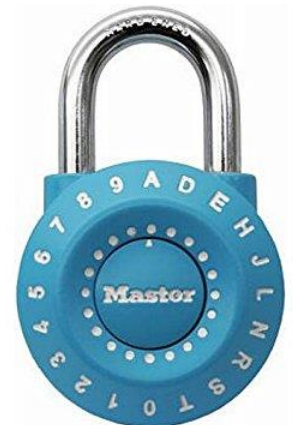


Infection Prevention and Control Programs Creating the right combination

Sandra Callery Director, Infection Prevention And Control

Public Health Ontario



Declaration

No conflicts of interest to declare.

Objectives

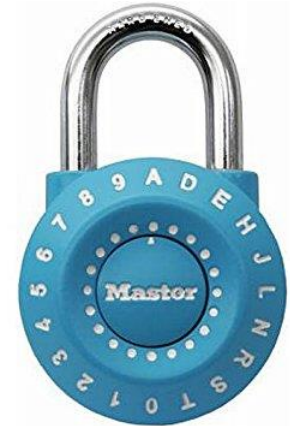
- To identify evidence informed practices for Infection Prevention and Control programs.
- To highlight updates of new products and projects at Public Health Ontario

The Right Combination

- The impact of health care acquired infections (HAIs) is significant.
- “The human and economic burdens that HAIs place on Canadians and their health care system speak to the importance of an effective Infection Prevention and Control Program.” Public Health Agency of Canada
- An effective Infection Prevention and Control (IPAC) program can reduce this impact and the costs associated with HAIs.

SENIC

- Study of the Effectiveness of Infection Control
 - 1974 - 1983 (Haley et al)
 - An effective program could reduce HAIs by 32%
- Characteristics of effective program
 - 1 ICP/250 beds
 - intensive surveillance program
 - intensive control program
 - trained I.C. physician



Haley RW, Culver DH, White JW, Morgan WM, Emori TG, Munn VP, et al. The efficacy of infection surveillance and control programs in preventing nosocomial infections in US hospitals. Am J Epidemiol. 1985 Feb;121(2):182-205.

ICP / Patient ratio

ICP staffing levels:

Canadian Expert Panel (AJIC 32:2-6, 2004)

- 3 FTE per 500 acute care beds
- 1 FTE per 150-250 LTC beds

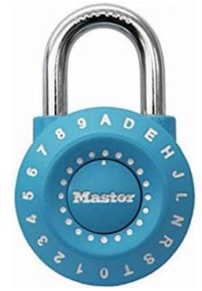
Quebec - 2005

- 1FTE: 133 acute care beds
- 1FTE: 100 acute care beds in specialized tertiary-quaternary care

USA

- 0.8 –1 FTE: 100 acute care beds (consider the complexity of the patients in addition to census).

Program elements



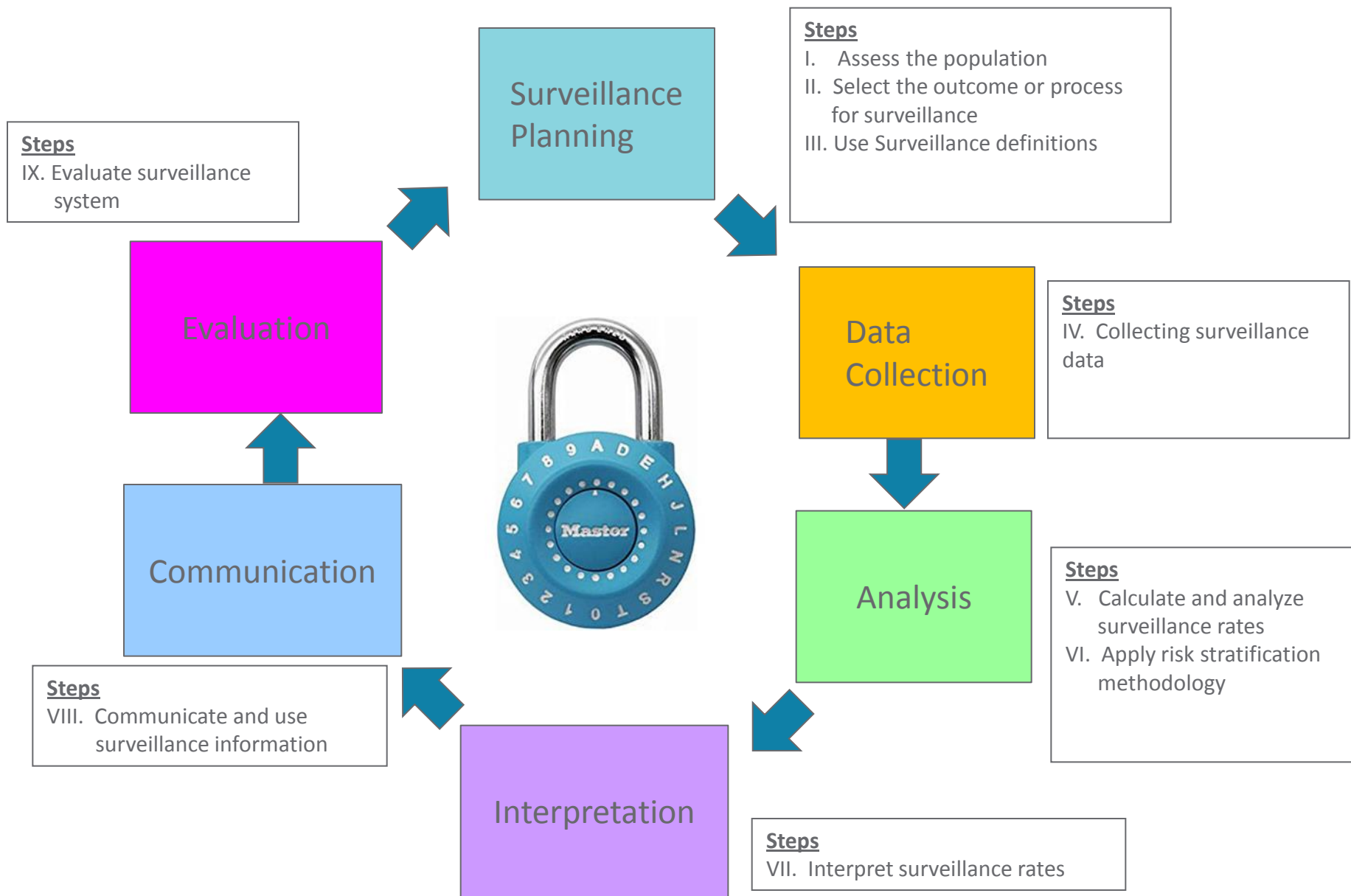
- **surveillance** for nosocomial and other infections
- **implementation** of evidence-based practice, standards and guidelines through setting-specific policy and procedure
- **direct interventions** to prevent the transmission of infection, including outbreak prevention and control
- **education** and **training** of health care providers, clients/patients/residents and their families
- **timely communication** of infection-related issues and relevant practices to leaders and staff to facilitate improvement
- **ongoing evaluation** and **continuous improvement** of the IPAC program.

PIDAC - Best Practices for Infection Prevention and Control Programs in Ontario

The Power of Surveillance



- Evaluate control measures
- Evaluate and reinforce practice
- Educate health care team
- Research
- Satisfying requirements and standards
- Risk management



Source: Pg. 24, Best Practices for Surveillance of Health Care-Associated Infections in Patient and Resident Populations

Surveillance and evidence

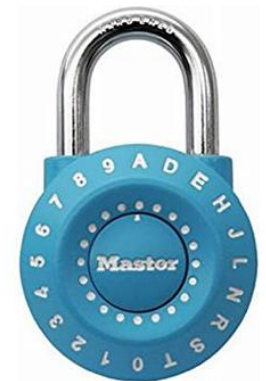
Evidence can come from a variety of sources

- Microbiology Data
- Admission and Medical Records
- Patient Care Plans/”Kardex”
- Interviews/Ward Rounds
- Temperature Charts
- Diagnostic Imaging
- Pharmacy orders

National Collaborating Centre for Methods and Tools

Surveillance related activities

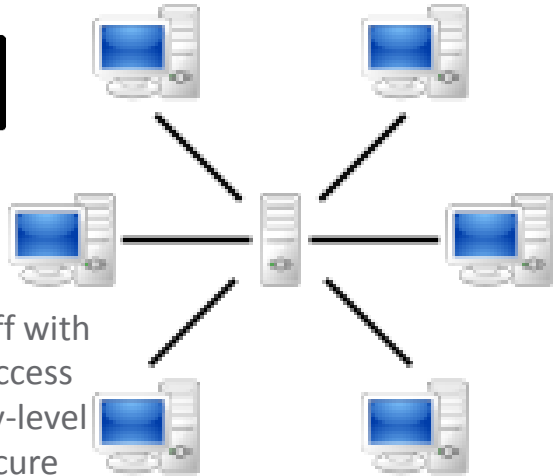
- HAI pilot
- Surveillance for (CDI) *Clostridium difficile* infection
- Surveillance for (CPE) Carbapenemase producing *Enterobacteriaceae*
- Surveillance for (VRE) Vancomycin Resistant *Enterococci*



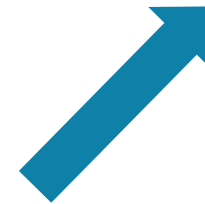
HAI surveillance – a pilot project

- Acute care facilities within a region
- Agree to use standardized case definitions and share aggregate data
- Allows for regional perspective and benchmarking
- Common HAIs include MRSA, VRE, CPE, CDI

Data flow



Hospital staff with permitted access enter facility-level data into secure external collaboration website



Hospital and PHO staff with permitted access can view analytic reports on a secure external collaboration site



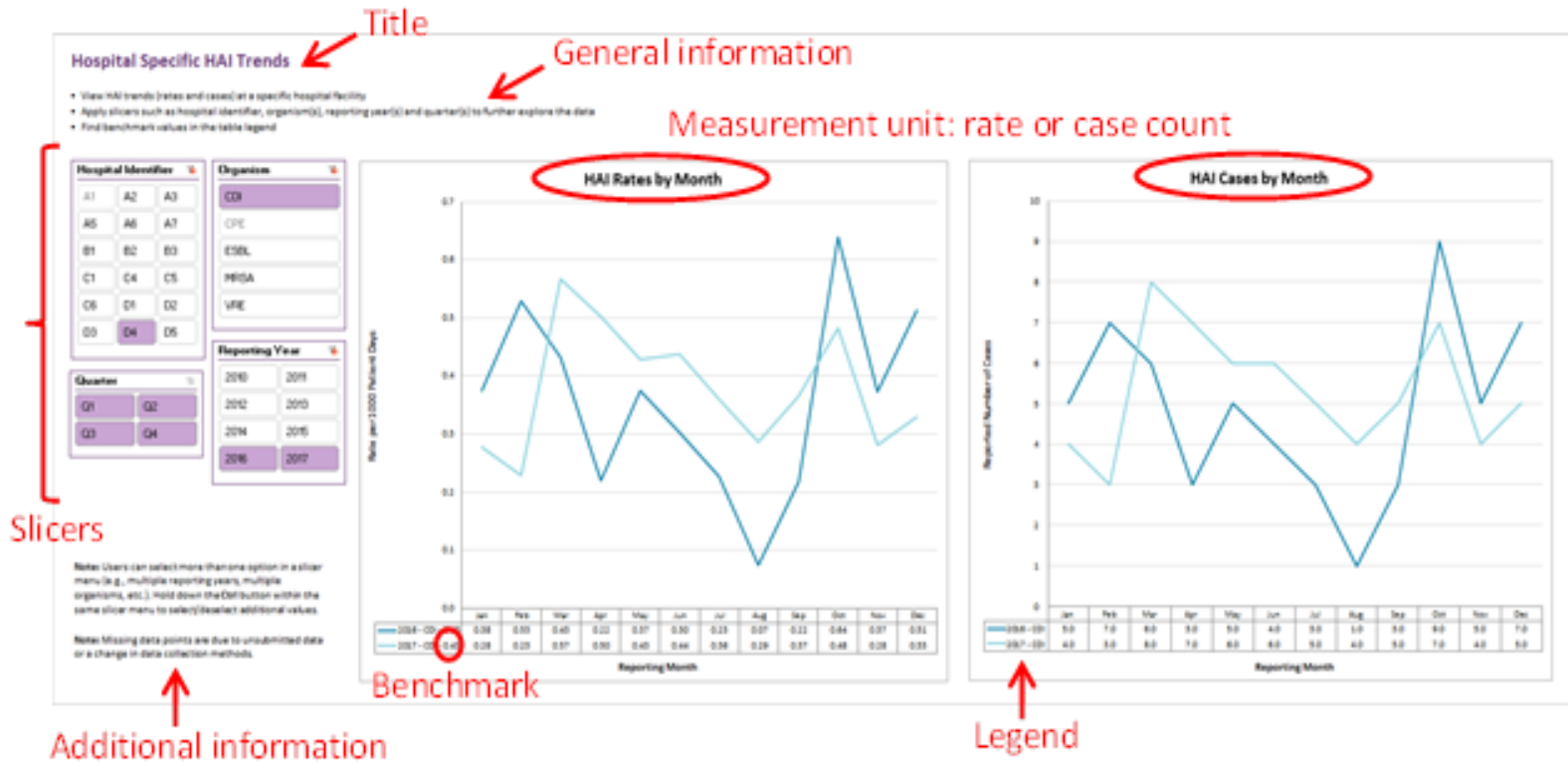
Project leads, epidemiologists and IT staff access entered raw data and import into analytic reporting tool

Note: Hospital access to external collaboration site to be managed by designated project site leaders.

C. Achonu; V. Tirilis. Public Health Ontario

Using Surveillance information

- Reporting and using surveillance information
 - good report design
 - interpret data with people who are trained in epi/data methodology
 - beware of potential problems with external comparisons
 - reports should stimulate improvement in process being measured.



Produced by Rachel Ackford, BSc, MPH Candidate

Interactive CDI Case Scenarios

- Address some of the challenges to interpreting and adopting best practices due to the complexity of CDI
- Scenarios were based on frequently asked questions from the field
- Use real life situations to explore challenges
- Designed for ICPs working in hospitals

Online Learning Resources

Online Learning
Emergency Preparedness
Health Promotion
Infection Prevention and Control
Communicable Diseases

Clostridium difficile Infection Case Scenarios

The *Clostridium difficile* infection (CDI) case scenarios were developed to address frequently asked questions about CDI cases and outbreaks in hospitals. Each scenario provides an opportunity for learners to enhance their understanding of CDI surveillance and outbreak management and apply knowledge to complex CDI situations in daily practice.

If you have any questions about the surveillance and management of CDI cases and outbreaks, contact your [Regional IPAC Office](#) for more information or email ipac@ohpp.ca.

Scenarios

CDI case definition



This case scenario guides learners to accurately define a CDI case.

Following this scenario, learners should be able to:

- apply the case definition for CDI
- correctly classify CDI cases
- identify appropriate follow-up actions

[Start](#)

CDI case attribution



This case scenario guides learners on how to attribute a CDI case based on symptomatic presentation and clinical history examples.

Following this scenario, learners should be able to:

- attribute cases of CDI correctly
- report the cases according to provincial requirements

[Start](#)

http://www.publichealthontario.ca/en/LearningAndDevelopment/OnlineLearning/InfectiousDiseases/Pages/CDI_Case_Scenarios.aspx

Carbapenemase-producing Enterobacteriaceae (CPE)

- produce carbapenemase enzymes that can break down many types of antibiotics, making the bacteria very resistant.
- The carbapenemases that are most common in Ontario currently include **NDM, KPC, OXA-48 and VIM.**
- In 2013, there were rare infections with CPE in Canadian hospitals. 5 years later, transmission has been identified in hospitals and in community.
- Caution is still needed to prevent their increase and spread.

CPE reporting..

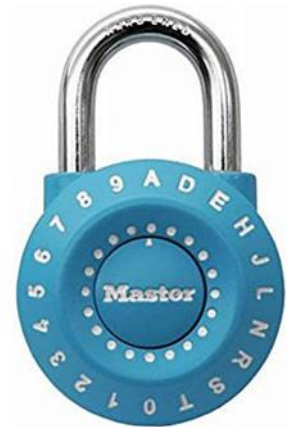
- A disease of public health significance
- Both colonized or infected cases are reported to the local Board of Health
- Laboratory Data entered into iPHIS



Research

- Evidence informed Decision Making – integrating the best available research evidence into the decision making process...

Vancomycin Resistant Enterococcus (VRE)



Are outcomes different for VRE vs VSE (Vancomycin-Susceptible Enterococcus) bacteremia?

PHO conducted a systematic review and meta-analysis.

The key finding:

- VRE bacteremia mortality is greater than VSE bacteremia, even following the availability of anti- VRE treatments

(OR 1.80 [1.38, 2.35]: I²=0%)

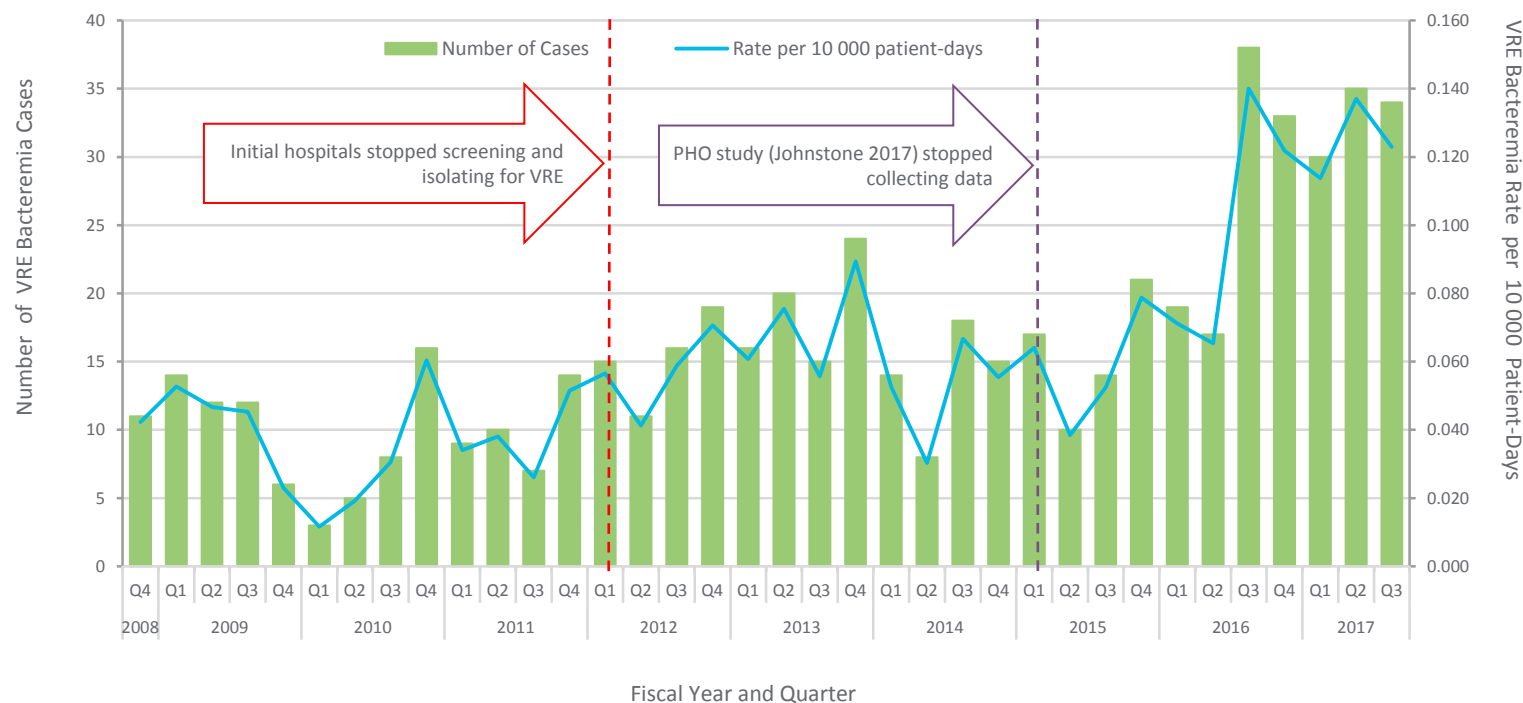
- Discontinuation of VRE screening was associated with an increased rate of rise in VRE positive blood cultures

Journal of Infection Control and Hospital Epidemiology , October 2015.

Six year cohort study - VRE

- The PHO six-year VRE cohort study, the only prospective, controlled, multi-centred study to address this issue.
- This study included data from all Ontario hospitals and demonstrated a statistically significant rise in the rate of increase of VRE bacteremia at hospitals that discontinued VRE admission screening and VRE Contact Precautions, compared to hospitals that continued VRE control measures.

VRE Bacteremia Cases and Rates by Fiscal Year and Quarter



Source of health care-associated VRE bacteremia data: Hospital Self Reporting Initiative database. Data for VRE have been reported since December 2008 by acute teaching hospitals, complex continuing care and rehabilitative hospitals, large hospitals, mental health hospitals, and small community hospitals.

VRE surveillance

- Existing evidence suggests that VRE admission screening (and obtaining swabs when appropriate) and VRE Contact Precautions used by hospitals are effective at reducing VRE transmission and suggests that VRE control is more effective when all facilities within a region, including long-term care homes, use this approach.

VRE Research - coming soon!

- Economic impacts of VRE IPAC Strategies?
- Risk factors for VRE + ve blood cultures?

Environmental Cleaning – Best Practice Document

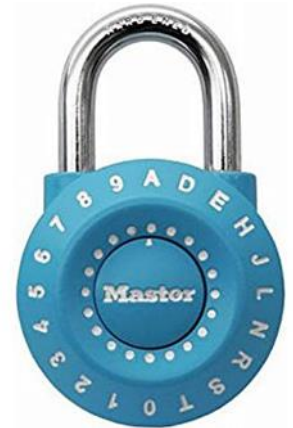
- Since these guidelines were previously published, the evidence that the environment plays a role in the transmission of microorganisms in the health care setting has increased.
- There has also been an expansion of the evidence demonstrating that effective cleaning and disinfection reduces this risk.

New! Best Practices for Environmental Cleaning for Prevention and Control of Infections, 3rd Edition.

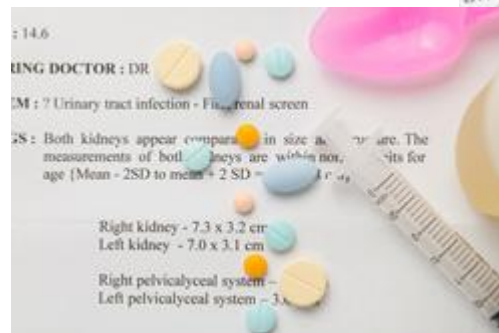


- This document was updated in March 2018 to include current evidence in environmental cleaning, audit methodologies, and new disinfection strategies.

Implementation strategies



- UTI Program – reaching out to LTCH



“Responding” to your needs

- Lapse Investigations
- ICRTs
- Clinic check lists



Resources at your fingertips

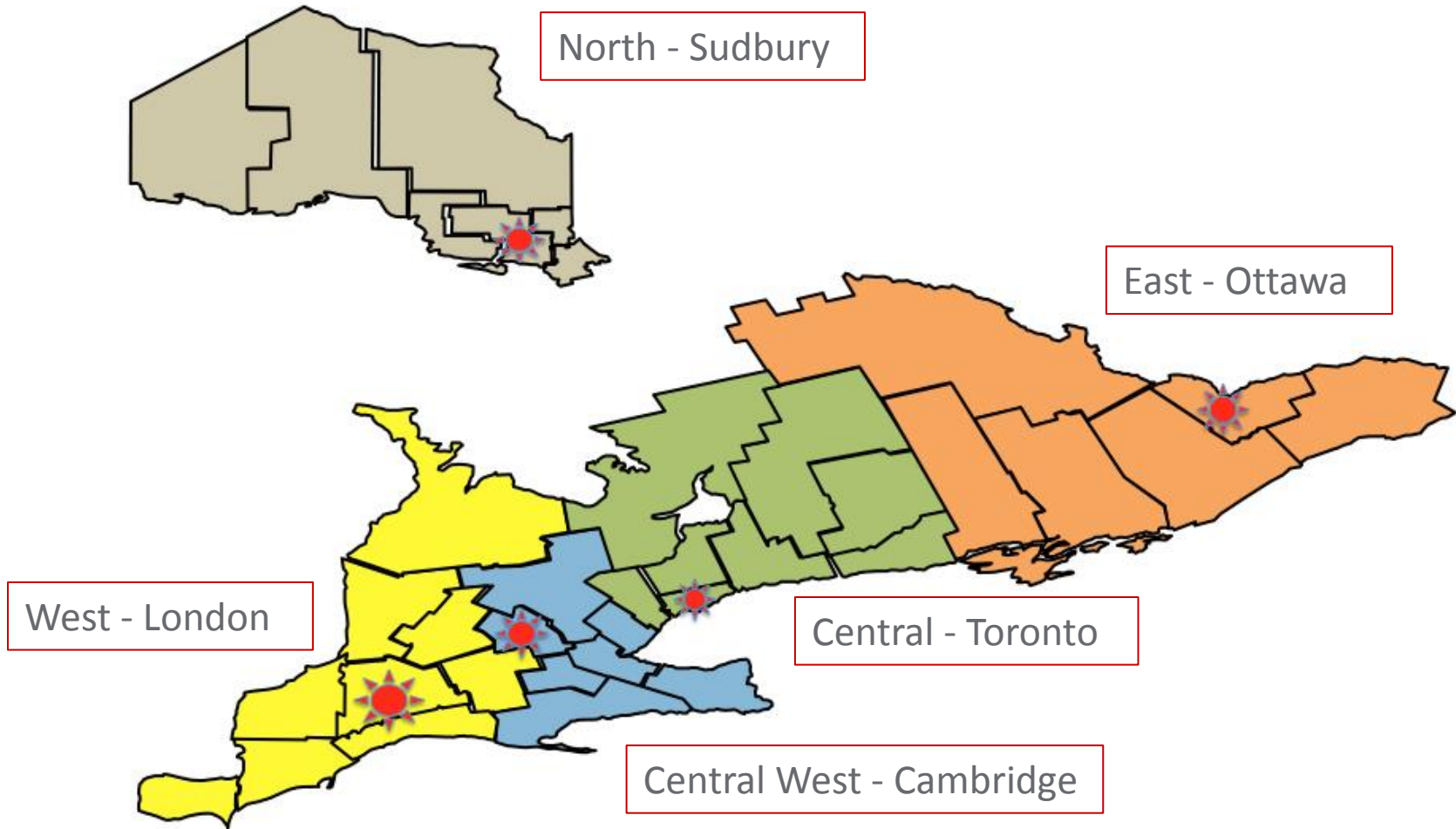
- Website
- On line learning modules



<http://www.publichealthontario.ca/en/BrowseByTopic/IPAC/Pages/default.aspx>



Five regional teams



Questions??

