Lena Ansmann holds Germany's first Professorship of Organizational Health Services Research.

Well-Organized Healthcare

The results of a medical procedure do not only depend on the doctors' skills, but also on the organization of their working environment. Oldenburg University health services researcher Lena Ansmann and Dutch medical microbiologist Alexander Friedrich are both examining this factor – using very different approaches

On 13 December 1973 a highly controversial study appeared in Science magazine. Entitled "Small Area Variations in Health Care Delivery", US epidemiologists made the astonishing observation that in a community of Vermont in the east of the US, 15 percent of all children up to 15 years of age had their tonsils removed, whereas in a neighbouring community that figure was four times higher. With other types of procedures, too, there were conspicuous variations in the per capita number of days spent in hospital and the cost of hospital stays. It appeared that the more hospital beds were available in a community, the more procedures were performed.

This result put paid to a number of popular notions about medical care, for instance that doctors make their decisions based solely on the current state of knowledge and the wellbeing of the patient. One conclusion from the study was that certain variations in the provision of healthcare services cannot be explained by medical factors

alone but are clearly based on other factors, for example differences in the way individual hospitals are organized.
But it is only in recent years that researchers have begun to focus more on these organizational differences. For there are still drastic regional variations in the frequency of certain types of surgeries today – and the causes for these and other, similar variations remain unclear. "The complication rates or mortality rates after a certain type of procedure can also vary from hospital to hospital," says Prof. Dr. Lena Ansmann of the University of Oldenburg's Department for Health Services Research. The professor is one of the few researchers in Germany who is systematically investigating how differences between organizations affect patient care. Ansmann's Professorship of Organizational Health Services Research was created in 2017 and is the first to be explicitly dedicated to this area of research.

„We want to step up research activities."

Ansmann is particularly interested in the relations between employees within an organization. In some cases her research projects even extend into the areas of special education and social work. Another focus of her research is oncological care. In the PINTU study (Patient involvement in multidisciplinary tumor conferences in breast cancer care), funded by the NGO German Cancer Aid and led by Ansmann and her colleague Nicole Ernstmann of the University Hospital Bonn, the focus is on so-called "tumour conferences". These meetings are case reviews conducted either before or after a cancer surgery where doctors with different specialities discuss the patient's prognosis and further treatment – for instance whether radiotherapy or chemotherapy is necessary. Normally the experts do this behind closed doors, but at certain hospitals that are specialised in breast cancer patients also take part in these meetings. "However, we don't yet know whether this is a good idea," says Ansmann. After all, the doctors use medical language when they talk to each other, and this can make patients who are often already very nervous even more anxious and stressed, she explains. And it is also unclear whether involving the patients in these conversations makes sense from the doctors' point of view. An argument in favour of patients attending these meetings, however, is that they are better informed about the pros and contras of all the various options, and thus in a better position to decide which therapy to choose, she says.

In order to examine open questions like these, Ansmann and her colleagues interviewed doctors at various breast cancer centres. They want to find out which advantages and disadvantages the doctors see here and how they integrate patients into the discussions. "There are doctors who say: It's a great idea, it should be done like this everywhere. The patients are totally happy with it," Ansmann reports. Others, she says, focus more on the disadvantages – for example that the patient's presence means that the situation can't be discussed as openly, or that the tumour conferences are thus prolonged unnecessarily. "When we discuss this with clinical practitioners the topic is always highly contentious, which I find very exciting," the researcher says. In the next step Ansmann and her team plan to interview patients before and after the conferences. With video recordings of the meetings, they want to find out how patients behave during the tumour conferences and how they feel afterwards.

In her new field of research Ansmann is trying to bring together scientists with a similar focus and connect them with each other. In the German Network for Healthcare Research (Deutsches Netzwerk Versorgungsforschung) she leads the working group "Organizational Health Services Research" and over the past two years has helped revise the standards for key methods in her field of research. A memorandum with the results will soon appear. She is also involved in the project "Organizational Behaviour in Health Care Institutions in Germany" (NWOB), which is funded by the German Research Foundation (DFG). In this project twenty researchers from different disciplines – from general medicine to economics – have produced a book that provides a systematic overview of the current state of organizational health services research in Germany. "We want to further consolidate this new field and step up research activities," Ansmann explains.

A look across the border to the Netherlands confirms that organizational issues are critical for the medical care of patients. "The two countries differ in many respects when it comes to patient care," says Prof. Dr. Alexander Friedrich, director of the Department of Medical Microbiology and Infection Prevention at the University Medical Center Groningen. This is particularly true in Friedrich's area of expertise, medical microbiology and hospital hygiene. Germany has a problem with so-called hospital bugs, including the multidrug-resistant Staphylococcus aureus (MRSA). This is a variant of a widespread species of microbes that is resistant to most antibiotics. In Germany, MRSA infections are ten times as frequent as in the Netherlands. "One might expect to see such immense microbiological variations between northern and southern Europe, but not between Germany and the Netherlands," says Friedrich, who was a long-time member of the Scientific Advisory Board of the European Medical School Groningen-Oldenburg and works closely with Oldenburg's School of Medicine. The higher prevalence of MRSA bacteria is not so much a result of insufficient awareness about the importance of disinfection or how to use antibiotics. "Of course German doctors know all about hygiene or how to do a screening. This means that factors beyond medical knowledge must be in play," Friedrich concludes.

In the Netherlands almost every hospital has its own laboratories and clinical microbiologists. Alexander Friedrich is the director of the Department of Medical Microbiology and Infection Prevention at the University Medical Center Groningen (UMCG).

Friedrich is heading a German-Dutch EU-programme called EurHealth-1Health to focus on pinpointing those factors and bringing German hospitals in line with Dutch standards. The University of Oldenburg is also on board. A number of organizational differences between the two countries are immediately apparent. For example, in the Netherlands almost every hospital has one or more own medical microbiologists who quickly determine the right antibiotic for patients with bacterial infections. In order to prevent the spread of germs, this doctor has the authority to initiate preventative microbiological screenings. In Germany, by contrast, such specialists are rare in acute care hospitals. Although in both countries high-risk patients – for example farmers or travellers who have been to a hospital abroad – are tested upon admission for resistant germs, in the Netherlands all patients who are admitted to a high-risk ward such as intensive care are also screened. "Particularly if a patient comes from another hospital or a nursing home that is known to have an outbreak, patients are screened, in some cases on a weekly basis," Friedrich reports.

Learning from the Dutch

Until the swabs are negative, patients in the Netherlands are kept isolated in single rooms. "This prophylactic isolation is rarely used in German hospitals," says Friedrich. This, he explains, is because in most cases as many beds as possible need to be used primarily for economic reasons. Hence it's not easy to keep patients isolated. The Dutch healthcare system, by contrast, is organized in such a way that on average only 60 percent of the beds need to be occupied. "This means there's enough space for isolation care," Friedrich says. "So whether a patient can be isolated or not seems to be influenced to a large extent by the remuneration system in a country and not so much by medical reasons."

At the healthcare system level there are many other differences: in Germany the number of hospitals per inhabitants is three to four times higher than in the Netherlands, where at the same time there are no specialists in own practice. "To date, no one has made a careful analysis of whether and how these differences affect the use of antibiotics and the spread of resistant germs," Friedrich says. Researchers at the Crossborder Institute for HealthCare and Prevention, a joint facility of the University of Oldenburg and the University of Groningen's Aletta Jacobs School of Public Health, plan to carry out a structured comparison of the two healthcare systems –with the goal of identifying the best means to control the germ problem. This cross-border research has been given high priority by the government of Lower Saxony.

But simply applying the Dutch strategies to Germany wouldn't make sense in Friedrich's opinion. "There are too many country-specific differences which first need to be understood. Not all measures can be replicated one to one but have to be implemented in the

right places of the respective system," he explains. In a region where there is a lot of farming, livestock can be a source of resistant germs, whereas in another region the transfer of patients from a certain clinic to other hospitals might be the main route of infection.

Hubs for resistant germs

Indeed, in 2015 Friedrich and colleagues were able to demonstrate in a study that antibiotic-resistant germs often follow patient flows. If there is an outbreak in one hospital in a region the resistant germs spread rapidly through the transfer of patients to other clinics in the area. The study showed that these transfers do not occur randomly in all directions, but that individual hospitals – and in some cases even individual wards, for example the intensive care ward – become a kind of hub, distributing pathogens across the entire hospital and region. "We want to track down these hubs. If treatment with antibiotics and hospital hygiene are properly implemented at these hubs, all parties benefit – in our opinion even the facilities where things are not going well," Friedrich stresses.

For researchers in Groningen and in Oldenburg there are numerous approaches for studying and comparing the healthcare systems and their organization in Germany and the Netherlands. The EurHealth-1Health project has already initiated changes: training programmes for hygiene specialists are to be harmonised in the long term and mutually recognised in the short term – in a subproject run jointly by the University of Oldenburg and the Oldenburg Klinikum. Together with employees of the University of Oldenburg, Alexander Friedrich will also begin to study the infection routes of multidrug-resistant bacteria in Germany in more detail. Because, as he says, one thing is clear: "These bacteria don't just spread at random." (uk)

Many antibiotics are powerless against multidrug-resistant Staphylococcus aureus (MRSA) bacteria. Targeted screening procedures have been successful in preventing the spread of these hospital bugs in the Netherlands.