

How many staff members are needed to run a busy hospital dispensary?

By **Steve Acres**, pharmacy service manager at Leicester Royal Infirmary

The question of how many people it takes to run a busy hospital dispensary is simple enough. But who can put their hand on their heart and honestly say they know? The answer, of course, lies in the output, but what exactly is that? Who generates it and what do they contribute to the equation?

The concept of output-based manpower planning is not new; neither is it rocket science. It does, however, require a reasonable management information system from which to draw a range of accurate data. It also requires the application of those data in a logical way to determine task and resources or, to use Modernisation Agency speak, demand and capacity.

Arriving seven months ago into the service manager post at Leicester Royal Infirmary I was confronted with staff with poor morale who worked long hours to deal with a heavy workload. The constant gripe was "we are too busy, we don't have enough staff". The seemingly obvious questions were how busy is too busy? How many more staff did we need? Nobody knew the answers. How was the dispensary establishment derived? Again nobody knew. How could we seek investment for new staff if we did not know how many we needed?

It was clear that we needed to get down to some fundamentals and work out how many people (capacity) we needed to manage the workload (demand). Our searches through medicines information drew a blank and results were limited to a Welsh study on average dispensing rates. In trying to understand just how busy we were, the average dispensing rate looked to be a good start point and was calculated across all three of the trust's sites. In this process we took the total number of items dispensed and divided this by the number of dispensing hours worked by staff to give the number of items dispensed per person per hour (p/p/h).

This does not take into account complexity but it does provide a broad indicator of how busy the department is.

The results made interesting reading with a disparity between our three sites: staff at Leicester Royal Infirmary were dispensing over 24 items per person per hour against the Welsh study average of between nine and 10 items. Naturally enough, this raised the question of what is a "safe" average dispensing rate? The jury is still out on that one but we are trying to compare the average dispensing rate to error rates at each site. The difficulty here is that the quality of error reporting can be adversely influenced by heavy workload.

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Now that we had a crude comparator of workload across the trust, there was a need to get more into the detail and determine the shortfall in capacity against demand. We started by asking the question, "in a standard five-day working week how many working hours are available for the core task of dispensing?". This is the sum of the total hours each member of staff is contracted to work in that area each week. However, there will be times when they are not available; sickness, annual leave, study leave, college days, meetings, etc, all reduce the available resources. This can be adjusted by adding up

all annual leave entitlement, sick leave and all other losses for the year then dividing by 52 to give the time lost from overall staff availability for a week. We have now calculated capacity.

To calculate demand, the approach was simply to list all of the tasks that form part of dispensing: dispensing, issuing Controlled Drugs, checking and giving out prescriptions, etc. It is necessary to make the list as comprehensive as possible and reflective of reality. It is then necessary to allocate time to all of these tasks; for dispensing, we used an assumed "safe" dispensing rate of 15 items per person per hour. As an example, dispensing 5,000 items per week and assuming a dispensing rate of 15 items per person per hour would result in 333.3 hours of work. Other tasks were measured using the actual time taken to perform the task, eg, final checking.

This results in demand measured in the same units (hours) as capacity. All that is now

How the shortfall between demand and capacity was calculated

- A. Hours required to complete tasks (demand) = 642.35
- B. Total available resources (hours), ie, total capacity = 703
- C. Time lost (hours), ie, lost capacity = 283.15
- D. Resources dedicated to dispensing (B-C), ie, available capacity = 419.85
- E. Shortfall (A-D) = 222.5 (34.65 per cent)

required is a simple calculation to work out the shortfall in hours and calculate this as a percentage of the total demand. In our case, this amounted to an astounding 34 per cent, which was calculated as shown in the Panel.

This approach will not solve manpower shortages nor will it necessarily increase morale. What it does do is give a clear, logical measurement of demand and capacity. It will also provide ammunition in the search for investment from the clinical directorates who generate the demand, as well as reasons for discharge and outpatient prescription delays. At least, we can now answer the question, "how many staff do we need?". We can also use our calculations to determine what impact investment will have on turn-around times.

There are, of course, more worrying questions about quantifying shortfall, particularly if it proves to be significant. When demand outstrips capacity, it can be some of the most fundamental things that are disregarded to push work through ever faster. In dispensing, it is the self-check which is at the very heart of ensuring patient safety. In the quest to clear the workload and leave for home on time there is great potential for people to skip the self-check and rely on the final checker as a safety net.

It would be easy to "demand" that the self-check is undertaken but we all know that ownership of one's own work is the real key to success in this area. However, as employers and managers we all have a responsibility to support our staff and ensure that sufficient resources are available to meet demand and reduce the risks to patients.

Finally, although this model has been developed in hospital pharmacy, the concept should be completely transferable to any environment where output activity can be measured.

The **Broad spectrum** feature is open to any reader. Contributions of 1,100 to 1,200 words commenting on topical issues, should be sent to Graeme Smith (e-mail graeme.smith@pharmj.org.uk) for consideration.