

# Major progress since launch of NHS cancer plan has greatly improved care

Pharmacists and technicians discussed issues affecting pharmacists involved in the treatment of patients with cancer. Hanadi Ghannam reports

In the mid-1990s, England had a high cancer mortality rate, inadequate drug and equipment provision, long waiting times for treatment and a fragmented cancer care workforce. The publication of the cancer plan has significantly changed this situation.

So said Mike Richards, national cancer director at the Department of Health, when he gave a keynote speech on progress made nationally in cancer care.

He said that the mortality rate from cancer continues to fall by two percentage points per annum in people younger than 75 years, with increased survival rates from the most common cancers. Progress on waiting times has been excellent, with the standards set in the cancer plan all currently met. Professor Richards added that the pharmacy-chemotherapy stage is currently delivering on waiting times.

Cancer networks have brought together primary, secondary and tertiary services across the NHS. Thanks to the 1,500 multidisciplinary teams in England, around 80 per cent of cancer patients now receive co-ordinated care, the highest number globally.

The UK has historically been slow to incorporate new anticancer treatments into clinical practice because of funding constraints within the NHS and clinical caution regarding new developments. In 2004, a report by the national cancer director confirmed this, and all cancer networks have had



**Mike Richards: aiming to make the NHS a global platform of excellence**

to develop action plans to ensure appropriate local usage of drugs.

A new publication in September 2006 showed major improvement. Over an 18-month period, the usage of 14 anticancer drugs approved by the National Institute for Health and Clinical Excellence has increased by between 11 per cent and 120 per cent and, although not yet eliminated, differential prescribing between networks has decreased.

Professor Richards touched upon the Herceptin story and how it catalysed the for-

mation of NICE's new rapid appraisal process. It took just nine months from the drug's application for licence to full NICE approval. This was in part due to the media interest in the drug and the controversial intervention of the Secretary of State for Health, but he warned that "the Herceptin story is very likely to happen again". Although NICE appraisal mechanisms are now much faster, cost per quality-adjusted life year is still the key factor in decision making.

The new NHS Chemotherapy Advisory Group is currently reviewing workforce issues and is keen to have the input of pharmacists. An electronic capacity and demand planning tool for chemotherapy (C-PORT) has been developed. Intended for use by both NICE and local services, six networks have been trained in its application to date. Professor Richards strongly advocated the use of electronic prescribing systems to minimise errors, and thanked pharmacists for their role in intercepting prescribing errors.

He concluded with a summary of progress in cancer research: "Our aim is to make the NHS a global platform of excellence." The National Cancer Research Network has ensured a 9 per cent rise in the number of patients going into clinical trials over the past five years. This is because of a renewed interest in both industry-led and investigator-led research, and he thanked the pharmacy community for its contribution to both.

## Cancer hotels: how the future might look for cancer management

According to the Office for National Statistics, one in three people in England will develop cancer at some point in their lives. Karol Sikora, medical director at CancerPartnersUK, discussed how the future will look for cancer management.

Most cancers are incurable, but technological advances and a better understanding of molecular biology is set to change this. Invasive surgical treatment is expected to be replaced over the next 50 years by robotic biopsies and nanotechnology, allowing conservation of tissue and organs. Single doses of radiotherapy targeted to the tumour will be delivered at units based within the community. Over the next 20 years, traditional infusional therapy will change to targeted

monoclonal antibodies, gene therapy and cancer vaccines, with chemotherapy reserved for metastatic disease.

Because of an ageing population and better early detection schemes, the global cancer market is set to triple by 2010. Drug companies are heavily investing in marketing targeted biological therapies and the challenge to the NHS will be how to keep costs down.

One way is to invest in cancer diagnostic tools. Predisposition screens of tissue banks, for example, could identify patients in advance of tumour development and enable the use of chemoprevention, said Professor Sikora. Patient risk assessments, as undertaken for cardiovascular disease, will become an essential component of cancer prevention.

Clinical monitoring of chemotherapy could be undertaken by pharmacists in the same way as blood pressure and cholesterol are monitored. Pharmacodynamic biomarkers and patient-specific toxicity prediction could ad-

vide accurate dosing to minimise toxicity and wastage, with surrogate markers of clinical efficacy providing early indicators on the value of continuing treatment. Such diagnostic tools will be non-invasive, easy and cheap to run, thus revolutionising cancer management.

The new expert patient will also be an important driver to reducing costs, as an increasing number will buy cancer treatment online. Consumerism will thus remove ineffective drugs and force companies to price cancer treatment in accordance with efficacy.

By 2026, we can expect to see personalised cancer prevention programmes using biomarkers within consumer-driven environments. We may see the emergence of "cancer hotels" as a partnership between the private sector and the NHS. Before long, clinical pharmacists will be managing cancer therapy entirely, as it becomes a chronic, controllable condition. The pace of change for health care professionals is only set to increase.

The annual symposium of the **British Oncology Pharmacy Association** ([www.bopa-web.org](http://www.bopa-web.org)) took place in Bournemouth from October 13–15

## Clinical update on success of bone marrow transplants and lung cancer research

“Bone marrow transplant” as a term used loosely to describe the source of haematopoietic stem cells (HSC) has now expanded to include peripheral red blood cells, umbilical cord blood cells and even embryonic liver. Kim Orchard, consultant haematologist and director of the Wessex blood and marrow transplant programme, explained some applications and future developments of HSC transplantation.

Research into the immunological events occurring following HSC transplantation has led to a greater understanding of conditions such as graft-versus-host disease (GvHD), viral infections and graft rejection. It is now clear that long-term disease control following transplant is not dependent on conditioning treatment alone, but relies on the potent graft-versus-tumour (GvT) effect invoked by the immune cells of the donor, particularly T-lymphocytes and NK cells. Current research is focusing on how to eliminate the GvHD cells but retain the GvT cells in an effort to exploit the antitumour effect.

Sanjay Popat, specialist registrar at the Royal Marsden Hospital NHS Foundation Trust, highlighted the main developments in the treatment of non-small cell lung cancer (NSCLC), small cell lung cancer (SCLC) and mesothelioma. Several trials have looked at new chemotherapy combinations in the management of NSCLC. One added erlotinib to paclitaxel and carboplatin for patients with advanced NSCLC but found that it caused higher rates of toxicity without increasing survival rates. Oral topotecan was trialled against intravenous docetaxel in patients with advanced pre-treated NSCLC.

The outcomes were equivalent although docetaxel had a higher survival rate. This places topotecan as a potential alternative for patients intolerant of intravenous therapy or with symptoms of docetaxel neuropathy.

A recently published meta-analysis showed that cisplatin-based adjuvant chemotherapy improves overall and disease-free survival in NSCLC patients compared with no chemotherapy or with radiotherapy alone; vinorelbine plus cisplatin was the most promising combination. Advanced NSCLC patients on cisplatin who also tested positive for ERCC1 were found to have significantly reduced odds of survival. ERCC1 is an enzyme that repairs malignant cells by removing cisplatin-DNA adducts.

The gold standard chemotherapy regimen for treating chemotherapy-naïve extensive-stage disease SCLC remains etoposide plus cisplatin. A trial investigating the use of irinotecan plus cisplatin found no difference in overall survival but increased toxicity. An alternative regimen of ifosfamide, carboplatin, and etoposide with mid-cycle vincristine showed survival benefits compared with standard non-platinum chemotherapy, but also an increased rate of septicæmia.

In relapsed, resistant SCLC, oral topotecan is the first agent to show survival benefits compared with best supportive therapy alone. The regimen was well tolerated and conferred a positive effect on quality of life. Dr Popat reviewed phase II data on the new drug amirubicin in SCLC. He expects to see it more in the next few years, since its efficacy is equivalent to etoposide plus cisplatin, without the cardiotoxicity of doxorubicin.

## Continued benefit of chemotherapy in elderly

Ageing is an individualised process and the use of chemotherapy in elderly patients must be considered on a case-by-case basis, according to Tamas Hickish, consultant in medical oncology at the Royal Bournemouth Hospital.

Chemotherapy is indicated when a patient's potential life expectancy exceeds his or her predicted survival from cancer. The presence of additional co-morbidities, tumour sensitivity and reduced tissue reserves can all affect the success of treatment. Altered pharmacokinetics in the elderly and the greater propensity towards polypharmacy can either increase toxicity or reduce the efficacy of chemotherapy.

Clinical trials generally under-represent elderly patients despite the high incidence of cancer in this patient group. Dr Hickish summarised some of the evidence that is currently available.

Elderly patients are as likely to respond to chemotherapy as younger patients, including

palliative and adjuvant treatment; however, they are less likely to complete an adjuvant therapy course.

When considering starting adjuvant chemotherapy, online tools such as [www.adjuvantonline.com](http://www.adjuvantonline.com) can be used to calculate risk-benefit ratios for individual patients. Evidence suggests that the group least likely to benefit from chemotherapy are the octogenarian, said Dr Hickish.

He concluded by saying that chemotherapy is generally safe for use in older patients, with similar toxicity profiles seen in those aged older and younger than 75 years, although the incidence of neutropenia is higher in those over 65. A reduced white cell count between the first and second chemotherapy cycles has been shown to predict increased toxicity in further cycles. Mucositis should be aggressively managed and there may be a role for the routine use of growth colony-stimulating factors.

## New opportunities

Advances in molecular biology have opened up many opportunities for targeted therapies in the treatment of cancer. Nicola Stoner, lead cancer pharmacist, Oxford Radcliffe Hospitals NHS Trust, outlined what is required of pharmacy services handling such products. Monoclonal antibodies should be prepared in a pharmacy's aseptic facility; however, it is recognised that this option may not always be available. Existing hospital aseptic facilities can be used as long as adequate separation is maintained from other products and standard validated cleaning procedures are applied.

Gene therapy, however, presents a significant biological hazard to staff and the environment. It is strictly regulated and must be manipulated in aseptic units — plasmid DNA and DNA complexes can be handled in non-cytotoxic facilities, but viral vectors require negative pressure or Class 2 microbiological safety cabinets in a dedicated room.

Such technologies present new hope in the treatment of cancer, but also pose many challenges to pharmacy services. Ms Stoner concluded by stressing the importance of good documentation, standard operating procedures and staff training when handling new biological therapies.

## Future influences

Tim Dowdall, chief pharmacist at Surrey Heath and Woking Primary Care Trust discussed the impact of changes in NHS policy on oncology services. He said the views of patients and people who use cancer services will be an important part of reviewing service provision and managing performance. Practice-based commissioning is currently driving PCTs to target high-impact changes, such as treating patients at home. What chemotherapy services will look like in the future is currently unknown, as it depends on patient choices and how much money is locally available.

Payment by results is currently restricted to non-elective surgery, outpatient and accident and emergency departments, but full roll-out is expected in 2008. Most oncology treatments and services are currently excluded and it is not known when tariffs will be included or how the expensive NICE-approved drugs will be reflected. Other questions to be resolved include: will there be any unbundling — a redistribution of acute and chronic oncology services between primary and secondary care? What elements of re-design are possible? Will there be any plurality in service provision via the introduction of third party organisations?

Enabling patient choice could require different options from those currently available, and this may affect existing cancer network structures, Mr Dowdall said.