



Pandemics, Public Health & Emergency Care: Contemporary Trends and New Challenges in Infection Control and Infectious Diseases

Prof. Ramon Shaban, Griffith University, Australia

A Webber Training Teleclass




Pandemics, Public Health & Emergency Care: Contemporary Trends and New Challenges in Infection Control and Infectious Diseases

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Hosted by Jane Barnett
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Collective goals...

- To reduce the risk and spread of healthcare-acquired infections.
- Fundamental to quality and safety in health care.
- Does the context matter?
- Hospital-based traditions...
- Healthcare-associated infection...
- Hospital vs. Community-acquired..
- The challenges of where...



Emergency care?

- What's different about emergency care?
- What do this mean for infection prevention and control, managing infection, and communicable diseases?




Image Courtesy: Australasian Emergency Nursing Journal



What are the challenges?


- Time
- Numbers of patients
- Acuity of patients
- Poor predictability
- "Rubber walls"
- Uncertainty
- Limited previous assessment/treatment/diagnosis
- Always coming in and never going out
- Ambulance Ramping, Access Block, Overcrowding
- Communication challenges and difficulties
- Expectations
- Disasters
- Events within the hospital
- Variable settings and resources
- Open all hours
- And so on....





Hot topics...

- Bioterrorism
 - » Anthrax
- Wound care and MDROs
 - » Shifting patterns of care from inpatient to community = more complex wounds
- Gastrointestinal diseases
 - » Norovirus
- Influenza and Respiratory Infections
 - » SARS, Community-acquired pneumonia
- Pandemics
 - » Influenza H1N1 09 (Swine Flu)



Pandemics... Nothing new?

- 1890 H2N?
- 1900 H3N8
- 1918 H1N1 (Spanish Flu)
- 1957 H2N2 (Asian Flu)
- 1968 H3N2 (Hong Kong Flu)
- 1977 H3N2 H1N1 (Russian Flu)
- 1997 H5N1 (Avian Flu)
- 2009 H1N1 (Swine Flu)

What was different about H1N1 2009?

Emergency Departments had a primary public health response....

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H1N1 2009 – Health Emergency

Home

Many Australian Government agencies have a role to play during significant emergencies in Australia and the surrounding region. The Department of Health and Ageing, in collaboration with the Australian Health Protection Committee (AHPAC) and in cooperation with relevant state and territory health authorities, as specific coordination responsibilities in the event of national health emergencies.

Health emergencies include:

- significant communicable disease outbreaks, e.g. an influenza pandemic
- chemical, biological or radiological incidents either criminal or accidental
- mass casualty incidents, e.g. an earthquake or transport accident
- any emergency where there are a significant number of people needing medical treatment which requires a coordinated national approach
- any emergency where a contingent of Australian medical personnel is required for deployment

During health emergencies this web site will be updated to communicate situational information, important health messages, and other health related response arrangements.

Pandemic (H₁N₁) 2009 Influenza Outbreak in Australia: Impact on Emergency Departments.

Emergency →

Published by Griffith University, Flinders University, and CENA.

FitzGerald GJ, Patrick JR, Fielding EL, Shaban RZ, Arbon P, Aitken P, Considine J, Clark MJ, Finucane J, McCarthy SM, Cloughessy L, Holzhauser K. *Pandemic (H₁N₁) 2009 Influenza Outbreak in Australia: Impact on Emergency Departments*. (ISBN: 978-1-74107-322-5) Queensland University of Technology: 2010.

Background... Australia

- 9 May 2009**
 - Australia's first Pandemic (H1N1) 2009 Influenza case (Qld)
- 21 May 2009**
 - more cases emerged in Victoria and NSW
- 22 May 2009**
 - first confirmed case in SA
 - pandemic alert level escalated to CONTAIN
- 25 May 2009**
 - first confirmed case in WA
- 31 May 2009**
 - first confirmed case in NT
 - all Australian states and territories had confirmed cases

Background

- 11 June 2009**
 - WHO escalated level of influenza pandemic alert from Phase 5 to Phase 6

Figure 1 World Health Organization pandemic phases¹⁸

Background

- EDs are at the forefront of Australia's health disaster response
 - immediate patient care
 - system-wide patient facilitation
- Pandemic (H1N1) 2009 Influenza presented Australian EDs with
 - challenges relating to diversity of roles in disease containment & management
 - opportunity to describe the extended clinical impact of pandemic disease
- Major impact of ED function...

Aims


- to describe the impact and clinical profile (including severity) of patients presenting to Australian EDs with influenza-like-illness (ILI) during the 2009 (H1N1) Influenza Pandemic

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NHMRC Urgent Research Objectives

To describe:

- number & clinical profile of patients that presented to Australian EDs with ILI over the period April-August 2009 including their outcome
- management of patients presenting with ILI in Australian EDs
- the impact of the outbreak on EDs
 - » special precautions required
 - » changes to operational practices
 - » staff support & protection
 - » impact of staff absenteeism





Method...

Part A:


- National survey of Directors of Emergency Medicine of teaching hospitals across Australia


Poor response rate = insufficient data

Part B:

- national survey of Australian emergency nurses and physicians via the membership
 - » College of Emergency Nursing Australasia
 - » Australian College for Emergency Medicine
 - » Australian College of Emergency Nursing

Response rate = 18.4% [Fellows: 19.3%, Trainees: 17.6% & Nurses: 18.7%]







Results

Participant characteristics

- age = 38 (*Mdn*)
- yrs of experience = 12 (*Mdn*)
- yrs ED experience = 8 yrs (*Mdn*)
- hrs of work per week = 37 hrs (*Mdn*)
- 66% medical staff (M:F = 64%: 36%)
- 33% nursing staff (M:F = 17%: 83%)
- all states and territories represented
- employment
 - 78% - hospitals in capital cities
 - 18% - major regional hospitals
 - 93% - public hospitals







Results

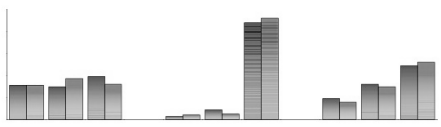
Participant characteristics - Nurses

1. **Designation**
 - 22% RNs
 - 42% senior clinical nurse
 - CNS, clinical facilitator, CNE
 - 20% Nursing management
 - NUM, CNC, clinical nurse manager
 - 7% nurse researchers
 - 7% nurse practitioners
2. **Qualifications**
 - 54% Graduate Certificate / Graduate Diploma
 - 26% Master's degree
 - 1% Doctoral degree







Results - ED conditions

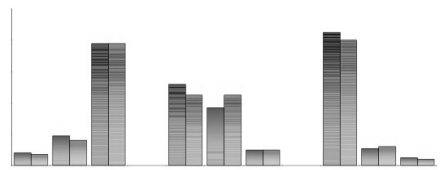


ED preparedness ED demand Impact on other ED pts






Results – Perceptions illness severity



Worried well Moderately unwell Critically ill

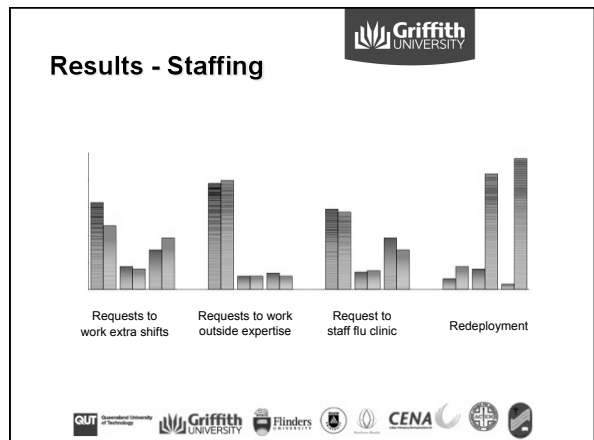
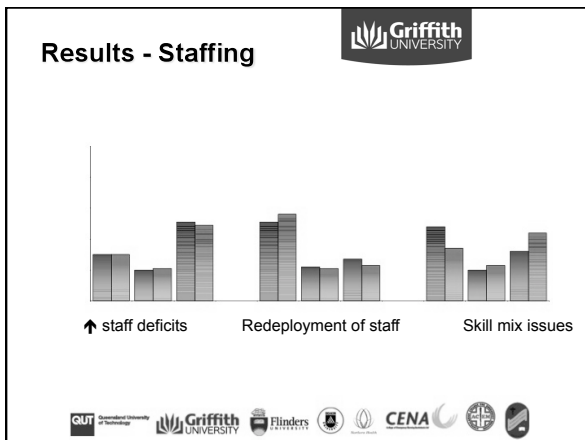
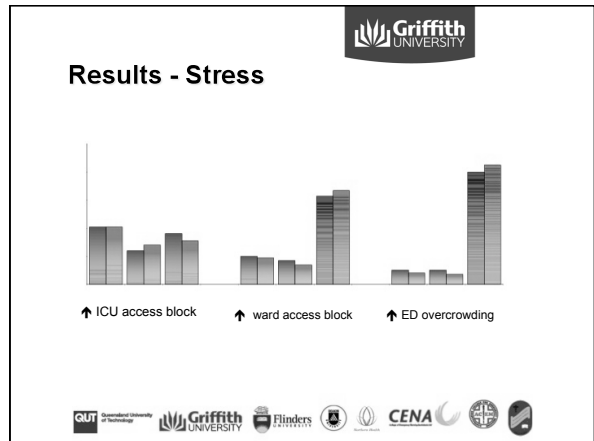
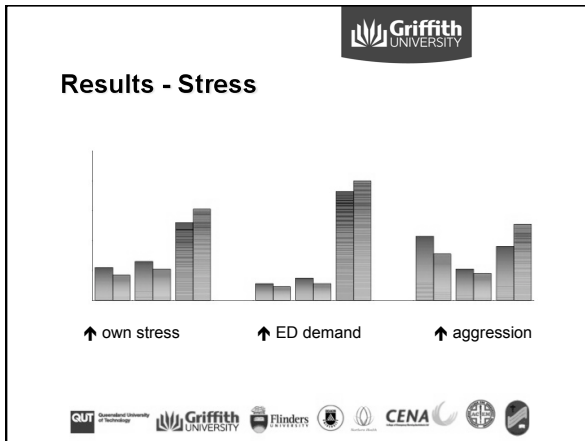
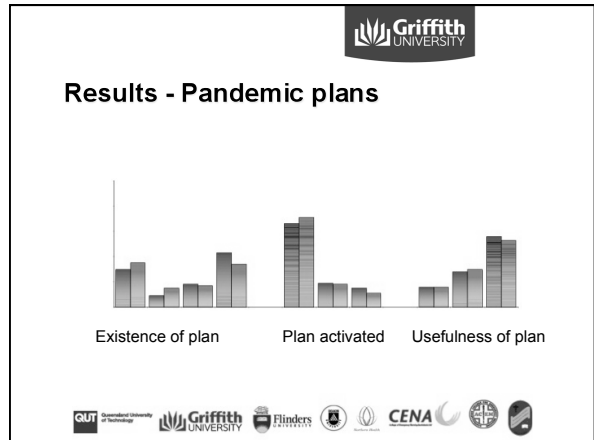
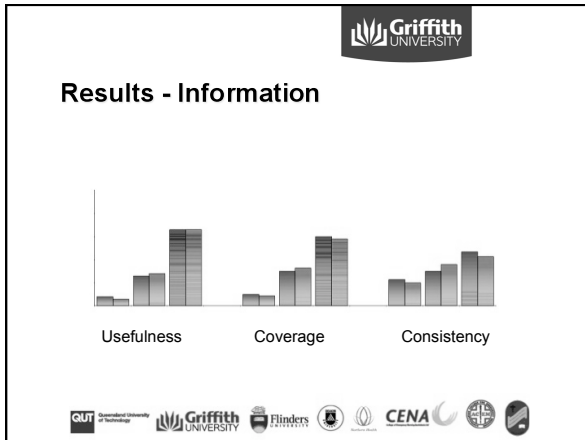


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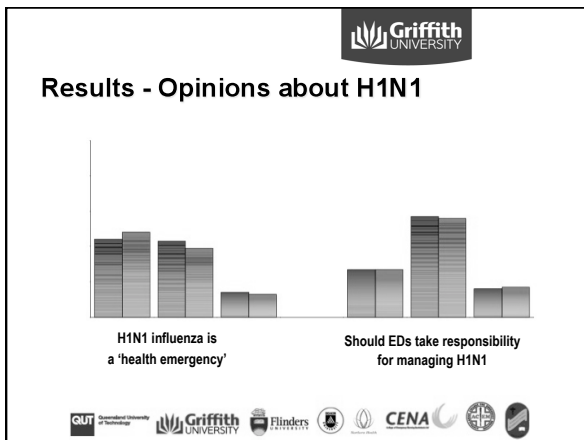
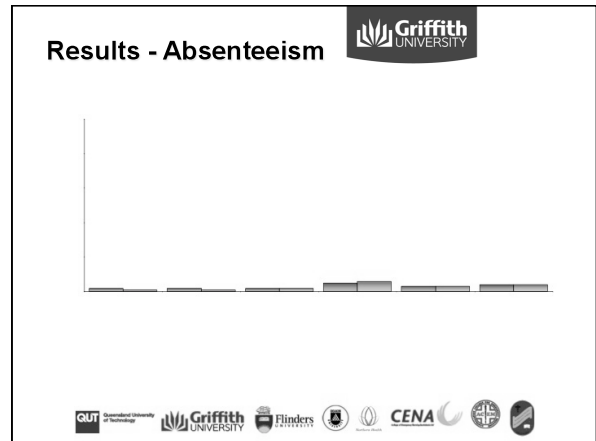
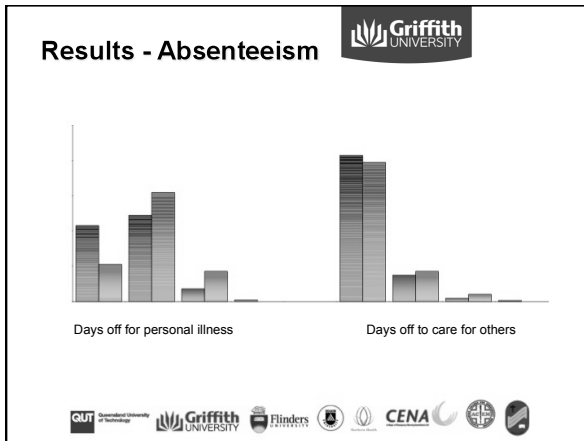
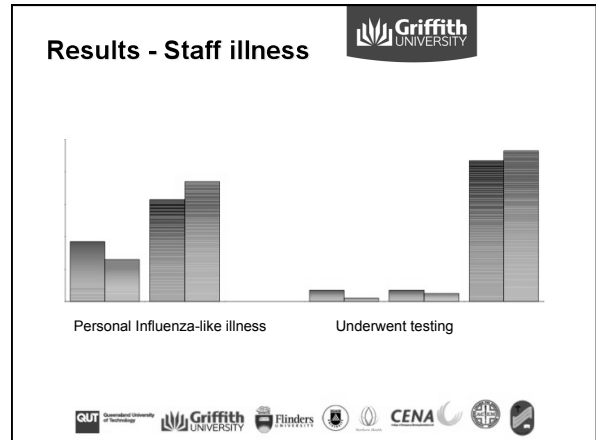
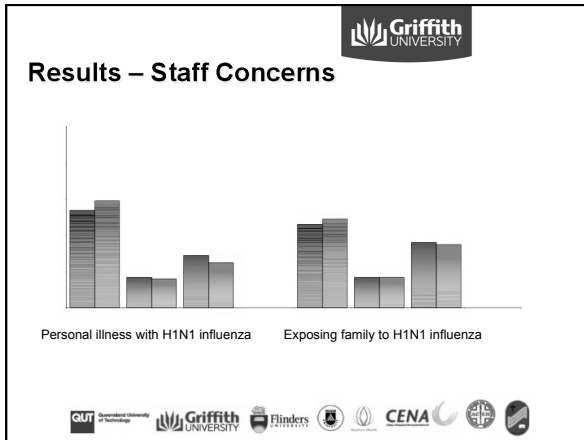


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Lessons and Recommendations

1. There is a need for a **single authoritative source of information** that is well regarded. **Consistent, timely, accurate messaging** required to avoid confusion, which is more likely to cause injury to patients and adversely impact ED staff.
2. **Information should be provided in an organised and consistent format, regardless of the means of distribution.** Multiple means are necessary, but a consistent message is vital. A simplified 'state-of-the-art' summary re-issued regularly, and published in juxtaposition with only the more recent updates will promote communication for during pandemics.
3. There is a need for **active engagement and collaboration with the media and for clinicians to aid this process by disciplined approaches.** Appropriate communication strategies are needed that reflect local engagement. However, this process must also take cognisance of the need for consistent information.

Logos: QUT, Griffith University, Flinders, CENA, etc.

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Lessons and Recommendations

- Standardised clinical approaches are critical.** Guidelines need to be issued, and in the case of Pandemic (H1N1) 2009 Influenza were found to be very useful. Standardised approaches to triage are necessary to ensure consistency in assessment. EDs need to review their management of infectious patients. Guidelines for managing infectious patients in EDs should be reviewed and include managing infectious patients in a pandemic.
- Policies regarding the establishment of flu clinics should be in place and strategies determined for rapid implementation when an outbreak occurs.** All services, including pre-hospital services, should be engaged in the development and approval of these policies and strategies.
- ED design reviewed** to determine how to better accommodate infectious patients during a pandemic and on an every-day basis.

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Lessons and Recommendations

- ED **infection control procedures** and the related behaviours of ED staff in both normal and emergency situations must be reviewed.
- There is a need to address a **range of occupational health and safety issues including leave, immunisation, infection control, and entitlements to compensation.**
- Clinical supplies required during a pandemic must be identified, and strategies designed to ensure access and availability.** These include embedded stockpiles and dedicated stockpiles.
- Standard policies for PPE and antiviral agents** must be developed consistently applied.
- Strategies to create **surge capacity** within EDs for staff, equipment, physical space and stores need to be identified.

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Lessons and Recommendations

- Peer and local support strategies** should be developed to ensure staff feel their needs are provided for, thereby **creating resilience, dependability, and stability in the ED workforce.** These strategies also need to identify mechanisms for peer support and need to address staff resilience and psychological first aid.
- Planning frameworks should be reviewed to clarify the **relationship between pandemic plans and disaster plans.**
- There is a need to recognise that **EDs have limited capacity as indicated by Ambulance Ramping and Access Block. Tailoring of their role during pandemics for the reality of service delivery must occur.**

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Table 1. Current gaps in emergency management that have infectious disease implications

Gaps in emergency management that may affect infection transmission

- Community settings (alternate care sites and shelters) lack infection prevention guidance
- Health care providers in all settings require more infection prevention education
- Non-hospital-based health care workers have historically received the least infection prevention education
- Non-hospital-based health care workers may be the first to recognize or respond to an infectious disease issue during a disaster but have received little to no training in this area
- Non-hospital-based health care workers lack access to the Health Alert Network and other existing methods of communicating infection prevention-related information
- Few infection preventionists are subject matter experts in infectious disease disasters, such as bioterrorism and pandemics
- Infection preventionists need more education related to planning for infectious disease disasters, including triage patients, social distancing, surveillance methodologies, and others
- Effectiveness of current electronic surveillance systems for disasters has not been established
- Public health professionals' knowledge about infection prevention is not known
- Surge capacity as it relates to infection prevention issues (such as negative-pressure room/area surge capacity) is lacking and needs to be better defined
- Crisis standards of care need to be developed and evaluated; may have an impact on infection spread during disasters
- General public requires more education about the potential infectious disease implications of disasters and strategies they can implement to help prevent the spread of infection

Rebmann, T. (2009). APIC's role in emergency management: Proceedings of the 2008 APIC Emergency Preparedness Mini-Summit. American Journal of Infection Control, 37(4), 343-348.

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Table 1. Components of an emergency management plan that require IP input

Issue/topic requiring infection prevention input

- Having around the clock infection control coverage^{27,28,47}
- Facility assessment/hazard vulnerability assessment^{1,11,13}
- Participation in disaster drills involving a biologic agent^{6,11,13,28,29,39}
- Strategies for receiving and posting health alert messages within the facility⁷
- Negative-pressure surge capacity^{27,28,39}
- Safe patient specimen collection procedures^{9,11,32}
- Patient management^{6,11,13,28,39}
- Food safety^{6,11,13,39}
- Water management^{6,11,13,28,39}
- Sanitation control^{2,13,39}
- Pest management⁷
- Environmental decontamination^{6,11,13,28,30,32,38,39}
- Development of crisis standards of care that affect infection transmission^{6,11,13,28,39,31,38,39}
- Prioritization for limited supplies of antimicrobial therapy^{11,13,28,39}
- Screening/triage protocols^{6,11,13,17,19,21,24,31,39}
- Occupational health/safety procedures^{6,11,13,28,30,32,35,37,39}
- Outbreak investigation coordination^{11,13,19,20,21,22,28,37,39}

Table 2. Patient management issues that have infectious disease implications and require IP input

Patient management issue/topic requiring infection prevention input

- Screening/triage patients for infection^{6,8,13,17,19,25,26,37,39}
- Patient decontamination^{11,13,39}
- Patient transport^{9,39}
- Patient placement and cohorting^{6,8,11,4,17,20,35,37,39}
- Isolation^{11,13,39}
- Quarantine^{10,13}
- Supply shortages^{6,11,13,16,26,37,39}
- Procedures for obtaining and handling patient specimens safely^{9,11,32}
- Discharge management^{9,39}
- Postmortem care^{9,11,32,39}

Rebmann, T. (2009). APIC State-of-the-art report: The role of the infection preventionist in emergency management. American Journal of Infection Control, 37(4), 271-281.

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Future Pandemics and Public Health ...

- Pandemics are a matter of course
- Lessons from H1N1
- Antigenic shift
- Changing epidemiology, morbidity and mortality
- Ubiquitous infection?
- Health emergencies?
- Disaster care models?
- Community care models? Flu clinics?
- Emergency care settings for the future....

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COMING SOON ...	
21 June 11	(Free WHO Teleclass – South Pacific) Establishing an Infection Control Program for Acute Respiratory Infections and Ensuring Pandemic Preparation Speaker: Prof. Wing Hong Seto, Queen Mary Hospital, Hong Kong Sponsor: World Health Organization First Global Patient Safety Challenge: Clean Care is Safer Care (www.who.int/gpsc/en)
23 June 11	Ventilator-Associated Pneumonia: Epidemiology, Diagnosis, and Prevention Speaker: Dr. Lennox Archibald, University of Florida
29 June 11	(Free Teleclass – Broadcast live from the International Conference on Prevention and Infection Control, Geneva) Opening Ceremonies & Keynote Lectures Speaker: Prof Didier Pittet, Sir Liam Donaldson, World Health Organization Sponsor: Virox Technologies Inc (www.virox.com)
14 July 11	(Free British Teleclass) Climate Change and Infectious Diseases Speaker: Prof. Andrew Nichols, University of Plymouth, UK

www.webbertraining.com/schedulep1.php

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