Better value cancer care for the 21st century

The last two decades have seen steady improvements in the quality of cancer care. We have embraced multidisciplinary team working, site specialisation by focusing expertise on specific cancer subtypes, increased the power, reliability and quality of the clinical trials which underpin our evidence base, and taken this forward into the production of practical management guidelines. The EuroCare studies, published in this Journal [1], have shown a trend of increasing survival, which has been attributed to earlier detection and better treatment. There is wide variation in outcomes when we compare international mortality figures but no clear explanation to account for this disparity, although there have been speculative claims correlating survival with access to new drugs and radiotherapy equipment, or the number of oncologists, or the overall cancer spend [2]. It has been estimated that if we could improve UK’s cancer survival figures to those of European leaders, say Sweden, thousands of lives would be saved every year—quite a prize for any health economy.

There is no doubt that the challenges facing the cancer community reflect a subset of the major problems that afflict general Health Services in all of Europe’s nation states:

- Unwarranted variation in quality and patient experience
- Patient harm even when quality is high
- Waste, namely the consumption of resources that do not add value for patients
- Inequities and inequalities in care
- Inadequate focus on prevention

Furthermore, every major European cancer service has to face the additional critical challenges of rising demand and increasing need, which must be met within significant financial constraints. It is clear that these problems cannot be solved solely by further scientific advances or by spending more and more money, even if that were an option. We estimate that the total cancer spend across Europe’s population of ~850 million citizens is of the order of 75 billion Euros. These problems cannot be solved by reorganising the bureaucracy of health care, which usually achieves superficial change rather than transformation. We believe that these challenges can be solved by intelligent and committed clinical leadership which takes account not only of the individual patient whom we review in the clinic but also of the wider population of patients whom we serve within our community. What is needed is revolution, not reorganisation, in the way that people who manage health services think, make decisions and act.

quality challenge of cancer care

In UK, the current Health Reform Bill has two dominant philosophical themes, embracing clinical outcomes as a truer means of assessing the quality of care delivered by our National Health Service (NHS), and an information revolution that promises to put these clinical data into the public domain, not just for professionals, but in a way that empowers patients. Provision of locally, nationally and internationally benchmarked clinical information will allow us to compare the efficacy of local care pathways and whether they meet our needs. For example, if you moved to a new area and had a family member living with cancer, you would be able to select the general practise/hospital that publishes and offers the best outcomes for their particular condition, leading to increasing competition between health care providers in what has been an enormous State-run monopoly.

Furthermore, and perhaps more importantly, peer pressure and professional pride will mandate that cancer clinicians respond to benchmarked data to improve performance relative to their peers if they have been shown, publicly, to deliver suboptimal care [3].

Providing information to citizens about the clinical outcomes that return most health gain, in an accessible format, will create a health atlas covering the major diseases—think of an ordinance survey map, contoured by health rather than height above sea level! If we overlay this atlas with Programme Budgeting information, then we have a tool, which will prove integral to patients, purchasers and commissioners of cancer care to ensure cost-effective outcomes. The Swedish Health Service has provided a strong lead in this field. The Swedish association of local authorities and regions and the National board of health and welfare publish an annual report called Quality and Efficiency in Swedish Health Care—Regional Comparisons [4]. The purpose is to give the public an insight into health care and to compare health care quality and efficiency in every Swedish County Council by using national performance indicators. Indicators are added every year and the 2010 report contains 134 indicators of medical outcomes, but also patient experience and efficient use of resources. For some indicators, comparisons are also done over time and at hospital or department level. Results are assessed for men and women to disclose possible gender inequalities.

The report has successfully managed to stimulate the public debate on health care issues and it also forces local efforts to improve their services (Figures 1–3). There are several factors that can lead to wide variation in clinical outcomes; heterogeneity in the biology of disease, case mix, co-morbidities, deprivation, host genetics, etc. all of which will continue to be the focus of further research and of
increasing engagement with public health specialists; unwarranted variation, however, depends on disparities in clinical knowledge, allocation of resources, organisational culture and access to appropriate care (quality of multidisciplinary teams, availability of latest drugs and equipment, etc.). Making the clinical outcome data public will allow patients and their families to monitor improvements in their own health community or choose alternative health care providers. Clearly, priority must be given to the selection of those health indicators, which will return the greatest length and quality of life and where that evidence is weak, generate the research to confirm or refute their worth. Hard outcomes like recurrence and survival rates and 30-day mortality rates could be combined with patient-reported outcome measures to ensure that patients could describe their sense of the service delivered—Were they given adequate information? Were they treated with dignity and respect? Were the hospital wards and clinics clean? etc. See “Iwantgreatcare.com” for an excellent


example of how this might be done and how we might follow the Swedish lead.

Part of the challenge will be explaining the pattern of these clinical outcome measurements to our patients and their families. This means that we need to explain the concept of an average and its distribution and why there will always be an element of random variation in clinical measurements that depend on factors that we cannot easily manage, as mentioned previously. The analogy might be height, in which there is obviously a range from short to tall, and a national average. One can imagine a political pledge, “no-one deserves below average healthcare!,” perhaps not grasping the concept of a distributed mean. The challenge we face is to shift from a broad flat curve (A) to a taller narrower distribution (B), with better average outcomes, reduced unwarranted variation within a value-driven health system.

This is at the heart of the quality revolution, which we need to promote across Europe, and although we cannot eradicate all variation in health outcomes, just as we cannot all be 2 m tall, we believe that our philosophy, coupled to the necessary structural reforms, will deliver a European model of cancer care that leads the world and is affordable.

**financial challenge of cancer care**

There is invariably a call from the European cancer community for more and more resources to be made available. Of course, when we look to the east we see an increasing disease burden and inadequate infrastructure, which requires thoughtful investment to provide the most cost-effective care. However, we believe that substantial savings might be made in those relatively wealthier nations to reduce waste by identifying those areas of expenditure or use of resources, which do not add recognisable value. A conservative estimate of the cancer spend in Europe’s wealthier nations is ~1.5 billion Euros per 10 million of her population. UK’s NHS has recently published an Atlas of Variation of expenditure and resource utilisation in each of its districts [5]. Inpatient stays (as measured by the number of bed-days) are the single largest component for cancer expenditure, accounting for almost half of the cancer budget. There is a twofold variation in the number of cancer bed-days per 1000 of the population. When the 3 districts with the highest and lowest rates were removed (from a total of 165 districts), the variation ranges from 40 to 65 bed-days per population. Similarly, there is a greater than twofold variation in cancer inpatient expenditure, ranging from ~20 000 to 44 000 Euros. Significant reduction in elective bed utilisation and therefore rational cost savings could be better managed with increased use of day care enhanced surgical recovery programmes, developing discharge protocols and improved uptake of ambulatory care.

Another example of savings could come from the 250 million Euros, which are estimated to be spent each year on hospital-based follow-up of cancer patients in UK. The evidence base supporting the value of follow-up is weak [6] and there are more modern means of loosely monitoring the patient through telemedicine and so on, with a rapid referral route if the patient noted a particular cluster of symptoms and signs to which they had been alerted.

Spiralling drug costs is another area of immediately identifiable savings if a transparent, rational and evidence-led approach, such as is practiced by The National Institute for Clinical Excellence (NICE) (www.nice.org.uk), is taken. Without dipping into the controversy as to how drugs are priced and the relative inefficiencies of the pharma industry, NICE has established a robust and scalable methodology to evaluate the cost-effectiveness of new anticancer drugs, which could be applied across the spectrum of rich and poor nations—it merely depends on where the citizens of any health community, in concert with their government, set the value on the relative return offered by any therapeutic intervention and how much they are willing to pay in the face of competition from other elements of the health service, e.g. hip replacements. Cost-effective care does not mean poor care, quite the opposite as it implies that any new health technologies will be contextualised within a wider framework of societal benefits. For example, there are trials comparing different dose schedules for chemotherapy and radiotherapy, which demonstrate that fewer radiotherapy fractions can be used for treating cerebral metastases with the same clinical outcomes and improved quality of life [7]. The results of such research, if widely implemented, could save tens of millions of Euros per annum across Europe.

There is no doubt that further research should be carried out to explore the growing field of personalised medicine through which biomarkers are used to select patients who are most likely to benefit from a specific therapeutic agent. This compartmentalisation of patient populations means that we treat fewer patients who are unlikely to respond and therefore suffer needless toxicity and focus scarce resources on those patients most likely to enjoy a survival advantage [8].

If a population view is taken, it is very clear that those who pay for cancer care face a number of significant challenges, notably:

- **Increasing need**—our European population is an ageing one and cancer is, predominantly, a disease of the elderly.
- **Increasing demand**—given the extraordinary investment in cancer research from governments, charities, academia and
industry, there is an ever growing exaggeration and hyperbole, fuelled by elements of the media, as each modest advance made is hailed as a ‘breakthrough’, further increasing demand for marginally effective treatments or unnecessary scans or ever more aggressive surgery.

- Carbon constraints; carbon will become as important as finance in the next 20 years and the person wishing to build a linear accelerator will not only have to raise the money but the carbon credits.
- Demand from citizens for openness and transparency (empowered by the Internet).
- Financial constraints imposed by the global recession; economists predict that significant growth is unlikely in any major European Health Service in the next decade.

**what is to be done?**

The solutions provided by the last 20 years, namely better management, more research and better education all need to continue, perhaps with a sharper focus on cost–utility. It is very unlikely that increased funding, even if it were available, would be sufficient to solve these problems. What is needed is a new approach that embraces the following elements:

- Move from the doctor as focus to the patient as focus
- Move from individual institutions to networks
- Move from being driven by finance to being driven by knowledge
- Move to being judged on clinical and patient outcomes rather than process driven targets
- Move to trial recruitment being the norm rather than the exception
- Move towards prevention and early detection and regard presentation with advanced disease as a systems failure
- Move towards a transparent system of evaluating the cost-effectiveness of new diagnostic and therapeutic interventions and away from marketing
- Move to engage clinical teams to redesign pathways of cancer care with a view to eliminating inefficiencies
- Engage with patients to explain that efficient or value-added care is not the same as poor care

Those who pay for or manage health care need a new agenda. Those who manage cancer care should be urged to engage more fully with the clinical community and rely not only on the management skills of the 21st century but also on:

- Engaging patients as co-producers
- Using the potential of the Internet to maximum effect
- Managing knowledge as carefully as they manage a radio of activity or money, knowledge from research, called evidence, knowledge from data analysis, called information, and knowledge from experience.
- Developing clinical systems, networks and pathways.
- Working explicitly to change the culture from one that is focused solely on quality to one that embraces value, with value being the relationship between outcome and expenditure.

**introducing value in cancer care**

We believe that the European community must embrace a value-oriented revolution in the delivery of cancer care, involving citizens, patients and health care workers so that there is a consistent and rational approach taken to communicating its necessity and benefits. Innovative policy initiatives can be developed and existing knowledge can be applied, but Governments need to be prepared to add value as
the key dimension to any future cancer planning initiatives, regardless of the relative wealth of the host nation. This must be led by the medical professions involved in multidisciplinary cancer treatment as the public would be otherwise deeply suspicious that the Government was merely interested in cost containment. One possible way to establish such a framework might be that if very effective new investigative or therapeutic modalities became available through research, then the funding necessary to introduce these into the clinic should have to come from disinvesting in areas which do not add value. This approach needs to be applied across the spectrum of any cancer plan and encompass awareness raising, prevention, screening and early detection, treatment and palliative care.

In summary, we believe that value can be introduced into the cancer policy lexicon without detracting from quality and that the management tools, evidence and methodology are available to effect this transformation throughout Europe. To this end, we propose the following plan:

- Support national governments in a drive to publish cancer outcome data, which is accessible to patients and professionals.
- Support national governments that wish to publish the cost of delivering cancer care in individual health authorities or districts.
- Establish a high-level clinical working group to explore the concept of value-driven investment in cancer care and develop a robust methodology to deliver value that can be used by funders of care, cancer centres and clinicians.
- Communicate to citizens of Europe that value-driven cancer care is not poor care.

M. Gray1, P. Naredi2, N. Bacon3 & D. J. Kerr4*
1Oxford Centre for Healthcare Transformation, Oxford, UK,
2Department of Surgery, Umeå University, Umeå, Sweden,
3iWantGreatCare, Oxford, 4Nuffield Dept of Clinical and Laboratory Sciences, University of Oxford, Oxford, UK
(*E-mail: David.Kerr@ndcls.ox.ac.uk)

disclosure
M. Gray and N. Bacon are directors of the company, iWantGreatCare. The remaining authors declare no conflicts of interest.

references