

Keeping it brief so there's no need to leaf: an Isolation Priority Scoring System on one page

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Background

In May 2018, NHS Ayrshire & Arran's Infection Prevention and Control Team reviewed their Isolation Priority Scoring System. This document is mainly used by Bed Managers and Charge Nurses to help clarify which patients require single room isolation. Our previous document was six pages long and did not clearly highlight situations where isolation would be essential. The aim was to create a more concise guideline, which highlighted the infections of greatest concern, thus minimising risk to others.

In NHS Ayrshire & Arran, we are unable to isolate all patients for whom isolation is indicated. Siderooms are a precious commodity, and are at risk of being reduced due to ward closures and reconfigurations. In line with other Health Boards, the majority of our siderooms are used for non-infective reasons, thus reducing this resource still further.

Moreover, the variety and severity of infections requiring isolation is becoming increasingly complex. Use of 'scoring' systems for isolation priority¹ are becoming more common, but usually rely on non-infection specialists making their own decisions regarding significance of resistance, likelihood of transmission, etc. As such, these systems are liable to error.

Method

A Short Life Working Group, consisting of a Consultant Microbiologist and two Infection Prevention and Control Nurses, was convened to re-calculate isolation priority scores based on current knowledge.

Isolation priority scores were based on the Lewisham Isolation Priority System¹ (figure 1). In this system, a score is derived by considering each of the following criteria: ACDP category, route of transmission, evidence of transmission, significant antimicrobial resistance, high susceptibility of other patients with serious consequences, prevalence, and risk of dispersal. Scores were then divided by 5, which resulted in a score of between 1 to 10.

Once scores were derived, this allowed us to list organisms/infections in order of priority.

Manual adjustment

On completion of this process, however, there remained some logical errors which required manual adjustment.

Pulmonary/laryngeal TB had the highest non-mandatory score, but we decided to move this to the mandatory isolation list because of our relatively low incidence of TB and the significant issues which would result if transmission did occur.

Norovirus had a lower score than influenza. As both of these infections peak in the winter, we would run the risk of not isolating our patients with norovirus. We got round this problem by removing norovirus from the list and referring to this instead under 'diarrhoea and/or vomiting of potentially infective cause', which scores 8 because of the wide range of potential pathogens (including *C. difficile*).

Many infections had the same score, and none scored a 2 or a 3, so a logical process was then used to distribute the infections across all of scores 1 to 9.

Figure 1: Modified Lewisham Isolation Priority score card

Criteria	Classification	Score
ACDP (Advisory Committee on Dangerous Pathogens) category	2	5
	3	10
	4	40
Route of transmission	Airborne	15
	Droplet	10
	Contact	5
Evidence of transmission	Strong	10
	Moderate	5
	Poor	0
	Nil	-10
Significant resistance	Yes	5
	No	0
High susceptibility of other patients with serious consequences	Yes	10
	No	0
Prevalence	Sporadic	0
	Endemic	-5
	Epidemic	-5
Risk of dispersal	High risk	10
	Medium risk	5
	Low risk	0

Figure 2: Current Isolation Prioritisation Scoring Chart for NHS Ayrshire & Arran

If any of the following are clinically suspected or confirmed by the laboratory, patient isolation is mandatory (isolation score = 10). The patient must **always** be isolated.

Contact the [Infection Control Team](#) or a Consultant Microbiologist for further information on managing these patients. The ongoing need for isolation will be clarified in consultation with the Infection Control Team.

- All 'extremely resistant organisms', as advised by Microbiology
- Carbapenemase Producing Enterobacteriaceae (CPE)
- Chickenpox
- Measles - **Notifiable disease**
- Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV) - **Notifiable disease**
- Mycobacterium tuberculosis (TB) pulmonary or laryngeal disease - **Notifiable disease**
- Severe Acute Respiratory Syndrome (SARS) - **Notifiable disease**
- Viral haemorrhagic fever, including Ebola - **Notifiable disease**

Organism / infection (suspected or confirmed) - the following require isolation and discussion with the Infection Control Team. They are listed in order of priority (high to low). Click here to access further information.	Priority score for isolation (1 to 9, where 9 is highest)
Epiglottitis or Supraglottitis (Pending laboratory results, as these can be caused by Haemophilus influenzae type b or Streptococcus pyogenes (Group A Strep))	9
Haemophilus influenzae type b causing any infection - Notifiable disease	9
Diarrhoea and/or vomiting of potentially infectious cause (pending laboratory results)	8
Clostridium difficile	8
E. coli O157 - Notifiable disease	8
Shigella	8
Streptococcus pyogenes (Group A Strep) causing any infection. Invasive Group A Strep is a Notifiable disease	8
Influenza	7
Neisseria meningitidis, causing meningitis or septicaemia (until 24hrs of appropriate antibiotics) - Notifiable disease	7
Mumps - Notifiable disease	7
Whooping Cough (Bordetella pertussis) - Notifiable disease	6
Respiratory syncytial virus (RSV)	6
Mycobacterium tuberculosis (TB) extra-pulmonary - Notifiable disease	6
Shingles	5
Vancomycin Resistant Enterococcus (VRE)	5
Salmonella	5
Acute viral encephalitis, of all causes including herpes simplex virus (HSV)	4
Extended Spectrum Beta Lactamase (ESBL) producing organisms, symptomatic of infection	4
Common cold (not including RSV or influenza)	2
Lice	2
Rotavirus	2
Scabies	2
Campylobacter	1
Cryptosporidium	1

MRSA - different isolation priority scores apply depending on patient factors and patient location. 'Skin shedders' include patients with eczema and psoriasis	Priority score for isolation (1 to 9, where 9 is highest)
For patients currently in UHC or UHA	
MRSA in sputum, multiple sites, or skin shedders	8
MRSA in nose only	5
MRSA Clinical Risk Assessment positive (yes to any question)	5
For patients currently in a community hospital or GP unit	
MRSA in sputum, multiple sites, or skin shedders	6
MRSA in nose only (applies to GP units only)	3

Further points

'Extremely resistant organisms' comprises a heterogeneous list of organisms which are clearly communicated as such to the ward and to the Infection Prevention and Control Team by the Microbiology laboratory. These organisms have a mandatory isolation requirement in NHS Ayrshire & Arran and include:

- All pan-drug resistant (PDR) organisms
- All extremely drug resistant (XDR) organisms (locally defined)
- All carbapenem resistant or MDR Pseudomonas / Acinetobacter
- All Burkholderia, and all co-trimoxazole resistant Stenotrophomonas maltophilia

We listed Haemophilus influenzae type b, Group A Strep, and epiglottitis/supraglottitis separately, as we wished to stress the latter, as these clinical presentations are often under-recognised for their infective potential.

Summary

The final one page document (figure 2) now clarifies situations where isolation is mandatory (isolation score =10). Other organisms/infections are listed underneath, with a score of 1 to 9 (where 9 is highest). Although all listed infections require isolation, the system acknowledges that there may be insufficient siderooms.

This document should simplify the task of prioritisation for single rooms, and highlights those organisms/infections for which isolation is mandatory, thus minimising risks to patients, healthcare workers and visitors.

References

- Jeanes A, Gopal Rao G (1999) Lewisham Isolation Priority System (LIPS). University Hospital Lewisham, London.