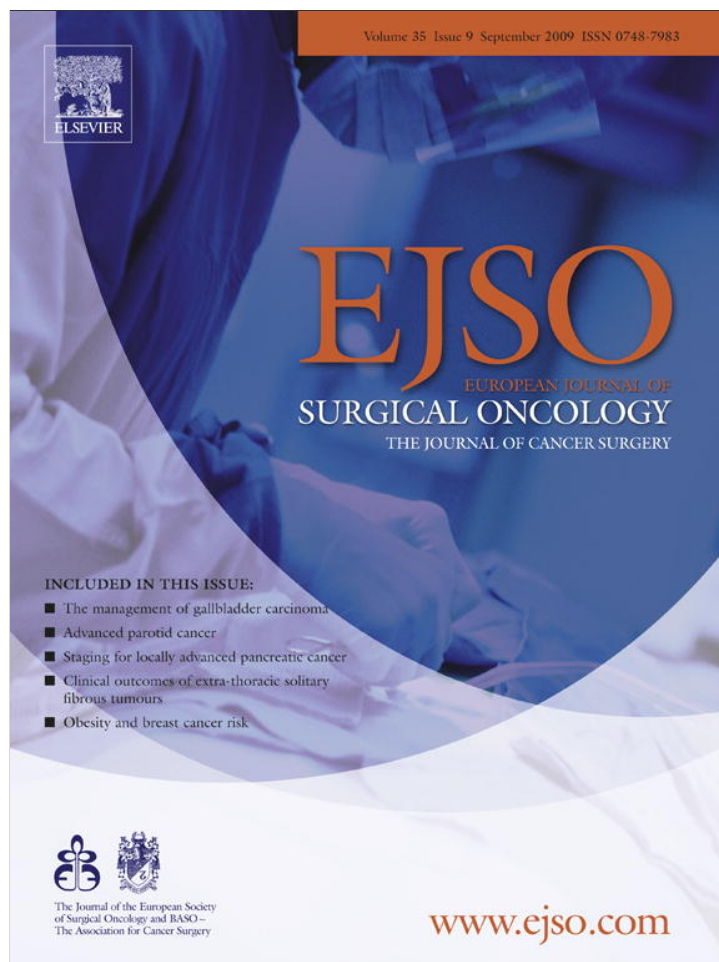


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Editorial

Global onco-systems: The challenges in optimising cancer outcomes worldwide

The good that we do for individual cancer patients comes at a considerable economic cost. In many areas of cancer care, we are caught in an arms race of expenditure and technological advance to secure gains in survival over standard and established techniques which are often marginal in proportion to the expenditure incurred. Innovations in diagnostics, imaging, minimally invasive surgery and bio-molecular pharmaceuticals incur substantial additional costs which bring some therapeutic benefit for the lucky few, while imposing unattainably high levels of expectation and cost for the many. Competitive human nature drives this arms race on, encouraging individuals and politicians to the view that they must receive or provide treatment which is “at the cutting edge”. Academic and specialist journals are of course also guilty in fuelling this escalation of expectation, of necessity choosing the cutting edge over the tried, tested and boring, and reflecting our collective and voracious appetite for novelty for its own sake.

Events in the financial markets in the recent past remind us that we inhabit a fragile social eco-system, wherein the expectations of continual economic growth cannot be taken for granted. In any case, for much of the world’s impoverished population, from whose troubles we are shielded for much of the time, first world standards of health care will be completely unattainable. The harsh realities of life are reflected in abysmally short life expectancy, high infant mortality rates, epidemics of avoidable diseases and human lives terribly unfulfilled.

In a recent lecture to the BASO Association for Breast Surgery on Tues 17th March 2009, Prof. Peter Boyle, President of the International (Cancer) Prevention Institute, in Lyon, France, pointed out how from 2010 to 2030, barring a global catastrophe, the world’s population will expand from six to eight billion people.¹ Many of these people will live for longer as economic growth and the spread of knowledge improve their relative wealth and health in the developing world.

Hundreds of millions of people have been lifted into relative middle class prosperity by economic and agrarian reforms in China, India and elsewhere in the past few decades. However, huge numbers lag far behind in countries whose overburdened and underperforming economies

are presently stretched to meet the basic needs for sanitation, waste disposal, and clean drinking water, let alone the health problems and diseases of aging on a massive scale, and may remain so without good governance.

Cancer is a process whose greatest risk factor is age, and life expectancy is broadly linked to affluence. As people age, so they live long enough to experience cancer. In some parts of the world, where life expectancy fails to achieve 50 years, cancer morbidity is as yet dwarfed by other diseases, but this pattern is expected to change.

Individual health professionals throughout the world will continue to do their best for individual patients according to their training and to their perceptions of optimal care. Doctors in the developed economies have been trained and accustomed to relatively unconstrained inputs, driven by political and social expectations of the “right” for everybody to receive the “best” care regardless of cost. While such open ended access to health care resources may be attainable for the world’s wealthy elites, and is currently just attainable for the general population in the more developed health economies, it will remain completely out of reach for most citizens of the world, for whom more austere treatment strategies will be necessary.

If we are to do good for the many, then enlightened public health officials everywhere will have to optimise cancer care inputs for large and aging populations in competition for severely limited resources in all fields of public health and education. In recognising the problem, we can and should do much as a profession to advise and educate public health systems on strategies to optimise treatments and outcomes for the many at affordable cost, while continuing to research strategies to maximise outcomes at greater cost. We can start to inform such debates in print; in face to face and electronic discussion; on the international lecture circuit; and through the various international agencies such as the WHO and the UN which are already working to address the problems.

Self-evidently, costs to the health care budget accrue at all points in the individual’s Cancer Timeline from diagnosis to death from disease progression or natural causes. They are incurred through primary education and awareness programmes; through early diagnosis and screening programmes; through confirmatory diagnostic and imaging

techniques; through primary or deferred surgery; through various forms of systemic cytotoxic chemotherapy; through irradiation techniques; through concurrent and long term medications; through post-treatment surveillance programmes; through treatments for recurrent and advanced disease; and through terminal care programmes.

The first challenge to improving outcomes is that of public education and literacy. Without awareness and self awareness, those at risk or with established disease will not come into proximity of cancer services. Given the levels of illiteracy, ignorance and the prevailing and persisting socio-economic constraints on women in many parts of the world, this mountain must be climbed before gains in the economic foothills of cancer care become significant. Even in the developed world, preventive education strategies and health improvement messages have a long way to go in promoting the healthy life styles which may reduce cancer risk and enhance chances of survival.

Nevertheless, information technology has come to our aid. The extraordinary growth in mobile phone is in developing countries, along with the power of television and soap opera to entertain and amuse, offers the realistic prospects of much greater social penetration on health issues in the coming decades.

Along with public education comes the challenge of professional education. We need to consider what skills and educational levels are needed among health care workers to achieve particular outputs and oncological gains in diagnostics and therapeutics. We also need to consider how best we inform such individuals and manage their expectations. We should in future require that published Guidelines, such as those issued by NICE and BASO, state the level and range of health care inputs and their relative costs needed to achieve the desired and quantified outputs and outcomes.

The next challenge is to consider the role and costs of broad population based screening programmes for cancer. Where resources are scarce, it is likely that screening will remain an unaffordable luxury when conducted on the scale and with the intensity of the Western European mammographic breast screening programmes, for example. Such screening technologies as are deployed will need to be robust, climatically adapted, cheap, reusable, and with minimal consumption of consumables, spares, energy inputs and the need for expensive interpretative skills.

Diagnostics are capital intensive of specialist equipment, and resource intensive of specialist skills. In recent years, we have seen a massive expansion in the use of tools such as CT, PET and MRI scanning in the diagnostic process, along with a range of minimally invasive tissue sampling techniques. We need to study and report the most cost-effective combinations of techniques to achieve given levels of diagnostic accuracy, accepting that a pre-operative accuracy of 95% at modest cost may be collectively more desirable than 99.5% accuracy at exorbitantly high cost.

Surgery is the mainstay of cancer treatment. We are fortunate that most cancer operations have survived the tests of

time and adaptation through the 20th century, and in their “basic” formats are well established worldwide for the common cancers, with a broad “installed base” of professional knowledge, surgical skills and core facilities. More recent and resource intensive surgical techniques such as laparoscopic colorectal approaches may have a range of justifications, but in the global picture they are likely to remain an unaffordable luxury or risk diverting resources from less “glamorous” but equally oncologically effective surgical treatment strategies. Another example is the use of radioisotopes in sentinel node biopsy, and particularly of the sophisticated gamma cameras and SPECT-CT instruments. Given the additional costs of consumables and of the supply and disposal chains, alternative non-isotopic marker techniques will need to be validated and implemented.

The costs and confusions of cancer treatment multiply alarmingly when we come to consider the multiplicity of adjuvant radiotherapy and chemotherapy techniques, and the escalating consumption of money and health care resources to achieve sometimes marginal gains in survival at the price of substantial morbidity. We need to consider carefully how the juggernaut of clinical and medical oncology will impact upon developing economies, and what can be done to standardise and simplify strategies in affordable packages.

Well judged and well conducted surgery still produces much if not most of the therapeutic benefit arising from clinical interventions in cancer care, and the influential community of Cancer Surgeons is thus best placed to drive forward the arguments. We now have a responsibility to define “the best achievable with limited or finite resources for the many, to supplement the best achievable with unconstrained resources for the relatively few”.

We need to exert professional leadership in a complex debate and scientific evaluation of treatments which aim to optimise outcomes with resources which may well be pressed to keep pace with an expanding and aging global population.

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Reference

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