

# For the love of the job

Holland's first woman professor of medical oncology revels in a career unburdened by expectations and driving ambition

→ Simon Crompton

**Elisabeth de Vries** is enjoying investigating whether we can push the potential of imaging techniques to the point where a patient's response to a drug can routinely be measured in an outpatient clinic. But she worries that the energy and creativity of her young students will be stifled by the pressures of preordained career paths.

**T**raditionally, women have thought differently about careers than men, says Elisabeth de Vries, the first female professor of medical oncology in the Netherlands. Women play life by ear, in the knowledge that children, family and unforeseen circumstances may get in the way of the best laid plans. Men, historically, have followed their ambitions.

So de Vries is apologetic that she can't tell me about grand plans fulfilled over her 40 year career in the Netherlands and on the international stage. But she needn't be. As a woman who edged herself to the fore of the emerging discipline of medical oncology in the '80s and '90s, and now stands at the very top of her profession, her career has real significance. De Vries, Head of Medical Oncology at the University Medical Centre in Groningen, is a Knight of the Order of the Netherlands and won the ESMO award in 2009 for "an outstanding contribution to the development of oncology in Europe".

She recently spent several months at the Dana Farber Cancer Institute in the United States, working with them on novel molecular imaging strategies.

And if (as she admits) she has always had a tendency to overcommit herself, it is a mark not so much of personal ambition, as of a keenly felt responsibility on behalf of her sex.

"I've been endlessly on boards as the only female representative, and unfortunately, so many women have been needed that I simply couldn't do it all." She remembers how her work on national and international committees revealed to her just how easily (and subconsciously) gender could influence decisions; and the disbelief of male doctors when female doctors became pregnant shortly after being awarded fellowships – as if they should choose a better time.

She also points out that it wasn't so long ago that she used her initials on research papers – never her first name. In the past, she was all too aware



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of research in the 1990s indicating that papers submitted by an author who was obviously a woman were less likely to reach publication.

“I have the feeling that it doesn’t happen any more,” she says. Times are changing, and 70%–80% of medical students in the Netherlands are now female. Yet when it comes to the high-flying medical oncologists who make a name on the international stage, she suspects that men may have the highest profile for a while yet. She’s found that women doctors are unwilling to blow their own trumpets even on curriculum vitae. “Men are good at this whole thing of status, whether it be the car, the house or the career. It works, and we’re lacking that gene.”

But de Vries is no club-wielding feminist. When I meet her, in the cavernous atrium of the University Medical Centre in Groningen – a new hospital so well organised that patients are buzzed along broad corridors in golf buggies and every patient ward has a view – she laughs about the fact that

studies have shown that women doctors have smaller offices than male ones. Her own, rather spacious one, was offered soon after she had pointed this research out to colleagues. She has a good-humoured, often amazingly detached, realism about the medical world and her place in it.

#### INTO A ‘MALE’ PROFESSION

The daughter of a paediatrician and a nurse, de Vries was exposed to hospitals from an early age and soon decided she wanted to help people and be a nurse. It was only when she went to secondary school that she realised she could be a doctor like her father. So she trained in medicine in her home town, Groningen, and having at first thought of herself as a paediatrician, she began to develop a special interest in internal medicine. She spent a few months in London, studying endocrinology at the North Middlesex Hospital, and remembers one person there who had a deep influence on her outlook.

“There was a female registrar from India, who was very beautiful, always wore beautiful silk gowns, and was very hard working. I found her a brilliant doctor. When she had to resuscitate a patient who had just come in by ambulance, she simply took up her long gown and sat on the trolley, and I realised then that, okay, maybe women shouldn’t do internal medicine, but if she could do it, from India and wearing silks, then maybe I could too. She certainly influenced me.”

De Vries completed a PhD in acute leukaemia in 1982, and then spent a year as a research fellow learning more about medical oncology at the City of Hope Medical Centre, California – on the basis that, though it would be challenging, “if it didn’t work out, it didn’t matter because women didn’t have to work anyway!”

But it did work out fine, and she returned to the Department of Medical Oncology at UMC Groningen as a senior staff member in 1983, where she has been based ever since. Her career has straddled patient care, education and influential translational research. She worked on several types of cancer, with a focus on breast cancer and neuroendocrine tumours, and is particularly interested in personalised treatments, using interdisciplinary research to improve diagnosis and treatment of a range of cancers. Her current research lines are aimed at increasing the sensitivity of tumours to anti-cancer drugs, and molecular imaging to support this.

It’s molecular imaging that she wants to talk to me about, “because that’s what’s bothering me



**Meet the extended family. Though she may have felt obliged to stay tied to Groningen more than she might have liked, de Vries happily combined raising two children with working her way up to professor of oncology, and even welcomed in an additional child along the way!**

most”. Only in the past year has she decided to concentrate on it for research because its potential is becoming clear.

### THE EXCITING POTENTIAL OF MOLECULAR IMAGING

Molecular imaging techniques allow biological processes at cellular and molecular levels to be visualised and measured in living patients. With knowledge about the heterogeneity of cancers and the need for targeted therapies increasing, imaging offers the prospect of monitoring how treatments affect the biological processes that influence cancer growth. A fluorescent or radioactive label, for example, can be added to a protein or antibody that is attracted by what is believed to be an important tumour characteristic – HER2 expression in breast cancer, for example.

What’s exciting about the techniques, says de Vries, is that the scans may offer vital information on

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how a patient is responding at a very early stage of treatment – within days even. This has clear implications for tailoring treatments to patients – and controlling drug budgets. She points to some spectacular longitudinal and cross-sectional scans of a patient who was injected with a radioactive tracer linked to an antibody against HER2. Yellow patches show the areas where the tracer was absorbed – patches in the liver and the bones where there are clearly metastases.

Then the patient was treated with a drug that reduces HER2 expression. A second set of scans, two weeks after treatment started, reveals that the yellow patches have contracted, and become riven with holes. The drug is affecting its target.

“It shows that the characteristics in the lesions are changing when you treat the patient. But if the treatment hadn’t affected HER2 expression as the oncologist hoped, the findings might be used to inform a change of treatment.”

There are implications for screening and drug development, as well as patient welfare. What’s particularly interesting for de Vries at the moment is that her research, in collaboration with research centres in other countries, is indicating that, using the latest technology, fluorescence can be detected in tissue far better than originally believed. Tumour-targeted fluorescent tracers can be detected during endoscopy or surgery, or even using handheld probes that can pick up light several centimeters under tissue. This is a better option than using radioactivity, which has obvious risks for patients.

“Molecular imaging allows you to see the behaviour of the drug in the body as a whole. Is it reaching its target in the tumour? How long is it staying there? Are you dosing properly? This gives clues also to speed up drug development and decision making because you really know what’s going on. You can fuse these images with CT or MRI, providing information about the characteristics of the lesion and its exact location, which is very useful for surgeons too.”

As the years of research have progressed, de Vries

has become persuaded that molecular imaging may be of the greatest use in developing novel therapies.

“I think it is within reach that we can label novel drugs not only with radionucleotides but also with fluorescent tracers, and then routinely check certain lesions over time in the outpatient clinic, without the need for smart people around you all the time. That would be really nice for drug development. I still have to prove it, but I have the feeling we’ll make progress in the future.”

### FOCUSED ON THE POSITIVES

De Vries likes to talk about the present rather than dig into the past or peer too far into the future. It’s her current research that interests her. Equally, she’s a great believer in a positive attitude, of living in the present – as an oncologist, she’s all too aware of people who have put too much store on waiting until retirement to enjoy life, only to find it accompanied by illness. “Life is too short not to appreciate those important little moments that make you happy as an oncologist, like making the right decision, or a patient getting better than you expected, or your PhD students doing well.”

She remains deeply influenced by Nanno Mulder, a haematologist and then oncologist, who supervised her PhD thesis in Groningen. Whatever the problem, he made it a discipline to think of ten solutions. “He is a brilliant thinker. The ideas weren’t always feasible, but from ten you usually had something to choose. I think it is a huge advantage to meet people early in your career who see opportunities, not hurdles, everywhere. He certainly influenced my decision to go into oncology, and see it more as a challenge to be met, at a time when it was seen as second rate by others in internal medicine.”

Some doctors in the early ’80s, she recalls, thought that young internists who wanted to go into oncology were strange: why would you want to go into a specialty where there was so little to do for the patient? How things have changed, de Vries reflects. She is deeply proud of being in if not the first then the



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second cohort of this new profession, and one of the very first women. She repeats again and again what a good decision she made to go into oncology.

“It’s so exciting to be in a profession where every year you see change. That’s now more true in oncology than other fields. It’s always nice to see progress in patients, and we are now better at helping them live longer than ever before. But the other exciting thing is that biology is helping us find new mechanisms to treat cancer – though never as fast as you want to. It means you have to keep on studying and learning to acquire new insights and understanding of pathways and mechanisms. If that’s what you like doing, it’s wonderful that somewhere like here you can translate it into something that works in the clinic.”

Despite her international outlook – de Vries has been a member of numerous EORTC and ESMO committees and is involved in the European Academy of Cancer Sciences – she has spent her entire career in Groningen, working her way up to assistant professor at the Department of Medical Oncology in 1983, then associate professor in 1989 and then full professor in 1997.

She admits to seriously considering working elsewhere many times. “Things might have been different,” she says, with a touch of regret. “But everything has to fit.” The needs of the family have obviously played a part in decisions to stay put. She is married to a gastroenterologist, and has two daughters now in their mid 20s – one a physical chemist specialising in nanotechnology, the other nearly qualified as a medical doctor. But childcare issues never got in the way of her career (de Vries has always worked full-time) and despite the guilt that she and other parents suffer as a result of not

staying at home, she observes wryly that it has had no negative effect on her children whatsoever.

Staying in Groningen has allowed her to do what she wants to do, on the clinical, research and teaching fronts. She is a significant figure in the national cancer world, a vice chair of the Dutch Cancer Society, and a member of the Health Council of the Netherlands since 2008. It is important, she says, to present the medical perspective when high-level health policy decisions are being made. “I think that doctors have to speak up, for example, on smoking. I’m not sure that most of us like to do it, but some of us need to.”

#### THE EXCITING POTENTIAL OF YOUNG ONCOLOGISTS

In Groningen, a university town jam-packed with students on bicycles, it has been the medical and PhD students she teaches and supervises that have kept her feet grounded and her brain buzzing with new ideas. De Vries says that much of her research, including her work on imaging, has been fired by their creativity and knowledge of new technology. So as she looks ahead to the next couple of years, one of her main aims is to train more young people into independent doctors and scientists. But she worries about the increasing burdens being put on them.

“We have all these rules, requirements, forms to fill out, all the administrative burden associated with trials. Life for young doctors and scientists has become much more demanding from that perspective, and if they want to do research because it’s inspiring and gives them the chance to see patients regularly, it’s difficult to give them the same opportunities as ten years ago. I worry that we

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are going to lose these people who are trying to translate findings from lab to clinic.” She believes it is her role to create a supportive setting which makes students independent but helps them over the time-consuming hurdles.

De Vries has enormous faith in the abilities of young people, if not tied down by the bonds of expectation imposed by parents and society. This faith, it turns out, is rooted in part in an unusual personal experience that also helps explain her reluctance to make plans for the future.

Around a decade ago, she explains, the family got what de Vries calls ‘a borrowed daughter’ – a third child who came from another home. Her youngest true daughter brought her home.

“She came from a background where people didn’t go to high school, a disrupted family, and in the end my daughter thought it would be a good idea if she became part of our family, and she did.”

The girl was never formally adopted, but all the parties involved were happy with the arrangement. “She brought in a different background, and she made us realise that education and child-rearing seem important, but actually a lot of things children do is through their own inspiration, their own drive.” The young woman has now finished a Masters degree in education and is about to become a teacher.

“So this is a gift,” says de Vries. Sometimes, she points out, the best things in life are unexpected. She reflects that for young women now, starting a career in medicine or another profession, things are much harder than they were for her 30 years ago because nowadays a course is charted out and they are expected to do well. “I didn’t have goals – I didn’t have to reach any particular goal, so I didn’t disappoint myself!” Thankfully, she didn’t end up disappointing anybody.



Don't tie them down. De Vries tries to protect her students (pictured here alongside staff members) from all the expectations, rules and bureaucracy that could end up sapping their enthusiasm and creativity