

Guest Editorial

Radiotherapy plc – The Addenbrooke’s experience

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RADIOTHERAPY AS A BUSINESS

A combination of an ageing population and the increasing incidence of cancer has increased the fundamental demand for radiotherapy treatment on an annual basis.¹ A key constraint on the ability of the service to meet this growing demand is not solely financial, but the lack of suitably qualified staff.² This combination of factors results in constant pressure on the service to find new ways of working that yield greater efficiency³ – the ability to “do more with less”. It is highly probable that this pressure to improve efficiency is going to remain a constant for the foreseeable future as training lead times and recruitment and retention issues are such as to preclude any near-term resolution of the staff capacity problem.

The underlying pressure to find new and better ways of working that yield greater results (however measured) for a given level of resource is one that permeates business in general. It is inevitable therefore, that parallels will be drawn between the approach adopted by the business community to address this requirement and the approach taken by the NHS, with health professionals being expected to find out how the business community have addressed this need, and to see if any of their solutions are appropriate to the needs of the radiotherapy service.

This journey of discovery into the culture of business will be a very new experience for many radiotherapy staff, who will be struggling to

reconcile the demand gap and who will have a very limited (and possibly cynical) view of current business practices. Nevertheless, a very great deal of time, effort and resource has been expended in business to solve problems that are very similar in core attributes to those faced by our profession – the challenge we face is one of understanding how we can seek out and import the answers that are out there.

The need to solve our problems is not going to go away, and we have to recognise the validity of the axiom that “if you keep doing what you’ve always done, you’ll keep getting what you’ve always had.” In other words, we have to change our working practices if we are going to meet the demand – and it is often a lot easier to take an answer from someone else than work it all out from scratch!

This takes us full circle to the issue of radiotherapy as a business. It clearly is not exactly the same as a business – we do not have shareholders that want financial return! But we do have shareholders that have expectations of return, that of a high quality medical service. However, when we need significant change, it can be very revealing to examine the problem from a completely new angle and see if we can restate some of our needs in a form that enables us to map them onto existing solutions. Addenbrooke’s Radiotherapy Department has taken a very proactive stance and has carried out a review in accordance with guidelines set out by the Cancer Services Collaborative radiotherapy toolkit,⁴ and has looked at current best business practice in order to see which processes could be imported to good effect. We decided to consider sections of the department’s activities as if they were a business, rather

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than allowing ourselves to view them solely in historical service terms. This initiative was, without doubt, quite a cultural leap and caused much lively debate in the early days. However, while far from complete, the initiative has enabled the department to make significant steps towards closing the demand/capacity gap.

In the balance of this editorial, we will look at Addenbrookes' experiences to date, the issues that remain outstanding, and our plan to address them.

UNDERSTANDING MARKET/SERVICE NEEDS – A BACKGROUND

Good business practice begins with creating an understanding of the market needs, and then providing appropriate resource and services that satisfy the requirement. In our case, our “market” wants an effective and efficient cancer service. It has been shown that cancer outcomes can be improved by reducing the time period between cancer presentation and treatment,⁵ so national waiting time targets were set to achieve this improvement. These targets specified a maximum time interval between diagnosis and treatment, a requirement that further increased the demand on the service. It became clear that, if we were to achieve the targets set, we would have to firstly calculate the extra capacity required, and then find ways of creating the necessary extra availability.⁶

This concept has already been adopted nationally and programmes have been started to create measurement methods. Population demographics can be mapped to cancer demand from which we can calculate, and therefore plan, the radiotherapy capacity needed.⁷

It was recognised that the existing capital equipment base was insufficient to be able to meet the new demand, so – as an early step – a programme of increasing and modernising radiotherapy equipment was launched nationally.

DRIVERS FOR CHANGE

For us, the wake up call came in 2000 when we were embarking on the programme of replacement and installation of radiotherapy equipment

during which older linear accelerators were removed from clinical service, temporarily placing the full workload on the remaining units. The timing coincided with a national radiographer shortage.⁸ Our radiographer vacancy rate was approximately 27% with expenditure on agency staff to reduce some of this deficit at one point reaching £250,000 per annum. The waiting times for radiotherapy reached a peak of 15 weeks. Extended working days and voluntary overtime including Saturday working were being used on some of the treatment units as a method of offsetting the restricted capacity, but the serious lack of radiographers meant that the gap was unbridgeable. Additionally, the pressure was having a detrimental effect on staff health and retention rates and was therefore unsustainable over the long-term. Improvement was essential.

Implementing skills mix

The nature of the problem was outside our prior experience, so we recognised that we needed to seek out novel solutions. We decided to try to see if there were any ideas that we could import from the business sector. Some looked very interesting and potentially appropriate for our needs, but there is no doubt that it took courage for the radiotherapy service management team to consider importing ideas from disciplines well outside our own. However, the effort has been worth it. One strategy was to find supplementary staff groups who could be trained quickly to undertake some of the treatment delivery tasks. By applying the business maxim of “the right skill for the job”, we challenged our long-held perceptions about which of the many tasks necessary for treatment delivery could be undertaken by a staff group trained in a sub-set of the radiographers' skills. This analysis led us to the conclusion that there was significant merit in the concept of bringing in assistant practitioners to assist the radiographers in the delivery process. In 2001, following initiatives instigated by the College of Radiographers,⁹ we were successful in becoming a New Ways of Working Department of Health pilot site. The new staff group, assistant practitioners, was effective in supporting the radiographers at all stages of the radiotherapy treatment pathway; so vital additional capacity was gained on the treatment units.

This skills mix programme had benefits elsewhere. Radiographers moving into areas of specialisation and advanced practice had a positive effect on the throughput of patients as they were more accessible than other members of the multi-professional radiotherapy team. Technical, disease or individual patient problems could be managed by radiographer advanced and consultant practitioners, avoiding lengthy delays waiting for oncologists or other members of the multidisciplinary team. An added bonus occurred in that the recruitment and retention of radiographers was improved by the adoption of this positive approach to career progression.

A further development has been to expand the programme to include administrative and clerical staff in to the radiotherapy team. Previously our scheduling system had been led by a superintendent radiographer. This review made us realise that this task did not require the full-time services of a skilled radiographer – one of the scarcest resources in the department. Following this realisation, we were able to change the skills mix applied with the result that the same effective level of service was provided to the patients whilst simultaneously easing the pressures on our radiographers. An administrative manager (A&C level 5) was appointed to actively manage the patient booking system to achieve the targets. The scheduling manager works closely with the clinical radiotherapy team and highlights blockages and potential problems, making it a proactive rather than reactive system. The superintendent radiographer has returned to advanced technical practice, making more appropriate use of their specialist skills.

Once we had embarked on the programme of analysing skills mix for the various treatment tasks, we realised that this could be extended to include how we worked with the radiotherapy physics team for QA and planning tasks. For example, assistant practitioners were trained to undertake the run up of the linear accelerators, releasing technicians and radiographers.

The treatment dosimetry and planning team now consists of physicists, radiographers, medical technicians and clinical oncologists. The separate tasks are allocated according to staff competency by an automated scheduling system. The capacity

available in the planning team can therefore be managed proactively allowing us to remove this historical bottleneck and meet the waiting time targets.

WHAT COMES NEXT?

This is, however, only the first step. As the demand for radiotherapy rises each year, the capacity of the service must rise to match. Increasing treatment equipment nationally is only part of the equation; we must also use our resources more efficiently.

Process mapping

Having the capacity is one thing being able to use it efficiently quite another. Practices within business have demonstrated efficiency can be improved by “knowing your business (service)”, gaining a detailed insight into how we do things. The Cancer Services Collaborative⁴ suggested methods to evaluate and improve treatment pathways and processes within radiotherapy. We have completed this first step, but now need to take it further, by identifying the detailed tasks of each stage on the pathway. Each task can then be reviewed to determine the skill required to carry it out.

Forward planning

Strategic planning is an essential part of business, and is a term that refers to the creation of a set of rules that can be applied to achieve some type of specified outcome, or objectives. We have to ask ourselves what we are going to be expected to have to do in the future – from this we can gain some understanding of what objectives we should be setting for our service.

Additionally, managing future changes requires us to prioritise our actions as to what would have the most benefit for the most patients. From this, we could then identify potential problems and manage them in order to minimise the risk and then plan our next step. This sounds a bit like project management!

Investment in technology

Radiotherapy practice must evolve with the current knowledge-base to maintain an effective high quality service. Beneficial changes in practice often

occur as a consequence of the introduction of new ideas or technology. Evidence exists linking new technology with increased radiotherapy delivery efficiency.^{10,11} Identifying and planning for the adoption of these innovations and developments would assist the strategic, financial and workforce planners as well as the educators who would need to supply an appropriately skilled workforce.

Patient centred

Business should be market driven and our market wants a service that is effective as well as efficient. An efficient service simply maximises the number of patients treated by a given department; a truly effective service optimises this number after giving due consideration to the quality of service provided to each individual patient. A recent report “What Breast Cancer Patients want from a World Class Radiotherapy Service”¹² emphasised the need for a patient-centred approach, treating the whole person not just the disease. Capacity should therefore be balanced with quality care. Physical, psychological and emotional support could be provided before, during and after treatment by advanced and consultant level cancer-specific radiographer practitioners. Communication could be improved by redesigning the treatment process and making better use of assistant practitioners to release radiographers, giving patients the opportunity to discuss their individual needs.

Extending skills mix

We have achieved much by using our current skills mix model but we could go further. Echoing business practice, efficiency and effectiveness is reached by having a good organisation structure, with clearly identified roles, responsibilities and methods of communication. In taking a deep look at our service, we have realised that our radiotherapy management structure also needs the appropriate skills mixed to support it. The role of the radiotherapy service manager is akin to a Managing Director, with responsibilities for deciding the vision and strategy for the department and creating the infrastructure to support this. Managing Directors, however do not work unsupported, they have a team of directors who are experts in their particular areas to whom they devolve responsibilities. By applying the same skill mix review, the supportive roles and skills required

in a radiotherapy management structure can be determined. For our department, we have identified the need for key radiographers in areas of process and workforce redesign, service monitoring and evaluation, and research and development. This moves away from the traditional tower organisational structure of radiotherapy to reflect the more pyramidal structure of business. Adopting this structure would create alternative career progression possibilities in management.

Flexible career progression into advanced practice is now possible according to the individual radiographers' strengths. Specialisation can occur in management, education, patient-focused (cancer-specific, clinical review), technical (dosimetry, research, imaging, delivery) or community liaison.^{13,14} It is hoped that by offering a greater choice of options, radiotherapy would be more attractive as a career.

This review has given us an insight into our own service. Using the knowledge gained, we are now in a position to plan further developments to achieve the longer-term objectives for best practice within a radiotherapy service, making it patient-centred, efficient, safe, accurate and cost-effective, in other words, a first class service.

CONCLUSION

In 2006, the system works, this change in working practice has led to us achieving our short-term objective of decreasing waiting lists. Radiographers are crossing professional boundaries to make up for the shortfall in other staff groups such as physicists and clinical oncologists, so they can be released to undertake their own extended practice. The skills mix of assistant practitioners, radiographers, advanced practitioners, medical physics staff and administrative and clerical staff are a fully integrated part of the culture of the department.

Our experiences have led us to the conclusion that our old style of service management with a superintendent radiographer at the helm is no longer sufficient. Today and tomorrow's radiotherapy service manager will need business management skills and to be informed and supported by key radiographers with strong process and audit skills, backed by quantitative research. This will

ensure that the department operates in a manner that will allow the excellent clinical implementers to deliver the first class service in an effective and efficient environment.

Approaching the opportunities offered by the business community in an open minded manner has yielded significant benefits – and we find our needs are more similar than different. Without doubt, the greatest gains of considering our activities as if they were a business have been the revelations that resulted directly from our different perspective of the department.

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