



# Infection Prevention and Control: Predicting the Future

REGIONAL INFECTION CONTROL NETWORKS  RÉSEAUX RÉGIONAUX DE CONTRÔLE DES INFECTIONS

Champlain

*Giving Health a Helping Hand    Donner un coup de main à la santé*

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## Overview

- History of Infection Prevention and Control
- External influences
- Wisdom of Others
- Current Tides that I have identified
- Predictions in the literature
- Changing our culture and attitudes

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## Influences

- IC “born” in the 1970’s
- Rise in perceived need with onslaught of HIV cases in early 1980’s
- Late 1980’s, antibiotic resistance becoming a reality
- Mid 1990’s: Beginning of Pandemic concerns
- 2003: SARS

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## Study on the Efficacy of Nosocomial Infection Control

- SENIC: undertaken due to a recognition of the emergence of nosocomial infections as a serious problem
- Intended to evaluate approaches to Infection Surveillance and Control
- Found that 64% of programs surveyed had a medical supervisor (not necessarily trained in hospital infection epi)
- 42% had an ICN working at least ½ time
- The majority of time spent doing surveillance

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Study on the Efficacy  
of Nosocomial  
Infection Control



- Before 1970, 6% of hospitals had an ICN
- By 1977, over 80%
- 1976-77, interviews of 347 US hospitals found:
  - Small hospitals (<300 beds) - part time ICN
  - Larger hospitals – full time, but lower time per bed capita
  - ICN – female, 6 years experience
  - Program under Nursing Services
- 1983 CIC offered.....

Emori TG. AJIC 1980; 111(5)

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1992-1996



- 2.1 million HAs in acute care
- survey responses from 187 facilities in 40 states
- IPAC from Nursing Departments to Med Records, QA or Risk Management
- Out patient surveillance in 144 (77%) programs
- 47% had hospital epidemiologist ( $\leq 15\%$  time)
- 98% had ICPs (80% time)

Nguyen GT. AJIC 2000; 28(6)

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2002: The Delphi  
Project



- Examined variables associated with performance of activities required to contemporary IPAC programs
- Competing responsibilities and lack of adequate resources
- Recommended a ratio of 0.8 to 1 ICP per 100 occupied acute care beds
  - Scope of the program
  - Complexity of the health care facility
  - Characteristics of the patient population
  - Unique or urgent needs of the facility and community

O'Boyle C. AJIC 2002; 30(6)

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Best Practices in Ontario "The Resource Document"

- a minimum ratio of 1.0 FTE ICP per 115 acute care beds
- a minimum ratio of 1.0 FTE ICP per 100 occupied acute care beds if there are high risk activities (e.g. dialysis)
- an additional ratio of 1.0 FTE ICP per 30 ICU beds where ventilation and hemodynamic monitoring are routinely performed
- 1.0 FTE ICP per 150 occupied long-term care beds where there are ventilated patients, patients with spinal cord injuries and dialysis or other high acuity activities
- 1.0 FTE ICP per 150-200 beds in other settings depending on acuity levels

PIDAC: Best Practices for IPAC Programs in Ontario; 2008 Sept

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The situation elsewhere

- Italy 2004
- 529 hospitals surveyed
- >50% have an ICN (25% part time; 23% full time)
- ICNs more common in hospitals >250 beds
- Surveillance, education and management of study groups

Quattrin R. J Nurs Manag 2004

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- "Telling the future by looking at the past assumes that conditions remain constant. This is like driving a car by looking in the rearview mirror."



•Herb Brody, Deputy editor at Technology Review, MIT's Magazine of Innovation

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- *I would not say that the future is necessarily less predictable than the past. I think the past was not predictable when it started.*

» Donald Rumsfeld



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## External Influences

- Mainstream media interest
- Consumer interest
- Legislative activity and government regulation
- Influence of Industry....

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- 1999 – IOM “To err is Human”
  - Drawing attention to adverse events, including infections
- 2002 – Chicago Tribune Exposé
  - Increase public scrutiny and media attention
- Recent reports of dramatic reductions in BSIs by standardizing catheter insertion



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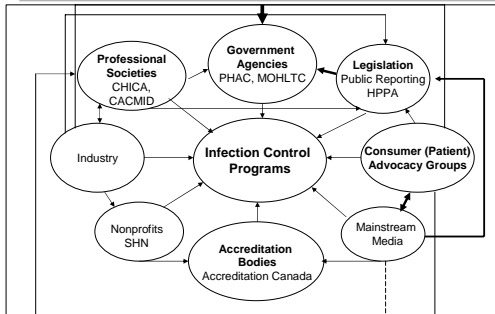
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## Stakeholders' Influences



Edmond M. CID 2008; 46

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## The Experience of the Many... Food for thought



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## Challenges for today and tomorrow

Pat Piaskowski (NWOICN):

- Promotion of hand hygiene and routine practices in all healthcare settings through behavioral engineering and education.
- emergence of new infectious diseases and zoonoses

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## Challenges for today and tomorrow

Teri Murduff (CEICN):

- How about equality of service across all sectors (but isn't that a challenge we are facing now) and sustainability, as I'm sure that as money continues to be thinly spread something will end up being dropped from programs

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## Challenges for today and tomorrow

Isabelle Langman (NEOICN)

- Lack of adequate funding to provide a well-rounded and efficient IPAC Service
- Difficulty getting the evidence-based information to all those practicing IPAC in a timely manner and ensuring that they are used consistently
- Auditing process- Will we all be able to audit and determine if practices are appropriate and based on best practices... Can we truly be certain that practices meet guidelines?

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## Balancing IPAC input with IPAC overload

Anne Bialachowski (CSICN)

- How can we ensure that solid IPAC standards are used in all recommendations when so many groups are stepping into the fray and developing their own standards?
- How can we balance the need to be involved with all these new initiatives with the need to balance our professional lives and stay afloat with all the increasing pressures on IPs?

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## The grays

### Pat Piaskowski (NWOICN):

- The graying of IPAC professionals and recruitment of ICPs



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- RNs working in hospitals are, on average, younger (43.2 years) than RNs working in community health (46.2 years) or nursing homes and long-term care (47.6 years)
- In 2005, Canada had more RNs employed in nursing at age 50-54 than any other age group. The average age of RNs employed in nursing increased by 1.0 years between 2001 and 2005, from 43.7 to 44.7.
- There are more nurses over the age of 50 than under age 35 in every province and territory except Newfoundland and Labrador.

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## The greens

### Greening of the environment:

#### Teri Murduff (CEICN)

- I have to say my Infection Control Challenge now and most definitely in the future is trying to be environmentally friendly especially as more and more recommendations and medical equipment are being single use/disposable putting a burden on an already exhausted landfill.
- Of course re-use has its challenges as well; chemicals may be harmful or cause an imbalance to the environment.

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## Environmental Sustainability

- Overriding need to ensure that patient health and safety remain paramount
- "Green" initiatives don't place IPAC efforts at risk
- Considerations:
  - Replacement of mercury containing thermometers and BP cuffs
  - Reduction of medical waste through the collection of recyclables
  - Energy and water conservation measures
  - Use of environmentally neutral cleaners in low touch areas
  - Look at where a product came from and where it will end up

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## The World Around Us...

- Laurie Boyer (NEOICN)
- IPAC progress of the global village...we are only as far ahead as the region of the world that is at the back of the pack as far as development, e.g.- annual pilgrimage to Mecca in Saudi Arabia demonstrates public health challenges in a gathering of 2 million redolent with IC challenges, meningitis, FRI among humans, not to mention zoonosis!
  - Consideration #1 aside, our next exotic outbreak may still be enabled to travel around the world at the speed of the fastest airplane

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## Old Plagues in the Jet Age

British Medical Journal 1968 Dec 28;4



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Current Tides



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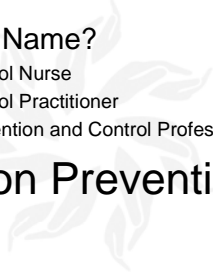
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Current Tides

What's in a Name?

- Infection Control Nurse
- Infection Control Practitioner
- Infection Prevention and Control Professional

Infection Preventionist



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Current Tides

Public Reporting

- MRSA, *Clostridium difficile*, and other healthcare-associated infections have attracted unprecedented interest from patients, press, and politicians, generating a storm of public concern. But it falls to clinicians and researchers to see beyond the headlines and find ways of combating the threat posed by HAIs.
- Represents additional tasks for IPs with limited resources
- Risk of spending less time on IPAC activities

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## Current Tides

- Regional Infection Control Networks developed in 2005
- Impact to date
- Life expectancy
- Role in future
- Indicators for outcome measurement
- Standardize guidelines and products



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## What about the spectrum of care??

- Long Term Care
  - 1978 – Eickhoff stated failure to accept responsibility in hospital epi will result in the loss of opportunity to make the discipline more scientific and to differentiate more clearly between sense and nonsense in hospital infection control.
  - 1989 – McGukin stated members of the healthcare team need to assume the same responsibilities in the nursing home setting to safeguard and improve the health of residents in long-term care institutions...

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## What about the spectrum of care??

- Community Care
  - HCV outbreak in Nevada
  - 50,000 patients in look back
  - 11 unconfirmed HIV cases (?other risk factors)
  - 8 confirmed HCV cases; 77 possible cases
  - 5 law firms representing 9,970 former patients

Can we anticipate increased oversight and regulatory activities in ambulatory care??

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Others' Predictions\*

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4<sup>th</sup> Decennial conference (2000)

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Champlain

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- A collaborative, multicenter, multinational approach.
- Identified 21 high-rank research priorities
  - To improve compliance with excellent practices
  - To measure the financial impact of complications and value of interventions
  - To perform surveillance of infectious and noninfectious complications across the spectrum of care delivery
  - To study effectiveness of interventions to prevent complications at specific sites
  - To study antibiotic usage and resistance

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ANTIBIOTIC Resistance in 20 years

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Champlain

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The Bright Scenario

- We will observe a change in prescribing habits and attitudes towards outpatient antimicrobial use
- Tools from IT and progress in Microbiology will reduce diagnostic uncertainty and improve antimicrobial dosing, selection and treatment duration
- New therapies will be developed based on probiotic principles
- Data sharing and increased international cooperation will lead to consistent control measure across different continents.
- Antimicrobial resistance among important pathogens will be slowly reversible
- Antimicrobial resistance will not have a major impact on life expectancy in the Industrialized world

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Harbarth S. EID 2005; 11(6)

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ANTIBIOTIC  
Resistance in 20  
years

The Dark Scenario

- New resistance mechanisms will emerge and disseminate
- We will observe raising resistance rates for Most Pathogens
- Antibiotic-resistant *S aureus* will become a massive public health problem
- Technological development will not fulfill its promise
- Anthrax and Pandemic Influenza threats have led to mass prophylaxis, with disastrous consequences in terms of resistance
- A continuing flood of consensus conference statements, position papers and surveillance network reports will be issued without any measurable and sustained effect on containment

Harbarth S. EID 2005; 11(6)

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2005 Predictions

- Benchmarking is inevitable – Surveillance should emphasize intervention and standardization
- Major challenges:
  - Antibiotic use and control of resistance
  - New materials
  - Emerging pathogens
  - Transgenic therapy
  - Massive and complete immunosuppression and xenotransplantation
  - Prion diseases
  - Use of fully computerized patient record and data-mining derived epidemiology
  - Development of evidence-based recommendations
  - Addressing cost constraints
  - Health care worker behavior modification

Pittet D. AJIC 2005; 33(5)

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"There are many methods for predicting the future. For example, you can read horoscopes, tea leaves, tarot cards, or crystal balls. Collectively, these methods are known as "nutty methods."

Scott Adams



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## IP Areas of Expertise

- Patient care practices
- Aseptic principles
- Sterilization practices
- Education
- Research
- Epidemiology
- Microbiology
- Infectious diseases
- Psychology
- Management
- Communication
- Organizational Skills
- Problem solving skills
- Data analysis and management
- Translation of evidence-based guidelines

Crow S. Infect Control 1984; 5(1)

Pyrek K. Infect Contrl Today 2007

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## Changing our culture and attitudes

- Traditional role:
  - Solo practitioner, data collector and keeper of IC data and knowledge
- New goals:
  - Lead intervention teams committed to reducing health-care associated infections
  - Partner rather than accept sole responsibility for lowering infection rates
  - Learn to influence without authority
  - Stay focused on quality and cost-effectiveness
  - Demonstrate improvements in clinical outcome

Murphy D. AJIC 2002; 30(2)

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- IPs are clinical leaders
- Need to maintain expert knowledge base
- Likely to have less involvement in the direct implementation of advice and more in influencing others to implement best practices.
- Skills in leadership
- Influence
- Planning behavioral interventions
- Focus on clinical, financial and quality outcomes.

Perry C. Br J Infect Control. 2005

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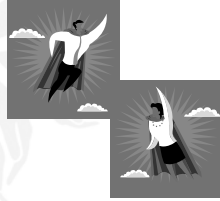
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## Qualities of an ICN, ICP, IPCP, IP...

- Our profession is full of strong, knowledgeable IPAC leaders who are committed to continuous improvement in IPAC.

- Initiative
- Leadership
- Communication skills
- Commitment
- Charisma



Crow S. Infect Control 1984; 5(1)

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## The Unknown

As we know,  
There are known knowns.  
There are things we know we know.  
We also know  
There are known unknowns.  
That is to say  
We know there are some things  
We do not know.  
But there are also unknown unknowns,  
The ones we don't know  
We don't know.



—Feb. 12, 2002, Department of Defense news briefing

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## Acknowledgements

- Regional Infection Control Network Coordinators and Consultants across Ontario
- CHICA-Southeastern Ontario Conference Planning Team
- Donald Rumsfeld

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# Thank you

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## Conflicts in IPAC

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Champlain

- What is likely to be an effective IPAC policy may not be popular institutional policy
- Economic implications of an outbreak investigation or IPAC strategy may dominate a debate that should be informed by the greatest good for the public.
- Privacy concerns. Legal liability fears, economic disincentives and failure to confront issues that are embarrassing for the institution
- Personal and Professional integrity

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