Public Health England

Protecting and improving the nation's health

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

Introduction to Infection Prevention and Control (IPC) in Outbreaks

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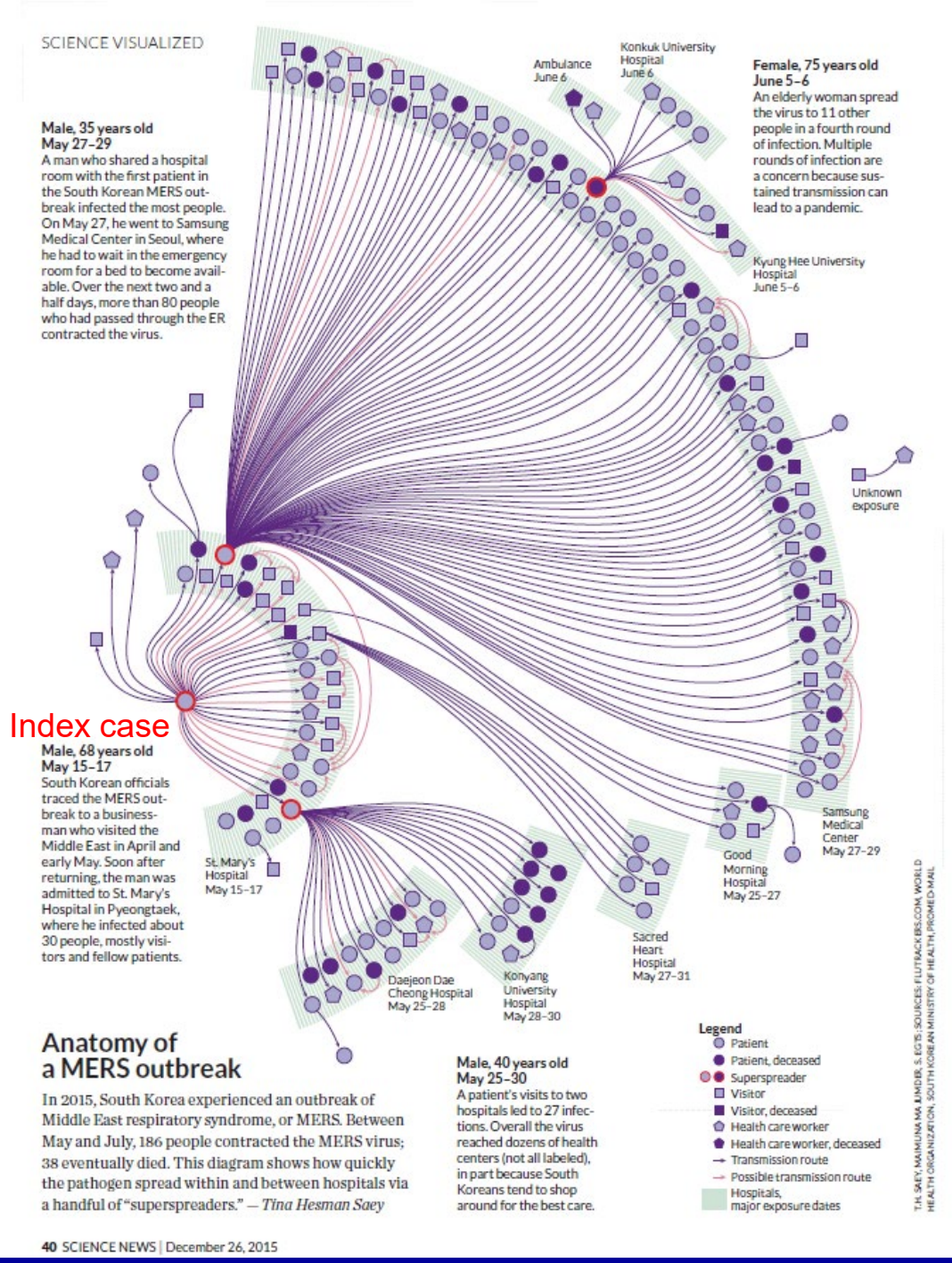
Objectives

- To introduce principles of infection prevention and control (IPC) and nosocomial transmission
- To understand the role and functions of IPC in outbreak response.
- To consider how to conduct assessments and make IPC recommendations in an outbreak

Health Facilities have potential to amplify outbreaks



Reference: https://www.sciencenews.org/article/anatomy-south-korean-mers-outbreak

Methods to inhibit nosocomial transmission

- Standard and transmission-based precautions
- Patient placement, isolation and cohorting
- Surveillance of staff and patients
- Early recognition and investigation of cases
- Teaching and training
- Planning services and infrastructure

Chains of infection

Standard and Transmission-based precautions

- General principles that have been developed for and may be applied in all health care settings. May be adapted and used as a guide in the community.

- **Standard precautions** are to be employed for all patients at all time and protect patients and health care workers

- **Transmission-based precautions** are added if a particular disease is known or suspected.

Standard precautions in healthcare

- Hand hygiene
- Respiratory hygiene
- Personal Protective Equipment (PPE)
- Sharps safety
- Waste management
- Management of linen
- Decontamination of medical equipment

Hand Hygiene

- Primary mode of transmission for respiratory and gastro illness in the community
- Involved in most healthcare associated infections (HCAIs) including surgical site infections, UTIs and respiratory illness
- Two recommended methods for Hand Hygiene:

  - Alcohol-based hand rub (ABHR) for visibly clean hands

  - Soap and water for visibly dirty hands, dry with single use paper towels or clean fabric towels

- Chlorine water often has very low levels of residual chorine to disinfect and no detergent action. If that is all that is available then ensure that hands are washed thoroughly to remove dirt and lengthen the contact time with the disinfectant.

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Duration of the handwash (steps 2-7): 15-20 seconds

Duration of the entire procedure: 40-60 seconds

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Wet hands with water;

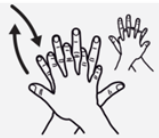
1

Apply enough soap to cover all hand surfaces;

2

Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4

Palm to palm with fingers interlaced;

5

Backs of fingers to opposing palms with fingers interlocked;

6

Rotational rubbing of left thumb clasped in right palm and vice versa;

7

Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8

Rinse hands with water;

9

Dry hands thoroughly with a single use towel;

10

Use towel to turn off faucet;

11

Your hands are now safe.

World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

May 2009

Transmission-based Precautions

- Employed in addition to Standard Precautions when a disease is known or suspected, that is transmitted by a different route.

Contact Precautions

- For diseases that may be spread by contact. Includes GI pathogens, skin disorders.
- Precautions include isolation, enhanced cleaning and more extensive use of PPE

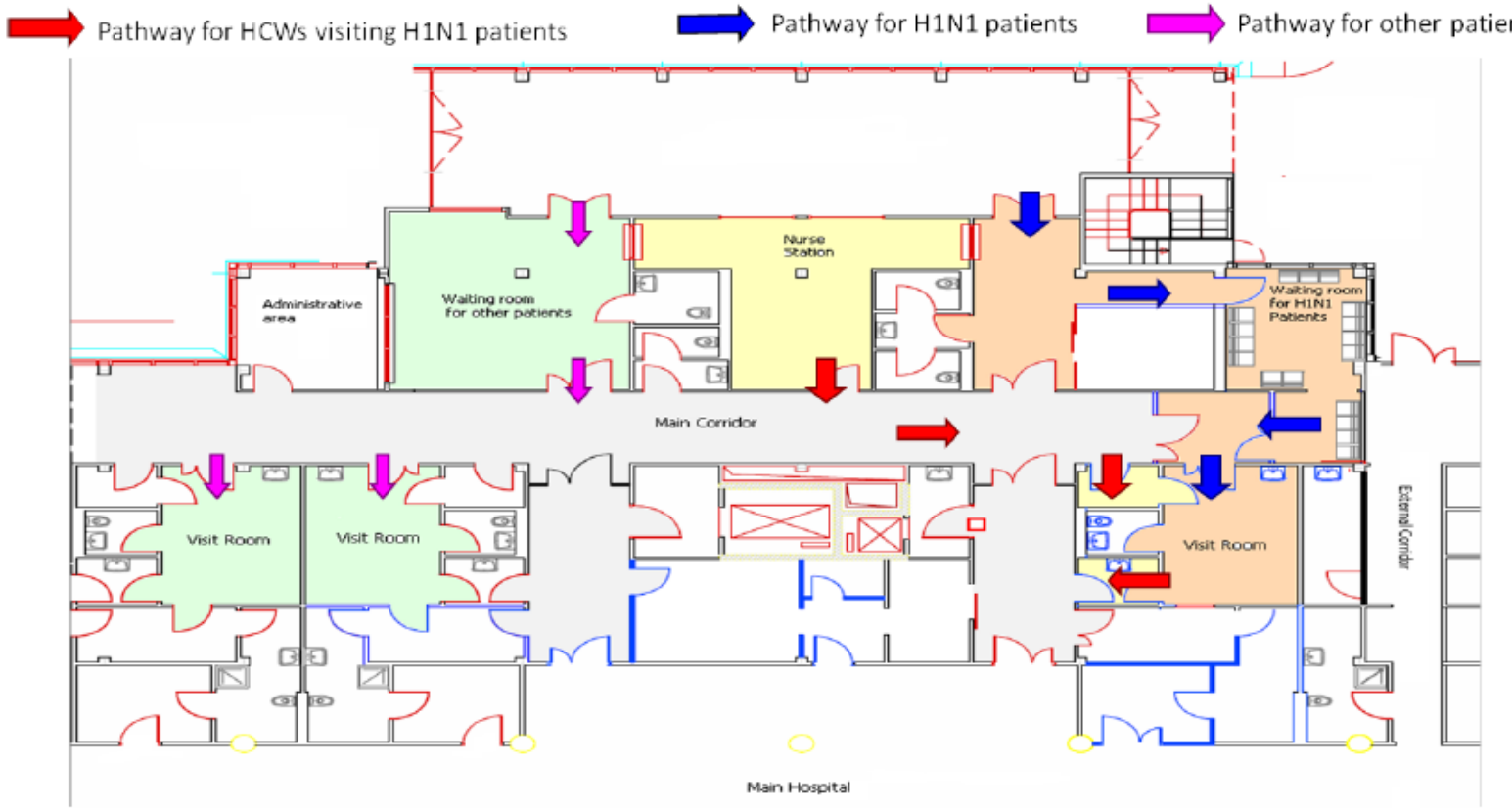
Droplet Precautions

- For diseases spread by large respiratory droplets from coughing and sneezing. Includes many viruses and bacteria.
- Precautions include isolation and surgical mask within 1m to protect mucous membranes, may be combined with contact precautions.

Airborne/Aerosol Precautions

- For diseases spread by small particles that remain suspended in the air and can be breathed deep into the lungs. Includes diseases such as TB and measles.
- Precautions include isolation in a room with negative pressure or good natural ventilation, close fitting respiratory protective equipment (RPE), may be combined with contact precautions

Changing patient pathways – Adapting flow through a hospital during H1N1 (swine flu)



Cohorting and Isolation

Grouping patients with same disease together

- Useful if limited space and infrastructure
- Useful for an outbreak of known disease with clear diagnostics
- Greater risk of transferring infections between patients
- Carefully consider the admission criteria.

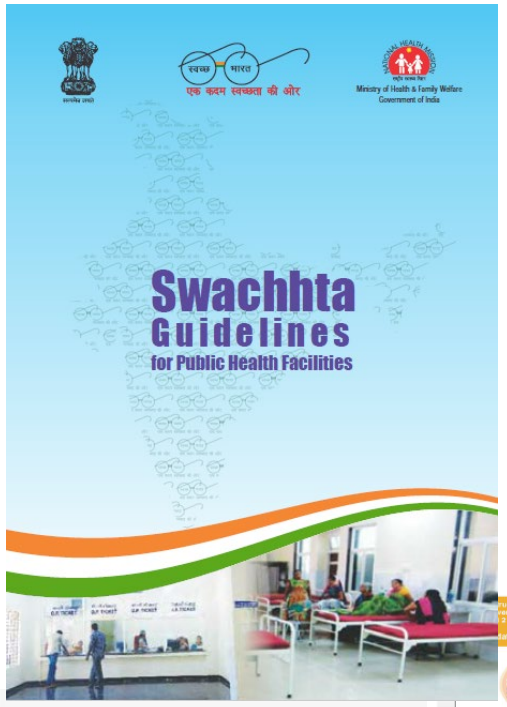
Individual isolation of patients with known or suspected infectious disease

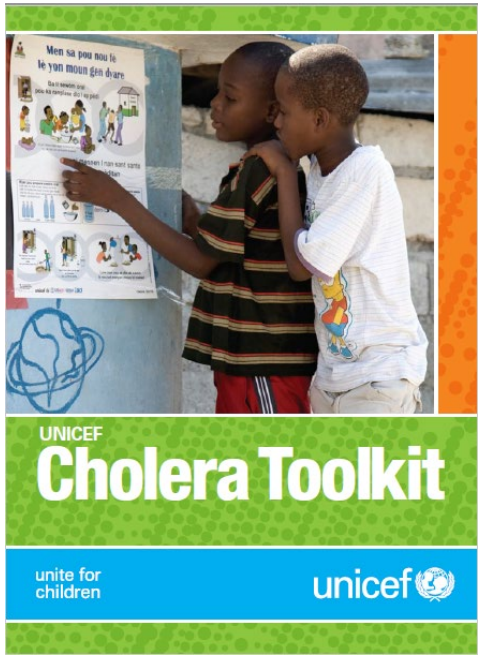
- More space and infrastructure required
- Greater staffing demands
- If diagnosis is unclear, or a co-infection is suspected, this is safer
- More flexible as outbreak evolves.

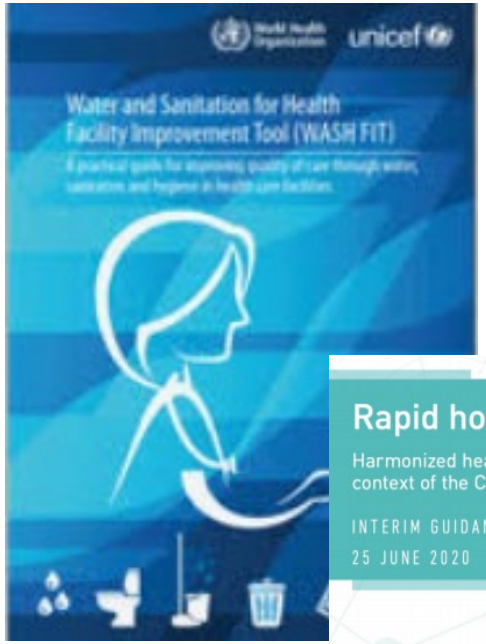
Health facility IPC Assessment

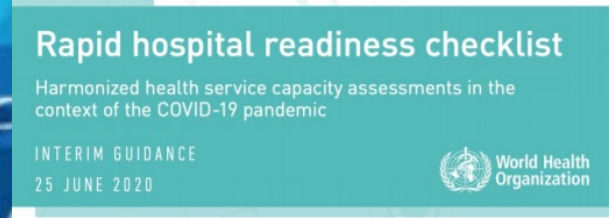
Elements to consider:

- Infrastructure
- Training
- Resources
- Managerial and administrative capacity
- Do your research beforehand to focus your questions.









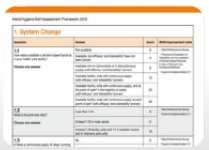
Tools for assessment

Infection prevention and control assessment tool (IPCAT2)

- National-level assessment tool.
- Provides baseline and ongoing data for improvement.

Infection prevention and control assessment framework (IPCAF)

- Facility-level assessment tool.
- Provides baseline and ongoing data for improvement.



Hand hygiene self-assessment framework (HHSAF)

- Diagnostic tool for health care facilities.
- Provides baseline and ongoing data for improvement.

OneTogether Assessment Toolkit

Infection prevention practice across the surgical pathway

AfPP · ips Infection Prevention Society · CODP · Royal College of Nursing · 3M Science. Applied to Life.™

Exercise

You will be visiting a main Hospital in Bauchia - you have some information about it from the internet and need to assess its outbreak preparedness.

The Hospital Superintendent is expecting you in his office.

Think about who else you would like to meet?

What areas you would like to visit?

What documents or other information would you ask to see?

Now lets have a look round the hospital

Here's the main entrance and an outpatients clinic…

Here is the ITU and a general medical ward…

Here's a picture of the waste area outside and the sterilisation room…

Tips for useful recommendations

Safe - Consider staff safety, outbreak containment and, even possibly the safety of careers of those implementing your advice! What could be the fall out of bad advice?

Effective - Does the recommendation have a sound basis? Evidence based? Will it work? Does it contradict guidelines, justify it if not.

Relevant - Does it address the questions asked? The concerns raised or the terms of reference (TORs)?

Feasible - What your are recommending even possible in the current setting? Focus on realistic short term goals but these are better if they can be integrated to long term plans

Feedback from your visit

- Pillar lead in the local Emergency Operations Centre (EOC)
- Superintendent of the hospital
- Internal sit rep for UK-PHRST

Have a go at writing 2 bullets of feedback for each of these audiences, in the context of the scenario

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