Infection Prevention & Control in Ontario: 5 Years After SARS

Dr Dick Zoutman, Queen's University, Canada

Broadcast Live From AICA 2008, Melbourne, Australia

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Dick Zoutman, MD, FRCPC
Queen's University, Canada

Broadcast live from the Australian Infection Control Association Conference, Melbourne

Australian Infection Control Association www.aica.org.au

Comparing Our Countries

	Ontario	Canada	Australia
Area	1,076,395 km2	9,984,670 km2	7,741,220 km2
Land	917,741 km2	9,093,507 km2	7,663,808 km2
Water	158,654 km2 (14.8%)	891,163 km2 (8.9%)	77,412 km2 (1%)
Population	12,891,787	33,387,000	21,370,000
Density	13.9 /km²	3.2/km2	2.6/km2
GDP	US$574.3 billion	US$1.377 trillion	US$718.4 billion
Per Capita	US$42,168	US$41,102	US$34,359

Health Care Systems: Comparison

Measure	Canada	Australia
Life Expectancy	80.34	80.62
Infant Mortality	5.08	4.76
Physicians	2.1	2.5
Nurses	9.95	10.7
Beds	3.9	7.9
$ per capita	$2535	$2211
% GDP on health	9.4	9.1
Human Dev Index	0.949	0.955

Looking Back…. March 26, 2003

- Ontario's first ever provincial emergency declared
- Unknown etiologic agent
- Acute Respiratory Illness resembling an infectious disease
- Spreading rapidly throughout hospitals

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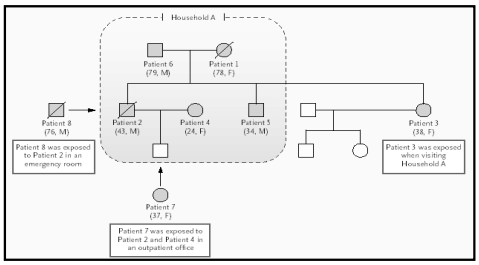
Hong Kong

The Metropole Hotel



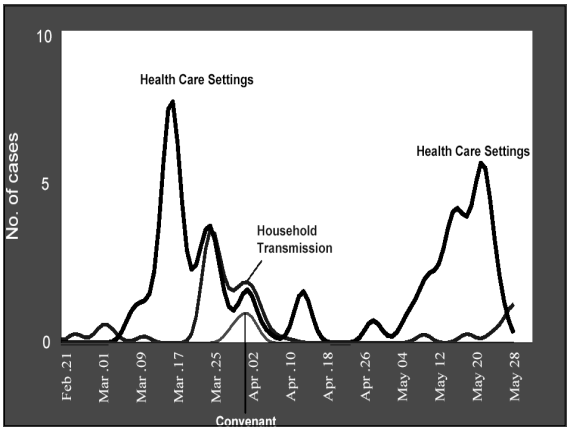
Feb 23, index case returns from Hong Kong
March 5, index case dies at home
March 7, case 2 in ER
March 13, case 2 dies; 5 family members admitted

Why a Provincial Emergency?

- **scope**
- **hidden cases**
- **getting ahead of the outbreak**

The initial challenge

No name
No clear-cut clinical diagnosis
No test
No idea of clinical course
No idea of long term implications
Not much idea how it spread
When does infectiousness start?
When does infectiousness finish?
Is there any short term immunity?
Is there any long term immunity?



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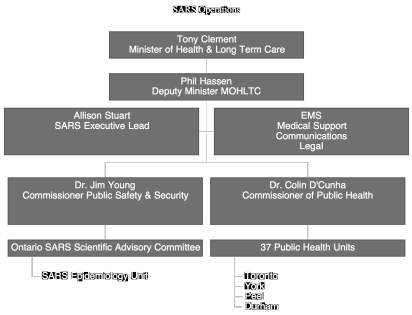
The Birth of OSSAC

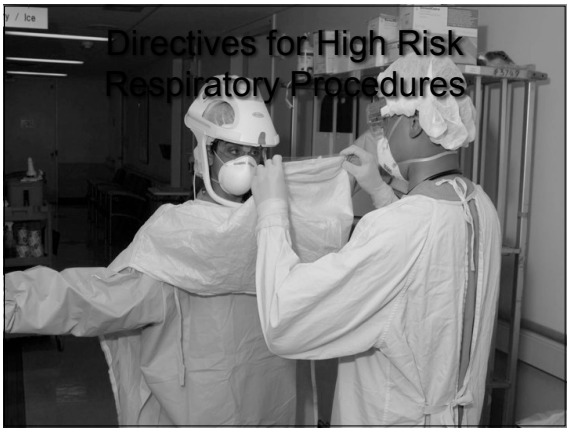
- Necessity is the mother of….
- Many decisions requiring specialized in put:
  - Hospital epidemiology & infection control
  - Public & community health
  - Provincial Operations Center
  - MOHLTC
    - Hospitals Branch
    - Public Health Branch
    - Emergency Medical Services
  - Community practice settings
  - Nursing
  - Occupational Health

OSSAC Membership

- Chair and Vice-Chair
- Public Health Physicians
- Infectious Diseases clinicians
- Infection Control Practitioners
- Hospital Epidemiologists
- Emergency Medicine
- POC Scientist
- Hospital administration
- Occupational Health

Managing SARS-Ontario Style





Inter-Facilities Transfer Directive

The OSSAC Sweat Shop

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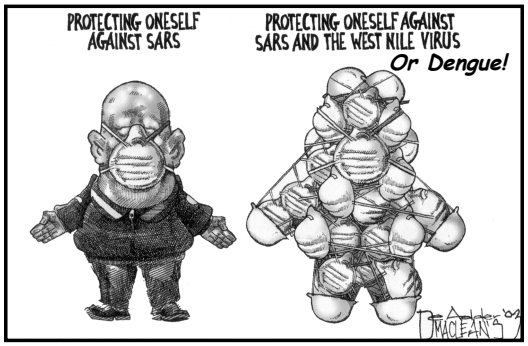
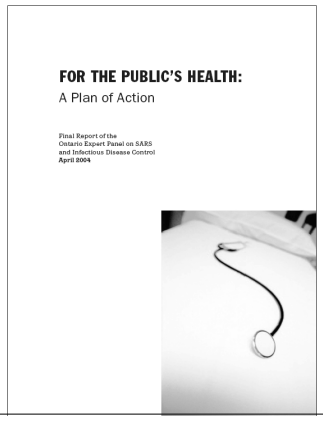




Key Infection Control Recommendations of the Ontario Expert Panel on SARS and Infectious Diseases Control (Walker)

- The report contained 103 recommendations to be implemented over five years.

Infection Control Training and Staffing

- Expand the availability and accessibility of infection control training/courses for those practicing or intending to practice in infection control
- Enhance infection control training of all healthcare providers at the facility level
- Increase the number of infection control practitioners in acute and long-term care facilities, aiming initially for 1:250 beds

Key Infection Control Recommendations of the Walker Panel – cont'd

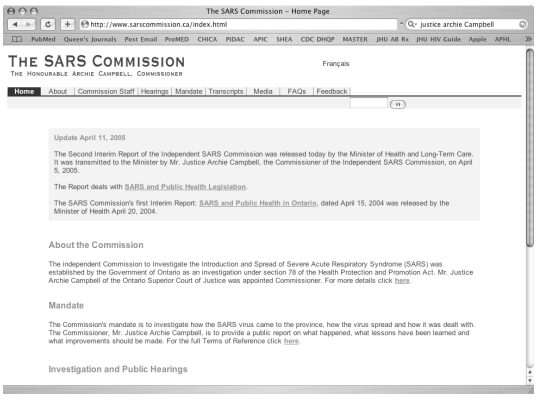
Provincial Communicable Disease Committee

- Standing advisory committee should be established together with any necessary subcommittees.
- Mandate to include: develop provincial standards and guidelines, develop core indicators for facility-acquired infections, advise on emergency planning and on research priorities.
- Establish committee web-site to be accessed by healthcare providers and public.
- Initially advisory to the CMOH – later to a new Ontario Health Protection and Promotion Agency.
- Broad membership representing key disciplines and areas of health care.
- Linked to new regional networks for infection control.

Key Infection Control Recommendations of the Walker Panel – cont'd

Regional Infection Control Networks

- Province-wide networks to be established on a regional basis
- Membership to include hospitals, long-term care, public health units, laboratories and others
- Will facilitate and enhance coordination of infection control activities on a regional basis including: implementation of standards and guidelines; surveillance; access to human resource capacity and expertise



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THE SARS COMMISSION

INTERIM REPORT

SARS AND PUBLIC HEALTH IN ONTARIO

The Honourable Mr. Justice Archie Campbell

Commissioner

April 15, 2004

THE SARS COMMISSION

SECOND INTERIM REPORT

SARS AND PUBLIC HEALTH LEGISLATION

The Honourable Mr. Justice Archie Campbell

Commissioner

April 5, 2005

Mr. Justice Archie Campbell
1942-2007

From the SARS Commission:

- "Public health must invest in the scientific and professional capacity necessary both locally and provincially to provide meaningful expertise and advice to health care facilities and institutions. For long-term issues, protocols, policies and directives, the province has a tremendous resource in the Provincial Infection Diseases Advisory Committee (PIDAC), with its multi-disciplinary approach and wide spectrum of expertise, to play the role of advisor and expert. But no advisory committee can supply the operational resources required to respond to immediate problems in the field that require speedy investigation and intervention."
  - Justice Archie Campbell, April 5, 2005

Operation Health Protection

- On June 22, 2004 Minister Smitherman publicly released *Operation Health Protection: An Action Plan to Prevent Threats to our Health and to Promote a Healthy Ontario.*
- The Action Plan includes many recommendations of the Walker Panel and Justice Campbell.
- It will be be rolled out over the next 3 years.

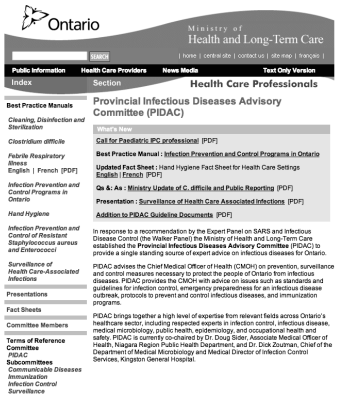
Operation Health Protection - Strategic Priorities

I. Creation of a Health Protection and Promotion Agency
II. Public Health Renewal
III. Health Emergency Management
IV. Infection Control and Communicable Disease Capacity
V. Health Human Resources
VI. Infrastructure for Health System Preparedness

Key Infection Control Recommendations of the Walker Panel – cont'd

Facility Design

- Standards and guidelines relevant to infection control required – to be developed through the Provincial Communicable Disease Committee and used to guide a needs assessment for negative pressure and isolation rooms
- Identification of physical plant barriers to effective infection control and develop multi-year plan for their removal
- Dedicated fund of one-time costs to address facility remediation requirements prioritized on the basis of criteria established through the Provincial Communicable Disease Committee



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PIDAC: People and Products

Committee Members

Terms of Reference
Committee
PIDAC
Subcommittees
Communicable Diseases
Immunization
Infection Control
Surveillance

Best Practice Manuals

Cleaning, Disinfection and Sterilization

Clostridium difficile

Febrile Respiratory Illness
English | French [PDF]

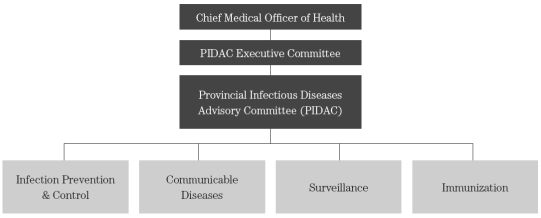
Infection Prevention and Control Programs in Ontario

Hand Hygiene

Infection Prevention and Control of Resistant Staphylococcus aureus and Enterococci

Surveillance of Health Care-Associated Infections

PIDAC Organization



In Memoriam: Dr. Sheela Basrur

1956-2008

Principles for PIDAC

- Advisory to CMOH
- Evidenced based in all work we do
- Use continuous quality improvement methods
- Take at least two day's to solve the world's problems

PIDAC: Initial Priorities

- Hospital design issues
- Advisory support to EMU for pandemic planning etc
- Strategic Planning for subcommittees
- Website

Priorities: Infection Control

- Review of FRI documents
- Review of SARS directives
- Review of High Risk Procedure directive
- Basic elements of IC program for hospitals
- Standards for reprocessing
- ARO's – MRSA or C.difficile as model for provincial "approach" to surveillance/management
- Infection Control education – core competencies

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Priorities: Surveillance

- Review of FRI documents
- Review of SARS directives
- Surveillance for *C. difficile*
- Scan/overview of existing/pending surveillance systems

Priorities: Vaccines

- Assessment of the suitability of newly licensed vaccines for the Ontario publicly funded immunization program
- Education of healthcare workers on immunization issues
- Vaccine schedules
- Recommendations for adult vaccine priorities
- Enhanced surveillance and reporting VPDs e.g. varicella, pneumococcus
- Maximizing uptake of vaccines

Public Health Renewal: Progress to Date

Chief Medical Officer of Health Independence
- Bill amending the Health Protection and Promotion Act to increase independence of CMOH introduced on October 14, 2004

Local Public Health Capacity Review
- To be guided by a Local Public Health Capacity Review Committee
- Will be opportunity for stakeholder input

Communicable Disease Positions
- Funding for 180 full-time communicable disease positions within public health units

Infection Control and Communicable Disease Capacity: PIDAC – cont'd

- Full PIDAC membership in place Fall 2004
- Mandate includes:
  - Review and develop standards and guidelines for application across Ontario – work on document relevant to *C.difficile* complete
  - Develop core indicators for facility-acquired infections
  - Advise on immunization programs
  - Advise on emergency preparedness for an outbreak
  - Advise on infection control education
  - Advise on research priorities

Infection Control and Communicable Disease Capacity: Regional Networks

- Regional networks for infection control to be phased in to coordinate infection control activities across and through all parts of the healthcare system
- Strategic framework and core deliverables for all networks being developed upon the advice and guidance of PIDAC
- Three initial networks to be established in 2004/05
- Based upon an evaluation of and lesson learned from the three initial networks, province-wide implementation of networks to take place by 2006/07
- Boundaries of networks will be informed by the LHIN process

Infection Control and Communicable Disease Capacity: Education

- Web-based Infection Control Education at Queen's University and Centennial College
- Core competencies in infection control for all healthcare workers being developed and validated – to be used as a platform upon which to build multi-modality educational tools and programs
- Review of university and college healthcare program curricula to determine infection control content to be initiated Fall 2004

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Infection Control and Communicable Disease Capacity: Infection Control Practitioners

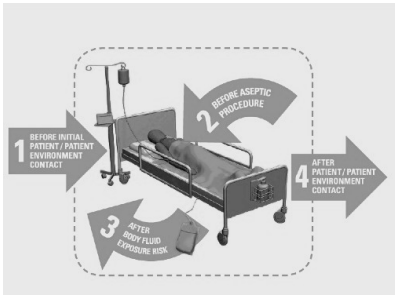
- Increased number of full-time positions for infection control practitioners within hospitals
- Targeted funding
- Primary goal to achieve 1 practitioner per 250 beds and then….

Infrastructure for Health System Preparedness

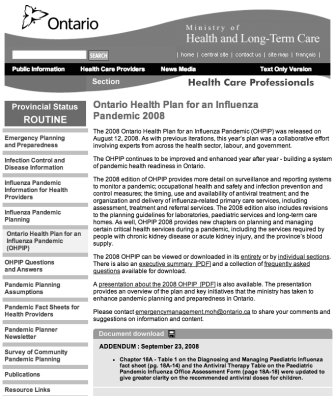
- Goal is to modernize Ontario's processes for collecting and analyzing information related to infectious diseases, and for delivering timely information to healthcare providers and to the public as required
- Implementation of the integrated Public Health Information System (iPHIS) to begin in 2004/05 - will support provincial communicable disease surveillance and outbreak management within public health units, including contact tracing and quarantine management
- Development of comprehensive IT tools and infrastructure to deliver necessary information to healthcare providers and the public on matters of public health during an emergency and on a day-to-day basis underway – known as the PHIIT strategy

www.justcleanyourhands.ca

When and how to clean hands



Role models and reminders



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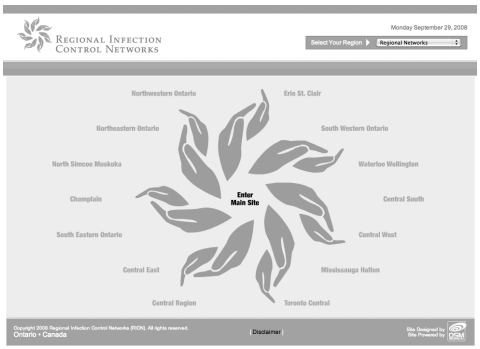
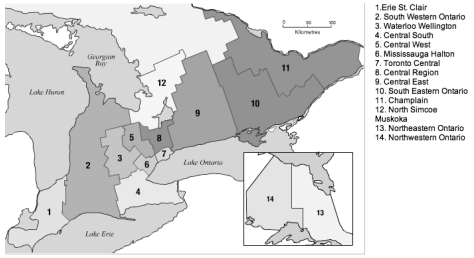


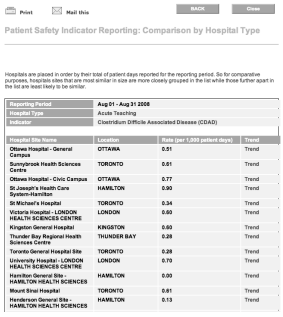
www.ricn.on.ca

Regional Infection Control Networks



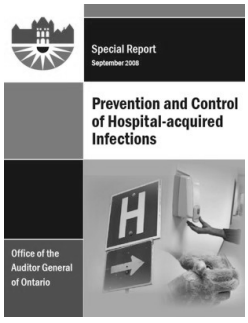
Ontario Agency For Health Protection and Promotion

Public Reporting of HAI



http://www.health.gov.on.ca/patient_safety/index.html

Ontario Auditor General's Report on HAI



WHAT HAS NOT CHANGED: BURDEN OF NOSOCOMIAL INFECTIONS IN CANADA

Infection	*Number of Infections*	*Attributable Mortality*	*Number of Deaths*
Surgical Wound	53,421	2.5%	1,335
Pneumonia	23,060	30%	6,918
Bacteremia	10,377	16.3%	1,691
Urinary Tract	91,853	0.8%	735
Other	41,123	3.3%	1,357
Totals	219,834		12,037

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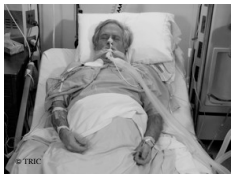
What Has Not Changed: Impact on Health Care Costs

Infection Type	Rate per 100 adm	No. Infections per Year	Extra Days per Case	Extra Bed Days/Yr	Cost per Infection	Cost per Year $ $000,000
Surgical Wound	1.39	53,421	8.2	438,052	$8,200	$438
Pneumonia	0.60	23,060	20.0	461,200	$20,000	$460
Bacteremia	0.27	10,377	24.0	249,048	$24,000	$250
Urinary	2.39	91,853	2.4	220,447	$2,400	$220
Other	1.07	41,123	4.8	197,390	$4,800	$197
Total		219,834		1,566,137		$1,565

What Has Not Changed: Impact to the Patient

- Pneumonia
  - 30% mortality
  - 20 days extra stay
- A wound infection
  - 3% mortality
  - 8 days extra stay
- A blood stream Infection
  - 16% mortality
  - 24 days extra stay



What Has Changed

- High level Global and National Focus on Infection Prevention and Control
- Provincial Programs in Infection Prevention and Control
  - Eg. Ontario Provincial Infectious Diseases Advisory Committees (PIDAC)
  - Québec mandating Infection Control Practitioner numbers
  - Many other examples

What Is Changing

- Recognition of where expertise lies
  - CHICA-Canada
  - Academia
    - Medical Microbiologists, Infectious Diseases specialists, epidemiologists etc

What Is Changing

- Coordination of efforts
- Strategic Partnership between:
  - CHICA-Canada
  - Canadian Patient Safety Institute (CPSI)
  - Canadian Council on Health Services Accreditation (CCHSA)--- Now Accreditation Canada
  - Public Health Agency of Canada (PHAC)
- To coordinate activities aimed at infection prevention and control

Gee Bill, thanks for the $20 for MRSA research!

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What Needs To Change

- Lack of Research
  - Poor to nonexistent funding for translational and applied research in infection prevention
- Huge knowledge gaps
  - Eg. Do N95 Respirators really protect against infections? Do surgical masks? Which is better?
  - What is best surgical pre-operative preparation of the patient's surgical site?
  - Reservoirs of and best methods to kill C. difficile

Infectious Diseases In Canada

Industry
CHICA
PHAC
CPHA
AIPI
NML
Academia
Provinces & Territories
AMMI
Individual Facilities
CCHSA
CCCAR
SHN!
CPSI
CHA & Hospital Associations

What Needs To Change

- Integrated Surveillance across Canada
- Practitioner to Region to Province to Nation to Global
- Global to Nation to Province to Region to Practitioner
- Health Practitioners out of the loop yet this is the point of infection transmission
- Feed back is powerful

Canadian Nosocomial Infectious Diseases Surveillance Program (CNISP)

- Established 1994
- Focused on Nosocomial Infections
- Terrific example of national collaboration of government & field experts
- Excellent work to date
- Severely under resourced however
- High potential

COMMUNITY AND HOSPITAL INFECTION CONTROL ASSOCIATION - CANADA
ASSOCIATION POUR LA PRÉVENTION DES INFECTIONS À L'HÔPITAL ET DANS LA COMMUNAUTÉ - CANADA
CHICA-Canada

- **Community & Hospital Infection Control Association - Canada (CHICA)**
- a multidisciplinary, professional organization for those engaged in the prevention and control of infections
- CHICA has approx 1500 members across Canada
- www.chica.org

CHICA's Mission

- CHICA-Canada is committed to improving the health of Canadians
  - by promoting excellence in the practice of infection prevention and control
  - by employing evidence based practice and application of epidemiological principles.
- This is accomplished through education, communication, standards, research and consumer awareness.

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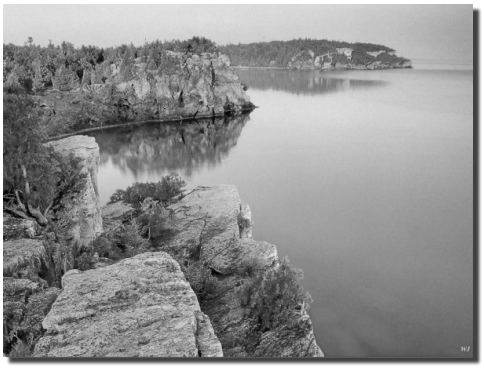
Thank you AICA!



THE NEXT FEW TELECLASSES

	20 Oct. 08	(South Pacific Teleclass) Biofilms - When Bugs Get Clingy Speaker: Dr. David Hammer, Canterbury District Health Board
	23 Oct. 08	Health Care Facility Maintenance for Infection Control Speaker: Andy Streifel, University of Minnesota
	30 Oct. 08	LTC - How Maryland Increased ICP Presence in Long Term Care Facilities Speaker: Dr. Brenda Roup, Maryland Department of Health and Mental Health
Teleclass sponsored by Virox Technologies www.virox.com	11 Nov. 08	(British Teleclass) Clostridium difficile - Prevention is Better Than Cure Speaker: Prof Mark Wilcox, University of Leeds
	20 Nov. 08	Managing Indoor Air & Water Systems for Infection Control & Prevention Speaker: Andrew Striefel, University of Minnesota
	4 Dec. 08	Halting the Spread of MRSA Between Acute Care Facilities and Long Term Care Facilities Speaker: TBA

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