Appendix A – Report No. 052-19

Public Health Inspector (PHI) Review PRJT 023-2018

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Executive Summary

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Public Health Inspectors (PHIs) conduct inspections and perform investigations in the areas of food-serving premises, housing, recreational camps, personal service settings, institutional facilities, dental and medical offices, pools and spas as well as drinking water systems. Inspectors provide education to operators and the public, ensure assisted compliance with health hazard regulations and, if necessary, provide enforcement to help prevent the public from acquiring illness and / or disease through their interactions with these settings. At the Middlesex-London Health Unit, PHIs also support work in environmental health policy development, rabies and infectious disease control.

In 2016, program teams were realigned within newly formed divisions at MLHU. Specifically, the reorganization saw the amalgamation of the previous three Environmental Health teams (the Food Safety team, the Safe Water and Rabies team, and the Health Hazard and Vector Borne Disease team), restructured into 2 new teams (Food Safety and Healthy Environments (FSHE), and Safe Water, Rabies and Vector Borne Disease team (SWRVBD)). The previous Communicable Diseases team also had PHIs as part of its staffing makeup. Communicable Diseases was renamed the Infectious Disease Control team (IDC) and continued to have embedded PHIs after program realignment.

A program review of the service delivery model was performed to evaluate workload balance, compliance with the Ontario Public Health Standards (OPHS), information technology needs, learning and development opportunities, as well as to identify any required revisions to current policies and procedures. An environmental scan examining other models of service delivery amongst comparator Public Health Units (PHU) was also conducted. Overall, the program was recognized to be performing well, continuously meeting its provincially assigned accountability indicators while areas for improvement were identified along with recommendations for changes to ensure the most effective and efficient model of service delivery.

Key Program Review Recommendations

Service Delivery Model

Three models of PHI service delivery were considered. These included 'generalist', 'specialist' and 'hybrid'. The hybrid model reflected the status quo where inspectors work on one of three different teams creating groupings by area of focus, each including several different types of premises. They are assigned zones and perform inspections on all the premises within the area of focus (e.g. all food premises, or all pools and spas along with rabies). The generalist model would provide the most efficient use of resources by having each inspector perform inspections on all premises within their assigned zone however would have the disadvantage of decreasing specialized knowledge of inspection techniques for specific types of premises. The specialist model would provide the most effective delivery of service by developing a highly specialized focus on specific service settings but could decrease efficiency as workload balancing would be more difficult to achieve. The hybrid model was chosen to continue as the service delivery model as it provided the most versatility while allowing for an efficient use of resources.

Workload Balance

Optimal time-on-task for completion of each inspector activity was established by comparing against comparator health units, known best practice, and inspector and manager recommendations. These times were then used to determine the total amount of inspection activity time and travel time required for each team, then divided by the number of inspectors per team to determine the individual workload for each inspector. This exercise also provided an estimate of the required level of staffing for each team.

The program review identified a significant variance of 26% in workload balance between the three teams. The IDC team was also facing increasing demands to investigate Infection Prevention and Control (IPAC) complaints. To rectify the imbalance, one full-time equivalent was disinvested from the FSHE team and 0.5 FTE was invested into the IDC team through the FY2019 PBMA process. Low-risk food premises inspected by IDC inspectors were also reallocated to the FSHE team. These changes reduced the workload variance between teams to 6%, increased resources to respond to IPAC complaints, and preserved some capacity in the FSHE team to provide support for the other two teams during seasonal workload surges.

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Inspection Zones

Each location subject to inspection was plotted using arc-GIS software to create zones with balanced inspection rosters for each team. These zones were designed to promote improved collaboration between inspectors on the three teams and to provide extra support, where required. The new zones also helped to decrease travel requirements, therefore decreasing mileage expenses for inspectors. Through this work, an additional disinvestment of $20,000 for travel expenses was able to be put forward in the FY2019 PBMA process.

Next Steps

The program teams will continue to implement other recommendations including the development of new key performance indicators and enhancing Quality Assurance and Continuous Quality Improvement activities. Findings and techniques from the program review will likely be helpful to identify alignment opportunities for public health inspection work amongst MLHUs partners in the upcoming amalgamation.

Introduction

A review of Public Health Inspector (PHI) activities was conducted to determine the best approach for organizing and delivering PHI activities within MLHU. The goal was to ensure the most effective and efficient program delivery model, as well as to identify an ideal balance of program responsibilities within each of the teams. The project team consisted of the Director of Environmental Health and Infectious Diseases (EHID) division, Program Managers for the Food Safety & Healthy Environments (FS&HE) team, the Safe Water, Rabies and Vector Borne Disease (SWRVBD) team and the Infectious Disease Control (IDC) team, along with support services from the MLHU Project Management Office. A project charter was created serving as a roadmap and resource for the project team. The MLHU strategic priority areas of Program Excellence, Employee Engagement and Learning, Client and Community Confidence and Organizational Accountability set the direction for the project and helped to guide the work.

As a review of the Public Health Inspections program had not been conducted in quite some time, it became apparent that an assessment was necessary to examine PHI learning and development needs, service delivery models, performance measurement and ongoing monitoring of quality and performance indicators. Additional impetus for such a review was borne out of the most recent organizational restructuring in 2016 which resulted in the reorganization of this work into three teams under a newly created EHID division. Specifically, the reorganization saw the amalgamation of the previous three Environmental Health teams (Food Safety team, Safe Water and Rabies team and the Health Hazard and Vector Borne Disease team), restructured into 2 teams (FSHE team and the SWRVBD team). The previous Communicable Diseases team also had PHIs as part of its staffing makeup. Communicable Diseases was renamed the Infectious Disease Control team (IDC) and continued to have embedded PHIs after program realignment. This change slightly broadened the scope of Environmental Health (EH) practice for PHIs, Program Assistants (PA) and Program Managers (PM), and further stimulated the desire to look at the specialized versus generalized program delivery models.

In assessing the current state, an examination was undertaken of the existing service delivery model, including alignment with the Ontario Public Health Standards (OPHS), information technology requirements, learning and development needs and policy and procedure development. An environmental scan examining other models of service delivery amongst comparator Public Health Units (PHU) was also conducted. From the assessment, recommendations were developed identifying areas for improvement which will serve to inform future program delivery within the three teams.

Assessment of Current State

PHI Activities

The current program delivery model within the three teams at MLHU resembles a 'hybrid model' of generalized and specialized work responsibilities. In this model, the three-team structure offers some degree of specialization as, for the most part, program-specific activities are exclusive to each individual team. As an example, the IDC team PHI's work focuses primarily on infection and prevention control (IPAC) and enteric illness investigation while also conducting food safety inspections in institutional settings. In the past, PHI work was quite general in nature whereby each inspector was assigned a geographical area of responsibility and all PHI-related work within the area would be assigned to that inspector. More recently, additional program responsibilities and PHI specific competencies have moved program delivery towards a more specialized program delivery model. The current 'hybrid model' of service delivery has evolved locally over time to best address the need for efficiencies that come with a generalized service delivery model such as food safety inspections while recognizing the need to have specialization in areas that require a more extensive area of expertise. Areas of specialization included the small drinking water systems, personal service settings, seasonal farm housing, and work supporting vulnerable occupancies. An example of the hybrid model exists on the IDC team where PHIs conduct both specialized IPAC work along with food safety inspections in the institutional settings (e.g.: Long-Term Care Homes, Child Care Facilities and Hospitals).

Inspection / Investigation Work

The primary role of PHIs on all three teams is to conduct inspections and investigations. This work is delivered in accordance with the requirements as set out in the *Health Protection and Promotion Act, R.S.O. 1990, c. H.7* and designated regulations, as well as under the Ontario Public Health Standards; Requirements for Programs, Services, and Accountability (OPHS) and related protocols and guidelines. PHIs conduct inspections and perform investigations in the areas of food premises, housing, recreational camps, personal service settings, institutional facilities, dental and medical offices, pool and spas and drinking water systems, etc. Inspectors provide education to operators and the public, ensure assisted compliance with public health regulations, and, if necessary, provide enforcement to help prevent the public from acquiring illness and/or disease through their interactions with these settings. The PHI program review focused primarily on inspection and investigation (field work) activities of inspectors. All PHIs at MLHU, with the exception of the Rabies Coordinator role, have field work assignments which include a mix of inspection and investigation work. The tasks performed by PHIs on the IDC team in performing the investigation of communicable diseases and outbreaks were accounted for in the workload calculation but was not a focus of this review.

Non-Inspection Work

In addition to inspection and investigation work, PHIs conduct various other program-related activities including committee work (internal and external), community presentations, project work and policy review and development. Some areas of focus include safe drinking water systems, management of outbreaks, climate change adaptation, built environment, environmental exposures and extreme weather alerting. The OPHS, with its related protocols and guidelines, provides Boards of Health with direction to pursue planning activities in these areas of programming. Currently, all PHIs have lead-role responsibilities for these areas of focus beyond solely inspection and investigation work, to provide for a mix of field work and project work.

Survey of Comparator Public Health Units (Environmental Scan)

The PHI Review included an environmental scan (***Appendix A***) to gather information regarding the current practices for organizing and delivering public health inspection responsibilities at public health units (PHUs) with comparable populations served and/or geography.

The survey tool was developed and sent to City of Hamilton Public Health Services, Lambton Public Health, Niagara Region Public Health, Sudbury and District Health Unit, Region of Waterloo Public Health and Emergency Services, Oxford County Public Health and Emergency Services, Windsor-Essex County Health Unit and Simcoe-Muskoka District Health Unit. All of the Public Health Units (PHUs) except Simcoe-Muskoka District Health Unit responded to the survey. Some PHUs were able to complete only some sections of the survey.

Participants were asked to disclose the time allocation for various environmental health and infectious disease control activities in the field. The survey also inquired about staff allocations, title and the number of positions of

personnel who were not PHIs. Lastly, the respondents were asked to define whether they considered their program service delivery model to be generalized, specialized or hybrid.

Overall, the environmental scan yielded fruitful results, with 87% response rate. The PHUs that participated in the survey shared similar challenges in identifying the most efficient and effective way to deliver public health inspection services in the field. It should also be noted that the survey focused predominantly on 'field work' as opposed to other non-inspection PHI program activities.

The survey answers revealed that there was no consistent approach in organizing and delivering PHI responsibilities in PHUs. While more than half of the surveyed PHUs utilize a generalized PHI service delivery model, 38% of the PHUs employed the hybrid model with a certain level of specialization required for the service delivery. The environmental scan also provided a list of professionals that work on the same team with PHIs such as Project Coordinator, Health Promoter, Environmental Health Specialist, Planner, and Supervisor.

The allocated time for inspection activities in the field was captured from peer PHUs, revealing some variation in completion time. For example, the allocated inspection time of a high-risk food premises ranged from 60 minutes to 120 minutes. The survey responses guided MLHU to make decisions on service delivery activities in the field and to make some adjustments in keeping with the average time allocations of comparator PHUs while considering the local context of delivering those services. Time allocations were validated through management and staff consultation, and final allocations were used as a baseline to assess workload distribution amongst the three teams. Locally, previous time estimates had high risk food premises as taking 3 hours to perform, on average. However, after the survey assessment and further consultation, the new time allocation was set to 2 hours as it was seen to better reflect the actual time required for the task. Similar time rationalization was performed for each inspection activity.

Consideration of Service Delivery Model

Much deliberation surrounded the question of identifying the appropriate service delivery model for public health inspection activities at MLHU. Three models of PHI service delivery were considered. These included 'generalist', 'specialist' and 'hybrid'. The hybrid model reflected the status quo where inspectors work on one of three different teams creating groupings by area of focus, each including several different types of premises. They are assigned zones and perform inspections on all the premises within the area of focus (e.g. all food premises, or all pools and spas along with rabies). The generalist model would provide the most efficient use of resources by having each inspector perform inspections on all premises within their assigned zone however would have the disadvantage of decreasing specialized knowledge of inspection techniques for specific types of premises. The specialist model would provide the most effective delivery of service by developing a highly specialized focus on specific service settings but could decrease efficiency as workload balancing would be more difficult to achieve.

In the environmental scan of comparator health units, just over half used a generalist model, while approximately one third chose to employ the hybrid model. Few health units used a fully specialized model of service delivery as the hybrid model was seen to be able to provide an appropriate level of specialization where specialization was required.

An additional consideration included ensuring sufficient resources were allocated to policy work and best practice development. The current hybrid model provides these opportunities but has often been performed by team managers, perhaps to the exclusion of their ability to focus on other managerial responsibilities such as quality assurance. The generalist model was considered here to have the potential to create policy specialist positions within the teams to provide more focus on these tasks as they arose. Notwithstanding some of the challenges, the PHIs at MLHU have been quite successful in developing best practices recognized across the province in areas such as providing education and materials for operators of small drinking water systems, pools and spas and developing an assessment of the local vulnerability to health impacts due to climate change. Deeper expertise in Infection Prevention and Control investigations was identified as a growing need due to an increasing number of complaints from the public of perceived lapses in medical, dental and personal service settings.

In evaluating the advantages and disadvantages of each model, the hybrid model was identified as providing an appropriate balance of specialty and efficiency for the Middlesex-London region. An additional consideration was the environmental context in which this program review was occurring. Significant organizational and team level change was in progress including a relocation of the organization's operations and a recent transition for the FSHE and SWRVBD teams to using Activity Based Workspaces. Any changes brought forward as a result of the program evaluation would have to be weighed in this context. In this light, no significant change to the service delivery

model was recommended as the hybrid model was seen as the most appropriate to address the demands of the program while also being least disruptive to operations.

Table 1. Advantages and Disadvantages of Potential Service Delivery Models

	Generalist	Specialist	Hybrid
Advantages	- More efficient - work can be equally divided amongst all employees. - Flexible – PHIs can easily cover for each other when workload surges occur. - Provides high degree of inspection variability for PHIs (more interesting) and helps PHIs maintain core competencies. - Provides opportunity to identify FTEs to work explicitly on policy and best practice development.	- More effective – PHIs develop expertise within area of specialty leading to increased quality of inspection and potentially decreasing public risk. - Higher ability to research and develop policy and best practices.	- Balance of effectiveness and efficiency - Moderate flexibility – members within each team can cover for each other during absences and surges. Coverage can be provided between teams during surges where required (though some support would be required).
Disadvantages	- Less effective - Certain inspection categories require nuanced and specialized knowledge. Could lead to some risk of missing more granular findings during inspections. - Lower ability for best practice development (though, may have more time opportunities to do so).	- Less efficient – more difficult to allocate staff evenly to specialist activities. - Workload fatigue – low variability of work could lead to employee disengagement.	- Compromise in either effectiveness or efficiency to attain an acceptable degree of both. - Moderate challenge to allocate staff evenly. - Reduced ability to provide cross-team coverage.

Workload Analysis

In assessing the workload of the three teams, the project team worked to identify both the key common activities across IDC, SWRVBD and FSHE and the team-specific duties of PHIs. The activity analysis allowed for an overall assessment of the time required to perform the functions of a PHI within each team.

Common activities included time spent in meetings, performing general administrative tasks such as time tracking and correspondence, professional development, and phone duties. This provided an estimate of the annual time required by each PHI to perform these activities. Average vacation and sick time were added to this value to identify the total amount of non-inspection time required. Analysis of these activities showed they represented approximately 40% of the total reported PHI functions.

Inspection activities were then identified through data extracts from Hedgehog and entered into a master spreadsheet (***Appendix B***). The accuracy of Hedgehog time-on-task extracts, however, was considered to be somewhat limited due to variability of operator entries. Once acquired, average time estimates for each activity were further refined through an analysis of historic time requirements locally, an environmental scan of comparable health units, and validation exercises with the project team and then the front-line PHIs during team meetings. These time estimates were defined as the time between the arrival of the inspector at the premises until the time of their departure. Travel time was separated from the estimate to allow for calculation by differentiating between urban and rural premises.

Each inspection activity line in the spreadsheet identified: task, associated team, number of inspections total, number of urban inspections, number of rural inspections, number of annual required visits, and the time required to perform the task based on the average time estimate for that activity. Travel time was then calculated by identifying the one-way travel time requirement to the inspection (on the assumption that the departure from that inspection would be the start of the one-way travel segment to the next inspection). Travel time per segment was estimated at 15 minutes for urban premises and 30 minutes for rural premises. With these factors, the spreadsheet calculated the total annual time required to perform all activities for the associated task.

Annual activity task time was subsequently used to identify the amount of total inspection-related task time for each of the three teams. The environmental scan identified that most PHUs surveyed assigned approximately 700 hours of inspection work to their PHIs. The current state time-on-task per employee was calculated by dividing the hours attributed to each team by the number of PHIs on those teams. Through this activity, the project team identified a workload disparity between teams.

The next task required the project team to balance the workload between the teams. In the current state, the workload variance between the three teams was 22%. The 2019 PBMA process identified a 0.5 FTE enhancement to the PHI complement on the IDC team for Infection Prevention and Control Activities and two 0.5 FTE PHI disinvestments from the FSHE team for a net total change of a 0.5 FTE reduction in PHIs. As there had recently been a 0.5 FTE vacancy created through the movement of one half-time PHI into a vacated full-time spot, no layoffs were required to accomplish this change. The total MLHU complement of PHIs thus changed from 27.5 FTE to 27.0 FTE and became the basis for assumptions in workload balancing for the future state proposal.

Table 2: Current State Workload Distribution

Total FTE		Current FTE	Insp hrs / PHI
Team	Hours		
FSHE	10279	16	642.438
IDC	4540.13	5.5	825.477
SWRVBD	4453.75	6	742.292

The spreadsheet allowed for an 'at-a-glance' perspective on the entirety of operational duties of PHIs at MLHU and provided the opportunity to visualize the workload impacts of moving personnel and / or tasks between teams. Various combinations of these adjustments were explored to arrive at a generally equitable workload balance. From this examination, the preferred solution was to move 0.5 FTE PHI from FSHE to IDC Team and reallocate the work associated with Low Risk Food Inspections for Extended Day Programs from the IDC team to the FSHE team. In doing so, the workload variance between the three teams was brought to within 6%. This variance allows for some residual capacity to support surge activity in other teams.

Table 3: Future State Workload Distribution

Total FTE		Future FTE	Insp hrs / PHI
Team	Hours		
FSHE	10436.8	15	695.783
IDC	4382.38	6	730.395
SWRVBD	4453.75	6	742.291

Compliance with the Ontario Public Health Standards (Gap Analysis)

The PHI work delivered by the three teams was reviewed with the intent of identifying the most effective and efficient delivery of services and to ensure alignment with the requirements set out in the Ontario Public Health Standards (OPHS), 2018. The purpose of the Gap Analysis (***Appendix C***) was to analyze the current programs and to identify any gaps preventing the teams from achieving the desired state, as it relates to compliance with the provincial standards.

After reviewing the requirements set out in the relevant program standards, some gaps were identified in program delivery which may serve to create some degree of vulnerability with respect to compliance with the OPHS, 2018. The relevant program standards include the Food Safety Standard, the Healthy Environments Standard, the Infectious and Communicable Diseases Prevention and Control Standard and the Safe Water Standard. The program activities identified within a program standard may cross different teams in which the PHIs conduct their work. For example, the FSHE team and the IDC team both conduct work under the Food Safety Standard.

Food Safety Standard

Some identified gaps within the Food Safety Standard include the need for a monitoring and evaluation process and inspection, disclosure and reporting requirements. Currently, there are components of the food safety program that

are delivered without regular monitoring and evaluation. A Quality Assurance (QA) and Continuous Quality Improvement (CQI) program would allow for better monitoring and evaluating of the program components, to assess the effectiveness of food safety strategies and interventions. Additionally, the Food Safety Protocol requires some new reporting fields to be included for disclosure, along with the inspections and enforcement of Food Handler Training certification in food premises currently not being inspected due to level of risk and logistical considerations presenting challenges for inspection work. A risk-based approach has been taken to address food safety in some of these environments including breakfast and school nourishment programs where the risks are relatively low and difficult to monitor.

In addition to these gaps, there were identified areas where program delivery could be enhanced to better achieve program outcomes. An example includes developing materials in other languages and providing more culturally relevant public health interventions to meet the needs of our diverse communities in Middlesex-London, and utilizing social media more often for food safety messaging.

Healthy Environments Standard

The Healthy Environments Standard includes new programming requirements, which were not identified in the OPHS, 2008. Building on the Vulnerability Assessment, 2014 for Middlesex-London, future program planning must adjust program delivery to ensure it is geared towards identified vulnerable populations. This can be achieved through ongoing monitoring of the impacts of climate change, community collaboration and delivering targeted public health interventions geared to individuals most at risk in Middlesex-London. In addition to climate change adaptation work, there is a need to enhance surveillance to address local health hazards identified in the built and natural environments and those hazards considered to be large contributors to the overall burden of illness.

PHIs at MLHU currently conduct housing inspections at provincially licensed group homes as well as municipally licensed boarding / lodging homes, however there is a growing number of 'Vulnerable Occupancies' operating in Middlesex-London whereby individuals are providing rooms and care services to vulnerable residents in our community that are not currently regulated. Enhancements to programming will aim to ensure that our vulnerable residents experience improvements in living conditions and are connected with services that aim to improve their quality of life.

Infectious and Communicable Diseases Prevention and Control Standard

The goal of the Infectious and Communicable Disease Prevention and Control Standard is to reduce the burden of communicable diseases and other infectious diseases of public health significance. Generally, there is a good monitoring system in place to investigate and respond to reportable diseases in a timely and effective manner. However more proactive upstream approaches in regards to communication strategies, material / resource development and surveillance activities could be implemented at the IDC team level. In addition, some additional program work is required in the areas of correctional facilities and with under housed / vulnerable populations. Addressing these identified gaps would serve to improve health outcomes and bring the MLHU into further compliance with the requirements set out in the OPHS. Currently, much of the work related to communications and resource development is reactive in nature, responding to an existing issue of concern, as opposed to proactively addressing issues which may present through ongoing surveillance efforts.

Safe Water Standard

The Safe Water program will need to focus more attention towards ongoing surveillance and identification of the emerging trends related to water safety. This is an identified gap in the Safe Water program, and an area for program development. In addition, there is a need to increase public awareness of water-borne illnesses and safe drinking water by working with community partners. The SWRVBD team should work on developing communication strategies by analyzing the local data. In addition, communication strategies should be further leveraged to reach the populations that are more in need of the services.

Policy and Procedure Review

Beginning in 2017, prior to and concurrent with the work of the Public Health Inspector review, the Environmental Health and Infectious Disease (EHID) Division began a review of their policies and procedures. In many cases, the existing policies and procedures were outdated and redundant with duplicate procedures existing between those teams with cross over roles e.g. food safety. Updated policies and procedures were needed prior to completing the Public Health Inspector review to ensure that management was considering revised protocols and regulations and best practices. This will ensure alignment of appropriate staffing allocation with established policies and procedures.

The EHID policy review overall purpose was to;

1. Develop a new EHID policy structure to align current team policies and remove unnecessary and duplicate policies,

2. Review and revise policies to ensure MLHU is addressing legislated and mandated requirements in the Health Protection and Promotion Act and the Ontario Public Health Standards in addition to following current guidelines of chosen authorities, and

3. To reformat current policies into new templates.

Through this process, the EHID policies and procedures would be organized across the Division according to modernized Standards with duplicate and obsolete policies removed. Upon completion, policies and procedures would be centralized on the MLHU HUB and accessible to all staff.

The process map and charter for the policy and procedure review was developed by the Division Director and Managers with the assistance from a Program Evaluator. Based on an established Review Schedule, each Manager determined if a single policy or procedure was to be reviewed or a group of policy documents required review. Each manager established a policy review team and a Policy Review Lead to operationalize the review process.

The Program Evaluator developed an Alignment Survey to be used to categorize each policy and procedure according to the following categories:

a. Review - Policies where documented practice is up-to-date (incorporate current mandate and best practice), but may need updating in terms of Division/team name and/or format. These policies will be included as part of the regular review cycle and the template updates will occur at that time.

b. Revise - Policies requiring minor updates such as medication dosage and/or equipment changes.

c. Redraft - Policies requiring major changes. Mandates and/or known best practices are not reflected in the policy document.

d. Obsolete – Policies to be deleted as they are no longer relevant due to change in mandate and best practice.

To date, the three teams have completed the review of all their policies and procedures. These teams continue to work on revising or redrafting their policies and procedures based on the results of the Alignment Survey.

Information Technology Needs

The PHIs have been using the Hedgehog 'Classic' database since 2007. This database had reached the end of its lifespan and requires upgrading to a modern platform for improved performance and functionally. Additionally, the teams were experiencing an increased volume of computer errors and glitches related to the program, thereby further increasing the need to conduct an upgrade. Options for updated inspection reporting software including upgrading the Hedgehog database system and seeking other suitable software systems were explored. While other software options were identified, they were not generally employed by other PHUs. An upgrade to Hedgehog database and platform was offered at marginal cost and was the most easily implemented option while meeting program requirements. As a result, the upgrade to the existing system was chosen.

The migration to a new program required several steps including the actual data conversion and validation process, application administrator and end-user training as well as some degree of data configuration. Additionally, the new program will allow for remote data synchronization to occur without the need to return to the office for a network connection to the main server, which will aim to improve efficiencies through reductions in travel costs. This added feature will allow the advantages of Activity Based Workspaces to be better leveraged as there will be less of a requirement for PHIs to return to the office to upload their inspection reports on a daily basis. Any IT needs that aim to improve field efficiency and program effectiveness that can be leveraged to support PHI 'field work' should be explored on a go-forward basis.

Coinciding with the need to upgrade the inspection software program, was a need to develop a new inspection disclosure website to meet new requirements in the OPHS for disclosure of institutional food and child care infectious control inspections while amalgamating all inspection results and enforcement disclosure activities into one website. MLHU discloses DineSafe inspection results separately from Personal Service Setting results and Recreational Water results as these modules were developed after the original disclosure platform was built. A new amalgamated site will be accessible through the MLHU website, blend in with existing branding and provide additional disclosure requirements while housing all inspection results, from all three teams, under the one website.

In addition to the need to update software required to support the inspection programs, the Food Handler Training program at MLHU is currently using an older Access database for the administration of client registration and inventory. The software is not performing well, is providing lags in efficiency thereby presenting a barrier to providing optimal client service. A new IT solution will be required to allow for more client friendly registration / payment, and data storage and should be explored further in 2019, perhaps through the context of a larger Food Handler Training review.

Service Delivery Areas

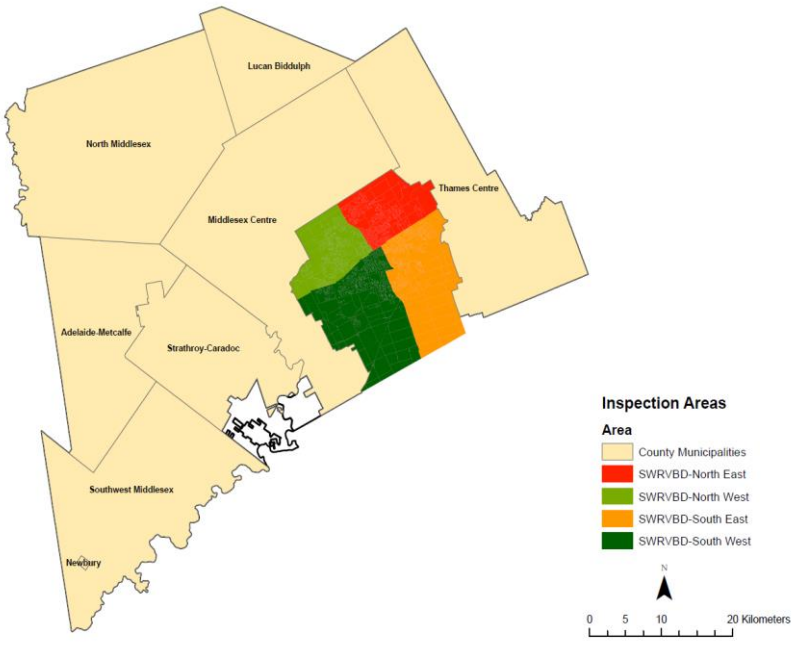
Update and Optimization of Inspection Zones.

The decision to create new work areas for all three teams was based on information obtained through the environmental scan, identified opportunities for efficiency gains and program improvements, and the desire to improve intra-divisional collaborations. At the time of review, the IDC work areas were rather dissimilar to the work areas of the other two teams, which inhibited the ability for PHIs from different teams to collaborate and provide mutual support where required. Additionally, much of the work on the EH teams had previously been assigned across the broader city and county resulting in a significant amount of time and cost associated with travel. It was identified that travel time and cost factors could be improved by redesigning the zones of work.

Using data from the upgraded Hedgehog program, ARC GIS software was utilized to map out all existing facilities requiring inspection. In addition to the facility details, additional animal bite investigations and Complaints / Service Requests (CSR) requiring site visits were mapped to provide a graphical illustration on existing trends, also used to better inform PHI workload distribution and work area development. The resulting product established new work zones that provided balanced work assignments for inspectors, reduced travel distances, and better opportunities for collaboration and support between teams.

The following tables illustrate the new team work areas. Variations between work area models are noted to address individual team needs and resources.

Table 4: Safe Water, Rabies and Vector Borne Disease Team



The SWRVBD team utilized 4 city quadrants given the lesser number of facilities than FSHE. PHIs on the SWRVBD team will complete all Safe Water and Rabies Control work assigned in their respective quadrants. NOTE: Assignments in Middlesex County for both the FSHE team along with the SWRVBD is divided among three PHIs and is general in nature, however these PHIs also have specialized programming such as migrant farms and Small Drinking Water Systems.

Table 5: Food Safety & Healthy Environments Team

The FSHE team is the largest of the three teams in terms of PHI complement with the largest corresponding number of facilities to inspect. Therefore, the city quadrants were further subdivided to create three work areas per quadrant, with the South East quadrant being the exception with 2 work areas.

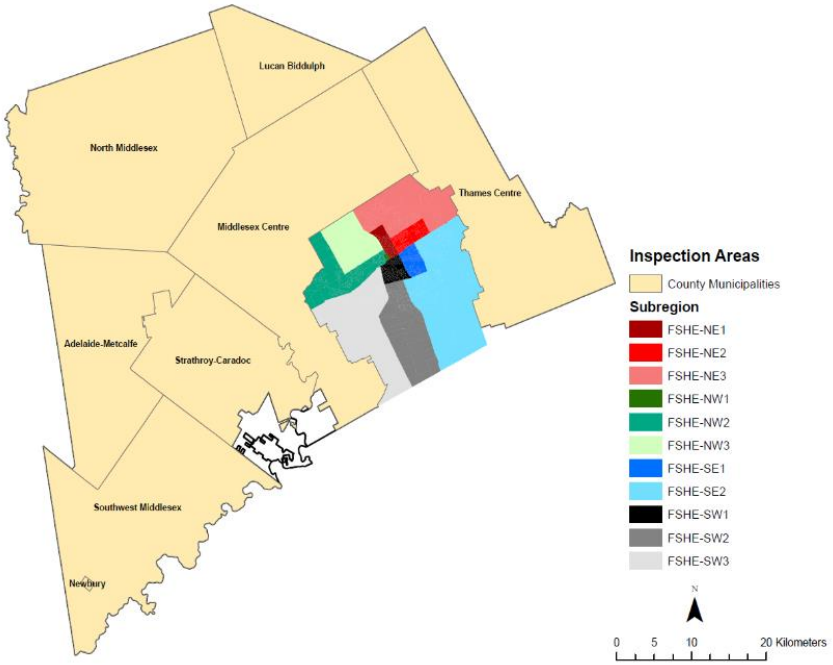
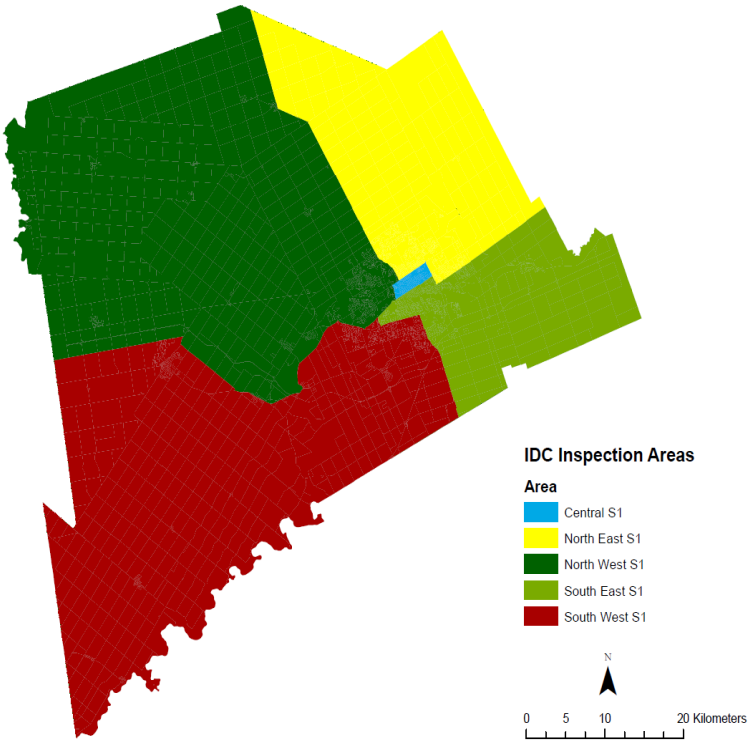


Table 6: Infectious Disease Control Team



The IDC team also utilizes a quadrant approach to work area distribution with the difference being that the quadrants extend from city through Middlesex County, and are not subdivided by municipality. Geographic areas are used in IDC for inspection work pertaining to personal service settings, long-term care homes, retirement homes and child care facilities.

Implementation

Implementation of the new structured work areas coincided closely to the go-live date of the new Hedgehog program. This required transitioning the names of the old work areas to the new work areas in order to capture all of the facilities each PHI was responsible for. This was not a seamless transition, as a process did not currently exist for 'mass' work area transfers, however, the Data Analyst was able to provide a listing of all facilities that were mapped out, which were then provided to the area PHIs. The PHIs received the tables and began reallocating the new work areas, which required minor data entry. Once the facilities were reassigned to the new work areas, they were cross referenced with the old areas to ensure that all facilities were accounted for. This process occurred concurrent to any investigation / inspection activities and was completed within a few work days.

Quality Assurance, Continuous Quality Improvement, and Key Performance Indicators (QA / CQI / KPI)

An important objective of the PHI program review was to identify opportunities for continuously improving the quality of the delivery of these programs. Current state QA/CQI activities included:

- Time tracking via Outlook Calendars
- Review of inspection reports prior to performance appraisals
- Onsite inspection reviews in response to client complaints
- On-job training seminars and webinars
- Providing publicly available inspection reports online

Discussions with staff and managers identified that there was inconsistency in how these activities were conducted and that a more purposeful approach to enhancing the quality of service delivery was needed.

Quality Assurance / Continuous Quality Improvement Activities

The Public Health Inspector Program would likely benefit from the development of more comprehensive QA / CQI activities undertaken by managers on a regular basis. Current barriers to these activities have included managerial workload, no formally established assessment parameters, and a lack of readily accessible data.

Upgrades to the new Inspection Reporting system, Hedgehog, provide a suite of managerial reports including at-a-glance summaries of task completion at the inspector and team level, real-time reporting of inspection compliance, issued orders and resolved enforcement activities. Further capabilities will be explored as staff and managers become more familiar with the software. As MLHU has opted to host the Hedgehog servers, the opportunity exists to leverage business analytics software to create performance dashboards.

Development of Key Performance Indicators (KPIs) in collaboration with the EHID Director and the Program Planning and Evaluation team will help to develop dashboards and track progress and improvement. Using the workload time allocation assumptions developed for the program review, performance can be measured against these standards to identify if the assumptions are correct, ensure workload balance is maintained across teams and between inspectors, and to determine level of resources required to ensure mandates continue to be met.

An example of KPIs that could be derived from existing data sources could include:

- Current accountability indicators
- Re-inspection rate by category of premises
- Common infraction types
- Length of time to resolve closure notices or other Section 13 Orders
- Response to Complaints and Service Requests (CSRs)

Managers identified that having clear guidelines on expectations for performance review of inspectors would be helpful. It is recommended that these expectations include that managers take the opportunity to accompany each inspector on at least one inspection annually to provide the manager with insight into common infractions and issues encountered by operators, challenges and barriers to work performed by inspectors, and a general opportunity to observe the performance of inspectors in the field. Likewise, managers should be reviewing inspection reports on a frequent basis and providing staff with feedback on their findings as well as to ensure data is entered in a consistent manner so that it can be useful for identifying issues and trends at the population level.

Quality and consistency of inspection activities will be important to assess. Use of data from the Hedgehog system will be helpful to identify wide variances in performance between staff so that opportunities for education can be found at the individual, group and team level. This will help to develop subject matter for in-house, online or consultant-based training and ties in with the learning and development needs of public health inspectors identified elsewhere in this report.

Client Satisfaction

Through the work of the Office of the Chief Nursing Officer, Middlesex-London Health Unit has embarked on a client experience survey to better understand how clients perceived the manner in which services are delivered by the Health Unit and to help improve how the Health Unit can meet the needs of those served. During the development phase of the survey, it was identified that there was a need to survey those who were mandated to receive services from the Health Unit differently than those who were seeking services. It is more challenging to survey those who face the risk of enforcement activities such as fines, suspensions and closures and, so, it was decided that a different survey would be developed for these clients and delivered after the service seeking clients were surveyed. Inspectors and team managers will work with the office of the CNO to assist in developing questions that can help provide meaningful input that can identify opportunities for improvement in program delivery.

Health Equity

The work currently being done at the Middlesex-London Health Unit on health equity provides an opportunity to explore how inspection activities can help to achieve equitable health outcomes. The National Collaborating Centre for Environmental Health has developed a framework for action on the social determinants of health and health equity for public health inspectors. Amongst other resources, the document *"Towards Health Equity: Practical Actions for Public Health Inspectors"* can be a helpful tool in helping to address MLHUs health equity objectives within environmental health programs.

http://nccdh.ca/images/uploads/comments/EN_EHO_Framework_161004_AM_FINAL.pdf

Learning and Development Needs of Public Health Inspectors

PHI Consultation

PHIs require opportunities to regularly attend professional development activities at the Middlesex-London Health Unit (MLHU) and elsewhere. PHIs were consulted to develop a strategy for learning and professional development activities. Based on the feedback received from PHIs, the following four types of development were highlighted:

- In-services: Program focused in-services to PHIs delivered by the program leads should be regularly scheduled to ensure PHIs keep the required level of competency and access to the most current information about these programs. Some examples are Rabies and Healthy Menu Choices Act (HMCA) training in-services.

- External meetings with stakeholders: Organizing meetings with stakeholders assists PHIs in keeping abreast of current organization and industry practices. E.g. Canadian Food Inspection Agency (CFIA), Ontario Ministry of the Environment, Conservation and Parks (MOECP), pool companies and well water treatment equipment, etc.

- Workshops: With the new Environmental Regulations enacted recently, there is more short form wording, therefore enforcement activities are expected to increase based on the new regulations. Workshops focusing on legal enforcement and investigations are needed by PHIs. Organizing workshops in other relevant areas would also facilitate learning and professional development. With the new focus on policy, advocacy and collaboration identified throughout the OPHS and related protocols, policy and communication themed workshops would assist PHIs in enhancing skill development.

- Conferences/webinars: Attending conferences and webinars also facilitate learning and networking with other PHIs in the field.

The Canadian Institute of Public Health Inspectors (CIPHI) Continuing Professional Competency (CPC) Program

The CPC program requires PHIs, who are existing CIPHI members, to obtain 80 Professional Development Hours (PDHs) per calendar year. These PDHs can be obtained through various activities including course work, attending conferences, workshops or webinars, acting as an assigned mentor, providing job shadowing or professional promotion, serving on boards, volunteering time in a professional and ethical capacity, giving professional presentations outside of one's regular job duties, publishing codes, standards and journal articles, and through reflective practice. All PHIs achieving certification post-2017, are required to maintain membership, in good standing, through participation in the CPC program. In previous years, not all PHIs at MLHU have participated in the CPC program and current membership rates have lingered around 50%.

In an effort to support PHIs in gaining and maintaining the skills, knowledge and abilities essential to the profession, it is recommended that a training plan be implemented to ensure that all PHIs at MLHU are able to fulfill the required PHI-specific competencies through the delivery of in-house opportunities. A plan that aims to monitor and record PDHs for PHIs will help to establish an ongoing learning program while also assisting to facilitate active membership for those not currently mandated to do so. Such a process aligns with the MLHU strategic priorities in the areas of program excellence and employee engagement and learning.

http://www.ciphi.ca/pdf/prodev.pdf

Change Management

Successful implementation of structural and organizational change requires a carefully considered strategy to inform and involve key stakeholders, especially affected staff. From the onset of the PHI review, management acknowledged that the review process and its outcome may impact the working conditions of the PHIs.

During the review process, the managers of the three teams expressed the importance of ensuring strategies were in place to minimize the impact on the inspectors of the changes, proposed or implemented, as a result of the program review. To minimize these impacts, management aimed to be transparent with staff about the review as it was in process and provided the inspectors with the objectives/purpose of the review. Throughout the process, mainly at team meetings, staff were provided with periodic updates and data such as the inspection completion time model was shared and validated with the PHIs. As needed, individual managers communicated and engaged with their respective teams.

Upon completion of the review, communication of the findings was seen as vital to change management and to effectively implement the change. All PHIs were invited to hear the preliminary results provided by the Division Director who redefined the rationale and vision of the review. This opportunity provided all Inspectors to hear the program review summary, ask questions and provide feedback. The information was presented to underline that although the PHIs are spread out into three teams, there are many commonalities and strengths among the teams that are realized especially when opportunities are seized to enhance collaboration.

On an ongoing basis, managers are making all efforts to integrate the recommended changes with minimal impact on the staff. The project team acknowledges that opportunities existed to better engage inspectors throughout the process such as inviting front-line representatives into the project team. Since some of the project investigations involved potentially sensitive labour-management issues, a decision was made not to have front-line members on the project team however, in retrospect, there were likely solutions to navigate around those sensitivities. The final draft of the project report has been circulated for review and comment from all front-line staff.

Summary of Recommendations

Service Delivery Model

1. Maintain 'Hybrid' model of service delivery

Workload

2. Decrease variance in inspection activity workload between teams
3. Balance workload at approximately 700 hours of annual inspection activity per inspector
4. Enhance ability to respond to Infection Prevention and Control complaints
5. Disinvest 1.0 FTE from Food Safety and Healthy Environments
6. Invest 0.5 FTE into Infectious Disease Control
7. Reallocate Low-Risk Extended Day Programs food safety inspections from IDC team to FSHE team

Alignment with Ontario Public Health Standards

8. Update enforcement disclosures website to include mandated reporting fields
9. Develop health promotional materials in other languages
10. Enhance program focus on marginalized populations such as those who are homeless/underhoused
11. Enhance surveillance and identification of the emerging trends related to water safety

Policies and Procedures

12. Complete EHID division policy updates and establish schedule for ongoing review and revision

Information Technology

13. Upgrade 'Hedgehog' inspection software and database to most current version
14. Implement new inspection disclosure website / portal
15. Investigate software replacement options for Food Handler Training Program database and registration

Optimization of Inspection Zones

16. Create zones which ensure workload balance and minimize travel distances between inspection sites
17. Align inspection zones of IDC, FSHE and SWRVBD teams to provide better opportunities for collaboration
18. Continue to monitor inspection zones regularly to ensure workload balance
19. Disinvest $20,000 in travel expenses related to inspection zone optimization

Quality Assurance / Continuous Quality Improvement

20. Develop routinely monitored key performance indicators
21. Leverage new management reporting functionality of Hedgehog software
22. Develop audit process for inspection reports
23. Ensure each inspector is accompanied in the field by their manager at least once annually
24. Engage in client satisfaction monitoring in collaboration with the Office of the Chief Nursing Officer
25. Review and adapt delivery of Environmental Health programs from a health equity lens

Professional Development

26. Align professional development activities with the CIPHI Continuing Professional Competency Program

Appendix A – Environmental Scan

Time allocated for the completion of inspection activities (mins):

	PHU 1	PHU 2	Middlesex-London Health Unit	PHU 3	PHU 4	PHU 5	Ideal / Anticipated
High Risk Food Safety Inspection	90	120	120	180	90	62	120
Moderate Risk Food Safety Inspection	60	60	60	60	60	67	90
Low Risk Food Safety Inspection	30	45	60	60	45	64	60
Pool Inspection	60	60	120	60	60	58	90
Spa Inspection	60	45	120	60	60	38	60
Splash Pad Inspection	15	45	60	60	60	48	45
Wading Pool Inspection	15	45	60	60	60	29	45
Food or Water Re-Inspection	60	60	60	60	45 (food)/25 (rec water)	179	60
Complaint Service Request (CSR)	-	120	120	60	15 - 60	-	90
Rabies Investigation	90	120	120	120	120	130	120
Outbreak Investigation	660 (dependent on outbreak)	420	600	720	480	-	600
Tattoo Parlour Business Inspection	60	120	120	120	60	53	120
Nail Salon/Aesthetics Business Inspection	60	90	60	60	60	53	60
Hair Salon/Barber Inspection	40	60	60	60	60	42	60
Ear Piercing Business Inspection	30	30	30	60	60	53	30
PSS Re-Inspection	30	45	60	60	60	56	60
Funeral Home Inspection	60	60	60	60	0	49	60
Child Care Centre Inspection	90	90	120	120	60	51	120
Nursing Home Inspection	150	120	120	-	0	62	120
Water Haulage Vehicle Inspection	60	30	60	60	0	-	60
AWQI From a 170 System	60	180	60	30	60	-	60
AWQI from a SDWS	60	180	60	60	60	-	60
Recreational Camp Inspection	3.5	120	120	120	60	80	120
Emergencies	-	-	-	-	0	-	-
Migrant Farm Inspection	90	120	-	60	60	73	90
SDWS Assessment	120	120	120	240	300	90	120
SDWS Compliance Monitoring	120	60	15	60	0	-	30
Private Well Water Consultation	30	60	30	15	15	-	30

Comparator Peer Group Total time allocated per inspector per year (limited response):

PHU A: 1000 hrs (includes all external work and travel– committees, working groups, community liaison)
PHU B: 700 hrs (inspection activities only)
PHU C: ~750 hrs (inspection activities only)

Appendix B – Workload Analysis

Inspection Tasks									
Task	Team	total	# urban	# rural	frequency	Task time (hrs) (no travel)	urban travel time	rural travel time	annual time required
High Risk Food Safety Inspection	FSHE	406	389	17	3	2	291.75	25.5	2753.25
Moderate Risk Food Safety Inspection	FSHE	826	770	56	2	1.5	385	56	2919
Low Risk Food Safety Inspection	FSHE	976	764	212	1	1	191	106	1273
Seasonal Food Safety Inspection	FSHE	321	230	91	1	1	57.5	45.5	424
Business Licensing Inspections	FSHE	300	300	0	1	1	75	0	375
Special Event Inspections	FSHE	300	270	30	1	0.75	67.5	15	307.5
Food Reg. Exempt Assessments	FSHE	30	20	10	1	1	5	5	40
Food or Water Re-Inspection	FSHE	300	250	50	1	1	62.5	25	387.5
Complaint Service Request (CSRs)	FSHE	755	679	76	1	1.5	169.75	38	1340.25
Seasonal Farm Housing Inspection	FSHE	72	0	72	2	1	0	72	216
Group Home Inspections	FSHE	115	115	0	1	1	28.75	0	143.75
Recreational Camp Inspection	FSHE	5	1	4	1	2	0.25	2	12.25
Food Handler Training Courses	FSHE	12	10	2	1	7	2.5	1	87.5
Pool Inspection	SWRVBD	172	151	21	4	1.5	151	42	1225
Spa Inspection	SWRVBD	43	42	1	4	1	42	2	216
Splash Pad Inspection	SWRVBD	32	19	13	3	0.75	14.25	19.5	105.75
Wading Pool Inspection	SWRVBD	13	12	1	4	0.75	12	2	53
Rabies Investigation	SWRVBD	1126	1003	123	1	2	250.75	61.5	2564.25
Rabies PEP follow up	SWRVBD	109	97	12.00	1	1	24.25	6	139.25
Water Haulage Vehicle Inspection	SWRVBD	1	0	1	1	1	0	0.5	1.5
Beach Management	SWRVBD	1	0	1	16	1	0	8	24
SDWS Assessment	SWRVBD	50	0	50	1	2	0	25	125
High Food Risk Inspections - LTC and CC	IDC	144	114	30	3	2	85.5	45	994.5
Moderate Food Risk Inspections - Food (	IDC	25	24	1	2	1.5	12	1	88
Low Food Risk Inspections - Extended Da	IDC	122	101	21	1	1	25.25	10.5	157.75
Outbreak Investigation	IDC	90			1	10	0	0	900
Tattoo& micropigmentation Parlour Busi	IDC	36	28	8	3	2	21	12	249
Nail Salon/Aesthetics Business Inspectio	IDC	143	121	22	1	1	30.25	11	184.25
Hair Salon/Barber Inspection	IDC	472	387	85	1	1	96.75	42.5	611.25
Ear/body Piercing Business Inspection	IDC	5	4	1	1	0.5	1	0.5	4
PSS Re-Inspection	IDC	50	30	10	1	1	7.5	5	52.5
Funeral Home Inspection	IDC	24	15	9	0.5	1	1.875	2.25	16.125
Child Care Centre Inspection	IDC	102	88	14	2	1.5	44	14	364
Reportable Diseases	IDC	440			1	1.5	0	0	660
Cold Chain Inspections	IDC	67	60	7	1	1.25	15	3.5	102.25
Cold Chain reinspections	IDC	6	5	1	1	1	1.25	0.5	7.75
Cold Chain Incidents	IDC	8	7	1	1	1	1.75	0.5	10.25
New Business Licences	IDC	70	53	17	1	1	13.25	8.5	91.75
IPAC Inspections	IDC	10	8	2	1	3	2	1	33
IPAC re-inspections	IDC	6	5	1	1	2	1.25	0.5	13.75

Total FTE – Current State		Current FTE	Insp hrs / PHI
Team	Hours		
FSHE	10279	16	642.438
IDC	4540.13	5.5	825.477
SWRVBD	4453.75	6	742.292

Total FTE – Future State (w/ Extended Day Programs to FSHE)		Future FTE	Insp hrs / PHI
Team	Hours		
FSHE	10436.8	15	695.783
IDC	4382.38	6	730.395
SWRVBD	4453.75	6	742.291

Appendix C – Gap Analysis

Standard	***Food Safety*** To prevent or reduce the burden of food-borne illnesses.
Outcomes:	➢ The board of health is aware of and uses data to influence and inform the development of local healthy public policy and its programs and services related to food safety. ➢ Board of health programs and services are designed to address the identified needs of the community, including priority populations, associated with food safety. ➢ Timely and effective detection, identification, and response to food-borne illnesses, their associated risk factors, emerging trends, and unsafe food offered for public consumption. ➢ Food-borne illness risks are mitigated. ➢ Food handlers are educated in food safety to handle and manage food for public consumption in a safe and sanitary manner. ➢ The public and community partners are aware of safe food-handling practices and food safety issues. ➢ The public and community partners have the knowledge and skills needed to handle food in a safe manner. ➢ There is reduced incidence of food-borne illnesses.

Requirement	***Program Activities that Align with Standard***	***Known Gaps***
1. The board of health shall: a) Conduct surveillance of suspected and confirmed food-borne illnesses, food premises, and food for public consumption; b) Conduct epidemiological analysis of surveillance data including monitoring of trends over time, emerging trends, and priority populations; and c) Respond by adapting programs and services in accordance with the Food Safety Protocol, 2018 (or as current); the Operational Approaches for Food Safety Guideline, 2018 (or as current) and the Population Health Assessment and Surveillance Protocol, 2018 (or as current)	• Track all lab-confirmed and suspected food borne illnesses related to food premises in Middlesex-London (EH and IDC). • Deliver Food Net program with PHAC *(under the IDC team)* for local surveillance through sampling program and other program objectives including case interviewing. • Identification of trends pertaining to high risk foods and work to address challenges and improve food safety.	• Gap – A monitoring and evaluation process to annually assess and measure the effectiveness of food safety strategies (Food Safety Protocol, 2018).
2. The board of health shall ensure food handlers in food premises have access to training in safe food-handling practices and principles in accordance with the Food Safety Protocol, 2018 (or as current) and the Operational Approaches for	• Educate / Train food handlers during inspections and consult with food premises operators and staff. • Provide food handler training courses to specified community groups and administer exams to	• To Enhance – conduct a food handler certification program review, to update registration / payment and other processes currently in place (currently using older technology).

Food Safety Guideline, 2018 (or as current) by:	the general public in accordance with the Provincial Food Handler Training Plan (Food Safety Protocol, 2016). • Collaborate with the London Training Centre (LTC), a partner agency to MLHU, through a Memorandum of Understanding (MOU).	
3. The board of health shall increase public awareness of food-borne illnesses and safe food-handling practices and principles in accordance with the Food Safety Protocol, 2018 (or as current) and the Operational Approaches for Food Safety Guideline, 2018 (or as current) by: a) Adapting and/or supplementing national/provincial food safety communications strategies where local assessment has identified a need; and/or b) Developing and implementing regional/local communications strategies where local assessment has identified a need.	• Provide food safety seminars, community presentations and attend health fairs to promote safe food handling practices. • Make available food safety and healthy environments information for the general public and facility operators on-line www.healthunit.com • Respond to all media inquiries related to inspection results or any topics related to Food Safety and deliver media releases when appropriate.	• To Enhance - engaging social media more frequently in a proactive manner to address emerging trends and challenges. • To Enhance - The board of health shall have available food safety information and / or educational material to raise public awareness about food safety practices, particularly targeting priority populations identified by the board of health (Food Safety Protocol, 2018). More of a need to provide culturally relevant programming.
4. The board of health shall provide all the components of the Food Safety Program in accordance with the *Food Safety Protocol, 2018* (or as current) and the *Operational Approaches for Food Safety Guideline, 2018* (or as current). ***This requirement covers core programming that is not addressed through other Food Safety Standard requirements (1,2,3 and 5).***	• Maintain a current inventory of food premises, and maintain communication with partner agencies. • Implement a site-specific risk categorization to be conducted annually of all food premises. • Conduct routine inspections of all fixed food premises as per required frequency. • Process for monitoring / inspecting transient / temporary food premises (special events) • Conduct re-inspections, consultations and additional	• Gap – Publicly disclose a summary report (DineSafe) including 'type of premises' and inspections that are 'complaint-based'. • Gap – Currently, food premises identified as lower risk and / or premises posing logistical difficulties for inspection (school nourishment programs) are not being inspected / disclosed which is a new requirement.

	interventions as necessary to achieve regulatory compliance. • Enforcement / Legal Actions • Assist new owners, operators or renovated food premises prior to commencing operation (as a resource). • Monitor all O. Reg. 562 exempted facilities (farmer's markets, residential homes, churches / service clubs / fraternal organizations). • Publicly disclose a summary report on each routine-based inspection.	
5. The board of health shall ensure 24/7 availability to receive reports of and respond to: a) Suspected and confirmed food-borne illnesses or outbreaks; b) Unsafe food-handling practices, food recalls, adulteration, and consumer complaints; and c) Food-related issues arising from floods, fires, power outages, or other situations that may affect food safety in accordance with the Health Protection and Promotion Act; the Food Safety Protocol, 2018 (or as current); and the Infectious Diseases Protocol, 2018 (or as current); and the Operational Approaches for Food Safety Guideline, 2018 (or as current).	• Risk assess, investigate and respond to all reports of suspected / confirmed foodborne illness, unsafe food handling and any other food related issues in a timely manner (within 24 hours). • Review food recalls when issued and participate in food recall verification checks when necessary. • Collaborate (internally and externally) when investigating foodborne disease outbreaks. Conduct outbreak management work.	• Gap – current database program does not allow for good reporting of 24-hour response, which would be a good KPI, to be investigated in new database solution.

Standard	**Healthy Environments** To reduce exposure to health hazards and promote the development of healthy natural and built environments that support health and mitigate existing and emerging risks, including the impacts of a changing climate.
Outcomes:	➢ The board of health is aware of and uses data to influence and inform the development of local healthy public policy and its programs and services related to reducing exposure to health hazards and promoting healthy built and natural environments. ➢ Board of health programs and services are designed to address the identified needs of the community, including priority populations, associated with health hazards and healthy built and natural environments. ➢ There is a decrease in health inequities related to exposure to health hazards. ➢ Timely and effective detection, identification, and response to health hazards and associated public health risks, trends, and illnesses. ➢ The public and community partners are aware of the risks of health hazard incidents. ➢ The public and community partners are aware of health protection and prevention activities related to health hazards and conditions that create healthy built and natural environments. ➢ Community partners and the public are engaged in the planning, development, implementation, and evaluation of strategies to reduce exposure to health hazards and promote the creation of healthy natural and built environments. ➢ Community partners have the information necessary to create healthy public policies related to reducing exposure to health hazards and creating healthy built and natural environments. ➢ There is reduced public exposure to health hazards.

Requirement	*Program Activities that Align with the Standard*	*Known Gaps*
1. The board of health shall: a) Conduct surveillance of environmental factors in the community; b) Conduct epidemiological analysis of surveillance data, including monitoring of trends over time, emerging trends, and priority populations; and c) Use information obtained to inform healthy environments programs and services in accordance with the Health Hazard Response Protocol, 2018 (or as current); the Healthy Environments and Climate Change Guideline, 2018 (or as current); the Infectious Diseases Protocol, 2018 (or as current); and the Population Health Assessment and	• Heat Warnings and Cold weather alerts issued to the general public. Number of heat warnings and cold weather alerts monitored each year. • Community Health Status Resource (this resource monitored health hazard related indicators including air quality and extreme weather conditions, but has not been maintained over the years). • Vulnerability Assessment (2014) to Effects of Climate Change conducted. • Maintain Cooling Tower Registration program for inventory and surveillance. • Collaboration with community partners who conduct environmental surveillance and	• Gap - Vulnerability Planning to build on the work from the Vulnerability Assessment, 2014. Work required to develop programming geared towards vulnerable residents in Middlesex-London (utilizing local data).

Surveillance Protocol, 2018 (or as current).	research (MOEPR, city of London, Middlesex County, ICES)	
2. The board of health shall identify risk factors and priority health needs in the built and natural environments.	• Liaise with other agencies to identify most significant environmental hazards, and respond accordingly to incidents at the local level. • Provide input and opinion, upon request, to municipal partners as it relates to potential health hazards, and advocate for healthy environments.	• GAP – Need to better identify local risk factors (surveillance) and develop programming to address the health needs of the community. • GAP – Identification of Priority Populations for varying environmental hazards.
3. The board of health shall assess health impacts related to climate change in accordance with the Healthy Environments and Climate Change Guideline, 2018 (or as current)	• Vulnerability Assessment (2014) to Effects of Climate Change conducted.	• GAP – Need to begin to monitor the impacts of climate change within Middlesex-London to inform vulnerability planning.
4. The board of health shall engage in community and multi-sectoral collaboration with municipal and other relevant partners to promote healthy built and natural environments in accordance with the Healthy Environments and Climate Change Guideline, 2018 (or as current).	• Participate in city of London advisory committee meetings (Trees and Forest Advisory Committee, Advisory Committee for the Environment) representing MLHU. • Meet ad-hoc with partner agencies to address potential hazards as they arise, and to provide public health opinions.	•
5. The board of health shall collaborate with community partners to develop effective strategies to reduce exposure to health hazards and promote healthy built and natural environments in accordance with the Health Hazard Response Protocol, 2018 (or as current) and the Healthy Environments and Climate Change Guideline, 2018 (or as current).	• Provide input into city policy (London Plan). • Collaborate with academia / community stakeholders to obtain local surveillance data to build upon program delivery (i.e. heat related illnesses in south west – ICES)	•
6. The board of health shall implement a program of public health interventions to reduce exposure to health hazards	•	• Gap – Not currently engaged in this work to a large degree.

and promote healthy built and natural environments.		
7. The board of health shall, as part of its strategy to reduce exposure to health hazards and promote healthy natural and built environments, effectively communicate with the public by: a) Adapting and/or supplementing national/provincial health communications strategies where local assessment has identified a need; b) Developing and implementing regional/local communications strategies where local assessment has identified a need; and c) Addressing the following topics based on an assessment of local needs: - Built environment; - Climate change; - Exposure to chemical contamination; - Exposure to hazardous environmental contaminants and biological agents; - Exposure to radiation; - Extreme weather; - Indoor air pollutants; - Outdoor air pollutants; and - Other measures as emerging health issues arise.	• Collaborate with community partners on Climate Change adaptation strategies. • Communicate risks to public with respect to environmental hazards (air quality, radon exposure, fine particulate etc.) through liaison with partner agencies (City of London, MOL and MOECC), as well as new exposures as they become apparent (TCE in ground water). • Initiate Heat Warnings under the Heat Warning Information System (HWIS), and Cold Weather Alerts and work to develop an effective response with community engagement. • Provide community presentations related to potential health hazards, many related to 'healthy and safe housing' – mould, pests (bed bugs), air quality etc.	• Gap - Much attention currently focuses on health hazard investigation as opposed to additional work identified through the new Healthy Environments Standard. More focus is required on improving health outcomes through built and natural environments (proactive work).
8. The board of health shall assess and inspect facilities where there is an elevated risk of illness associated with exposures that are known or suspected to be associated with health hazards in accordance with the Health Hazard Response Protocol, 2018.	• Approve homes for habitation, which were previously used as Marijuana Grow Operations (MGO), based on air quality reports from Industrial Hygienists, for rescinding of city of London orders. • Inspect and help provide supports to Special Risk Residents (Squalor, Hoarding) and Vulnerable Occupancies.	•

	• Inspect facilities including Seasonal Farm Worker Homes, Recreational Camps and Group Homes / lodging homes.	
9. The board of health shall investigate potential health hazards and respond by preventing or reducing exposure to health hazards in accordance with the Health Hazard Response Protocol, 2018 (or as current).	• Conduct risk assessment and respond to all reports of potential, suspected or identified health hazards in Middlesex-London. • Respond to notifications through the Vulnerable Occupancy Protocol (VOP) related to unhealthy and unsafe living conditions in homes considered to be vulnerable occupancies.	
10. The board of health shall ensure 24/7 availability to receive reports of and respond to health hazards in accordance with the Health Protection and Promotion Act and the Healthy Environments Protocol, 2018.	• Investigate, assess the risks and respond to all Health Hazards reported in a timely manner (within 24 hours) based on a risk assessment and have a PHI coverage over evening shifts and weekend on-call.	

Standard	***Infectious and Communicable Diseases Prevention and Control*** To reduce the burden of communicable diseases and other infectious diseases of public health importance.
Outcomes:	➢ Timely and effective detection, identification, and management of exposures and local cases/outbreaks of infectious and communicable diseases of public health importance, including reportable diseases, their associated risk factors and emerging trends. ➢ The public, health care providers, and other relevant partners, including emergency service workers are aware of the epidemiology associated risk and protective factors, and practices related to the prevention and control of infectious and communicable diseases of public health importance. ➢ Effective partnerships support actions to prevent and control the spread of infectious and communicable diseases of public health importance. ➢ Effective case management results in limited secondary cases. ➢ Priority populations have access to harm reduction services and supports necessary to adopt healthy behaviours and practices that prevent exposure to and the transmission of sexually transmitted infections and blood-borne infections. ➢ There is reduced transmission of infections and communicable diseases including reduced progression of tuberculosis (TB). ➢ The public, community partners, and health care providers report all suspected rabies exposures. ➢ Public health risks associated with infection prevention and control lapses are managed and mitigated effectively and efficiently. ➢ Settings that are required to be inspected are aware of and use infection prevention and control practices.

Requirement	***Program Activities that Align with the Standard***	***Known Gaps***
1. The board of health shall conduct population health assessment and surveillance regarding infectious and communicable diseases and their determinants. These efforts shall include: a) Reporting data elements in accordance with the Health Protection and Promotion Act; the Infectious Diseases Protocol, 2016 (or as current) the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2013 (or as current); the Rabies Prevention and Control Protocol, 2013 (or as current); and the Tuberculosis Prevention and Control Protocol, 2008 (or as current);	• Yearly review of the trends and emerging trends conducted • Annual reports are sent to the MOHLTC • Maintain data elements using Infectious Disease Database/Hedgehog Inspection System and Integrated Public Health System (iPHIS)	

b) Conducting surveillance and epidemiological analysis, including the monitoring of trends over time, emerging trends, and priority populations in accordance with the Infectious Diseases Protocol, 2016 (or as current); the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2013 (or as current); the Rabies Prevention and Control Protocol, 2013 (or as current); the Tuberculosis Prevention and Control Protocol, 2008(or as current); and the Population Health Assessment and Surveillance Protocol, 2016 (or as current);	• Currently have an epidemiologist who monitors and conducts surveillance on diseases of public health significance; daily and monthly surveillance reports are produced and distributed internally and externally.	
c) Responding to international, Federal, Provincial/Territorial and local changes in diseases epidemiology by adapting programs and services; and	• Monitor changing international/federal/provincial and Territorial and local changes in diseases	• Gap - Program and service changes only based on local needs/changes in disease epidemiology
d) Using the information obtained through assessment and surveillance to inform program development regarding communicable diseases and other infectious diseases of public health importance.	• Program development and planning based on assessment and surveillance	• Gap - This is very reactive and not proactive due to lack of capacity.
2. The board of health shall provide public education to increase awareness related to infection prevention and control measures, including respiratory etiquette, and hand hygiene. These efforts shall include:		
a) Adapting and/or supplementing national/provincial health education/communications strategies where local assessment has identified a need; and/or	• Have adapted some materials from other communities e.g. Hep A and use materials on Public Health Ontario website to distribute to the public	• Gap - Minimal time available to request/search for materials from other communities

b) Developing and implementing regional/local communications strategies where local assessment has identified a need.		• Gap - Lack of capacity and budget to proactively develop and implement local communication materials • Gap - Materials developed are reactive to an existing local issue.
3. The board of health shall work with community partners and service providers to determine and address the need for knowledge translation resources and supports in the area of infection prevention and control. These efforts shall include: a) Adapting and/or supplementing national/provincial health education/communications strategies where local assessment has identified a need; and/or	• Some adaptation from other communities e.g. Personal Service Settings educational materials	• Gap - New educational materials need to be adapted/ developed due to the revision/changes to the MOHLTC protocols.
b) Developing and implementing regional/local communications strategies where local assessment has identified a need.	• Minimal development and implementation of communication strategies • Those developed are on a reactive basis	• Gap - Implementation of a community partner education needs assessment to inform/develop an education plan. • Gap - Need for development and implementation of proactive communication strategies
4. The board of health shall use health promotion approaches to increase adoption of healthy behaviours among the population regarding sexual practices and injection drug use to prevent and reduce exposures to sexually transmitted and blood-borne infections by collaborating with and engaging health care providers, community and other relevant partners, and priority populations.	N/A	
5. The board of health shall collaborate with health care providers and community	• IDC supports health care providers through the e-	• Gap - Minimal proactive work with community partners e.g. HCP or

partners, including school boards, to create supportive environments to promote healthy sexual practices and access to sexual health services and harm reduction programs and services for priority populations.	newsletter and telephone consultation • IDC supports school boards on as need/request basis- provide web resources and letters	school boards regarding infectious disease prevention.
6. The board of health shall participate on committees, advisory bodies, or networks that address infection prevention and control practices and policies of, but not limited to, hospitals and long-term care homes in accordance with the Institutional/Facility Outbreak Prevention and Control Protocol, 2016 (or as current).	• Staff and Manager sit on Infection Prevention and Control committees in Long Term Care Homes and hospitals • Annually electronic materials sent to all long-term care homes re Outbreak Prevention and Control. • Have a staff person assigned to each long-term care home in Middlesex and London for consultation.	• Gap - Only attend those that invite IDC. • Gap - Minimal proactive communication with those facilities that do not reach out to IDC.
7. The board of health shall work with appropriate partners to increase awareness among relevant community partners, including correctional facilities, health care, and other service providers, of: a) The local epidemiology of communicable diseases and other infectious diseases of public health importance; b) Infection prevention and control practices; and c) Reporting requirements for reportable diseases, as specified in the Health Protection and Promotion Act	• Daily Outbreak report distributed • Electronic outbreak material sent to Long term care homes • Notification of Health Care Providers in e-newsletter regarding reporting requirements for reportable diseases; fillable form added to website for HCP to use	• Gap - Minimal contact with correctional facilities – only upon request or investigating a suspect and/or confirmed disease of public health significance. • Gap - Minimal education of staff in that work with under housed individuals e.g. shelters to increase awareness of infection control practices.
8. The board of health shall provide public health management of cases, contacts and outbreaks to minimize the public health risk in accordance with the Infectious Diseases Protocol, 2016 (or as current); the Institutional/Facility Outbreak Prevention and	• Rabies investigations are conducted in accordance with the Rabies Prevention and Control Protocol	

Control Protocol, 2016 (or as current); the Tuberculosis Prevention and Control Protocol, 2008 (or as current); the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2013(or as current); and the Rabies Prevention and Control Protocol, 2013 (or as current).		
9. The board of health shall receive reports of complaints regarding infection prevention and control practices and respond to and/or refer to appropriate regulatory bodies, including regulatory colleges, in accordance with applicable provincial legislation and in accordance with the Infection Prevention and Control Practices Complaint Protocol, 2015 (or as current).	• IPAC complaints can be reported by phone or website 24/7 • Regulatory colleges are notified as applicable in accordance with provincial legislation.	
10. The board of health shall receive and evaluate reports of complaints regarding infection prevention and control practices in settings for which no regulatory bodies or regulatory colleges exist, particularly personal services settings. This shall be done in accordance with the Infection Prevention and Control in Personal Services Settings Protocol, 2016 (or as current) and the Infection Prevention and Control Practices Complaint Protocol, 2015 (or as current).	• Personal Service Settings are inspected annually in accordance with the Infection Prevention and Control in Personal Service Settings Protocol	
11. The board of health shall communicate, in a timely and comprehensive manner, with all relevant health care providers and other partners about urgent and emerging infectious diseases issues.	• Health Care Providers are notified of urgent and emerging infectious disease issues in a timely and comprehensive manner – electronic alert is distributed.	
12. The board of health shall, based on local epidemiology, supplement provincial efforts in managing risk communications	• Collaborate and coordinate with provincial efforts in managing risk	

to appropriate stakeholders on identified risks associated with infectious diseases and emerging diseases of public health importance.	communication associated with infectious diseases • Provide local statistical data as requested.	
13. The board of health shall collaborate with health care providers and other relevant partners to ensure access to, or provide, based on local assessment, clinical services for priority populations to promote and support healthy sexual practices, contraception, pregnancy counselling, and the prevention and/or management of sexually transmitted infections and blood-borne infections.	N/A	
14. The board of health shall collaborate with health care providers and other relevant community partners to achieve a comprehensive and consistent approach, based on local assessment and risk surveillance, to address and manage sexually transmitted infections and blood-borne infections in accordance with the Sexual Health and Sexually Transmitted Infections Prevention and Control Protocol, 2013 (or as current).	N/A	
15. The board of health shall receive and respond to all reported cases of suspected rabies exposures received from the public, community partners and health care providers in accordance with the Health Protection and Promotion Act and the Rabies Prevention and Control Protocol, 2013 (or as current).	• Investigate human exposures to animals suspected of having rabies.	
16. The board of health shall address the prevention and control of rabies threats as per a local Rabies Contingency Plan and in consultation with other relevant agencies and orders of government, in accordance	• Rabies Contingency Plan has been prepared in the light of the recent Hamilton Raccoon Rabies outbreak.	

with the Rabies Prevention and Control Protocol, 2013 (or as current).		
17. The board of health shall develop a local vector-borne management strategy based on surveillance data and emerging trends in accordance with the Infectious Diseases Protocol, 2016 (or as current).	• Evidence-informed local vector-borne management strategy has been developed and applied to plan the program each year based on the previous season's surveillance data. • Human surveillance monitored annually.	
18. The board of health shall inspect settings associated with risk of infectious diseases of public health importance in accordance with the Infection Prevention and Control in Child Care Centres Protocol, 2016(or as current); the Infection Prevention and Control in Personal Services Settings Protocol, 2016 (or as current); and the Healthy Environments Protocol, 2017(to be drafted).	• Inspect child care centres, personal service settings for infection control practices in accordance with specific facility related protocol.	• Gap - No capacity to provide annual child care in-service • Gap - Education to Personal Service settings provided at time of inspection or re inspection only. • Gap - No public campaign on importance of infection control in child care and PSS.
19. The board of health shall ensure 24/7 availability to receive reports of and respond to: a) Infectious diseases of public health importance in accordance with the Health Protection and Promotion Act; the Mandatory Blood Testing Act, 2006; the Infectious Diseases Protocol, 2016 (or as current); and the Institutional/Facility Outbreak Prevention and Control Protocol, 2016(or as current); and b) Suspected rabies exposures in accordance with the Health Protection and Promotion Act and the Rabies Prevention and Control Protocol, 2013 (or as current).	• 24/7 availability to investigate suspected rabies exposures • 24/7 availability for all infectious diseases of public health importance.	

Standard	**Safe Water** To prevent or reduce the burden of water-borne illnesses related to drinking water. To prevent or reduce the burden of water-borne illnesses and injuries related to recreational water use.
Outcomes:	➢ Timely and effective detection, identification, and response to water contaminants and illnesses, their associated risk factors, and emerging trends, including levels of fluoride outside the recommended range. ➢ Water-borne illness risks are mitigated. ➢ Members of the public who use private wells, cisterns, and rain or lake water are aware of how to safely manage their own drinking-water systems. ➢ The public is aware of drinking water safety. ➢ Owners/operators of recreational water facilities and owners/operators of small drinking-water systems operate in a safe and sanitary manner. ➢ The public is aware of potential risk of illnesses and injuries related to public beach use. ➢ Public exposure to recreational water-related illnesses and hazards is reduced.

Requirement	Program Activities that Align with the Standard	Known Gaps
1. The board of health shall report Safe Water Program data elements in accordance with the Drinking Water Protocol, 2014 (or as current) and the Recreational Water Protocol, 2016 (or as current).	• Maintain inventory of drinking water systems and recreational water facilities maintained.	
2. The board of health shall: a) Conduct surveillance of: • Drinking water sources and systems and of drinking water illnesses of public health importance, their associated risk factors, and emerging trends; • Public beaches and public beach water-borne illnesses of public health importance, their associated risk factors, and emerging trends; and • Recreational water facilities; b) Conduct epidemiological analysis of surveillance data, including monitoring of trends over time,	• Inspect recreational water facilities, assessments of Small Drinking Water Systems and annual environmental assessments of public beaches are conducted.	Gap - more time should be spent to conduct surveillance and identify the emerging trends related to water safety.

emerging trends, and priority populations; and c) Use the information obtained to inform Safe Water programs and services in accordance with the Drinking Water Protocol, 2014(or as current); the Infectious Diseases Protocol, 2016 (or as current); the Recreational Water Protocol, 2016 (or as current); and the Population Health Assessment and Surveillance Protocol, 2016 (or as current).		
3. The board of health shall provide information to private citizens who operate their own wells, cisterns, and rain or lake water systems to promote awareness of how to safely manage their own drinking-water systems.	• Conduct a comprehensive Private Well Water Program which includes providing information to private citizens who own their water supply, has been established since 2014. • Enhanced private well water program service: Multiple water sample drop off sites. Offering site visits to residents who need more guidance.	
4. The board of health shall ensure the provision of education and training for owners/operators of drinking-water systems in accordance with the Drinking Water Protocol, 2014(or as current).	• Pool and spa operator training program is offered, Training opportunities for Small Drinking Water System owner/operators have been provided.	
5. The board of health shall increase public awareness of water-borne illnesses and safe drinking water by working with community partners and by: a) Adapting and/or supplementing national/provincial safe drinking water communications strategies where local assessment has identified a need; and/or	• Awareness activities are planned and organized through the year.	Gap - Communication strategies should be developed by analyzing the local data. Increased local collaborations is needed.

b) Developing and implementing regional/local communications strategies where local assessment has identified a need.		
6. The board of health shall ensure the provision of education and training for owner/operators of recreational water facilities in accordance with the Recreational Water Protocol, 2016(or as current).	• Training sessions are organized for the owners/operators of recreational water facilities	
7. The board of health shall provide all the components of the Safe Water Program in accordance with all applicable statutes and regulations, and the Drinking Water Protocol, 2014 (or as current) to protect the public from exposure to unsafe drinking water.	• All the components of the Safe Water Program are maintained to protect the public from exposure to unsafe drinking water.	
8. The board of health shall inform the public about unsafe drinking water conditions and provide the necessary information to respond appropriately in accordance with the Drinking Water Protocol, 2014 (or as current).	• Respond to Adverse Water Quality Incidents in municipal systems. • Issue Drinking/Boil Water Advisories as needed.	
9. The board of health shall reduce risks of public beach and recreational water facilities use in accordance with the Recreational Water Protocol, 2016 (or as current).	• Inspect public pools (Class A and Class B). • Inspect public spas. • Inspect non-regulated recreational water facilities (wading pools and splash pads). • Offer education sessions for public pool and spa operators. • Investigate complaints related to recreational water facilities.	

10. The board of health shall review drinking water quality reports for its municipal drinking water supply(ies) where fluoride is added. These reports shall be reviewed at least monthly and, where necessary, action shall be taken in accordance with the Protocol for the Monitoring of Community Water Fluoride Levels, 2014 (or as current).	• The MLHU Dental Consultant reviews the water quality drinking water report each month with the daily measurements in accordance with the Protocol for the Monitoring of Community Water Fluoride Levels, 2014	
11. The board of health shall ensure 24/7 availability to receive reports of and respond to: a) Adverse events related to safe water, such as reports of adverse drinking water of drinking water systems, governed under the Health Protection and Promotion Act or the Safe Drinking Water Act, 2002; b) Reports of water-borne illnesses or outbreaks; c) Safe water issues arising from floods, fires, power outages, or other situations that may affect water safety; and d) Safe water issues relating to recreational water use including public beaches in accordance with the Health Protection and Promotion Act; the Drinking Water Protocol, 2014 (or as current); the Infectious Diseases Protocol, 2016 (or as current); and the Recreational Water Protocol, 2016 (or as current).	• Respond to Adverse Water Quality Incidents in SDWS • Respond to Adverse Water Quality Incidents in Municipal Water systems • Respond to complaints regarding drinking or recreational water quality • Respond to water-borne illnesses and outbreaks.	