
Volume 4 - Issue 1, 2010 - Features: Practice Management

Managing Surge Capacity: Balancing Resource Utilisation



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Worldwide, healthcare systems are struggling with higher costs and demands of becoming more cost-effective. Despite our efforts, diseases cannot be exterminated and treatments of curable diseases sometimes result in the manifestation of new ones. For instance, decreasing neonatal mortality has been replaced with diseases among aging population e.g. cancers, raising the need for new areas of competency, treatment alternatives and technologies. The latter is considered to be the highest cost increase for today and tomorrow's healthcare – a desirable improvement in healthcare quality, but at a cost, that has not been included in our economic calculations.

Swedish Healthcare Provides Model

The Swedish healthcare system has seen dramatic changes during the last two decades. An increasing elderly population combined with improvements in medical technology and treatment facilities has led to a situation with ever-increasing demand on healthcare. In a healthcare system that is almost 100 percent funded by taxpayers, and since Sweden has some of the highest income taxes in the world, thus increasing taxation rates has not been a viable political option. Instead these challenges have been met by several different measures:

- A more "efficient" hospital system has been created, often using large manufacturing industries as a "blueprint";
- The length of stay (LOS) has been reduced dramatically for all patient groups and more diseases and conditions are treated on an outpatient basis or in day-care surgery; also
- Stockpiling of supplies has been replaced by systems of "same day delivery" (Carlsson 2007; OECD Health data 2008), and
- In the last 20 years, the number of hospital beds in Sweden has been reduced from around 100,000 to 26,000. Several emergency hospitals have closed or been converted to facilities dealing only with elective cases.

These changes have obvious implications for the hospital surge capacity in cases of major incidents or disasters – a fact that is rarely openly discussed. In disaster/armed conflict planning in the 1980's, it was assumed that 1/3 of all in-hospital patients in Sweden could be immediately discharged should there be an influx of trauma patients. Such an assumption would be completely unrealistic today! A major task for many consultants on call in Swedish emergency hospitals is to prioritise which patients must be discharged in order to make hospital beds accessible for newly admitted patients, a task sometimes referred to as "reverse triage".

100% Occupancy a Distant Goal

From an economic point of view, the most efficient way of utilising given resources is a 100 percent occupancy at all given times. This can be achieved in an ideal and purely elective setting with much standardised care provided that no untoward events occur. In emergency care such a perfect balance between given resources and demand is much more difficult to achieve and maintain. In reality, certain key resources, e.g. ICU beds, are often over-utilised. However to have a preparedness that can deal with a sudden increase in demand for emergency care there must be a certain "reserve capacity" built into the system.

This is what all emergency hospitals use on an everyday basis dealing with trauma alerts, myocardial infarctions or other potentially life-threatening conditions. Thus, medical preparedness - even for everyday emergencies carries a cost and has to compete with other priorities within the healthcare system. Preparedness to increase the capability of a hospital or a hospital system beyond the everyday influx of emergencies in order to deal with a major incident/disaster (surge capacity) will also draw resources. Perhaps there is positive aspect to the recent global terrorist actions and the on-going pandemic of influenza (A/H1N1) in that the resulting media coverage has highlighted the need for every hospital management to review their disaster plans.

Risk Assessment the Key

The key question in attempting to increase surge capacity is which costs can be justified in a sector that is under constant financial constraint? Decisions must be made based on estimates of realistic predictions on which disasters we will see in the future (risk assessment). Climate changes and global warming are additional hazards that might completely change both risks of incidents as well as vulnerabilities within our societies. The complexity of these issues merits a multi-disciplinary approach, in which relevant hospital and pre-hospital preparedness must be assessed by experts on disaster medicine.

Financial constraints are obvious in the generic planning phase for a disaster, but often seem to evaporate in the aftermath of an actual event. The result is often costly actions with little or even counter-productive effects on the stricken society and population. It is time to realise that money spent on scientifically based generic plans on how to increase healthcare surge capacity is the way forward. It is time to get rid of the old myths regarding disasters!

Published on : Mon, 4 Jan 2010