

Klaus Meier:

together we can offer the best of both worlds

→ Marc Beishon

Patients need doctors who know everything about them and their disease, symptoms and comorbidities. But doctors cannot also know everything about every drug their patient may need, nor can they provide regular support and advice to help patients get the most from oral cancer therapies. A strong partnership with pharmacists is the answer, says the founder of Europe's oncology pharmacy society.

When we look at the ideal multidisciplinary team working with patients throughout their cancer journey we tend to focus on the front-line healthcare professionals – oncology physicians of course, plus pathologists, radiologists, nurses, psychologists and others vital to providing the best care. Some, such as cancer nurses, are still having to battle to have the importance of their role recognised, and to gain acceptance as part of the wider team. But there is another major group of professionals that has had to fight hard for recognition of their contribution, and which simply does not enter the minds of many people. That group is pharmacists.

As Klaus Meier, president of the European Society of Oncology Pharmacy (ESOP), says, there are big gains to be made by integrating pharmacists into the patient journey, by bringing their knowledge of drugs and drug interactions directly to bear at the bedside, and also forming close relationships with patients when they leave hospital, often with prescriptions for

drug regimens that need to be closely adhered to. With the cancer burden expanding across an aging population and more treatments coming on stream, demand for oncology pharmacy services is expected to at least double over the next ten years and Meier is keen to outline the very specific perspective they can bring to the care of cancer patients.

“Pharmacists are primarily scientists and we bring evidence of what will happen in the majority of cases, whereas doctors are more interested in learning about each patient from direct experience and especially about those who don't respond in a typical way,” says Meier. “When we work closely together with physicians we get the best of both worlds, of theory and practical points of view.

“That's why I've tried to replace the term 'multidisciplinary' with 'multiprofessional' in cancer, to reflect the true coming together of professions rather than mostly physicians who are in the same discipline, i.e. medicine.”

This is a message that Meier took to the European



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CanCER Organisation (ECCO) when he was elected as a board member in 2008, a 'landmark' event for oncology pharmacists, he believes, that was achieved relatively quickly – eight years from the date he and colleagues set up ESOP.

A key step for ESOP came in 2005 when it became an umbrella organisation for national oncology pharmacy societies, instead of just a group of individual members. "Now our membership has shot up from around 300 to about 2200 in 32 countries around Europe, and it may surprise people to see such a large number – ESMO [Europe's medical oncology society] has only about 4000 members, so we represent a substantial number of the European cancer community."

Given that oncology pharmacy is a relatively young discipline, this presence at ECCO level is testimony to pioneering work carried out by members at national level and championed by Meier and colleagues, with Meier himself playing a leading role in his home country, Germany, where his 'day job' is cur-

rently head of clinical pharmacy at a hospital in Soltau, a town in a rural area some 50 km south of Hamburg.

There are tens of thousands of pharmacists around Europe, of course, working in hospitals and in community settings such as independent pharmacies and large chain stores. But since the explosion in cytotoxic and supportive drugs for cancer, and now the development of many new agents, including increasing numbers that can be taken orally, the oncology pharmacy specialism has developed to the point where qualifications are available in some countries. Alongside are various research programmes that are investigating everything from the economic validations of drug costs, to patient information and counselling.

Some pharmacists, such as those at Stockholm's Karolinska hospital, also play a leading role in studying cytotoxic drugs, working with clinicians. Clinical research priorities for oncology pharmacists include the stability and compatibility of drug combinations,

pharmacokinetics/dynamics in drug dosing, evaluation of dose banding, and medical errors.

Although Meier has himself been a pioneer in oncology pharmacy, notably in setting up centralised facilities for cytotoxic drug delivery, he views his achievements as not so much scientific but organisational, especially in later years with the formation of not only ESOP, but also the Deutsche Gesellschaft für Onkologische Pharmazie (DGOP, the German Oncology Pharmacy Society) in 1995, the International Society of Oncology Pharmacy Practitioners, ISOPP, in 1995, and a growing number of publications, meetings and masterclasses that are spreading good practice and gaining more support for the speciality.

“I am particularly proud of the book that the German society produces for ESOP, *QuapoS* [Quality Standard for the Oncology Pharmacy Service],

which is now in its fourth edition,” says Meier. “It is the result of a series of conferences in Luxembourg we started in 2001 on the standardisation of oncology pharmacy, and of various workshops. Although the printed book is in English, and despite a lack of funds, we have also made it available on CD and at www.esop.eu in 22 languages, including Arabic.”

Surprisingly perhaps, given pharmacists’ connection with drugs, ESOP is fiercely independent of industry, though it has been willing to collaborate on specific projects, including a recent survey done in partnership with Novartis that looked at the role that European oncology pharmacists play in dispensing treatment and disseminating advice to patients with chronic myeloid leukaemia. “If it is a true partnership with industry then that’s OK,” says Meier, “but we don’t want to sell our souls and our knowledge.” This preference to eschew industry sponsorship does, however, make the European and national goals of ESOP and its member societies more of a challenge to achieve, he admits.

This staunch independence has been a characteristic of Meier throughout his career in pharmacy, where he has been at odds several times with clinical colleagues and with hospital management. He sees winning the arguments as essential to promoting the effectiveness of oncology pharmacy, and indeed clinical pharmacy in general.

Meier was a relative latecomer to healthcare. Having started out with a masters in theology and the aim of becoming a teacher, he later switched to pharmacy. He worked for a spell in community pharmacies – “I could have stayed there and run my own shop,” he says, “but I wasn’t motivated by the business side and wanted to support patients more directly, so I entered the hospital pharmacy system and gained a postgraduate clinical qualification in 1989.”

That qualification can be gained in three years in Germany – Meier himself has taught modules in Hamburg for some time – and since 2001, clinical pharmacists can obtain a further qualification in oncology pharmacy, which takes two years. “That’s been a success as we now have 300 qualified



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oncology pharmacists in Germany and we were the European leader,” he says. “The US has a board-certified oncology pharmacist qualification (BCOP), but I feel ours is more rigorous as we ask pharmacists to defend cases in front of a panel, whereas it is done by multiple choice questions in America.”

The UK, he notes, is working on a similar formal accreditation for oncology pharmacy through the British Oncology Pharmacy Association (BOPA), which is also one of Europe’s longest standing such societies. The US BCOP programme is also available to pharmacists outside America – Spain, for example, has adopted it for its oncology pharmacists.

ESOP runs masterclasses and workshops to stimulate activity in smaller or less well-organised countries, particularly to encourage the take-up of postgraduate programmes. “We have also started a journal, the *European Journal of Oncology Pharmacy*, which includes reports from around Europe,” he says.

It was while working at the Hamburg–Harburg hospital in the 1980s that Meier took himself out of the pharmacy to observe working practices of others and found that cytotoxic chemotherapies were being prepared by nurses with little attention to safe handling. “I also read a paper about a nurse who had lost her hair, and advice that people should not work with cytotoxic drugs for longer than five years – I thought why not four or six years? Looking further, I found several articles from the US where they had started central units for preparing oncology drugs, and thought we could do that in Germany.”

Objections to setting up a central service for cytotoxic and cytostatic drugs came not only from doctors, who were concerned that pharmacists would be crossing over into their territory for decision making, but also from fellow pharmacists, who were worried about taking on the responsibility, says Meier. “But clearly from a safety perspective alone it has become vital that drugs that can be toxic to healthcare workers are prepared, transported and delivered as safely as possible, and the role of the pharmacy should be paramount,” he adds.

The first quality standard edition published by the German society (DGOP) in 1996 focused mainly on conditions needed to comply with the delivery of cytotoxic drugs, notes Meier, and by the next edition in 2000 DGOP had started to certify pharmacies on the basis of the standard. Indeed, the current edition of *QuapoS* still majors on drug preparation and the

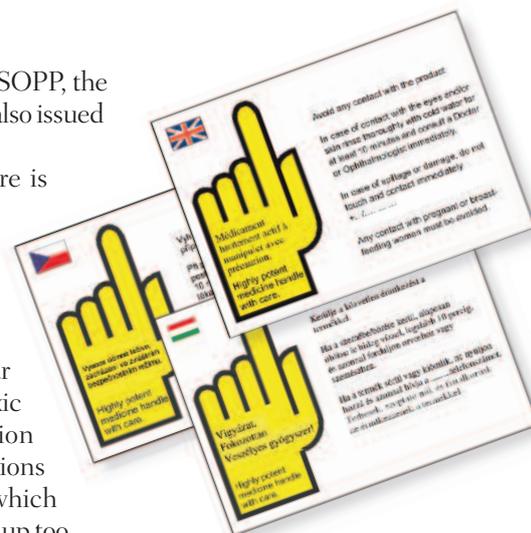
role of a central pharmacy. ISOPP, the international society, finally also issued guidelines in 2007.

But Meier believes there is still a long way to go before uniformly high standards of safe preparation are achieved across European pharmacies – including eliminating as far as possible exposure to toxic compounds and medication errors, and ensuring infusions do not become unstable, which can happen if they are made up too far in advance.

As a German colleague, Torsten Hoppe-Tichy in Heidelberg, reports in a paper, ‘Current challenges in European oncology practice’ (*J Oncol Pharm Pract* 16:9–18), although cytotoxic reconstitutions are under the control of pharmacy departments, in many hospitals other types of aseptic reconstitutions for infusions are still done at ward level, while a survey of pharmacists conducted by ISOPP and others showed best practice was not always followed even when respondents were aware of a rule. As part of its work raising awareness about the dangers of handling toxic treatments and disseminating knowledge about safe practices, ESOP has proposed a ‘yellow hand’ warning label for handling cytotoxic drugs with care, and what to do in the event of an accident.

“Of course we need safe conditions – we couldn’t go on preparing cytotoxic treatments as we did 20 or more years ago, but there is much more that oncology pharmacists can bring to cancer,” says Meier. “We have also been able to show hospital authorities that we can play a pivotal role in improving outcomes for patients, shortening hospital stays and reducing the drugs bill, among other benefits.”

After success in establishing the central oncology pharmacy unit in Hamburg–Harburg in 1987, Meier worked on raising the profile of his and his colleagues’ expertise within the hospital cancer team. As he notes, once pharmacists have dispensing and preparation authority for cancer drugs they should also assume responsibility, in partnership with the oncologist, for ensuring they are appropriate for the patient, and he is a strong advocate of the unit dose system. “This aims to deliver just the right



Safety first. ESOP is promoting a ‘yellow hand’ label for cytotoxic drugs, to help ensure everyone who handles them is aware of the dangers and knows what to do in the event of a spillage

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quantity of drug to the right patient in a way that minimises the work of nurses, who then have less to worry about when administering treatments.”

Meier was one of the early innovators of unit dose systems, which are now widespread in hospital pharmacies for all types of drug, not just oncology, but are far from universal. By the time he had moved up to running a central pharmacy system for several hospitals in Hamburg, he had a service run from four locations serving 6000 beds and, in cancer, 40,000 treatments a year. “We were validating, for example, the three drugs in the FOLFOX colon cancer regime in 20 minutes and making deliveries of the first infusion to the hospitals in half an hour.” That was a significant achievement because, as he explains, preparing a personalised dose has become more complex than just calculating the body surface area of a patient, while the logistics of managing a large patient chemotherapy population is certainly a major challenge in itself, as each treatment is usu-

ally prepared on the day of administration and means that patient appointments need to be linked as smoothly as possible with pharmacy resources.

Meier is not keen on the dose banding system, popular in countries such as the UK, which tries to cut costs and patient waiting times. Intravenous cytotoxic drugs are calculated on an individualised basis that are within defined ranges, or bands, and are rounded up or down to predetermined standard doses, which are delivered to the patient using syringes or infusions pre-filled to that standard dose. “I’m against dose banding as it should be possible to run a process that reflects each patient’s situation,” he says, noting, however, that he’s heard from a colleague in Manchester, UK, that a pharmacy there has to cope with very different patient numbers from day to day – which would make unit (individually tailored) dosing very difficult.

A unit dose approach is important, says Meier, because not only is there a very narrow margin between a dose that is too toxic and one that is insufficiently effective for most chemotherapies, but in the last decade or so many drug regimens have become more complex and much more is now known about drug interactions with treatments for conditions such as diabetes and heart disease, as well as with a growing range of supportive therapies.

For Meier, the direction is clear – oncology pharmacists must also be involved at the bedside to ensure that overall ‘pharmaceutical care’ is optimal for each patient. Pharmacists, he says, have a crucial role to play in monitoring actual doses of therapeutic drugs based on feedback from blood plasma readings – which is becoming increasingly used – and in managing the other drugs and nutrition of patients. They are also well placed to help with side-effects such as pain and fatigue, and to reduce patient anxiety by explaining how their drug treatment will progress and change. Evidence for the importance of pharmacists in reducing drug-related problems has been reviewed by a team at the University of Bonn, which is also pursuing its own studies on breast and

SETTING THE STANDARDS



The first edition of the ESOP publication *Quality Standard for the Oncology Pharmacy Service* focused heavily on safe handling of cytotoxic drugs. The current (fourth) edition reflects the way the role of oncology pharmacists has developed, with a substantial section on supportive therapy, including the management of nausea and vomiting, pain management, mucositis and diarrhoea. It also carries a section on nutritional advice and therapy and unconventional methods of cancer therapy:

“The pharmacist should respect the patient’s views regarding alternative medicines and take his opinions seriously. However, it is also the pharmacist’s responsibility to stress the importance and safety of evidence-based medicine and to inform the patient of the risks involved when using alternative medicines.” A ‘work in progress’ section on research and development shows the growing involvement of oncology pharmacists in research as well as practice. The full document can be downloaded from the ESOP site, www.esop.eu, and is also available, as a download or on CD, in 22 languages.



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colorectal cancer, and patients receiving oral chemotherapy (*Pharm World Sci* 30:161–168).

This is not about treading on the toes of medical oncologists, Meier adds. “They know a lot about the specific drugs they are using but they do not have the knowledge of a thousand or more drugs that a pharmacist has and the relationships between groups of drugs. If they did they’d be pharmacists themselves.” Certainly though there is a need for more pharmacology training for oncologists, as Jaap Verweij, a medical oncologist who studies drug mechanisms, told *Cancer World* recently (May–June 2010).

The contribution that pharmacists can make starts early in the patient’s cancer journey, right at admission to treatment. “In many cases a patient comes into hospital and someone has to find out about the drugs they are taking, and the pharmacy is

then told – but specific drugs may not be available and this can take time to sort out. One step is for pharmacists to see patients on admission to review their medications, as we do in my current hospital, and we draw up a profile of their drug needs and assess possible interactions with chemotherapy and biological agents, where it may be best to stop taking certain drugs during the hospital stay.” Interactions with other prescribed medicines and the many popular complementary substances are often overlooked by oncologists, adds Meier (see also *Cancer World* July–August 2010 for more on interactions).

As patients move around the care system, there is also a need for hospitals to network much more with community doctors to help streamline the types of drugs being taken, adds Meier. “A hospital pharmacist can find, for example, that a patient may be on

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two different brand-name alpha blockers prescribed by his cardiologist and urologist, and not know he is taking an overdose,” he says.

Meanwhile, the need to keep costs down is giving rise to another increasingly important role for pharmacists – providing evidence on the cost-effectiveness of treatments, when questions arise over whether to switch to oral anti-emetic drugs, for instance, or not use certain antagonists for cases of delayed vomiting (one study from the US showed a \$200,000 saving over one year in a hospital with the latter approach). Oncology pharmacists are also likely to be increasingly involved in the economic validation of cancer treatment drugs as the number expands and as healthcare systems demand better cost-benefit analysis.

Meier has himself published on superior outcomes from integrating oncology pharmacy in cancer care, noting that not only can hospital stays be shortened thanks to better drug management and relationships with patients, but “drug costs can be cut by up to 20%, with only a small increase of pharmacy personnel costs of around 3%–5%.”

Particularly challenging, adds Meier, is how to handle the growth in oral cancer drugs that will be taken mostly in the community. “How can we support people who may take oral drugs for years or even for life? Yes, doctors may be taking a regular blood count, but what if the patient is not taking the drug properly in the weeks between tests? Managing drug adherence can really only be done by someone who gives drugs to patients and can talk to them more often about how they feel, and can make a call to the doctor if necessary. Community pharmacists are the obvious partners, but as yet in Germany they are not involved much in oncology.”

Other countries, the UK in particular, have made strides recently in expanding the role of community pharmacists with programmes such as flu vaccinations, health checks and prescribing of some drugs such as those for erectile dysfunction. In the complex insurance system in Germany and other countries, Meier con-

siders that giving some form of reimbursement for the education and support role of the pharmacist, and the partnership with physicians, could more than pay for itself when set against the problems often encountered with drugs that can cost thousands of euros a year – and that in any case all oncology prescriptions should be signed off jointly by physician and pharmacist in consultation with patients.

“It’s like a study I’ve seen from Liverpool in the UK, where patients with depression had continuous support from local pharmacists, and 80% were better after six months. In Germany, we have 80% not better in six months.” Expanding the role of community pharmacists, he adds, can also cut the number of people buying drugs on the Internet, once they realise that cheaper is not always better when the value of support becomes apparent.

“We also have to support people who will never comply with an oral drug regimen,” he says, noting too that the many patients who receive conventional chemotherapy in ambulatory care also need education and support for issues such as side-effects and hygiene at home. The DGOP, he adds, started a nationwide campaign last year to raise awareness of the needs of cancer patients among community pharmacists in Germany, including topics such as supportive care for fatigue and other effects, and educational information that can be given to patients.

Initiatives by ESOP include drawing up standards and protocols in relation to administering prescriptions for oral anti-cancer drugs, for which simple leaflets are being created for each drug giving information about the three most common interactions and side-effects. Patients will also be urged to keep medication diaries and to seek counselling and advice from pharmacists.

“Again, we are not saying we are taking work away from other professionals, particularly hospital and community nurses, who do play a crucial part in supporting patients. But throughout our lives the only professionals who are always close at hand are community pharmacists and we are saying to nurses and

others that you can count on our speciality in drug education and delivery.”

Clinical research is another area where oncology pharmacists are important, and Meier says that in Germany their contribution to ensuring trials are well conducted is recognised by industry. “Although we’re not involved so much in early-phase trials where pharmacological action is critical, the involvement of pharmacists in phase III work, where we manage documentation and protocols, has been a big success as we help get better quality results. Doctors alone do make many mistakes in trials.” However, pharmacists rarely get a mention for their role, he adds.

He was busy expanding the pharmacy system in Hamburg’s hospitals until a private company took over and made big changes. “There are problems still when hospital managements see the pharmacy as only a cheap logistics operation for ordering and delivering drugs, and that’s still the situation in many places, despite the evidence we are building up,” he says. “In Hamburg they called into question our need to be close to the bedside.”

Now running a pharmacy for two hospitals and 550 beds in Soltau, anyone looking for a model could usefully track Meier for a few days, observing ward rounds to talk to patients, the way prescriptions for chemotherapy are reviewed and indeed the use of a software package that Meier himself developed 20 years ago called Cypro, which his pharmacists use to check the protocol of prescriptions and validate and prepare them (the programme is now available commercially at www.cypro.eu).

He is certainly pleased that so much work done by DGOP has made its way onto the European stage. “ESOP now has a board of 14 people from around Europe, a growing number of work programmes, our own congress planned for Budapest in 2012, our journal, and targeted workshops,” he says. Among the priorities are researching the effects of chemotherapy on health workers and developing collaboration within ECCO. “Now we’re on the ECCO board, when our members run into conflicts with physicians we can tell them that we’re all on the same side and

Established in Prague in the year 2000, the European Society of Oncology Pharmacy now has 2200 members in 32 European countries and currently has a seat on the board of ECCO. Its *raison d’être* is summed up in the Ljubljana declaration of 2006:



“The close cooperation between oncology physicians and oncology pharmacists is vital for optimal patient care. The multidisciplinary approach will deliver best practice to patients within a clinical governance framework. Professional, close and timely collaboration will in particular ensure economic use of resources and improved patient safety.”

For further information visit the ESOP website at www.esop.eu

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More disappointing for him has been the international society, ISOPP, which he founded in Hamburg in 1996. “It has far fewer members than ESOP and hasn’t developed country involvement as well as we have in Europe. I would like to push them to be more active, and I’d like to see them pay closer attention to the needs of all their members rather than, for instance, promoting particular devices at meetings that could cost more than the drugs themselves.”

Personally, he has relatively little time to influence such matters now as he’s four years from retirement, but with ‘heavyweight’ ESOP colleagues such as vice-president Alain Astier in Paris and secretary Per Hartvig Honoré in Copenhagen on board – both senior professors – there’s little fear of momentum being lost. It’s hard to see him taking a back seat when so much he’s started is in train, though, but his wife and two daughters may have a say in this.

A clue comes in a comment about ESOP’s membership – “I’m not satisfied that we only have 2200 members” – could he have an eye on overtaking ESMO’s 4000?

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