



**Ontario**

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**Report on the Visit of the Infection Control Resource Team to Niagara Health  
System - January 14-15, 2009**

**Report submitted: February 4, 2009**

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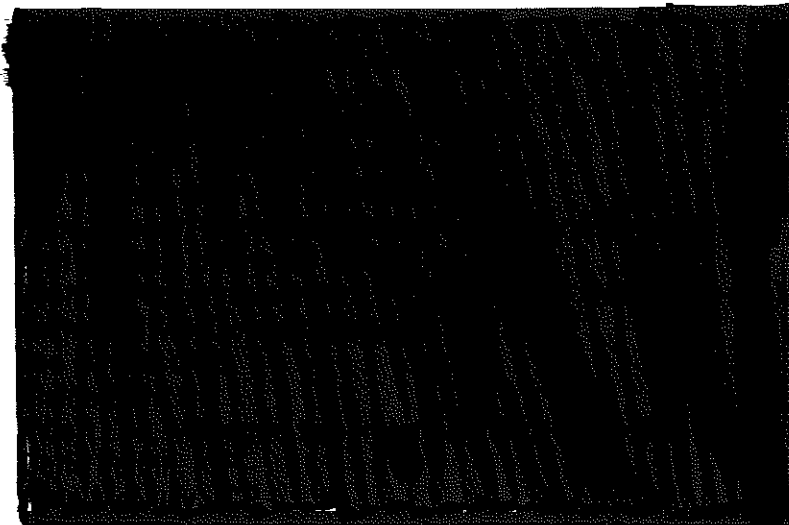
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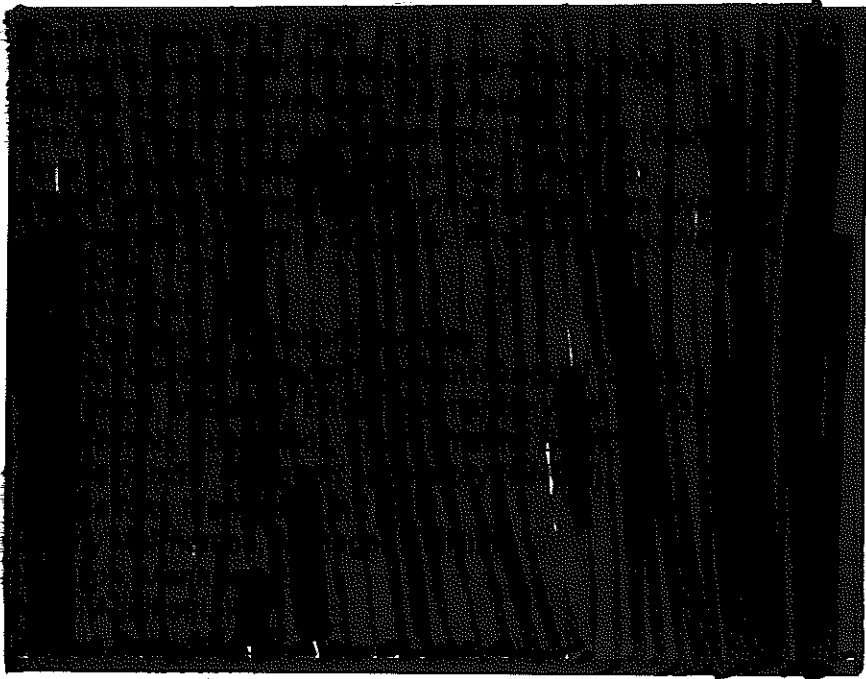
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**NHS Staff Interviewed:**





**NHS Sites Visited:**

**St. Catharines General:**

- Emergency Department
- Units 3E, CEW, C4E

**Welland**

- Emergency Department
- 6<sup>th</sup> floor
- 3 - Nephrology

**Greater Niagara General**

- Emergency Department
- Unit C
- Unit D
- Trillium Unit

## **Executive Summary**

The Ontario Agency for Health Protection and Promotion was requested by the Chief Medical Officer of Health to activate the Infection Control Resource Team (ICRT) to conduct a review of infection prevention and control (IPAC) at the Niagara Health System (NHS).

On Wednesday, January 14, 2009 the ICRT began a two-day review of the IPAC program at NHS.

The NHS provides health care services to the citizens of Niagara Region through six hospital sites and one ambulatory care centre. NHS includes; Douglas Memorial Hospital Site (Fort Erie), Greater Niagara General Site (Niagara Falls), Niagara-on-the-Lake Hospital Site (Niagara-on-the-Lake), Ontario Street Site (St. Catharines), Port Colborne General Site (Port Colborne), St. Catharines General Site (St. Catharines), and Welland Hospital Site (Welland).

Prior to the review the ICRT had requested and received information on the program and relevant activities at NHS. The review incorporated a review of these materials as well as individual and group interviews at three of the seven sites of NHS.

The following recommendations have been put forward by the ICRT following the review. Detailed information on the review, and the recommendations, is contained in the full report.

### **Infection Prevention and Control (IPAC) Program Elements**



2. The ICRT congratulates NHS on their requirement for all ICPs to be certified in infection prevention and control (CIC). We encourage NHS to continue to support ICPs to attain and maintain their CIC qualifications.
3. All NHS ICPs should complete an 80-hour CHICA-Canada endorsed infection prevention and control course. This can be done either through on-line or on-site courses. The ICRT suggests that NHS consider the benefits of networking and peer support that are available through participation in the on-site course.

4. All ICPs should be members and active participants of the Community and Hospital Infection Control Association – Canada (CHICA-Canada) as well as their local CHICA chapter.
5. Continuing professional development is essential to building and maintaining competency in IPAC. It should be an expectation for all ICPs to attend local continuing education opportunities offered through the local CHICA-Canada chapter (HANDIC) and the Regional Infection Control Network (CSICN). A minimum of one ICP per site visited by the ICRT should be funded to attend the annual CHICA-Canada conference. These ICPs would be expected to provide a formal report on the conference information learned to other team members. Basic IPAC journals, guidelines and text books should be readily available to all ICPs.
6. The IPAC team should increase the frequency of their meetings to facilitate communication and sharing of information. The ICRT suggests that the team meet weekly but the frequency of meetings should be no less frequent than every 2 weeks. If distance or weather are barriers to meeting face-to-face consider the use of videoconferencing technology to facilitate the meetings. However, the benefits of face-to-face meetings of the team should be considered.
7. The ICRT recommends that the members of the IPAC team organize a strategic planning retreat to identify and prioritize the activities of the program. The VP responsible for the IPAC program should participate in the retreat which should be led by an external facilitator. It would also be helpful to have a representative from CSICN participate in the retreat.
8. The corporate Infection Prevention and Control Committee (IPCC) is struggling with maintaining continuity in the absence of the Chair. The position of Chair needs to be filled as soon as possible. The Chair should be an IPAC champion within the Medical Staff.
9. The ICRT recommends that all ICPs attend the IPCC meetings to hear the issues and present data relevant to their programs/activities. Attendance by the ICPs at the IPCC will allow for personal growth and increase their credibility within NHS.
10. The ICRT recommends that front-line staff be empowered to initiate Additional Precautions based on their patient assessments. This is a critical element in preventing transmission of organisms and needs to be implemented at all sites.
11. The ICPs need to utilize the existing infection control information system (Infection Control Outbreak and Analysis – ICOA) more robustly to generate reports and provide feedback to the units. All ICPs should be trained to input and extract data from this database. More analysis and feedback of reports is

needed. The ICRT applauds the ICPs at GNGH for their utilization of this software and the reports they provided to the ICRT.

12. Compliance with ARO screening, use of PPE, and Routine Practices and Additional Precautions need to be audited with results fed back to the front-line staff. Consider partnering with unit staff to complete audits.
13. Patients should be cohorted based on a laboratory confirmed diagnosis and in consultation with IPAC. During the site visit it was identified that patients were being inappropriately cohorted. This practice must stop and only patients with laboratory confirmed diagnoses cohorted.
14. The IPAC program needs to increase their involvement in education of all staff particularly with environmental and support staff.
15. There was discussion regarding the use of unit-based infection prevention and control champions. The ICRT encourages the program to continue to pursue this. These champions are the 'eyes and ears' of IPAC within the organization and can assist IPAC in successfully disseminating information to all areas of the organization.
16. The policies and procedures of the IPAC program should be user-friendly and need to be simplified to contain only the pertinent elements to ensure this
17. There is under representation of IPAC on NHS committees. IPAC should be participants in Reprocessing, Product Evaluation, Construction/Renovation and Clinical Manager committees at all sites and corporately.
18. Physician leadership in the IPAC program is a key gap and has been identified by the NHS. The ICRT cautions NHS to realize that this individual alone will not correct everything but is only one element of an overall program. The focus should be on recruiting a physician with IPAC training or who will commit to obtaining the relevant training to assist them in providing leadership to the program. This individual should direct the IPAC program and report directly to the Vice President responsible for the IPAC program.

## **Hand Hygiene**

19. Hand hygiene needs to be addressed immediately. This is the single most important factor in controlling the spread of antibiotic resistant organisms. A critical element in implementing a hand hygiene program is the engagement and support of Senior Management. The ICRT recommends that NHS move forward quickly in ensuring that the ICPs and Educators receive training on the Just Clean Your Hands (JCYH) program of the Ministry of Health and Long-Term Care (MOHLTC).

20. Point-of-care alcohol-based hand rub (ABHR) as defined by JCYH needs to be implemented urgently. NHS is encouraged to use the tools provided by JCYH in ensuring the correct placement of ABHR.
21. Audits of compliance with hand hygiene need to be initiated. Feedback should be provided to both individual staff members immediately after being audited and, as collated data, to Managers and Senior Leadership. Consider the use of modified workers and late career nurses to assist in completing the audits. Responsibility for auditing should not rest solely with IPAC. The ICRT reminds NHS that reporting on hand hygiene compliance will be mandatory at the end of April 2009.
22. Clear responsibility for replenishment of ABHR dispensers needs to be defined.
23. Hand hygiene signage in some areas is outdated and reflects incorrect practice. All signage should be reviewed to ensure that it reflects current best practice as defined by PIDAC and JCYH.

#### **Environmental Considerations**

24. The ICRT acknowledges the work being done by Environmental Services on cleaning audits including the use of markers. Continue to move forward with these but include the Clinical Managers in distribution of reports.
25. Cleaning focus should be placed on surfaces that present a risk of transmission of organisms. Re-direct cleaning efforts to high touch surfaces and away from washing of walls.
26. Feedback from the Nursing Managers was that the number of Hospitality Service Aides (HSAs) on their units was adequate only during outbreaks. The ICRT recommends that the staffing ratio of HSAs be reviewed for critical and high risk areas. The Nursing Managers should be consulted as part of this process.
27. There is a need for increased Environmental supervisory staff to ensure that appropriate auditing, education and follow-up occurs.
28. Environmental Services should work with IPAC to develop education programs for the HSAs. The ICRT observed a number of HSAs incorrectly using Personal Protective Equipment (PPE) during the review.
29. The current process of tray delivery and pick-up has resulted in a number of used trays being placed on clean supply carts. There should be sufficient food services carts available to handle the used trays on the units including late trays. These should be placed in an area easily accessible for staff.

30. Toilet brushes should remain in the patient washrooms and not be carried from room to room on the housekeeping cart. Toilet brushes, in rooms of patients with CDAD or VRE should be discarded when the patient is discharged or precautions discontinued.
31. The use of a disinfectant for routine cleaning of floors is not required. A neutral cleaner is sufficient for cleaning all floors whether or not a patient is on precautions. Walls do not need to be cleaned when an isolated patient is discharged. Walls should be spot cleaned to ensure that visible dirt is removed.
32. Virox™, an accelerated hydrogen peroxide (AHP) product, is being used for cleaning. Rescue™, an AHP sporicidal disinfectant, is being used to clean the toilets and sinks of CDAD patients when they are discharged and on some outbreak units. The ICRT recommends that Rescue™ be used to clean the toilets and sinks in rooms of CDAD patients twice daily and in all sinks and toilets on units with CDAD outbreaks daily. In the Emergency rooms, Rescue™ should be used to clean all sinks and toilets. In addition, the washrooms in Emergency rooms should be cleaned at least twice per shift and checked every 2 hours to determine if additional cleaning is required.
33. The disinfectant solutions should be checked on a regular basis (at least weekly) to ensure that the dilutions are correct.
34. Responsibility for cleaning of patient care equipment needs to be clearly defined. Once this has been done it should be audited to ensure that this is carried out. All equipment that moves between patients must be cleaned after use by each patient.
35. Unit C at GNGH should be thoroughly cleaned to reduce the number of organisms (i.e. VRE, MRSA, and *C. difficile*) in that environment. This deep cleaning should include all areas of the unit (i.e. patient rooms, nursing station, supply rooms, staff lounge) and be conducted over a period of not more than 2 days. Cloth furnishings should be steam cleaned or replaced if they cannot be cleaned with a disinfectant.
36. There needs to be a clear separation of clean and dirty functions. There appear to be several areas within the patient units where these have been combined. These cannot be mixed. This practice increases the risk of transmission and compromises the integrity of sterile supplies. Similarly, clean carts in corridors must be clearly separated from dirty. Every effort should be made to reduce the amount of clutter in corridors.
37. Clinical functions must be separated from eating areas. There are a number of areas in patient care units where these are mixed. There should be no eating or drinking, by staff, in patient care areas including nursing stations.

38. There needs to be clear signage on doors to indicate their function. Some of the signage observed is outdated. This was most notable at the SCG site.
39. The ICRT recommends that Environmental Services be consulted when new products, both equipment and furnishings, are brought into the hospital so that the ability to properly clean and disinfect the item can be determined. Items which cannot be cleaned and disinfected should not be purchased.
40. The hospital needs to investigate and implement a system for human waste management. The use of bathroom sinks and spray wands to clean bed pans should be discontinued.

### **Antibiotic Stewardship**

41. The ICRT is encouraged to hear that a new Chair has been appointed to the Pharmacy and Therapeutics Committee. We encourage this committee to pursue antibiotic stewardship and to work with an academic health science centre to develop protocols for antibiotic use.
42. The ICRT recommends that a clinical pharmacist be deployed to track antibiotic utilization and assist the medical staff with the use of antibiotics.

### **Microbiology Laboratory Support**

43. The current 5-7 day turnaround time for VRE screening results may contribute to transmission and outbreaks. NHS needs to discuss the use of other technologies to reduce the turnaround time for VRE results.
44. There needs to be increased access to typing of organisms especially during outbreaks to assist in the epidemiologic investigation.
45. The laboratory information system (LIS) needs to be programmed to produce a 'significant findings' report for the ICPs daily. This will reduce the amount of time the ICPs spend going through results to identify those that require intervention and follow-up. IPAC should work with the LIS support staff to identify the organisms they wish to have included.



The Ontario Agency for Health Protection and Promotion was requested by the Chief Medical Officer of Health to activate the Infection Control Resource Team (ICRT) to conduct a review of infection prevention and control (IPAC) at the Niagara Health System (NHS).

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### **Outbreak Status**

The three largest sites of NHS have experienced longstanding high levels of endemicity of *Clostridium difficile* associated disease (CDAD), Methicillin resistant *Staphylococcus aureus* (MRSA), and Vancomycin resistant Enterococcus (VRE). There have been multiple outbreaks on individual units within these three sites. In December there were outbreaks of VRE reported at Greater Niagara General, St. Catharines General, Port Colborne and Welland Sites. In addition, Unit C at Greater Niagara General also had outbreaks of MRSA and *C. difficile*.

At the time of the visit by the ICRT the longstanding outbreak on Unit C at GNGH site of VRE and MRSA and CDAD was still in progress.

The process for the review began with the compilation of a comprehensive package of information on NHS and the infection prevention and control program. This package included background information on the organization and sites, the organizational structure for NHS, the IPAC program including surveillance information and outbreaks, and the environmental services policies for NHS. The ICRT reviewed these materials as well as conducted individual and group interviews and tours of selected areas at three of the seven sites of NHS.

The ICRT used the following PIDAC best practice documents to assess the program at NHS;

- *Best Practices for Infection Prevention and Control Programs in Ontario in All Health Care Settings (September 2008)*
- *Best Practices for Hand Hygiene in All Health Care Settings (January 2009)*
- *Best Practices for Surveillance of Health Care Associated Infections in Patient and Resident Populations (June 2008)*
- *Best Practices for Cleaning, Disinfection, and Sterilization in all Health Care Settings (April 2006)*
- *Best Practices for the Management of Clostridium difficile in all health care settings (January 2009)*
- *Best Practices for Infection Prevention and Control of Resistant Staphylococcus aureus and Enterococci (March 2007)*

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NHS faces many of the challenges experienced by community health care settings including a high percentage of Alternate Level of Care (ALC) patients, and a lack of fiscal resources. This review addressed only the IPAC program and the management of antibiotic resistant organisms (AROs) such as Methicillin resistant *Staphylococcus aureus* (MRSA), Vancomycin resistant *Enterococcus* (VRE) and *Clostridium difficile*.

### **Infection Prevention and Control Program Elements**

The required program elements for an IPAC program are outlined in the September 2008 PIDAC *Best Practices for Infection Prevention and Control Programs in Ontario In All Health Care Settings*. This document clearly identifies the value of IPAC programs and states that; *'the responsibility for the infection prevention and control program in the health care setting lies primarily with the senior administration of the organization'* (PIDAC 2008). In addition the document states that; *'The ICPs should have direct access to the Senior Management individual who is accountable for the organization's program and who can facilitate the actions that are required'* (PIDAC 2008).

The organizational structure at NHS indicates that the ICPs report through their Manager to a Regional Director and then to a Vice President (VP). This reporting structure could present roadblocks to accessing resources and implementing programs. It is essential to the success of the program that senior administration is engaged in the overall direction of the program and informed regarding the activities being carried out within their organization. Senior administration should also be involved in the strategic plan for the IPAC program.

There are currently 5.8 FTEs for Infection Prevention and Control Professionals (ICPs) filled by six individuals. In addition, there is a Manager who is responsible for the IPAC program and the SCG site Laboratory. Administrative support is obtained through the Manager. The ICPs are responsible for input of their data and transfer of this to the Administrative Assistant in the Manager's office. The Administrative Assistant produces the final reports which are tabled at the Infection Prevention and Control Committee. The PIDAC best practice document recommends that there should be a full-time Manager for the IPAC program and dedicated administrative support for the ICPs.

Of the six ICPs, two have attained their Certification in Infection Control (CIC). Three of the remaining four ICPs are not yet eligible to write their exam. NHS has made it a

requirement that all ICPs become certified. Not all ICPs have completed a formal education program in infection prevention and control.

The geographic size of the NHS creates challenges for the IPAC team with the six individuals covering seven different sites. While a number of the sites are small in size, the travel required between sites may impact the amount of time the ICPs can spend at any one setting.

These are critical components for the IPAC program and the ICRT has several recommendations related to these.

***1. There should be 1 Full-time Equivalent (FTE) Manager dedicated to the IPAC program. This Manager should have content knowledge, experience and expertise in infection prevention and control and report directly to the Vice-President responsible for the IPAC program.***

***2. The ICRT congratulates NHS on their requirement for all ICPs to be certified in infection prevention and control (CIC). We encourage NHS to continue to support ICPs to attain and maintain their CIC qualifications.***

***3. All NHS ICPs should complete an 80 hour CHICA-Canada endorsed infection prevention and control course. This can be done either through on-line or on-site courses. The ICRT suggests that NHS consider the benefits of networking and peer support that are available through participation in the on-site course.***

Infection prevention and control is a rapidly expanding body of knowledge. Maintenance of knowledge is crucial to maintaining an effective IPAC program. The responsibility for ongoing professional development lies jointly with the ICP and Senior Administration.

The IPAC program at NHS is fortunate in having both a strong chapter of CHICA-Canada (Hamilton and Neighbouring Districts Infection Control, HANDIC) and Central South Infection Control Network (CSICN). All ICPs should be active members of CHICA-Canada. It is essential that the ICPs participate in the activities offered through HANDIC and CSICN. These will assist them to stay abreast of changes in the field and provide opportunities to network with their peers. In addition to these educational opportunities it is important that the IPAC staff attend conferences related to infection prevention and control. While not all staff may be able to attend those who do should be expected to provide a report on the conference and information obtained to the IPAC program to the other IPAC team members.

It is also important that the IPAC program maintain a current catalogue of resources. The NHS ICPs indicated that they routinely receive the journals from the Canadian and U.S. professional associations as well as Emerging Infectious Diseases. Consideration should be given to expanding this list to include other relevant

journals, and texts. A detailed listing of recommended resources can be found in Appendix A of the PIDAC *Best Practices for Infection Prevention and Control Programs in Ontario*. The IPAC program should liaise with the librarian for NHS to explore how these can be obtained for their department and to request that articles, from other journals, related to their area be flagged for their review.

Recommendations relating to this area include;

**4. All ICPs should be members and active participants of the Community and Hospital Infection Control Association – Canada (CHICA-Canada) as well as their local CHICA chapter.**

**5. Continuing professional development is essential to building and maintaining competency in IPAC.**

- ***It should be an expectation for all ICPs to attend local continuing education opportunities offered through the local CHICA-Canada chapter (HANDIC) and the Regional Infection Control Network (CSICN).***
- ***A minimum of one ICP per site visited by the ICRT should be funded to attend the annual CHICA-Canada conference. These ICPs would be expected to provide a formal report on the conference information learned to other team members.***
- ***Basic IPAC journals, guidelines and text books should be readily available to all ICPs.***

Currently the ICPs hold face-to-face team meetings monthly. They identified that most communication occurs via e-mail or telephone. The ICPs share on-call coverage for all sites and communicate issues to the on-call ICP through a weekly report. Issues that have arisen are followed-up by the on-call ICP with the appropriate ICP colleagues. It was not apparent in the ICRT interviews whether epidemiologic data was shared between the team members. Communication is an essential element in IPAC programs. The ICPs need to ensure that they are speaking with 'one voice' as they represent the program across the NHS. This requires that they have frequent contact and discuss issues from all sites to provide a coordinated approach to the program.

The IPAC team has not participated in any planning exercises for the program and has not developed overall goals to guide their activities. Evaluation of the IPAC program is an important element in ensuring that the program remains relevant to the needs of the organization and reflects best practice. In order to evaluate the program there need to be written goals and objectives to measure the program against. A strategic planning exercise should also identify the surveillance priorities for the program and ensure that the definitions being used for surveillance are consistent across all sites of the organization.

The ICRT makes the following recommendations:

**6. The IPAC team should increase the frequency of their meetings to facilitate communication and sharing of information. The ICRT suggests that the team meet weekly but the frequency of meetings should be no less frequent than every 2 weeks. If distance or weather are barriers to meeting face-to-face, consider the use of videoconferencing technology to facilitate the meetings. . However, the benefits of face-to-face meetings of the team should be considered.**

**7. The ICRT recommends that the members of the IPAC team organize a strategic planning retreat to identify and prioritize the activities of the program. The VP responsible for the IPAC program should participate in the retreat which should be led by an external facilitator. It would also be helpful to have a representative from CSICN participate in the retreat.**

The Infection Prevention and Control Committee, at NHS, reports through the Medical Advisory Committee to the Board of Directors. This committee is currently without a Chairperson although efforts are under way to recruit an individual to fill this vacancy. The Chair of this committee should be a champion for IPAC with the medical staff of NHS.

Membership in the committee is multidisciplinary and reflects the recommendations in the PIDAC best practice document. The IPAC program is represented by the Manager and only one of the six ICPs participates. The ICPs rotate their participation in the committee. In reviewing the responsibilities of the committee it is essential that IPAC expertise be represented in the form of all NHS ICPs participating in these meetings. The ICPs should be able to address issues and questions raised by committee members and by nature of their work speak to the current IPAC status of the organization.

The ICRT makes the following recommendations:

**8. The corporate Infection Prevention and Control Committee (IPCC) is struggling with maintaining continuity in the absence of the Chair. The position of Chair needs to be filled as soon as possible. The Chair should be an IPAC champion within the Medical Staff.**

**9. The ICRT recommends that all ICPs attend the IPCC meetings to hear the issues and present data relevant to their programs/activities. Attendance by the ICPs at the IPCC will allow for personal growth and increase their credibility within NHS.**

The ICRT sought information on surveillance in the pre-visit material as well as in interviews with the Nursing Managers and IPAC team.

The IPAC program collects data on *Clostridium difficile* and AROs as well as surgical site infections and ventilator-associated pneumonias. Surveillance is an integral component of an IPAC program. It has been well documented that the collection, analysis, and dissemination of surveillance data helps to prevent infections within an organization. In interviews with the ICPs it was not clear that the surveillance data being collected was subjected to an analysis by the ICPs or disseminated to the relevant units/departments. There was also some confusion related to the definitions, and application of these definitions, to determine whether infections were attributable to NHS as nosocomial. Surveillance will not be effective unless it serves as the jumping off point for an action plan to improve practice and reduce nosocomial infections. It is the understanding of the ICRT that raw data is provided to the Manager and that the Manager and Administrative Assistant produce reports which are tabled at the IPCC.

The IPAC program does have a computerized surveillance program which can assist them in collating data and producing reports. Some of the ICPs are not well versed in the use of this software with the result that it is being under-utilized. The ability to produce meaningful surveillance data is a core element of an IPAC program. The ICPs need to take ownership for production of reports for their areas. These reports should include rates, an analysis of what the rates mean and recommendations for action based on the information. These reports should be tabled at the IPCC and provided to the relevant clinical units. A good example of moving in this direction was demonstrated to the ICRT by the ICPs at GNGH. This approach should be utilized at all sites.

No formal audits are being conducted by the IPAC program. Audits provide valuable information on the practice within the organization and allow the ICPs to provide feedback to the units that reflect the reality within the unit. Audits are also a useful tool to engage unit-based staff and consideration should be given to including unit staff in the auditing process. The perception of the IPAC program related to the implementation of precautions based on syndromic surveillance by unit nursing staff varied from the information received from the Managers. The tour, conducted with the ICRT, also identified staff members incorrectly using personal protective equipment (PPE). An audit would demonstrate the actual practice and provide useful information in developing a plan to ensure that patients are placed on precautions appropriately and that precautions are followed correctly. The ICPs are not able to complete these on their own and should consider other mechanisms for auditing practice.

The ICRT has the following recommendations:

***10. The ICRT recommends that front-line staff be empowered to initiate Additional Precautions based on their patient assessments. This is a critical element in preventing transmission of organisms and needs to be implemented at all sites.***

**11. The ICPs need to utilize the existing infection control information system (Infection Control Outbreak and Analysis – ICOA) more robustly to generate reports and provide feedback to the units. All ICPs should be trained to input and extract data from this database. More analysis and feedback of reports is needed. The ICRT applauds the ICPs at GNGH for their utilization of this software and the reports they provided to the ICRT.**

**12. Compliance with ARO screening, use of PPE, and Routine Practices and Additional Precautions need to be audited with results fed back to the frontline staff. Consider partnering with unit staff to complete audits.**

**13. Patients should be cohorted based on a laboratory confirmed diagnosis and in consultation with IPAC. During the site visit it was identified that patients were being inappropriately cohorted. This practice must stop and only patients with laboratory confirmed diagnoses cohorted.**

IPAC programs provide leadership and serve as a resource to the organization that they function within. This is evidenced through their participation in education, decision-making groups and committees and the development of policies and procedures to guide practice throughout the organization.

The IPAC program at NHS provides information and education to their stakeholders. As with many similar programs there is a need for more education to the hospital staff. Formal education opportunities for some areas are limited to general orientation. Environmental service staff receives some infection prevention and control education that has been developed by environmental services in consultation with IPAC however there is a need for additional IPAC involvement and follow-up. Similarly, there is a need for ongoing education on the nursing units. It was suggested, by the ICPs, that a 'unit-based champion' program would assist in this. The ICRT supports this proposal and encourages the IPAC program to pursue this.

NHS has extensive policies and procedures for infection prevention and control that have been developed utilizing the PIDAC best practice documents. However, these policies and procedures are lengthy and difficult to review. Consideration needs to be given to creating policies and procedures that are concise and provide the end user with essential information.

IPAC is represented on several committees through the program Manager. It is essential that IPAC participate in committees related to construction and renovation, reprocessing of medical equipment, product selection and evaluation, and relevant clinical services such as nursing. Consideration should be given to increasing the involvement of the ICPs on these committees. This will bring the 'front-line' information to the work of the committee and ensure that all issues are addressed.

The ICRT makes the following recommendations:

**14. The IPAC program needs to increase their involvement in education of all staff particularly with environmental and support staff.**

**15. There was discussion regarding the use of unit-based infection prevention and control champions. The ICRT encourages the program to continue to pursue this. These champions are the 'eyes and ears' of IPAC within the organization and can assist IPAC in successfully disseminating information to all areas of the organization.**

**16. The policies and procedures of the IPAC program should be user-friendly and need to be simplified to contain only the pertinent elements to ensure this.**

**17. There is under representation of IPAC on NHS committees. IPAC should be participants in Reprocessing, Product Evaluation, Construction/Renovation and Clinical Manager committees at all sites and corporately.**

The PIDAC best practice document on IPAC programs identifies that acute care facilities must have a dedicated in-house or contract physician with knowledge and expertise in infection prevention and control. It has been shown that the presence of a trained physician enhances the effectiveness of the IPAC program.

NHS has identified the need for physician leadership in IPAC. It is important to recognize that this is a single element of the program and, on its own, will not make the program effective. The key for the individual filling this position is the interest and training in IPAC. This individual may be an infectious disease physician but this is not sufficient as a pre-requisite for the position. Post-fellowship training in IPAC is necessary. The individual will provide leadership to the medical staff for IPAC issues.

The ICRT makes the following recommendations:

**18. Physician leadership is a key gap in the IPAC program and has been identified by the NHS. The ICRT cautions NHS to realize that this individual alone will not correct everything but is only one element of an overall program. The focus should be on recruiting a physician with IPAC training or who will commit to obtaining the relevant training to assist them in providing leadership to the program. This individual should direct the IPAC program and report directly to the Vice President responsible for the IPAC program.**



## Hand Hygiene

NHS was a pilot site for the Ministry of Health and Long-Term Care *Just Clean Your Hands (JCYH)* hand hygiene program. Unfortunately, the work done during the pilot has not been continued and translated to the rest of the organization. An implementation committee, chaired by the IPAC Manager, has been formed to implement point-of-care alcohol based hand rub (ABHR).

It is essential that NHS Senior Management play an active role in implementing a hand hygiene program. The leadership of Senior Management has been shown to be instrumental in successful implementation of these programs. In addition, this visible leadership is essential in improving hand hygiene compliance.

Baseline audits of hand hygiene practice have not been conducted and work is still in progress to identify mechanisms to facilitate the audit process.

Alcohol-based hand rub is the preferred method for decontaminating hands. ABHR is convenient for staff to use, gentler on skin, and can be used at the point care is delivered. ABHR was evident throughout all sites reviewed however point-of-care was not in place at any site. The responsibility and mechanism for replenishing the ABHR dispensers needs to be clearly defined. In two of three sites the dispensers tested by the ICRT were full, but in the third site over 50% of the dispensers tested were empty.

JCYH provides tools on their website to assist organizations in determining the best placement of point-of-care ABHR. The ICRT would like to remind the organization that it is essential that front-line users be involved in the placement decision to ensure that workflow is also considered in the placement decision. Even on units where placement of point-of-care ABHR had been attempted, access to ABHR dispensers was observed to be blocked by equipment and furniture.

Education is required for all staff, including IPAC team members, to reinforce the '*4 Moments for Hand Hygiene*' and introduce the audit process to staff.

Signage for hand hygiene should reflect best practice. Outdated signs, with incorrect information, were evident at all sites. These signs should be removed and replaced with the material from JCYH.

The ICRT makes the following recommendations:

***19. Hand hygiene needs to be addressed immediately. This is the single most important factor in controlling the spread of antibiotic resistant organisms. A critical element in implementing a hand hygiene program is the engagement and support of Senior Management. The ICRT recommends that NHS move***

***forward quickly in ensuring that the ICPs and Educators receive training on the Just Clean Your Hands (JCYH) program of the Ministry of Health.***

***20. Point-of-care alcohol-based hand rub (ABHR) as defined by JCYH needs to be implemented urgently. NHS is encouraged to use the tools provided by JCYH in ensuring the correct placement of ABHR.***

***21. Audits of compliance with hand hygiene need to be initiated. Feedback should be provided to both individual staff members immediately after being audited and, as collated data, to Managers and Senior Leadership. Consider the use of modified workers and late career nurses to assist in completing the audits. Responsibility for auditing should not rest solely with IPAC. The ICRT reminds NHS that reporting on hand hygiene compliance will be mandatory at the end of April 2009.***

***22. Clear responsibility for replenishment of ABHR dispensers needs to be defined.***

***23. Hand hygiene signage in some areas is outdated and reflects incorrect practice. All signage should be reviewed to ensure that it reflects current best practice as defined by PIDAC and JCYH.***

## **Environmental Considerations**

Environmental Services has been managed through a contract service since 2002. The Management staff are employees of the contract service while the Hospitality Service Aides (HSAs) are employees of NHS.

The current staffing levels are based on the realities of health care at the time of the initial contract. The number of patients on Additional Precautions and patient movement within each site has contributed to increased workload for the program. Currently, NHS has an approximately 20-25% higher rate of separations than similar facilities. Further, the number of patient transfers within the NHS is high. This impacts the services ability to meet the needs within the organization, e.g. ability to do appropriate terminal/discharge cleaning. The workload is managed through a combination of HSAs assigned to the individual patient care units/departments as well as additional staff that are re-assigned based on calls to a centralized Call Centre. The average ratio for supervisor to staff is 1:22 however it should be noted that this reflects the total numbers for the organization and not the site specific reality. In both the Welland and Niagara Falls sites there is not a supervisor on site each day.

Environmental staff receive a formal general orientation to NHS and then either a formal education program, developed by Environmental Services, or a 'buddy' orientation with a selected HSA. There is no formal education provided, specific to the HSA role, by the IPAC program.

In addition to cleaning, the HSAs are responsible for delivery and pick-up of trays on the patient care units. This task will be transferred back to Food Services in April 2009. It is expected that this will free the HSA to focus on their cleaning tasks. Food trays were identified as an issue during the ICRT tours of the sites. HSAs do not deliver or pick-up trays for isolated patients. These are placed outside the patient room for delivery by nursing. Nursing staff are also responsible for removing the tray from the patient room. Used food trays from isolated patients were found to be placed on carts containing clean supplies/equipment due to a lack of racks for trays. This effectively contaminates the supplies on the cart and is an unacceptable practice.

HSAs will clean equipment that remains in the patient room but are not responsible for cleaning of equipment that moves from patient to patient. Equipment, such as commodes, are only cleaned daily by the HSA. In addition, technical or electronic equipment cleaning is out of scope for Environmental Services. This was identified as a problem by both nursing and environmental staff.

Environmental services has an extensive internal auditing system to validate the cleaning practices. Work has just begun on the use of cleaning audits using markers to provide improved information. While the audit data is reported to the IPCC the information is not fed back to the Individual Managers and departments.

Policies and procedures for isolation and isolation discharge cleaning have been developed with input from IPAC. The current practice for isolation cleaning is to use a quaternary ammonium compound (Virex™) to clean floors and an accelerated hydrogen peroxide (AHP) product (Virox™) to clean all surfaces above the floor. In rooms of CDAD patients a sporicidal AHP product (Rescue™) is used to clean sinks and toilets as part of the terminal clean. Rescue™ is also used during outbreaks to clean the sinks and toilets of all CDAD patients. Disinfectants are dispensed through an automated dispensing system. There was no process in place to validate the strength of the dilution of the disinfectants. Walls are routinely cleaned as part of the terminal cleaning for isolated patients.

The number of outbreaks at NHS has had a significant impact on environmental cleaning and the ability to maintain a satisfactory level of service. There is room to streamline some of the current practices and eliminate unnecessary activities (i.e. using disinfectant on floors, routinely washing walls) with redeployment of efforts to surfaces/items that are a higher transmission risk.

At least one unit (Unit C at GNGH) has experienced ongoing outbreaks and consideration should be given to implementing a thorough deep clean of the entire unit using Virox and Rescue. This should be done over no more than 2 days and include all areas of the unit including patient rooms, staff room, nursing station and any offices, storage areas. All areas of the unit should be cleaned including any cloth furnishings (i.e. couches, chairs in rooms and staff lounge). This will help to decrease the number of organisms present in the environment due to the high

number of isolated patients. Moving forward cloth furnishings should not be used in the hospital setting. There should be a plan for replacing all cloth furnishings in both patient rooms and staff areas with furnishings that can be cleaned and disinfected. In the interim, consideration should be given to steam cleaning these furnishings on a regular schedule.

Staffing is increased to units experiencing outbreaks but returns to normal levels post outbreak. The Nursing Managers identified that this was problematic since regular staffing levels do not meet the needs of their units.

The ICRT makes the following recommendations:

- 24. The ICRT acknowledges the work being done by Environmental Services on cleaning audits including the use of markers. Continue to move forward with these but include the Clinical Managers in distribution of reports.***
- 25. Cleaning focus should be placed on surfaces that present a risk of transmission of organisms. Re-direct cleaning efforts to high touch surfaces and away from washing of walls.***
- 26. Feedback from the Nursing Managers was that the number of Hospitality Service Aides (HSAs) on their units was adequate only during outbreaks. The ICRT recommends that the staffing ratio of HSAs be reviewed for critical and high risk areas. The Nursing Managers should be consulted as part of this process.***
- 27. There is a need for increased Environmental supervisory staff to ensure that appropriate auditing, education and follow-up occurs.***
- 28. Environmental Services should work with IPAC to develop education programs for the HSAs. The ICRT observed a number of HSAs incorrectly using PPE during the review.***
- 29. The current process of tray delivery and pick-up has resulted in a number of used trays being placed on clean supply carts. There should be sufficient food services carts available to handle the used trays on the units including late trays. These should be placed in an area easily accessible for staff.***
- 30. Toilet brushes should remain in the patient washrooms and not be carried from room to room on the housekeeping cart. Toilet brushes, in rooms of patients with CDAD or VRE should be discarded when the patient is discharged or precautions discontinued.***
- 31. The use of a disinfectant for routine cleaning of floors is not required. A neutral cleaner is sufficient for cleaning all floors whether or not a patient is on precautions. Walls do not need to be cleaned when an isolated patient is***

*discharged. Walls should be spot cleaned to ensure that visible dirt is removed.*

- 32. Virox™, an accelerated hydrogen peroxide (AHP) product, is being used for cleaning. Rescue™, an AHP sporicidal disinfectant, is being used to clean the toilets and sinks of CDAD patients when they are discharged and on some outbreak units. The ICRT recommends that Rescue™ be used to clean the toilets and sinks in rooms of CDAD patients twice daily and in all sinks and toilets on units with CDAD outbreaks daily. In the Emergency rooms Rescue™ should be used to clean all sinks and toilets. In addition, the washrooms in Emergency rooms should be cleaned at least twice per shift and checked every 2 hours to determine if additional cleaning is required.*
- 33. The disinfectant solutions should be checked on a regular basis (at least weekly) to ensure that the dilutions are correct.*
- 34. Responsibility for cleaning of patient care equipment needs to be clearly defined. Once this has been done it should be audited to ensure that this is carried out. All equipment that moves between patients must be cleaned after use by each patient.*
- 35. Unit C at GNGH should be thoroughly cleaned to reduce the number of organisms (i.e. MRSA, VRE and C. difficile) in that environment. This deep cleaning should include all areas of the unit (i.e. patient rooms, nursing station, supply rooms, staff lounge) and be conducted over a period of not more than 2 days. Cloth furnishings should be steam cleaned or replaced if they cannot be cleaned with a disinfectant.*

The tour of the units, by the ICRT, clearly demonstrated that a lack of storage contributes to clutter on the patient units. A number of rooms appeared to have been re-purposed and were not what was indicated by the signage. In addition, there appears to have been the creation of combined clean and dirty utility rooms that relied on separation of materials to maintain the cleanliness of the clean supplies. These rooms were clearly not working. This practice should be halted immediately. In many settings there was a mix of clinical functions with dietary supplies in the ward kitchen and other multi-purpose rooms. These took the form of staff and patient food preparation/re-heating facilities mixed with clean supplies. In the Emergency Department at GNGH food was being prepared and dispensed in the middle of a patient care corridor. Corridors were crowded with supplies and equipment. In many instances soiled supplies were immediately adjacent to clean supplies.

The ICRT makes the following recommendations:

- 36. There needs to be a clear separation of clean and dirty functions. There appear to be several areas within the patient units where these have been combined. These cannot be mixed. This practice increases the risk of transmission and compromises the integrity of sterile supplies. Similarly,*

***clean carts in corridors must be clearly separated from dirty. Every effort should be made to reduce the amount of clutter in corridors.***

***37. Clinical functions must be separated from eating areas. There are a number of areas in patient care units where these are mixed. There should be no eating or drinking, by staff, in patient care areas including nursing stations.***

***38. There needs to be clear signage on doors to indicate their function. Some of the signage observed is outdated. This was most notable at SCG site.***

It was observed that there were a number of cloth furnishings on patient units. In the interviews it was clear that there is not a process for consultation with Environmental Services prior to purchasing furnishings or equipment to determine the 'cleanability' of the product. Cloth furnishings are unacceptable for use in patient environments either in patient rooms or staff areas. These are difficult to clean and may harbour organisms.

The ICRT makes the following recommendations:

***39. That Environmental Services be consulted when new products, both equipment and furnishings, are brought into the hospital so that the ability to properly clean and disinfect the item can be determined. Items which cannot be cleaned and disinfected should not be purchased. A plan for replacing of all cloth furnishings needs to be developed. In the interim, cloth furnishings should be steam cleaned on a regular basis.***

Patient toilet rooms are small and often do not have a sink in the room. Spray wands are not present in most areas and there is no standard mechanism for disposal of human waste. In some units, staff are rinsing the emptied bedpans in the sink in the patient room to remove any residual waste.

The ICRT makes the following recommendations:

***40. The hospital needs to investigate and implement a system for human waste management. The use of bathroom sinks and spray wands to clean bed pans should be discontinued.***

### **Antibiotic Stewardship**

It is important that every IPAC program have a system for antibiotic review and control as one of the elements of the program. This information should be reported, on a regular basis, to the IPC Committee. Antibiotic stewardship has been demonstrated to have a positive impact on decreasing health-care associated infections. At the present time there is not a process in place at NHS to monitor antibiotic utilization and implement changes based on analysis of this information. Until recently, the Chair of the Pharmacy and Therapeutics Committee was vacant. It

is the understanding of the ICRT that this position has now been filled and that the new Chairperson has a specific interest in antibiotic stewardship. This is a good beginning for NHS.

The ICRT makes the following recommendations:

***41. The ICRT is encouraged to hear that a new Chair has been appointed to the Pharmacy and Therapeutics Committee. We encourage this committee to pursue antibiotic stewardship and to work with an academic health science centre to develop protocols for antibiotic use.***

***42. The ICRT recommends that a clinical pharmacist be deployed to track antibiotic utilization and assist the medical staff with the use of antibiotics.***

### **Microbiology Laboratory Support**

The microbiology specimens are processed through an external laboratory system. Turnaround times for most specimens are satisfactory; however, this is not true for specimens for VRE. The turnaround time for these specimens is 5-7 days. This may contribute to transmission within the organization as patients may be undiagnosed and not on precautions for an extended period of time. NHS needs to have an ongoing discussion with their laboratory service provider to improve the turnaround time for these specimens.

An additional issue for the IPAC team is access to molecular typing. This is an essential component of gathering epidemiology and is crucial during outbreaks. A mechanism needs to be developed to ensure this support is available as needed.

Currently the IPAC team receives printouts of all positive specimens on a daily basis. Critical results are phoned or paged to the ICP by the laboratory. Review of the daily findings is time consuming and diverts the ICPs from other functions. The IPAC team needs to explore mechanisms to ensure that only findings significant to the IPAC team are provided to them.

The ICRT makes the following recommendations:

***43. The current 5-7 day turnaround time for VRE screening results may contribute to transmission and outbreaks. NHS needs to discuss the use of other technologies to reduce the turnaround time for VRE results.***

***44. There needs to be increased access to typing of organisms especially during outbreaks to assist in the epidemiologic investigation.***

***45. The laboratory information system (LIS) needs to be programmed to produce a 'significant findings' report for the ICPs daily. This will reduce the amount of time the ICPs spend going through results to identify those that***

***require intervention and follow-up. IPAC should work with the LIS support staff to identify the organisms they wish to have included.***

There are significant challenges facing the NHS in creating a safe environment for staff and patients. The ICRT commends NHS on being proactive in facilitating this review and cautions that real change will take time and commitment from all levels of the organization. We welcome any questions you may have as you work towards implementation of these recommendations.

Respectfully submitted

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