

# PREVENTING AND RESPONDING TO EMERGING INFECTIOUS DISEASES: THE ROLE OF HEALTH SERVICES AND CLINICIANS

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Dr Michelle Balm, FRACP, FRCPA  
Infectious Diseases Physician – CCDHB  
Clinical Microbiologist – WSCL

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# Clinicians have frontline role

- Detection of (re-)emerging infectious diseases
  - Clinicians are often first to detect a new issue
  - May not be those with specialist Infection training – but often are, or work closely with those that do
    - Clusters of cases
    - Abnormal patterns
- Infection specialists have frontline role in responding and containing
  - Key clinicians:
    - Infectious Diseases specialists
    - Clinical Microbiologists
    - Infection preventionists
    - Public Health physicians

# Infection specialist role:

## Emergence

- (Re-)Emergence of new pathogen
- Unusual clinical presentation detected by clinician
- Unusual pattern identified through laboratory surveillance
- Unusual pattern identified through hospital epidemiology surveillance

## Confirmation

- Infection specialist role:
  - Surveillance data analysis
  - Laboratory confirmation
  - Case definitions
  - Communication

## Response

- Infection specialist input into:
  - Sample collection
  - Clinical data collection
  - Case definitions
  - Transmission based precautions to protect HCW and staff
  - Clinical management plans

## Regional and National networks

- Communication:
  - With hospital and community colleagues
  - With Regional Public Health colleagues
  - With Ministry of Health
  - With laboratory network

# Challenges: Diagnostic Microbiology Laboratories

- Key role in
  - detection of emerging antimicrobial resistance, outbreaks of foodborne infection, re-emerging/new pathogens, possible bioterrorism
  - Often astute microbiologist noticing recent increase in requests/positive results
- Outsourcing/centralising of laboratories
  - Lab protocols must balance requirements of individual clients and population health
    - You can't find what you don't look for
  - Contracting issue for laboratory surveillance
    - Issues with current funding models
  - Surveillance must be sustainable but also flexible enough to detect new previously unrecognised pathogens
    - Travel, zoonoses

# Challenges: Diagnostic Microbiology Laboratories

- Requirement for national consistency for work-up and reporting of priority pathogens
  - More than a National Notification system
  - Particularly important for monitoring of antimicrobial resistance
- Requirement for flexibility within Laboratory Information Systems:
  - Real-time data capture, retrieval and verification
- Places greater responsibility on clinical microbiologists for oversight of lab processes and data analysis
- Capacity building within laboratories to implement new technologies:
  - WGS to allow real-time investigation
    - Rapid analysis and (hopefully) interventions

# Challenges: Clinical

- Most non-infection specialists have limited training in or awareness of:
  - Outbreak recognition and response
  - Transmission principles
  - Principles of antimicrobial stewardship
- Many smaller DHBs do not have on-site infection specialists
  - *Requires regional support for best practice clinical management plans, transmission based precautions, case definitions, sample management etc*
- Most healthcare facilities have inadequate isolation facilities to cope with rising need and with outbreaks
  - *Requires IPC input into any new facilities design*
- *Do we need an emerging infection clinical response team that can operate nationally?*
  - *Similar to GOARN model?*

# Challenges: research

- Clinicians have major role contributing to research of (re-)emerging infectious diseases
- Linkage between different research groups in human and animal health
- Shortage of funding and time resource for clinical research
- Shortage of skills
  - Molecular epidemiologists
  - Modelling
  - Bioinformaticians
  - Vaccinologists

# Challenges: communication

- Probably one of the biggest challenges we currently have
- Optimal management of outbreaks requires mechanism for rapid dissemination of information between all key players
- Bi-directional information flows
  - Surveillance data only useful if used to inform policy or practice
- Strong nationally coordinated leadership needed when major multi-regional threat detected
  - Each DHB should not have to invent their own wheel
- Who controls the information flows?