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New enhanced surveillance for Pandemic (H1N1) 2009 - admissions to Intensive Care Units of Irish hospitals

During the Pandemic it is important to identify the groups of persons who are at increased risk of medical complications and to monitor for changes in the profile of affected groups as the pandemic progresses. This information is used in conjunction with mortality data, to target those who should be prioritised for medical interventions such as immunisation.

In recent months, evidence emerging from the Southern Hemisphere[1] and briefing notes from the World Health Organization[2], have advised that larger numbers of severely ill patients requiring intensive care are likely to be the most urgent burden on health services, thus creating pressures that could overwhelm Intensive Care Units (ICU).

The following is a description of the system of surveillance that the Health Protection Surveillance Centre (HPSC) has now established in response to the experience in the Southern Hemisphere and WHO observations. The system was developed in close association with colleagues in ICUs from around the country. The system relates to adult, paediatric and neonatal confirmed and probable cases of pandemic (H1N1) 2009 admitted to ICU.

The principal aim of the surveillance system is to report on the demographic profile (age, sex,) of all cases of pandemic (H1N1) 2009 admitted to ICU with details of predisposing risk factors, medical complications and clinical outcome. This information is used in conjunction with surveillance data from a number of sources as follows: mortality data, data on laboratory confirmed cases, virology data and data on ILI consultation rates from sentinel GP practices. The objectives of the system are:

1. To identify the age, sex, and co-morbidity of cases of pandemic (H1N1) 2009 admitted to ICUs;

2. To monitor for any changing trends in age, co-morbidity etc of patients admitted to ICU with pandemic (H1N1) 2009;

3. To document complications arising in ICU admitted patients with pandemic (H1N1), 2009;

4. To report the outcome at discharge from ICU in patients;

5. To report length of stay in ICU.

The following outlines the logistical operation of the system. A dataset is collected from each patient meeting the case definition* on admission and discharge.

The admission form gathers information on:

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- Patients' demographic details
- Clinical presentation
- Sequential Organ Failure Assessment (SOFA) score
- Underlying medical conditions

The discharge form gathers information on:

- Patients' demographic details
- Disease course: clinical complications and the need for and type of mechanical ventilation
- Discharge information and outcome

In mid September, each hospital pandemic flu co-coordinator was asked to nominate an individual to manage activities relating to ICU surveillance within each hospital and to liaise accordingly with the HPSC. The data collection exercise is a multidisciplinary team endeavor that requires input from clinicians, nursing staff and hospital administration.

Forms are completed by ICU medical staff on all patients admitted to an adult or paediatric Intensive Care Unit with a probable or confirmed diagnosis of pandemic (H1N1) 2009. The role of the HPSC is to collate and analyse the information in order to provide the National Public Health Emergency Team (NPHET), the Pandemic Influenza Expert Group (PIEG) and National Public Health Outbreak Response Team (NPHORT) with appropriate and timely information. The information is used to target interventions at those most at risk of serious morbidity during the pandemic.

As we enter the month of November, the system continues to develop on a daily basis with active participation by all ICU sites. It is proposed that a weekly report of ICU admissions with pandemic (H1N1) 2009 will be produced in the coming weeks. Such data is critical to the ongoing monitoring and management of the pandemic in Ireland.

Epidemiology Team, Pandemic (H1N1) 2009, Health Protection Surveillance Centre

**Confirmed and probable Pandemic (H1N1), 2009 cases will be included in the surveillance (Case definition provided as Appendix A)*

Acknowledgements

HPSC wish to extend thanks and gratitude to all hospital and ICU colleagues for the timely provision of data.

References

1. New South Wales public health network; Progression and impact of the first winter wave of the 2009 pandemic H1N1 influenza in New South Wales, Australia Eurosurveillance, Volume 14, Issue 42, 22 October 2009 Accessed November 2009

2. World Health Organisation; Preparing for the second wave: lessons from current outbreaks Pandemic (H1N1) 2009; Briefing Note 9. Accessed November 2009.

Appendix A - Case definition (Final EU)

Any person meeting the criteria for a probable or confirmed case

Clinical criteria

Any person with one of the following three:

— fever > 38 °C AND signs and symptoms of acute respiratory infection,

— Pneumonia (severe respiratory illness),

— Death from an unexplained acute respiratory illness.

Laboratory criteria

At least one of the following tests:

— RT-PCR,

— Viral culture (requiring BSL 3 facilities),

— four-fold rise in novel influenza virus A(H1N1) specific neutralising antibodies (implies the need for paired sera, from acute phase illness and then at convalescent stage 10-14 days later minimum).

Epidemiological criteria

At least one of the following three in the seven days before disease onset:

— A person who was a close contact to a confirmed case of novel influenza A(H1N1) virus infection while the case was ill,

— A person who has travelled to an area where sustained human-to-human transmission of novel influenza A(H1N1) is documented, (Note: Ireland now has sustained human-to-human transmission)

— A person working in a laboratory where samples of the novel influenza A(H1N1) virus are tested.

Case classification

A. *Case under investigation:* Any person meeting the clinical and epidemiological criteria.

B. *Probable case:* Any person meeting the clinical AND epidemiological criteria AND with a laboratory result showing positive influenza A infection of an unsubtypable type.

C. *Confirmed case:* Any person meeting the laboratory criteria for confirmation.

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