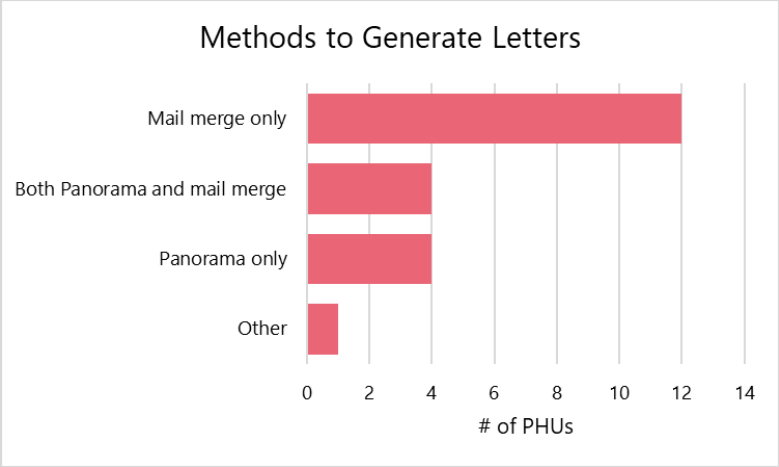

Figure 5. Methods for generating letters (survey PHUs, N=21)

After generating the letters, most health units undertake quality control steps to review the letters and identify any issues. Of the survey PHUs, five review every letter while another five randomly review a certain proportion of letters. Another seven have some form of review (possibly including cross-checking numbers, spot checking letters or a subset of letters) while three do no formal review. A similar pattern was observed for process mapping PHUs. One PHU noted it used this step to add supplementary information to the letter, for example which vaccines a student requires. Some PHUs have access to speciality teams or machines to help with stuffing and mailing the letters, while others are dependent entirely on manual labour within their vaccine/ISPA teams.

After they are prepared, most PHUs (both survey and process mapping) distribute the letters through the mail, though some also distribute the letters via the schools. Of the survey PHUs, 13 distribute solely through the mail while five use a combination of mail and via the school. Only one survey PHU distributes the letters solely through the schools. Another PHU sends suspension orders via Purolator and requires signatures. For schools that use a combination, it is generally split by elementary schools receiving the letter via the school while secondary students receive the letter via the mail. Additionally, sometimes the initial letters may go through the school while the order is mailed.

5. Post-Letter or Order (Before Suspension Period)

This phase occurs after the letters/order have been distributed to families, but before the suspension period. It includes multiple concurrent activities the main ones being: (A) receiving updated vaccination records and entering them into Panorama, (B) running clinics specific to ISPA vaccinations, and (C) administering the exemption process. Other activities PHUs can be doing at this time include: communicating with families using other methods, communicating with the

schools and school boards about students at risk of suspension, communicating with primary care, and re-sending letters for those with address errors.

A. Update Student Records

A substantial portion of the work in this phase is in entering student vaccination records submitted to the PHU. To make it as easy as possible for families, PHUs provide many options; the options provided by survey PHUs can be seen in Figure 6. Most PHUs offer between five to seven methods. Traditional methods of physical drop-off, faxing, mailing and phone remain the most common. The provincial website, Immunize Connect Ontario (ICON), is offered by most PHUs, though one PHU noted uptake is low, while CanImmunize is only offered by a few. The process mapping PHUs indicated that they used similar methods and a similar number of methods.

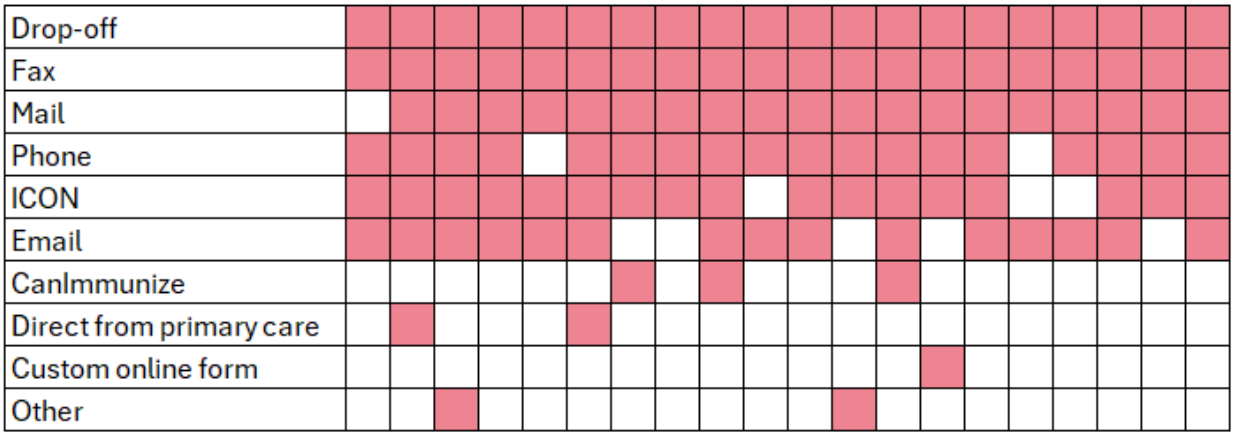

Figure 6. Options for families to provide vaccination records. Each column represents one survey PHU.

The volume of records PHUs receive during this period is high. Some PHUs upstaff to manage the volume or begin dedicated phone lines; one developed custom automation methods to prioritize records. A few PHUs noted that they told parents to primarily use certain methods (e.g., phone) as they got closer to suspension day to ensure the record would be processed in time. One PHU indicated that they tracked records coming in Excel, and only entered them into Panorama after the program to save time.

B. Pre-Suspension Clinics

All survey PHUs offer clinics before the suspension period. Survey and process mapping PHUs offer clinics in a wide range of locations (e.g., PHU and/or community offices, schools - typically high schools, pop-up locations). Some PHUs who offer school clinics choose schools strategically; focusing on certain grades, or choosing schools identified with high numbers of suspensions pending, higher proportion of families with language barriers, or communities with high material deprivation. Some PHUs target their clinics at families who have no access to primary care or other populations with access barriers (e.g., no health card, newcomers to

Canada). PHUs also use a wide range of methods (e.g., drop-ins, online booking) and times (days, evenings, weekends, March Break) to increase access. Like with managing the volume of records, some PHUs need to upstaff to handle the clinic volume, though they may not be able to offer as many clinics as are needed due to restrictions on capacity. Some PHUs run clinics several weeks in advance, and a few noted that they focus resources closer to the deadlines, because parents tend to wait. Through the discussions, it was clear that PHUs planned clinics strategically with local needs and context in mind – what works well for one PHU does not always work well for others. For example, some PHUs noted the success of their school clinics and others had stopped running school clinics due to low uptake.

C. Exemption Process

Within ISPA, vaccination exemptions are due to medical reasons (including contraindications), conscience or religious beliefs, or administrative reasons (e.g., for those who are vaccinated but do not meet Panorama forecaster parameters (e.g., 4 day grace period before 1st birthday for certain vaccines); or the suspension has been deemed an undue hardship; or the initial notice is not received within 28 days of deadline). The process for medical and non-medical exemptions can differ. PHUs vary in how they implement the education component, with some processes existing completely online, and others in person. Some have an online video that automatically generates a certificate (e.g., via online survey software), others require parents to call back for a nurse-issued certificate, some print and sign the certificate only during an in-person visit, and others require an attestation or survey to be completed before issuing the certificate. PHUs vary in how documents are submitted and managed: some are exploring or using secure digital uploads, while most still require notarized affidavits in hard copy by mail, fax or in person. Some PHUs have noted that parents have preferences to submit forms electronically, and are reviewing processes. Some PHUs have developed email templates for the portions of correspondence that can be done by email.

Repeat Steps 3 through 5

Steps 3 through 5 are repeated for each letter and/or the order. The number of repeats varies per PHU, with eight survey PHUs sending two letters and then one order and seven sending one letter and one order. Four survey PHUs sent out a different number of letters, or a combination of letters and different types of contacts. A similar pattern was observed for process mapping PHUs, with some noting that they had recently changed the number of letters to manage capacity. Some also had to adjust their normal processes this year due to the Canada Post strike.

6. Suspension Period

This phase starts with the generation of the final list of students to be suspended and goes until the end of the 20-day suspension period. Timing-wise it may overlap with the end of the previous

phase. It includes: generating and distributing the final suspension lists, receiving and entering student vaccination records, running suspension clinics, administering the exemption process and/or processing rescinds. Much of the process for updating vaccination records and the exemption process is captured above.

Overall, the suspension period requires substantial PHU resources and often requires upstaffing. One PHU noted that "five to seven days after suspension just trying to answer the phone".

A. Notifying schools and families of suspension

In most cases, families are notified of suspensions by mail, although some PHUs deliver the orders to schools for distribution. In addition to formal letters, PHUs use other methods to contact parents. For example, two PHUs reported using robocalls to all parents both in advance and the day before suspension day. Another PHU calls families up to three times prior to the suspension date, in addition to sending a letter.

School staff may also notify families ahead of time or on the day of suspension. One PHU provides schools with a generic "Your child is being suspended tomorrow" letter for distribution. Several PHUs noted that schools that are more actively involved will call, contact, or meet with families in person in an effort to prevent suspension.

PHUs are using many different methods to send lists of suspended students to schools (typically principals or administrative staff). Individual PHUs will often use multiple methods, targeting the method to what works best for the specific school/board. The most common methods (inclusive of survey and process mapping PHUs, in descending order) are:

- Encrypted email
- SharePoint
- Fax
- Deliver in person
- Other secure file transfer service
- Courier
- Phone call

Many PHUs conduct additional communication with schools and school boards leading up to and during this period, focusing on their role and the timelines. Several PHUs have identified specific staff identified as liaisons for individual schools (either all or at-risk schools) or open phone lines specifically for school staff. PHUs have observed that some principals will not enforce suspensions, often PHUs will connect with principals at schools where suspension numbers are not decreasing over the 20-day period.

B. Suspension clinics

All survey PHUs offer clinics during the 20-day suspension period. Most surveyed PHUs reported offering additional clinics beyond their regular schedules during and around the suspension period. The majority provide walk-in clinics during the first week of suspension, while a smaller number offer only booked appointments, and several offer both options. Some PHUs continue to operate clinics throughout the entire suspension period. Clinic hours vary across PHU, with some offering only daytime appointments, while others also run clinics during evenings and on weekends. Clinic locations also differ: some are held at PHU offices, others at designated community sites, within schools, or using a combination of locations. PHUs involved in process mapping reported a high volume of clinic visits, particularly in the first 1–3 days of suspension. PHUs ensure that staff and supervisors are present in office spaces on suspension day to respond to the questions and frustrations of families. Many noted that this is a stressful time for families, which can negatively affect staff, who often field complaints and, at times, must manage aggressive behavior.

C. Rescinding

Throughout the suspension period, PHUs are rerunning Panorama queries and/or tracking students in detailed Excel spreadsheets, etc. Often these activities are happening daily throughout the period.

PHUs use a range of different methods to rescind students - from individually signed letters, rescind “chits”, to live SharePoint lists (shared between the PHU and the school). Some PHUs run clinics in schools that then allow students to return to school immediately, or provide them directly with cards to show at school. Some PHUs use a SharePoint site where names are updated – usually daily. Some PHUs that use this format have noted the process has become substantially easier since adding this, because schools can see updates in real time. Due to capacity constraints, one PHU noted a delay of 1-2 days before the rescind is uploaded. Some PHUs notify parents directly when the suspension is lifted; others rely on schools to relay that students can return. Some PHUs are interested in adding processes to notify the parents of the rescind rather than solely relying on the school. Rescinds may be triggered through in-person visits, clinics, calls, or document submissions (fax, email, online, or mail). One PHU mentioned splitting rescind duties between Public Health Nurses (PHN) and Program Assistants (PA), with PAs populating a spreadsheet for PHN assessment.

D. Other suspension period activities

Wherever possible, PHUs have nurses following up directly with families of suspended students.

To manage the volume and improve response actions, some PHUs upstaff or reallocate staff to focus on suspension week activities, like running clinics, running phone lines (sometimes also in French), inputting vaccine records, corresponding with schools, and increase surveillance

messaging (e.g., PSA, social media, advertising, media appearance, distributing information in less resourced communities). Some of the staff come from their own teams (e.g., PHNs and Admin staff), others are pulled from other teams within the PHU and some employ casual staff who are offered shifts. Other activities vary by PHU and sometimes are constrained due to limited capacity.

7. Post-Suspension Period

This phase includes any activities post the suspension period and could include addressing students who remain non-compliant and/or debriefing/evaluating the yearly program.

A. Return to school for students

At the end of the 20-day suspension period, most students return to school and PHU's several PHUs have processes in place to support families and prevent re-suspensions the following year. Any re-suspensions are up to the discretion of the MOH.

B. Debriefing and/or evaluating

Debriefs can be informal or formal, and can contain small evaluations. Methods included: meetings, surveys, SWOT-style documents. As part of debriefing some PHUs noted that they reviewed workplans, meeting minutes, case studies of challenging situations, and/or statistics from the year. One PHU noted that by focusing on numbers during the debrief they could show staff how much they are accomplishing and staff could see the benefit of the program.

Most surveyed PHUs mention including feedback from their entire team (e.g., leadership and staff in multiple roles), and a few also obtain feedback from partners – especially from schools – to reduce gaps or barriers and enhance programming for future years. Some PHUs have dedicated working groups to support this work.

Other Process Pieces

A. Communication with Families

In addition to the letters/order, PHUs indicated that they may communicate directly with families in other ways. Survey PHUs were asked which other methods they used and how. The results from the 16 PHUs who responded to this question can be seen in Figure 7. All of these PHUs called families, while some emailed and texted. In general, about half of the PHUs contacted all families, while half targeted subgroups of families (either by student or school). Other methods included social media, school communication platforms, news releases and through the schools.

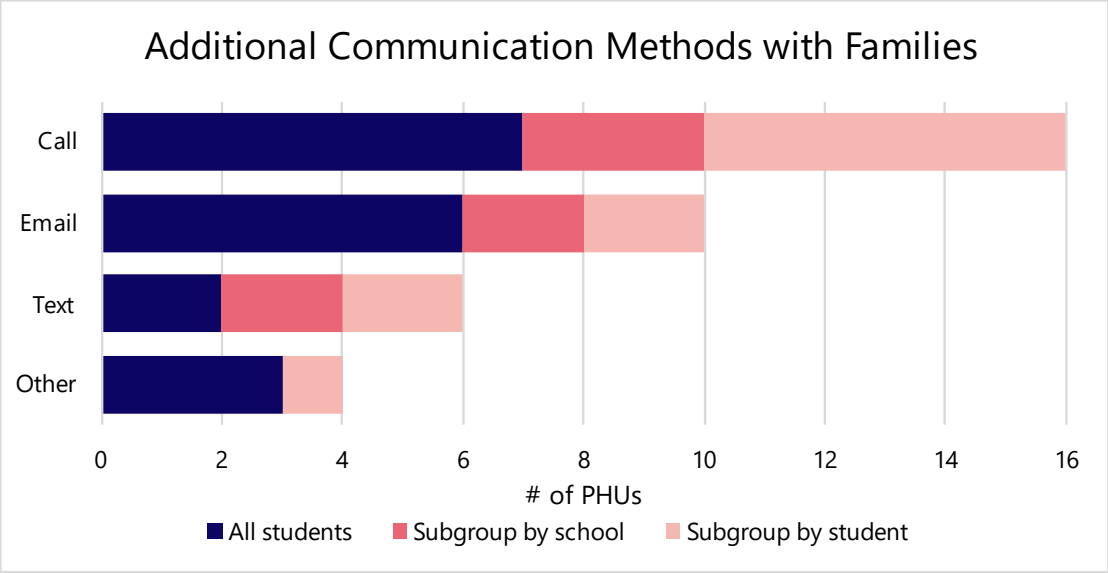

Figure 7. Additional communication methods with families (survey PHUs, N=16)

Process mapping and surveyed PHUs also identified several additional methods of communication they used with families including:

- Calling parents, all or targeted groups such as:
    - Outlying cases (off-schedule, parents who submit records that don't resolve the suspension order)
    - High risk schools
    - All families with suspended students
    - Students at schools with on-site clinics
    - All families of students who remain suspended beyond day 4 or 5
- Automated message to family's main phone number.
- Supplementary documents sent out with the letters/orders including low literacy FAQs, flowcharts on how to prevent suspension, information in multiple languages.
- General notices to families about staying up to date and to report their vaccines to public health.
- Working with boards and schools to send out messages through their platforms, as well as distributing information through other partners.
- Having schools actively participate in communicating 1:1 with students at risk at suspension, using their knowledge of the best way to communicate with specific families.
- Sending letters to all kindergarten families to introduce them to the ISPA program.
- Messaging through formal and social media outlets
- Collaborating with community partners, such as refugee and new immigrant organizations and grass roots community groups to support communication with families

- A mini-ISPA between June-August yearly that runs exactly like first notices, where summer letters are sent for an early response, and/or nurses call parents directly and fax HCP offices for immunization information – all meant to be proactive, and reduce volume later

One surveyed PHU mentioned that communications is a large part of their process, and would be part of their process map. They work closely with schools, boards, healthcare practitioner offices, social media, the media, etc., and include this work starting in the planning phase through each phase of their ISPA program. Although other PHUs did not identify this as a missing piece of the process map, all PHUs mentioned the time and effort it takes to communicate with families and the public about ISPA.

B. Communication with Schools and School Boards

In addition to the required information sharing, process mapping PHUs communicated with school boards and schools throughout the process. Examples of specific communications identified include:

- During the planning process, developing timelines with school boards or sharing the timelines when they have been confirmed.
- Communication in advance of deadlines for submitting board imports.
- Providing information to principals regarding students in their school who are at risk of suspension starting at the time of the first letter .
- Communicating ahead of the suspension program including sending packages in advance, flowcharts describing the process etc.
- Connecting with principals of schools whose suspension numbers are not decreasing.
- Communicating when there are no remaining students suspended or that students not compliant at the end of the suspension period may return.
- Including them in annual debriefing and evaluation activities.

Various methods for communication and collaboration were also identified:

- Email
- Meetings with boards
- Webinar or YouTube videos for principals about their roles and public health unit role
- Phone lines dedicated to school principals, staff and administrators
- Single point of contact for principals/admin staff (e.g., school liaison nurse)
- Methods to escalate to school boards where difficulties with individual schools arise.

Health Equity Components

Health Equity Barriers

A description of each of the barriers can be found below. Representative quotes for these can be found in Table 1.

A. Limited Access to Primary Care

One of the most significant health equity challenges highlighted in interviews and in the survey is the lack of access to primary care. Many families struggle to find healthcare providers, making it difficult to access vaccination services. This creates a paradox: while vaccinations are mandatory, families often cannot comply because they have no access to primary care. The issue is compounded by the fact that some physicians have stopped offering vaccinations due to capacity constraints and burnout from COVID-19, often prioritizing seniors, who represent a large portion of their patient population. Consequently, families are left with fewer options, which increases the burden on public health units to fill the gap.

B. Vaccine Access Challenges

In addition to barriers in primary care, vaccine access is further limited by geographical challenges. Many families live in remote areas where vaccination services are scarce, and therefore, they must travel long distances to access healthcare services and vaccination opportunities. This reinforces long-standing disparities in healthcare access. According to one PHU, cultural factors also play a role, with some Indigenous communities maintaining traditions that prevent children from being immunized outside their local environment. Thus, without nearby vaccination services, these families face significant obstacles. Unless PHU teams proactively reach out and bring vaccination services to these communities, access remains limited.

C. Language Barriers

Language remains a critical barrier to health equity. A family's preferred language is not data readily available to public health as part of this process. As such, it is difficult for PHUs to generate and send ISPA letters in languages other than English. Moreover, several PHUs mentioned that the number of newcomers and refugees to their regions have increased. As a result, many non-English-speaking families struggle to understand ISPA letters, which often contain dense, complex information. Some families may become desensitized to these letters, especially if they continue receiving them in English. This desensitization could lead to important messages being ignored. Additionally, non-English-speaking families may unknowingly consent to medical procedures, such as vaccinations, without fully understanding the implications. This highlights the need for accessible translation services, both for written materials like immunization records and for direct communication with families. There was a consistent message among many PHUs: The burden of

securing translation services should not fall on families, especially since there is a clear link between non-English-speaking households and lower income levels. Given that translation services are often costly and difficult to access, this only exacerbates existing inequities. Furthermore, the literacy level of ISPA letters from Panorama adds another layer of complexity, as many families with lower literacy levels struggle to understand the advanced language used in documents like the Panorama letter.

D. High-Risk Schools and Populations

Certain populations face disproportionately higher barriers to vaccination and compliance. The interviews and survey identified six key high-risk groups:

- **Low-income families:** PHUs report that many suspended students come from families experiencing financial hardship and belong to a low socioeconomic demographic.
- **International students, immigrants' families and newcomers:** These students/families often face administrative challenges, such as the verification/translation of foreign vaccination records and language barrier (previously mentioned). Moreover, some PHUs noted that understanding the difference between vaccination procedures in Canada and their country of origin could be challenging. Furthermore, some PHUs identified a connection between being a newcomer and immigrant, and a lack of healthcare provider or access to healthcare, which could further exacerbate the health inequities in this population.
- **Indigenous communities:** Indigenous populations face unique barriers, including limited access to culturally sensitive healthcare. Many communities lack full-time nurses, making vaccine access even more difficult.
- **Alternative educational schools for diverse learning needs:** Students in specialized learning environments face additional challenges, as they are removed from mainstream schools, which can create more difficulties for their families.
- **Schools with historically low compliance rates:** Some schools have persistently low vaccination rates. PHUs have highlighted the link between low compliance rates of vaccination with language barrier and economic deprivation.
- **Independent faith-based schools:** Certain religious communities, such as Islamic schools and Mennonite populations, have different academic calendars or cultural considerations that could affect vaccine access and compliance.

F. Concerns About Suspension Policies

Suspension as a compliance strategy raises ethical concerns for some PHUs. Children who are most often suspended are often those who need to be in school the most: those with fewer

resources at home and less parental involvement. These children face the negative consequences of missing school, losing access to social connections, potentially food, and falling behind academically. Although the decision not to vaccinate is typically made by parents, the burden of that choice falls on the children.

Table 1. Representative quotes of health equity barriers

Health equity barrier	Quote
Limited Access to Primary Care	"The biggest challenge is really the lack of healthcare practitioners or the lack of community resources. Like we're in, we're imposing all of these different mandates. And yet we, some of these families don't really have a lot of options or solutions."
	"I would say there's a lot of aging physicians in this area. And so they're just saying like, I don't have capacity to do like they, they don't want to bring in a kid to do a vaccination because that's not a good use of their time. So, they'd rather see that, you know, 80-year-old who has issues, so they don't want to use their time for vaccination. “
Vaccine Access Challenges	[Do you have any specific concern about how ISPA program affects health equity?] "Transportation to access clinics or primary care. Our large geographical catchment area, a number of rural communities that we service."
	"So, right, we've got a big lock in that they don't want to do kids overseas [referring to a First Nation Community]. So, adults and kids over six can't get immunized unless I fly in to go immunize them. [...] there’s just not equitable access to immunization services right now in that community."
Language Barriers	"Some of the limitations are with Panorama, letters drafted in only 2 languages, reading level is quite high, we are experiencing an increasing number of refugees and new immigrants who are not aware of ISPA processes or requirements to maintain immunization records."
	" We do in certain neighborhoods have a very large community of non-English speaking families and through communication with the schools found that they get so much information in English that they come desensitize to it."
	"Literacy level - many of the resources (i.e., the Ministry fact sheets) are long and too high-level. Legislation - not user friendly for families."

Higher risk schools and populations	Low Family Income	"We see a large disparity in ISPA non-compliance rates by the socioeconomic quintile of the school neighborhood with a linear gradient in non-compliance rates from the lowest in quintile 1 (Q1 - most advantaged) schools to the highest rates in quintile 5 (Q5 - least advantaged) schools. [...] we have noted that the disparity in non-compliance rates between Q1- and Q5-located schools actually grows after implicated students have received their first notice letter. As a result, we also see higher suspension rates among Q5 school students."
	International students, immigrants' families and newcomers	"International records require a lot of time and resources to translate. These families often don't have primary care. Access to a provincial translation service would be beneficial rather than having to re-immunize when records cannot be translated."
		"ISPA can be quite challenging for newcomers to Canada, particularly when it comes to understanding the differences between the vaccines, they received in their home countries and those required by the Ontario Immunization Schedule."
	Indigenous communities	"We don't have a full-time nurse in the community [referring to indigenous community] anymore."
	Alternative educational schools	"They've already got problems because they're going to this particular school. [referring to alternative educational school]."
	School students with low compliance rates	"This most recent round, we had two schools identified with high number of suspensions pending/++language barriers/communities with high material deprivation."
	Independent Faith-Based Schools - Communities	"So, we have one Islamic school that we can't really integrate very well into our groups because their school year changes through every year."
Concerns About Suspension Policies		"Suspending students is not ideal, as we know the importance of students staying in school (for their mental health and overall well-being). It is even more imperative for high-risk students to stay in school."
		"We also notice that clients who experience increased health inequities, are more likely to have barriers to understand what is needed to comply with ISPA, and may experience barriers to accessing healthcare. This can lead to increased suspensions to our most vulnerable clientele."

Supportive Factors and Equity Lens Solutions

A description of each of the supportive factors and equity lens solutions can be found below. Representative quotes for these can be found in Table 2.

A. Expanding Primary Care and Vaccine Access

To address access barriers, PHUs have implemented several strategies, offering several vaccination clinics with flexible locations (community-based and school-based vaccination clinics) and multiple hours (daytime, evening, some even offer weekends availability). Usually, the location of these clinics are based on community needs, high risk populations and health inequities, according to PHUs. Moreover, some PHUs also offer walk-in vaccination services. These vaccination clinics ensure that individuals without a regular healthcare provider can still receive vaccines. To overcome geographic challenges, PHUs have expanded vaccination efforts to reach remote areas, providing mobile vaccination teams where necessary (including providing house-based vaccination services in some cases). Additionally, PHUs are exploring real-life solutions, such as providing transportation assistance (for instance: cab slips, taxi vouchers or gas cards) to help families reach vaccination sites. In culturally specific cases, PHUs have trained community healthcare workers to administer vaccines directly within their communities.

B. Language Supportive Factors:

Some PHUs provide translated key information with ISPA letters, ensuring families understand the requirements. Some PHUs offer a "call to action" document in 38 languages, printed in yellow to grab attention. While many PHUs lack robust translation services, some offer phone-based interpretation support, or use translation apps (such as "WeSpeak") to either communicate with families or translate the foreign vaccine records. Other PHUs refer families to newcomer welcome centers for translation assistance. Some PHUs defer suspensions while families work on translating their documents. One surveyed PHU mentioned that this year, they are offering 2 on-site clinics at elementary schools that have many newcomers to Canada, and will be partnering with local immigration services for interpretation, to review records and support appointment booking for vaccines if not received on site.

C. Addressing the Needs of High-Risk Populations

i. Low-income families: PHUs are adopting a holistic approach, connecting families to other health and social services. They provide a paper-based exemption process for families without internet access, and some even cover the cost of notarization at municipal service centers. One PHU has a community engagement team that works closely with families from low socio-economic backgrounds during the ISPA program.

ii. International students and newcomers: PHUs collaborate with school newcomer teams (such as "Settlement Workers in Schools") and government assistance hubs to assess the social

determinants of health for newly arrived families. For international students in exchange programs, some PHUs work with school boards in advance to obtain vaccination records before students arrive. In addition, some PHUs, in collaboration with healthcare providers, offer specific clinics with a focus in this population.

iii. Indigenous communities: Many PHUs recognize the significant disparities Indigenous populations face. Some do not enforce suspensions in Indigenous communities where full-time nurses may not be available. Others have dedicated Indigenous public health nurses and outreach teams who provide culturally sensitive education and support. A key strategy is working with trusted community ambassadors to explain the vaccination process in a culturally respectful way. In some regions, Indigenous health centers have begun offering vaccinations directly, separate from PHUs, to build trust.

iv. Alternative education schools: PHUs focus on education and support, rather than enforcing suspensions. They engage directly with families to reduce barriers and improve compliance through targeted outreach.

v. Low compliance rates in high schools: Some PHUs assign school liaisons to maintain close contact with schools, conduct check-ins with principals, and follow up with non-compliant students/families. School nurses play a critical role in this process. Some PHUs defer suspension for students, or build a best course of action, based on the circumstances and factors affecting the students/families.

vi. Faith-based schools: PHUs adapt their programs to align with faith-based school calendars. For instance, one PHU adjusted the ISPA program timeline to accommodate the Islamic school's schedule. Another PHU has built strong relationships with the Mennonite community by assigning a dedicated nurse who conducts home visits and maintains consistent communication. Some PHUs do not enforce ISPA in certain schools.

D. Rethinking Suspension Policies

There is increasing recognition that suspension policies must be viewed through an equity lens. Some PHUs are actively exploring alternatives, such as targeted education campaigns, increased parental engagement, and deferring suspensions while families navigate health equity barriers.

Table 2. Representative quotes of supportive factors and equity lens solutions

Supportive Factors and Equity Lens Solutions		Quote
Expanding Primary Care and Vaccine Access		"To address transportation barriers: We offer clinics in our rural locations at the local high school to make it more accessible for clients with transportation barriers. Outside of clinic, we will meet parents/students at their school to provide vaccinations if they have expressed transportation barriers On rare occasion, we have gone to a client's home to deliver services. (Disabilities) We offer taxi vouchers or gas cards."
		"To address barriers related to no primary care provider or providers that are out of area: We offer multiple clinics in multiple location both during the day and evening."
Language Supportive Factors		"To address language barriers or new immigrants: We use WeSpeak services for language barriers. We also work with adult language and learning centre to book clients and often they will accompany their clients to their appointments. We will take untranslated documents and transcribe them into Panorama to determine what is needed. We give them a copy of the translated version, so they have it if/when they get a primary care provider. We give specific vaccination recommendations to providers based off previous vaccinations received when children are off schedule or are born elsewhere. "
		"We include a single page insert in the mailed envelope along with the screening letters and enforcement orders stating, "This is important health information. Please have someone translate it for you or scan the QR code or visit [url] for further information." This insert translates this message into 37 different languages and also features a QR code that directs recipients to our school screening & suspensions webpage. This webpage was developed with a health equity lens and provides key messages about the process and the requirements. This webpage has built in translation future where the user may select the language of their choice. To support the School vaccine reporting webpage we also have available in 37 different language a 1 page key message document. This has been made available to local school boards and health care providers."
		"We work closely with local Immigration services to inform SWIS (Settlement Workers in Schools) of the ISPA process so that they can support families with the process and interpretation."
Addressing the Needs of High-Risk Populations	Low Family Income	"Our Community Engagement Team working closely with families in least socioeconomically advantaged neighbourhoods also have access to these letters to support families as well."

	International students, immigrants' families and newcomers	"Working with community partners, such as refugee and new immigrant organizations as well as grass roots community groups, to explain, support and provide clinics where needed."
		"All high schools receive a clinic on-site. Last year we offered two in 6 rural/higher need schools (e.g. Large population of newcomers). [...] We have three elementary schools with very high newcomer population. we will be attending the school end of day (2:30-5pm) to offer record assessment, appointment booking and some vaccines."
		"What we try to do is identify the international students. We work with the international coordinator at the school board in the summer. Once they know what students are coming, they kind of work as the liaison to get that information from parents before they come to the local schools."
	Indigenous communities	"In working with First Nations communities and schools, Anabaptist communities, and private schools, a co-developed and collaborative approach is taken to ensure culturally appropriate engagement, support, and immunization opportunities are available. This prioritizes relationship-building, community and family input, and tailored strategies to best meet the needs of students and families."
		"This year we are also working with our indigenous health specialist to provide ISPA-focused clinics."
		"We have a [PHU] Health Indigenous strategy team that we have identified schools that have higher number of Indigenous students. And we work with an Indigenous public health nurse as well as partners in the Indigenous strategy team to support these schools in different ways more targeted because of with the partnerships and equity for this population."
	Alternative educational schools	"We have two learning alternative schools, which we do not suspend in. But we do issue reminder letters home."
	School students with low compliance rates	" Families/students experiencing other challenges: We also do temporary administrative exemptions in extenuating circumstances (i.e. when families are dealing with issues far bigger than ISPA concerns, school identifies student as 'high-risk' and needing to attend school, etc. [...]."
		"We also try to do targeted 1:1 phone calls to families of students who remain suspended beyond day 4 or 5 to see if we can help reduce barriers and get them back to school."

		"Children who remain non-compliant are followed by VPD nurses during the 20-day suspension period. We work with these parents, students and the schools to create a plan for immunization. Each of these families have different life circumstances and we decide the best course of action on a case-by-case basis and with consultation from management and the MOH."
	Independent Faith-Based Schools - Communities	"We look at all of the schools and boards for the school year and determine how best to split the groups up, taking into account PA days, exam weeks, holidays, Ramadan, school board requests, other PHU and VPD activities such as gr.7 school clinic timing, etc.)"
		“We do have a nurse that works very closely with the Mennonite population. And that's been a great success. She'll do like home visits. She writes letters to them to say when she's coming for children that are not school age. And she also does school clinics like at the end of the day for school age children. [...] It does help that we have nurses that are bilingual.”

Challenges

A description of each of the challenges can be found below. Representative quotes for these can be found in Table 3.

Time-Consuming and Resource-Intensive Processes

Many PHUs highlighted the significant time and staffing resources required to manage the ISPA process effectively. Resource heavy tasks include collecting and cleaning data, updating immunization records, generating and mailing letters, communicating with schools and families, and running vaccination clinics. These responsibilities often overlap, adding pressure to PHU teams who must also manage other public health programs.

During the COVID-19 pandemic, many health units paused ISPA activities. As a result, the number of students with overdue immunizations increased. Today, PHUs are managing longer suspension lists and investing more time in ISPA enforcement. Therefore, one particularly demanding task is preparing for and managing “suspension period,” which requires careful planning and a significant portion of staff time. Many PHUs reported feeling overwhelmed by these increasing demands.

Workforce Capacity Constraints

A lack of sufficient staffing emerged as a critical issue in the interviews. Many PHUs reported they do not have enough personnel to carry out the ISPA program fully. Some health units have reduced the scope of ISPA enforcement, focusing on specific grade levels only. One PHU noted that some private schools no longer receive suspension orders due to the strain on workforce capacity in comparison to the workload of other school boards.

Data issues

Data challenges involving school imports, data quality and Panorama issues are common concerns among the PHUs. School boards submit the student data in various formats, with no standardized system across school boards. This inconsistency often results in import errors, duplicate records, and problems with encrypted files, all of which require additional time and effort from PHU staff. To add on this, many PHUs mentioned the challenge of securely transferring data of school imports.

Moreover, delayed data submissions from schools further complicate the process. PHUs frequently need to follow up with schools, particularly private ones, that are reluctant to provide timely information. In addition, some VPD teams often lack sufficient IT support, which makes addressing data issues more difficult.

Furthermore, the accuracy of submitted data is problematic. Schools sometimes provide outdated demographic information, including incorrect addresses or parent contact details. This leads to delays in contacting families and returned mail, which negatively impacts the letter notification and suspension process. Several PHUs also mentioned that the Panorama system is slow and prone to technical issues, requiring data entry that consumes valuable staff time.

Difficulties Updating Immunization Records

Updating immunization records is a complex and time-consuming process. Records are received through various channels (e.g., fax, phone calls, ICON submissions, and in-person), which complicates the task of reviewing and entering information efficiently.

In the survey and interviews, it was addressed that while ICON was seen as an advantage by a few PHUs (e.g., facilitates more seamless record updating in Panorama), there are some issues with use (e.g., becomes very slow at certain times), and many reported that it is not user-friendly for parents. As a result, children remain overdue because parents struggle to navigate the system and submit records properly. Furthermore, some parents mistakenly believe their healthcare providers automatically share vaccination updates with PHUs, which is not the case. Therefore, staff spend considerable time educating parents and requesting records directly.

Additional complications arise from handwritten, incomplete, or blurry records provided by primary care offices, making them difficult to interpret manually or with AI. PHUs also face challenges translating immunization records for international students, as many documents are in other languages and formal translation services are not always available.

Letter Generation and Delivery

Creating and sending notification letters is another labor-intensive aspect of ISPA enforcement. Some PHUs use Panorama generated letters, while others create customized versions. However,

many PHUs reported that the default Panorama letters are sometimes unclear and can confuse parents (as mentioned in the health equity components).

Legal requirements of ISPA stipulate that letters must be mailed or delivered in person. Frequent changes in family addresses, combined with incomplete or inaccurate demographics, result in returned mail and additional work for staff.

One PHU noted that Grade 12 students are particularly difficult to reach if they have graduated, turned 18, or no longer attend school regularly.

Communication with Schools and School Boards

Effective collaboration with schools is vital to ISPA enforcement. Strong relationships with principals and school staff can ease the process. However, frequent turnover in school leadership means PHUs must repeatedly explain ISPA requirements. Private schools, in particular, can be less cooperative, making data collection and enforcement more difficult. Several PHUs mentioned that providing daily updates to schools during suspension periods is time consuming and complex.

Parent concerns

Parents are responsible for reporting their child's immunization records, but many find the process confusing or burdensome. This results in delays and, at times, emotional reactions. PHU staff frequently deal with anxious or frustrated parents, especially during suspension periods.

Several PHUs identified that a common reason for students being flagged as overdue is a failure to report vaccinations, not a lack of immunization. As mentioned before, parents often believe healthcare providers will automatically share this information with PHUs. Additionally, when a student turns 16, their consent is required to disclose immunization information to parents, adding further complications to the PHU communication with parents and students.

On the other hand, some parents show little concern about suspensions. PHUs suggested this indifference may be tied to post-pandemic resistance to government regulations.

Aggressive Behavior Toward Staff

In connection with parent frustrations, PHU staff have reported verbal abuse, particularly during peak periods such as suspension days. Staff have experienced yelling and aggressive behavior, which creates a stressful work environment and impacts morale.

Mistrust in Government and Public Health Institutions

Following the COVID-19 pandemic, trust in government and public health authorities has declined among some families. This has led to increased vaccine hesitancy and resistance to ISPA

enforcement. Letters generated through Panorama are sometimes viewed as harsh or unfriendly, further disconnecting parents with anti-government or anti-vaccine views.

Additionally, one PHU noted a rise in the use of affidavits as a way for parents to bypass ISPA requirements. There is concern that the affidavit process is being used as a loophole to avoid compliance without facing real consequences.

Table 3. Representative quotes on challenges

Challenges	Quote
Time-Consuming and Resource-Intensive Processes	"The most challenging part is the time frame between when the notices send and your suspension day. [...] Communicating frequently with families. With their health care providers. Providing a lot of repetitive information. [...] we're doing the clinics during that time, connecting them with community supports. [...] in frequent contact with the school as well."
	"I think one of the number one challenge that comes to mind right away, for me anyway is how labor intensive this process is and. Not having enough resources to complete all of these pieces"
Workforce Capacity Constraints	"So, like last year, we had almost. Roughly 60,000 overdue kids from grade one to grade 12. We literally do not have the capacity from our staff if everyone had those immunizations and submitted those updates to take in 60,000 updates. We just don't have that capacity."
	"So, in the past when we did enforcement, we did it across the board. We didn't do specific cohorts, but just due to resources and our capacity of our workforce, we are looking at just specific cohorts that are the most vulnerable I guess what we're looking at."
	"Private schools are temporarily not receiving suspension notices, due to some logistical issues, coupled with large increase in workload from other school boards vs HU capacity"
Data issues	"The student information exchange process is time consuming, and we do experience a lot of challenges with schools following the appropriate format. The ongoing need for an encrypted file creates additional challenges and does slow down the process due to the local requirement to quarantine these types of files until deemed safe for release. "
	"Our PHU seems to find the most challenges with step 2 in the process, Receive and import data from boards, especially with private schools. The STIX files have either missing or incorrect information creating potential duplicate files. There are lots of follow-up with schools asking for files and schools send files too late in the year. "

	"Schools are often not obtaining the correct information (e.g. incorrect DOB) and there is not a means that we can share back with them therefore we are getting incorrect information year after year. Not all the vendors are aligned – some addresses come parsed out while others come in other formatting - this impacts mailouts"
Difficulties Updating Immunization Records	"Parents are not aware that they need to communicate immunizations to the health unit. There needs to be better communication by the healthcare provider to inform parents of this since many believe that the healthcare provider will do this or that there is a system to do this. "
	" And the other huge challenge is not all of our doctor's offices use a printed format. A lot of them handwrite. [...] There's one doctor's office in town, generally when we get the reports, we just put them to the side because we cannot read a single client on it."
	“Sometimes they're coming at us in very different languages. We've now figured out how to translate with our cell phones by using like picture. [...] I know how to translate Japanese dates now because I've seen so many.”
	"Another challenge is regarding submission quality from legal guardians using ICON. A good proportion of submissions remain overdue, as parents are not selecting the correct vaccines to report (e.g., parent submits Tdap, when they received Tdap-IPV). Increased frustrations expressed from parents, as they are doing what we are asking of them but not knowing the correct vaccine to select. "
	"A lot of time is also spent chasing immunization records between families and their health care providers, as well as assessing international records."
Letter Generation and Delivery	[What is the most challenging time consuming in the ISPA process?] "The Manual rescinding of each applied suspension in Pan, screening, getting letters ready to go out, keeping up with suspension day incoming info"
	“For efficiency purposes, it, it makes our life a lot easier [Referring to Panorama]. But the way the letters, like the, the language and the letters are, it's, it's not very easy to understand. [...]
	"Mailing out letters only to have them returned for incomplete address that was provided by the school"
	"Last year we learned from lots of difficulties with our grade twelves. [...] Some of them turn 18 during the process, so they're no longer part of the process. Some of them graduate after first semester. Some of them, you know, we're in Co-op and just not available at all. Very, very difficult to be able to communicate with them. And because they're all over 16, we have to deal with them directly".

Communication with Schools and School Boards	"We are attempting to get all private schools onboard, but some have either not sent in their student list, or do not enforce the suspensions. We don't 'allow' this, but with not a lot of recourse, we can't enforce there. We will continue trying and don't allow schools to just not participate."
	“Newer principals who don't know or understand and principals who just say, not my problem [...] For the most part, they're all helpful”
	"the schools and the school boards and keep everybody informed is extremely challenging.”
Parent concerns	"ISPA needs to be better understood by the public and the schools. Parents think the HU is breaching PHI when sharing suspension lists with the school. The time and energy dealing with parents who don't understand the legislation (HUs having to access lawyers, schools having to access lawyers trying to enforce the legislation). "
	"Many families are also frustrated with the process and do not understand why their child is not up to date, why the information on file is not complete, etc which supports the need for ongoing education and consistency with the process."
	[ISPA and HIPPA problem] “we're dealing with 2008 students and parents don't realize that once the student turns 16 years of age or older, we do need the students consents before we release any of the health information to the parents. [...] So, it's a little challenging when the parents are calling to, you know, check what's going on.”
Aggressive Behavior Toward Staff	“[...] we get a lot of verbal abuse.”
	“They're working a lot of hours. Some of these phone calls have been the parents are aggressive, right, and in many scenarios.”
	“Because, you know, we had people show up and yelling and screaming at our receptionist and things like that. So not just even for our nurses, but our poor receptionist who's at the front desk having to deal with all these angry parents before she has to call us.”
Mistrust in Government and Public Health Institutions	"Since COVID, there is extreme hesitancy, increased affidavits, and angry people. The non-medical affidavit needs to be overhauled."
	" Immunization has lost the public’s trust. The Statement of Conscience or religious belief affidavit has become a tool for parents to avoid ISPA."
	“They [referring to some parents] don’t like the tone of our letters, which are these ministry prepared templates. They think it's very, very aggressive and rude.”

	"They [referring to some parents] tend to really be opposed to the whole, you're not allowed to suspend my child, and this is against the human rights. [...] It really has nothing to do with the vaccine itself. Has to do with being told what to do."

Success Factors and Innovations

A description of each of the success factors and innovations can be found below. Representative quotes for these can be found in Table 4.

Teamwork and collaboration

As mentioned in the challenge section, ISPA is a very resource-intensive and demanding program; therefore, having a cohesive team and a positive work environment was identified as a huge contributor to the success of the program. The support between team members, their commitment to roles and beyond, and having shared common goal are great success factors that drive ISPA. Moreover, having experienced staff is also hugely helpful. A highlighted part was to "staff up" during the suspension period through cross-training of school health nurses, public health nurses and members of other teams of the PHU. The support of leadership is another important element contributing to ISPA programs' success. A key benefit was not only the collaboration among the vaccine team, but also with internal stakeholders (such as senior management, school health nurses, and legal teams) and external partnerships (healthcare providers and school boards).

Communication with schools and boards

Ongoing collaboration and communication with schools are needed throughout the entire ISPA cycle. Therefore, in both interviews and surveys, a main common success factor was the positive collaboration and communication with schools and school boards. This is extremely beneficial and helps processes run more efficiently when communication flows well and all parties understand their roles. All PHUs communicate with their school boards. However, it is up to the schools, principals, and school boards to go beyond their mandatory ISPA role. Several PHUs noted that schools that were more engaged in the process tended to have fewer students on the list at suspension time. Several PHUs reported that this could be because some principals or school staff reach out to the families of overdue students by calling/meeting with them directly either well in advance or in the lead-up to suspension day, redirecting them to the PHU, or sending reminders through school communication platforms. Strong collaboration also supported schools to communicate with lead nurses to identify students that are experiencing other stresses in their lives and the suspension process would cause undue hardship and therefore removed from the process.

To help with communication with schools and school boards, some PHUs have developed additional materials (such as explanatory videos about ISPA, ISPA packages with common parent FAQs, sample notices/letters/suspension orders for parents, and suspension schedules). They have also added extra communications before ISPA begins and at key times throughout the year to further enhance communication with schools. Multiple PHUs have a PHN or school health nurse who acts as a liaison for specific schools and school boards in order to have more direct and consistent communication.

Parent communication

In the interviews, PHUs noted that a key factor in both removing students from the suspension list and increasing vaccine coverage is having good communication with parents. To support this, some PHUs have developed a how-to guide for parents, introductory letters for kindergarten parents, and generic texts sent individually from work-issued phones (which is easier for parents). They are also testing automated messages sent to the main phone number (such as robocalls or computer talk), using existing school communication platforms to send messages to parents, conducting follow-up calls, providing a direct immunization support line or specific vaccination email (which is checked daily), maintaining year-round communication (e.g., over the summer), and coordinating messaging with other child-focused PHU teams. Schools reaching out to parents is particularly helpful due to their existing rapport and relationships. It is easier to communicate with parents during suspension times when there has been prior communication.

Custom letters, custom tools, automation, and AI

Many PHUs have created custom letters and tools and have noted their willingness to share, which is a testament to the collaboration and willingness to connect between PHUs. As mentioned in the challenges and health equity considerations sections, there are challenges with Panorama letters, especially regarding language level and tone. To address this, several PHUs have created their own custom letters. Most of them use mail merge or have templates made by their data scientists. In these custom letters, some PHUs translated key messages and highlighted them in color to grab attention. One PHU added a QR code in the letters that links directly to the reporting website so parents can submit their reports directly. Another PHU uses stickers to identify the required vaccines and doses for common issues (“2 doses of varicella required”) to avoid confusion for HCPs and parents. One PHU uses mail merge to add parental consent to their own custom letter. However, it is worth mentioning that some PHUs prefer the Panorama letter due to its efficiency.

Regarding innovative custom tools for record submission, one PHU developed a collaborative health record system through their website for parents to submit records in an easier way. Another PHU has an online submission web form that accepts photos of records, which has increased parents’ ability to upload records properly without confusion about vaccine

information. One PHU established collaboration with local healthcare partners to have the "ClinicFlow" system to enter vaccines offered at these clinics. It is still on a small scale but could be a beneficial case study to encourage the beginning of a centralized vaccine repository among HCP and the PHU.

To address some difficulties regarding ICON submissions (mentioned in the challenges section), one PHU developed an ICON video series and a guideline to explain to parents how to submit vaccination records. Also, another PHU uses "ICON tear-off pads" with vaccine checkboxes filled by HCPs and given to parents so they can submit them to ICON following instructions provided on the same pad.

Other custom tools include a dashboard to monitor key metrics, an Excel tracker to follow statistics from SharePoint lists and rescind lists, and timelines to stay organized while communicating with schools. In-house scheduler tools and planning tools that account for need and staffing were also noted.

A few PHUs noted innovations related to automation and AI, but most haven't adopted these yet. Many are keen to learn from one another, and several would need specialized support to implement these tools. One PHU uses AI to transcribe faxes and other documentation and sort them into queues based on age and school priority level, assigning them to a staff member. PHUs think it would be beneficial if they could replace paper letters with electronic or more automated methods. For example, if letters and/or rescinds could be automated and made electronic. One PHU mentioned wanting to implement the programmatic custom letter generation process and integrate data quality and letter-checking steps.

Efficient processes, CQI, and debriefs

Several aspects of the program were noted to make processes run more efficiently. Many of the PHUs planned a timeline and schedule from the beginning of the ISPA program to follow. Several of them contacted school boards early to share their plans and receive feedback to consider key school dates. As mentioned before in teamwork and collaboration, staffing up and training are key factors for an efficient process. Moreover, some PHUs reached out to primary care providers via email to advise them of the ISPA program's start and confirmed suspension dates. Some even have informal agreements with HCPs to receive records in a timely manner. Other PHUs implement an "informal ISPA process" or "Mini-ISPA" (sending first letter notices, calling parents, faxing HCP offices for immunization information) during the summer to reduce the number of outstanding students in the formal ISPA process. Another efficient process includes having email templates and consistent messaging, as well as having a designated call center.

Program processes related to Continuous Quality Improvement (CQI) were another common success factor. For example, morning check-ins throughout the process allow one PHU to address

issues and resolve them on an ongoing basis; others mentioned that it was helpful to assess and focus on key indicators, showing staff how much they are accomplishing. Many used indicators to assess their capacity and assist with planning and prioritization. The majority of PHUs had either an informal or more formal debrief process and evaluation with the ISPA team, and some also gathered feedback from school boards. One PHU holds a meeting with a party atmosphere to help boost morale after a stressful period. Staff encounter a lot of stressful situations and can be at risk of burnout, so debriefs can help inform training needs and program strategy as well.

Regarding specific tools for efficiency, some PHUs highlighted SharePoint for school data imports, and one PHU mentioned using a secure Teams folder site for each school to upload daily suspension and rescind lists as a successful and efficient process.

Increasing Clinics

Multiple PHUs perceived increased access to vaccination clinics during the ISPA program as a key success factor in decreasing the number of overdue students. Specifically, many PHUs focused their resources on clinics held closer to the suspension deadline and on or shortly after suspension day. PHUs were strategic in where they held clinics, often tailoring locations to the needs of their communities and offering a variety of access options, such as PHU offices, schools, community centers, and malls. They also provided a combination of daytime, evening, and weekend clinics, available by appointment or as walk-ins. These multiple access options allowed parents and students to receive vaccinations on a flexible schedule that met their specific needs (for instance, after parents finished their working hours). Several PHUs highlighted March Break as a key time to offer vaccination clinics, since students had more time available, and parents felt they were not missing school hours.

Table 4. Representative quotes of success factors and innovations

Success Factors and Innovations	Quote
Teamwork and collaboration	“It makes a huge difference when you can rely on your teammates and when you work together and when everybody likes each other in general.”
	"Teamwork. People are committed in their roles and beyond"
	"Increase staff coverage, pull from other programs within the health unit for the day before suspension and the day of suspension only."
	"The [PHU] immunization unit has very strong internal and external partnerships. We work closely with our school boards to provider reminders and messaging around ISPA surveillance activities and updates. [...] Overall integration between multiple programs/ departments and type of positions internally to make the surveillance process work with DVC’s, program nurses, school liaisons, epidemiologists, communications unit, print shop etc."

	" We often do have to note, connect with our Privacy officer or privacy manager as well as our legal team. [...] you know interpretation of the legislation. If there's a specific question from a parent."
Communication with schools and boards	"Working with the principals helps to ensure parents act accordingly has proven to be very helpful in the past. The week prior to suspension, we provide the principals with a suspension list and the orders of suspensions. We also meet with them to go through the process and upcoming dates. Often times, the principals are supportive of the process and communicate with parents prior to the suspension date. This often makes parents act quickly. Internally, having dedicated staff assigned to support the administrative pieces of ISPA supports consistency with communications, streamlines processes, and increased relationship building with schools."
	"A PHN is aligned to each school as a liaison during the suspension process. Created a direct phone line for schools to reach the immunization team for daily questions."
	"Created a video for school administrators outlining their role and how we can work together that was shared with all school principals and secretaries"
	"Provide their principals with a document to help better understand the ISPA process and answer frequently asked question posed by parents. We were invited to Kinderstart events to communicate the importance of reporting vaccines with new students joining the school. Private schools are variable by the school depending on the administrator."
Parent communication	"We created an ISPA resource for school boards/principals and families to explain the ISPA process and the assessment schedule for the current school year. We have a dedicated vaccine email that parents can ask questions, submit information and this is monitored daily. We moved to an online version for the education session which has made that process easier and gives parents the certificate and exemption form right away after they are finished the training."
	"Our communication works well with the use of Robo-Calls. It increases clinic awareness and also communicates to folks to generate some action on their end."
	"ComputerTalk is the tool [PHU] uses to send automated messaging following each submission to inform of immunization status (e.g., record is UTD or Not UTD). During the summer, [PHU] plans to utilize this tool to send targeted messaging to parents of children who remain non-compliant following the suspension period."
	"Often times, the principals are supportive of the process and communicate with parents prior to the suspension date. This often makes parents act quickly."

	"We are aware that many schools, Principals, and attendance staff assist students and families to have the vaccines completed with reminders on their school communication platforms."
Custom letters, custom tools, automation, and AI	"We use Mail merge for notices so we can customize to local info. We have started including a QR code that links directly to our reporting page. We use Panorama suspension orders"
	"Nurses screening letters and putting stickers on the letter to identify common issues. Eg. “2 doses of varicella are required.” This initiative we believe cuts back on calls and confusion with HCPs and parents when the child has had one dose of varicella. [PHU] also put stickers on grade 9, 10 and 11 students to identify if they were missing doses of Hepatitis B and HPV due to the pandemic and schools closing. HCPs "
	Referring to Parent's Consent: "So we don't use the Panorama consent, we use mail merge, and we generate a grid. [...] The child childhood toolkit, the fact sheet, the newest fact sheet. So, we'll add that with the grid and the parent letter and an envelope, a return envelope, so the parents can return the consent to us."
	"Parents now have the option of submitting records through the Collaborative health record system through our website. We have recently implemented a robust QA program for data entry improving our data. We have partnered with our school health team."
	"We moved away from ICON (it is still available but not promoted) to an online submission that accepts photos of records, this has increased ability for parents to submit without having to properly transcribe or translate health information/vaccine that they may not understand. This was a webform created by our team. We have also created an automated system to email the suspension lists to schools at the end of each day rather than manually pull and email the reports."
	"Currently [PHU] works in collaboration with local partners using a CanImmunize plaform called ClinicFlow to enter vaccines offered at these clinics. Partner CHCs enter immunizations in this database and the information is automatically sent to[PHU] via PHIX file, taking the burden off of parents to report imms following their appointment. This is done on a very small scale, only with partners participating in these clinics. Promotion of CANImmunize for record submission related to ISPA surveillance not necessarily new for our PHU but a valuable tool. "
	"We have 'ICON tear off pads' that HCPs are using a lot. There is room for a client ID sticker on them, which includes name and DOB in a legible format, and all the vaccines listed with checkboxes. The HCP marks off what vaccines were given and writes the date. On the back of the pad, the instructions for sending the info to the health unit is listed, as well as a direct link to ICON."

	"We have undertaken a project that started in August 2024 (scoping) to develop a ICON video series to support clients with submitting information online and developed a guideline that is placed on our website to support parents."
	"Our Power BI dashboards that we build using PEAR data from Panorama is like what I'm getting those coverage rates for. [...] what we've tried to do is [...] with our Power BI dashboards, try to identify like in terms of how we do catch up and how we'll reach students."
	"Automation of generation of immunization notices and daily suspension lists."
	“We owe credit to one of our nurses, that was previously in our immunization program. She created this beautiful excel sheet where we input on one sheet: the school PA Days, holidays, important dates for each school board and it auto populates into a second sheet that tells us, based on the minimum required, timelines as per the ISPA protocol. [...] it's really helpful in that because it pretty much just gives us the dates. “
Efficient processes, CQI, and debriefs	"Planning timelines, general messaging, connecting with key partners (school boards for example), organizing staffing and other program work that needs to be done at the same time."
	"[...] our suspension prevention activities [...]. This is an 'informal' ISPA process wherein we run ISPA lists in June for the upcoming school year, save them into Teams (so multiple VPD nurses can access at once), and our VPD nurses work on them over the summer (faxing HCP offices for imms info, calling parents, etc.), in an effort to reduce the number of student records that will be involved in the formal ISPA process during the next school year. We do the suspension prevention process ONLY for elementary schools though, as we have found it to be mostly redundant to do it for secondary students, since they will be involved in the clinics, we run during the upcoming school year (whereas other than Men-C... in the gr7/8 imms program, elementary students do not get any school ISPA clinics offered to them)."
	Referring to a Wrap-up party, debrief session and feedback session organized by the manager of immunization and PAs : “We do instead of the [...] Awards, we do the fundies. And so, we kind of do like, I'll call it like mocking awards for all the staff. [...] And then we also do like an award for like 'who got down to zero students the fastest'[...]there's something there about fostering like the team culture and like you said, willingness to do it again. [...] Like it's a lot, a lot negative experiences during that. Lots of positives too, but there’s a lot of negatives. So, I think it's just good to like get a positive spin on it at the very end.”

Increasing Clinics	"Combination of PHU offices, schools and community locations. Combination of daytime, evenings, weekends. All appointments are prebooked but have made exceptions. "
	"Daytime, evenings, weekends. Usually at a PHU office. We do go into all the high schools to do on-site clinics about 5 weeks before suspension. In addition, we have rented offsite space at the mall to offer clinics. These are booked appointment clinics. But walk-ins won't be refused."
	"We also take advantage of march break and offer clinics throughout March break. Last year we also offered several evening clinics between 3-6pm (OT offered to staff). Last year we offered pop up clinics at several schools 3-6pm. Last year and this year we offer onsite visits to schools the week prior to suspensions."

Ranked Interventions

A list of 10 possible interventions to improve the ISPA process were generated by the core project team based on the findings from the process mapping. All PHUs who completed the survey (i.e., also including those who did the process mapping) were asked to rank their top five interventions (and were allowed to rank all of them) (Figure 8). 24 of the 27 PHUs who responded to this question ranked a central vaccine registry in the top five, with 17 marking it as the top choice. Other solutions to the vaccine record problem were also amongst the top choices with a better online system for primary care to report vaccines being chosen in the top five by 22 PHUs, and an improved online system for parents to report vaccines being chosen in the top five by 16 PHUs. Increased workforce capacity/funding (chosen by 22 PHUs) and improved letter generation methods (chosen by 13 PHUs) made up the rest of the highest ranked interventions. A few PHUs said consistent ISPA processes across the province, improved data sharing methods with school boards and schools and increased translation services were their top choice.

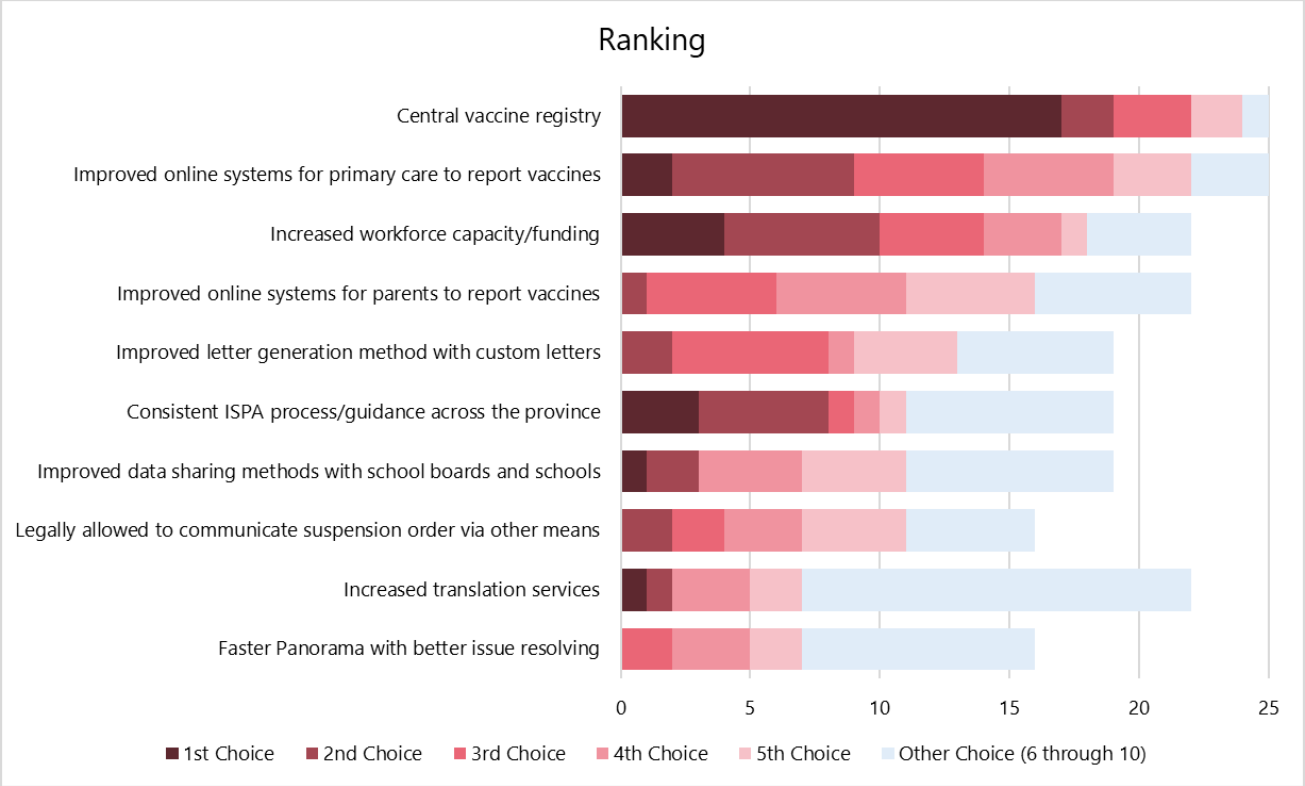

Figure 8. Ranked interventions (survey and process mapping PHUs, n=27)

The top-ranked recommendation for enhancing Ontario's Immunization of School Pupils Act (ISPA) programs is the establishment of a centralized, province-wide vaccine registry. Participants identified this as a transformative and necessary solution to longstanding challenges in immunization reporting and enforcement.

"I heard, probably 10 years ago or more, that there was a vision at the Pano/Ministry level to give HCPs the capability of scanning a health card, then scanning a barcode on the vaccine(s) administered, then add info such as dosage/site, etc. and upon pressing 'save,' the info would save to their EMRs and Panorama simultaneously. This is a vision that needs to come to fruition"

Key Benefits of a Central Vaccine Registry:

- **Streamlined Immunization Reporting**: A centralized system would eliminate the current reliance on parents to report immunizations to public health units, reducing administrative burden and the risk of incomplete or inaccurate data.
- **Improved Data Quality and Safety**: Automatic, real-time updates from healthcare providers would ensure more accurate vaccination records, lowering the potential for medication errors and unnecessary repeat immunizations.

- **Efficient Identification and Outreach**: Public health units would be better equipped to identify individuals who are overdue for immunizations and intervene earlier, improving compliance and overall vaccine coverage.
- **Operational Cost Savings**: A registry would significantly reduce the resources currently dedicated to manual data entry, correction, and the issuance of suspension notices - many of which are triggered by unreported vaccinations.
- **Integration and Accessibility**: Seamless connectivity with healthcare providers' electronic medical records (EMRs) would close existing reporting gaps, particularly for students over 16, and improve continuity of care across the lifespan.
- **Public Health Readiness**: A comprehensive, up-to-date record of immunization status across age groups would enhance Ontario's ability to monitor coverage, respond to outbreaks, and plan proactively for emerging public health needs.
- **Strategic Reallocation of Resources**: By reducing time spent on enforcement tasks, public health staff could redirect efforts toward higher-impact initiatives such as vaccine education and addressing hesitancy.

IMPLICATIONS + FUTURE DIRECTIONS

The findings from this work highlighted key areas of opportunity to strengthen the implementation of the ISPA program across Ontario. Three of them that are pivotal elements for improved ISPA processes in the future are: development of a centralized vaccine registry, health equity as a core component throughout immunization policies and practices, and streamlining processes to enhance efficiencies across public health units.

1. Centralized Vaccine Registry

A centralized vaccine registry was the top-ranked need among PHUs and directly addresses many of the challenges they experience with the current ISPA processes. A central registry would support more consistent and efficient data collection of vaccine records, remove several time consuming steps, decrease unnecessary student suspensions, and enhance coordination across jurisdictions. To move this work forward, the findings from this report can be used to support advocacy for a province-wide registry.

2. Health Equity

This work highlights the importance of designing ISPA programs and outreach that consider the needs of marginalized or underserved groups. Moving forward, equity considerations should be integrated into knowledge translation materials and implementation plans. ISPA processes should be adapted to better serve marginalized populations, using the findings from this work to advocate for equitable access to vaccine information and services. Engaging stakeholders in

discussions around culturally sensitive and inclusive immunization approaches will help build capacity and promote fair, responsive public health strategies across Ontario.

3. Streamlining Processes to Enhance Efficiencies

The findings also point to the need for improving and simplifying ISPA-related processes across PHUs. Streamlining administrative and operational procedures can reduce redundancies, save time, and improve the overall effectiveness of immunization efforts. Shared tools and resources, and greater inter-health unit coordination can contribute to a more efficient and cohesive approach to ISPA implementation. These improvements could help PHUs better manage workloads and direct resources toward outreach and equitable service delivery.

Recommended Next Steps

Knowledge Exchange and Dissemination

To ensure that the findings translate into meaningful practice changes, a robust knowledge exchange and dissemination strategy must be implemented. Project participants (through the survey and at evaluation meetings) emphasized the importance of improving knowledge exchange across public health units (PHUs) and sharing the LDCP findings through coordinated, accessible channels. Key ideas included:

- **Cross-PHU Collaboration**: Share innovations, documents, and tools (e.g., letter templates, algorithms) through a shared platform like SharePoint. Promote standardized ISPA resources and practices across the province.
- **Capacity Building**: Establish regular provincial training opportunities (e.g., annual ISPA education days, refresher courses), especially to support new staff and manage turnover. Create a provincial working group to support ongoing ISPA evaluation.
- **Dissemination of Findings**: Present findings via reports and webinars at VPD Managers' meetings, and through organizations like PHO and APHEO. Produce a report to distribute to all PHUs and relevant ministries, and publish the findings in a scientific journal.
- **Advocacy and System Improvements**: Use findings to advocate for consistent provincial policies, enhanced data sharing with the Ministry of Education, and a central vaccine registry. Broader public education on ISPA legislation and vaccine safety was also recommended.
- Respondents also highlighted the value of continued collaboration with PHO and other PHUs to support evidence-based improvements and share best practices.

Continue Collaboration with PHUs

Building on the success of this collaboration, ongoing engagement with PHUs is essential to implementing the findings and improving the ISPA program across Ontario. Future steps to support continued collaboration include:

- Initiate future Locally Driven Collaborative Projects (LDCP) to guide and support the coordinated implementation of key findings across all PHUs.
- Organize a half-day workshop to share the custom tools individual PHUs have developed with one another, to foster innovation and coordinate processes known to enhance efficiency.
- Foster both individual PHU and collective efforts (e.g., development of an ISPA Evaluation Working Group) to implement efficiencies, ensuring that improvements are sustained and scaled across the province, while maintaining relevance to diverse needs of different regions across the province.

By following these steps, we can create a more efficient, equitable, and impactful ISPA program that effectively serves the diverse populations of Ontario.

Shared Resources by PHUs

Many PHUs shared resources with the project team to be shared with other public health units. For access to these resources, please contact the project leads using the contact form at https://www.kflaphi.ca/.

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