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Report of Airborne Isolation Rooms Review Working Group- on behalf of Welsh Government

Author: Gwen Lowe - Consultant in Communicable Disease Control

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Purpose and Summary of Document:

Report to inform policy on airborne isolation rooms in major acute hospitals in Wales

1. Introduction

Since 2006 NHS Wales Shared Services Partnership – Specialist Estates Services (NWSSP-SES) have surveyed and produced an annual report on all airborne isolation rooms in major hospitals across Wales. Every year the reports have concluded that many of these airborne isolation rooms are inadequate for the purpose intended when assessed against current best practice.

Therefore, following on from the NWSSP-SES 2015-16 report, Medical Directors in Wales collectively agreed there was a need to review the minimum requirements for the number and location of isolation rooms. It was thus recommended that a high-level working group be set up on behalf of Welsh Government (inviting participation from Health Board/Trust executive nominated leads across Wales, Welsh Government nominated specialist support and nominated specialist advisors) to review requirements and make recommendations.

The remit of the group was to consider airborne isolation facilities as part of general capacity requirements for acute hospitals. It did not include consideration of such facilities in specialist units such as burns units or Bone Marrow Transplant units. The full Terms of Reference and Membership of the group are attached at Appendix A.

2. Process

Group members met on three occasions.

Initially, the existing evidence base underpinning the need for airborne isolation rooms was reviewed and this was then used to draw up an indicative list of infections requiring these facilities.

Next, the group considered alternative solutions for ensuring adequate isolation of patients with these infections to prevent disease spread, including different forms of isolation, network arrangements and the practicality and costs of such arrangements. Surge capacity was also considered.

Following these tasks, the group then reviewed the previous NHS Wales requirements and made recommendations to Welsh Government on the revised minimum requirements for airborne isolation facilities in hospitals in Wales. Please note that the recommendations in this report only apply to Health Boards that have at least one major hospital with a 24 hour general Emergency Unit.

3. Recommendations

The indicative list of organisms/situations requiring airborne isolation facilities is as follows:

a) MDR/XDR Tuberculosis (suspected or confirmed)
b) Smear positive Tuberculosis in patients housed on a ward with immunocompromised or other vulnerable patients
c) Chicken pox -following risk assessment (considering infectivity risk to others and availability of facilities)
d) Measles- following risk assessment (considering infectivity risk to others and availability of facilities)
e) Disseminated shingles
f) SARS like infections and MERS-CoV
g) New and emerging diseases/organisms where the risks and modes of transmission are not fully understood
h) Viral Haemorrhagic Fevers (although not proven airborne, guidelines recommend such facilities and group consensus was that these conditions should be included in the indicative list)

The following are the agreed recommendations from the working group:

1. The preferred facilities for general airborne isolation in hospitals in Wales going forward are **Negative Pressure Suites (NPS)**, which consist of a unit comprising of a Negative Pressure isolation room, en-suite facilities and a lobby. Only where patients would be incapable of using en-suite facilities, such as within critical care facilities, can the Negative Pressure Suite comprise of a negative pressure room and a lobby as the risk from unused water systems would be significant in these settings.

2. Every hospital in Wales with a 24 hour Emergency Unit **must** have at least one Negative Pressure Suite located within that Emergency Unit.

3. Every Health Board in Wales **must** have at least one Negative Pressure Suite able to accommodate a case requiring respiratory isolation in **either** an acute respiratory unit, **or** an infectious diseases unit **or** a medical unit with access to respiratory expertise.

Health systems worldwide and across Europe have also been threatened and compromised by the presentation of patients to hospital with transmissible infectious diseases.

For example there has been transmission of Lassa fever in Germany, admission of patients with viral haemorrhagic fever to Scotland on more than one occasion and a whole region in Canada compromised during the SARS epidemic.

Other infections such as Tuberculosis and varicella along with healthcare associated infections (including emerging antimicrobial resistance) also present a regular challenge to hospital infection control and have resulted in contact-tracing incidents which are difficult and resource-intensive. These are potentially avoidable with improved recognition and management of infections in healthcare facilities.

As such there is a need to improve the capacity in Wales to manage emerging infectious threats and to be prepared for management of a number of different scenarios

b. Challenges

- Patients can present to any hospital in Wales at any time of the day or night

- As presentations with these illnesses are infrequent it is difficult to maintain staff knowledge with regards to appropriate management including recognition of the threat and prompt use of isolation facilities and personal protective equipment
    - The travel history, vital for recognition of emerging infectious threats, is a neglected part of triage and history taking and can result in late or non-recognition of a case of high-impact infection.

- The human resources within the Health Boards in Wales in relation to microbiology and infectious diseases are limited and lack capacity to deal with these threats on a National level
    - Current building structures do not support safe management of patients with infectious diseases, pose significant threats to the capacity of the hospitals following admission even of suspected cases, pose a threat to the well being of health care staff (who have to manage the cases in inappropriate facilities) and prevent maintenance of routine function of the hospital when a suspected case is identified. For example isolation facilities are generally located in the middle of the hospital. As such transportation of the infected individual through the hospital requires a significant amount of staff resource and creates a risk of contamination of the environment (compromising routine function and potentially resulting in closure of the hospital) and spread of the infection to patients and staff during transfer. The movement of patients potentially also compromises patient confidentiality and can lead to leakage of information to the press at an inappropriate time and in an uncontrolled manner.

- None of the Health Boards are designed to deal with such threats and there is no hospital in Wales currently that has a facility to manage emerging infectious threats at an optimal level

As a result of the issues highlighted above, admissions with real or suspected high-impact infections, as occurred during the EVD outbreak, caused risks to staff (suspected cases caused significant psychological morbidity to health care workers who were operating under sub optimal conditions), and also compromised the routine working function of the Health Boards with knock-on consequences and potential threats to patient health through compromise of routine care.

These challenges are recognised not only within health boards in Wales but also throughout the UK.

6. Recommendations for all Wales infection service

We recommend development of a "hub and spoke" model, whereby all areas are able to recognize, isolate and provide short-term treatment for high impact and emerging infections, supported by a central specialist unit. Two main elements are proposed

1. Develop a central infectious disease unit designed to specifically manage emerging and high-impact infectious threats so that patients in Wales can be safely admitted, assessed and managed without compromising routine care.

2. Improve the capacity in staffing, training, equipment and built environment in each health board to deal with emerging and high-impact infections and also improve capacity for other infections such as tuberculosis.

c. Central unit specifications / requirements

- Separate entrance to the infectious disease unit for admission of patients with emerging infectious threats/contagious illness
- Adjacent or directly linked to main hospital, but able to be isolated with separate entrances and exits
- Ability to deliver level 3 care at the site of admission and within the isolation facility or development of a route that enables transfer of an infected individual with minimal risk of disruption and minimal risk of exposure of infection to other members of staff / patients. E.g. external lift for extraction of patients to intensive treatment unit via a single entrance on both wards.
- Two part unit, with facility for single patient isolation for VHF and separated isolation rooms for lower impact infection isolation (e.g. infectious diarrhoea, TB)