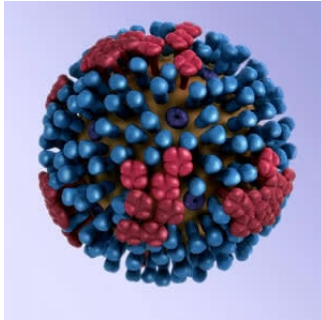


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## Real-time Surveillance of Influenza Morbidity



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Morbidity and mortality associated with influenza are routinely analysed retrospectively. The Centers for Disease Control and Prevention also releases weekly data on hospitalisations and mortality due to lab-confirmed cases of influenza. In addition, through its online Influenza Hospitalization Surveillance Network (FluSurv-NET), CDC provides a breakdown of patients admitted to intensive care units, those that required mechanical ventilation or die as a result. However, what this data fails to provide is information on how best to assess the *real-time* needs of hospital resources such as intensive care beds, mechanical ventilation and extracorporeal membrane oxygenation (ECMO).

For this purpose, a research pilot study was commissioned to observe the efficacy of collecting data on surrogate markers of influenza morbidity and mortality in hospitalised patients. The aim was to identify any trends, if any, to help hospital administrators *plan for* rather than *react to* emerging hospital resource requirements including equipment and technical human resources such as infection preventionists, perfusion teams, and epidemiologists and other relevant nursing and physician staff.

The research pilot was conducted at three tertiary care hospitals in Durham, North Carolina, Richmond, Virginia and Iowa City in Iowa. Data from the 2013-2014 influenza seasons were collected retrospectively and analysed. A combined 431 patients were admitted to these hospitals during the influenza season, spending 1520 days in intensive care units, using 1080 days of mechanical ventilation and 229 days of ECMO (Extracorporeal membrane oxygenation). Analysis of the data in light of surrogate markers (such as the use of intensive care units, mechanical ventilation, and ECMO) confirmed the existence of patterns that were not identified or studied before.

While the use of mechanical ventilation corresponded to that of intensive care units, the trend of ECMO, hospital admissions, and death differed significantly. For example, the use of ECMO increased several weeks *after* the peak hospital admission rates for influenza. At the same time, use of intensive care units, mechanical ventilation, and ECMO remained *high* for several weeks after the decline of hospital admissions associated with influenza. Both of these trends are directly implicated in the use of hospital resource requirements and were not identified with a collection of traditional metrics.

The study illustrated that current practice of using real-time data on influenza-associated hospital admissions is not sufficient to accurately assess local hospital needs, the true burden of influenza or its overall impact on public health during influenza. It is highly recommended that for better resource planning, data on surrogate markers of influenza should be collected and used as demonstrated successfully by the research pilot study.

Source: [Annals of the American Thoracic Society](#)  
Image Credit: Pixnio

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