

ACT Academy

Online library of Quality,
Service Improvement
and Redesign tools

Demand and capacity – an overview



Demand and capacity – an overview

It is impossible to run effective healthcare services without some consideration of demand and capacity management. Through analysis of demand and capacity for a service, it is possible to identify and apply good practice approaches to improve flow and decrease waiting times.

As well as the practical examples of service improvement highlighted in this chapter, there are also many academic publications that report different types of demand and capacity analysis. This literature describes numerous tools and techniques that are applicable to all different kinds of healthcare service.

There are different layers of demand and capacity management. In its most basic form, it can be simply measuring demand and capacity to help with service planning and provision. At the more complex end there are techniques such as discrete event simulation that may need to be applied if planning significant changes to services so that the impact of the changes is fully understood.

The tools and techniques outlined in this chapter will enable you to better understand and manage demand and capacity in whatever healthcare environment you operate. Experience within the health sector of using these tools has highlighted a number of key overarching factors that need to be considered when analysing demand and capacity:

- **Consider variation** – both demand and capacity data will show variation and this variation needs to be explicitly considered when looking at service provision. It is often considered that emergency attendances or admissions vary randomly and it is this variation that causes pressure within hospitals. Experience has shown that this is not in fact the case and that elective admissions usually vary more than emergency admissions. This may seem counter intuitive when the pattern of elective admissions is fundamentally under our control. Experience also shows that capacity often varies more than demand and again this is under our control.
- **Use statistical process control** – because of the importance of understanding variation within the system, all data should be plotted using statistical process control (SPC) techniques. This approach ensures that variation is explicitly considered.
- **Beware using averages** – linked to the two previous points, averaging data and therefore removing the variation component, needs to be done with extreme caution. Often planning service provision based on data that has been averaged will lead to underestimating the amount of capacity that is required.
- **Beware of magic numbers** – often specific numbers are cited as being useful to support the planning of service provision. For example, ‘aim for 85% bed occupancy’. These numbers are usually unhelpful and are often wrong. An appropriate bed occupancy level depends on the size of the bed pool and on the degree of variation within the demand. For a large bed pool, 85% will be too low whereas for a small pool it will be too high.

- **Measure what actually happens** – rather than what you think happens or what is supposed to happen. Whenever you look at the theoretical staffing capacity – by using shift or rota information and comparing it to actual staffing capacity – there is always a mismatch. Staff often have many competing priorities and this can lead to the capacity relating to care delivery being less than is anticipated.

By implementing proven good practice approaches to managing healthcare services, you will be able to better manage the demand and capacity related to that service. This will help to ensure that patients are seen in a timely manner and receive a safe, high quality service.

There are several evidence-based approaches that you can use to manage the patient pathway to optimise the use of available capacity to meet demand and improve the patient experience. Most of these good practice approaches are well established in healthcare organisations today.

The following tools are particularly useful in helping you to manage demand and capacity. The specific detail of how to use each of the tools can be found in the relevant sub sections:

- [Demand and capacity – a comprehensive guide](#)
- [Reducing cancelled operations](#)
- [Reducing did not attends \(DNAs\)](#)
- [Reducing length of stay](#)
- [Discharge planning](#)
- [Same day elective care – treat day surgery as the norm](#)
- [Same day emergency care/ambulatory emergency care](#)
- [Enhanced recovery](#)
- [Patient information](#)
- [SBAR communication tool – situation, background, assessment, recommendation](#)
- [Theory of constraints](#)
- [Flow – reduce unnecessary waits](#)
- [Glenday Sieve – runners, repeaters and strangers](#)
- [Reliable design](#)
- [Role redesign](#)
- [Lean – Ohno's eight wastes](#)