

Healthcare-associated Infection (HCAI) Surveillance

Key Points

Surveillance is a process of monitoring and thus knowing what the baseline infection rates are so we can quickly recognize change in trends, if outbreaks occur or if new infections emerge.

Surveillance relies on staff reporting occurrences of infection to the Infection Prevention Control team

Microbiology and Infection Prevention Control Teams will inform other healthcare workers if we suspect an unusual significant infection: an *Alert organism* (see below)

Microbiology and Infection Prevention and Control Teams will inform other healthcare workers if we suspect an outbreak

Healthcare workers, in hospital and community settings should contact Infection Prevention and control teams about conditions which pose an infection risk: *Alert conditions* (see below)

Healthcare workers, in hospital and community settings should notify Public Health about *Notifiable conditions* (see below)

Surveillance Aims

The main objectives of surveillance of Healthcare Associated Infections are:

- Timely investigation and institution of control measures
- Assessment of infection rates with time
- Early detection of outbreaks

Surveillance is part of routine infection prevention and control activity.

Prompt recognition of one or more alert organisms or conditions in the same clinical area is vital to institute additional control measures. These measures may reduce the spread of the organism and prevent outbreaks.

Collection of accurate data allows comparison with other units and measurement of response to changes in practice (e.g. audit).

Methods of Surveillance

1. Laboratory-based ward liaison surveillance is used in conjunction with “Alert organism/Alert condition” surveillance. The system is managed by the Infection Prevention Control Team and details are reported to the Infection Control Committee.

2. Mandatory/regional surveillance

Two organisations are involved with this type of surveillance in Northern Ireland:

- **Healthcare Infection Surveillance Centre** [<http://www.hisc.n-i.nhs.uk/>] (HISC) co-ordinates regional mandatory surveillance in the areas of Surgical site infection for orthopaedic surgery and Caesarean Section.
- **Health Protection Agency – Communicable Disease Surveillance Centre Northern Ireland** [<http://www.cdscni.org.uk/>](HPA-CDSCNI) co-ordinates the collection of data for *Staphylococcus aureus* bacteraemia and *Clostridium difficile*.

Laboratory-based Ward / Unit Liaison Surveillance (Alert Organisms)

You must tell the infection control team about any alert conditions or organisms!

Microbiology results of alert organisms are reviewed by the Infection Prevention Control Team and highlighted to clinical staff for the appropriate infection control measures to be put in place and source isolation commenced as required. (See website for more information)

Examples of ALERT ORGANISMS
BACTERIA
Meticillin-resistant <i>Staphylococcus aureus</i> (MRSA)
<i>Clostridium difficile</i>
Tuberculosis
Multi-resistant Gram negative bacilli (e.g. ESBL <i>E. coli</i>)
<i>Streptococcus pyogenes</i> (Streptococcus Group A)
<i>Streptococcus agalactiae</i> (Streptococcus Group B)
Penicillin-resistant <i>Streptococcus pneumoniae</i>
<i>Haemophilus influenzae</i>
<i>Legionella</i> spp.
Glycopeptide-resistant enterococci (GRE or VRE)

<i>Neisseria</i> spp.
<i>Salmonella</i> , <i>Shigella</i> or <i>Campylobacter</i>
<i>Escherichia coli</i> O157
Any unusual bacteria
VIRUSES
Rotavirus
Norovirus
Respiratory syncytial virus
Varicella zoster
Influenza virus
Rubella
Parvovirus
Measles

Ward / Unit Based Surveillance (Alert Conditions)

Alert conditions are medical syndromes which immediately suggest a risk of infection and can include: - diarrhoea or vomiting, rash, pyrexia of unknown origin, chicken pox, suspected tuberculosis etc.

It is the responsibility of the staff to notify the infection control team if they suspect an infection which may be a risk to others and to immediately initiate relevant infection control measures.

Appropriate specimens must be taken and sent promptly, properly labelled, to the laboratory (e.g. the first diarrhoeal stool from a patient must be sent for culture & sensitivity and *Clostridium difficile* toxin testing).

Examples of ALERT CONDITIONS
Patient admitted with any infection
Post surgical sepsis
Diarrhoea or vomiting
Diarrhoea with blood
Cellulitis
Tuberculosis (chronic productive cough)
Exanthemata (acute rash illness)
Chicken pox or shingles
Mumps, measles, rubella, parvovirus
Whooping cough
Poliomyelitis
Diphtheria
Scabies
Meningitis
Viral hepatitis
Ophthalmia neonatorum
Pyrexia of unknown origin
Typhoid and paratyphoid fevers
Viral haemorrhagic fever

Notifiable Diseases in Northern Ireland

NOTIFIABLE DISEASE
Acute encephalitis/ Meningitis: Bacterial
Acute encephalitis/ Meningitis: Viral
Meningococcal Septicaemia
Anthrax
Chickenpox
Cholera
Diphtheria
Dysentery
Food-Poisoning
Gastro-enteritis (persons under two years of age only)
Hepatitis A
Hepatitis B
Hepatitis unspecified: Viral
Legionnaires' Disease
Leptospirosis
Malaria
Measles
Mumps
Paratyphoid Fever
Poliomyelitis: Acute
Rabies
Relapsing fever
Rubella
Scarlet Fever
Smallpox
Tetanus
Tuberculosis: Pulmonary and non-Pulmonary

Typhoid Fever
Typhus
Viral Haemorrhagic Fever
Whooping Cough
Yellow Fever

References

1. Healthcare Infection Surveillance Centre (HISC) Available at <http://www.hisc.n-i.nhs.uk/>
2. Health Protection Agency – Communicable Disease Surveillance Centre Northern Ireland (HPA-CDSCNI) Available at <http://www.cdscni.org.uk/>
3. Ayliffe GAJ, Fraise AP, Geddes AM, Mitchell K. Control of hospital infection. A Practical Handbook. 4th Edition 2000 Oxford: Butterworth and Heineman