

The Philips logo is displayed in a white rounded rectangle on a blue background.The word "Healthcare" is written in white on a blue background.The word "Consulting" is written in white on a blue background.

Insights help improve ICU bed management

Who/where

Krankenhaus Düren in Düren, Germany. In 2018, the hospital started the ICU bed management project with Philips consultants to improve the transfer management of ICU patients.

Challenge

Like most hospitals, Krankenhaus Düren struggles with shortages in intensive care beds. There are 28 beds spread across two intensive care wards, and the ICU capacity has become a bottleneck for the processes in the hospital, partly because they are interconnected with so many other departments, like surgery, ED and the general patient wards. The hospital felt it would be useful to bring in independent healthcare consultants to gain a fresh perspective on how to resolve this complex issue.

Solution

Philips consultants provided a comprehensive assessment of the situation that included data analysis, stakeholder interviews and observations to establish a baseline. The results of the assessment were starting points for a co-creation workshop facilitated by Philips consultants. In this workshop, all stakeholders involved in the process participated in identifying solutions to key areas for improvement.

Results

This consultancy engagement revealed that poor communication, a fragmented bed booking system and to some extent the longer length of stay on other wards were causing the bottlenecks. The project team restructured the ICU transfer process and assigned one contact person to coordinate ICU bed planning. Additionally, the patient booking process was restructured and optimization of the length of stay was tackled. Communication between physicians and nurses and also between the different departments was addressed, and overall staff satisfaction has improved.

With over 20 specialist clinics, institutes, centers and other therapeutic facilities, Krankenhaus Düren offers a broad spectrum of healthcare services to people in its community. Its core value is providing excellent care that puts the needs of the patient first.

Krankenhaus Düren is continually working to improve its standards of care and workflow efficiency. Alongside its general services, this public hospital specializes in the treatment of tumors, diseases of the cardiovascular system, the digestive and metabolic organs and the musculoskeletal system. The hospital has 450 beds, 1,300 employees and treats about 20,000 inpatients and 55,000 outpatients per year.



Tackling a complex challenge – ICU bed management

With 23 beds for two intensive care wards and 5 additional post-operative ICU beds, shortages in intensive care beds have been a bottleneck at Krankenhaus Düren for some time.

Prof. Stefan Schröder, Chief Physician of Anesthesia and his team experience nearly every single day, that they need more ICU beds for elective surgery than are available. "It wouldn't matter if we had 20, 30, 40 or 100 beds," says Prof. Schröder. "It is only if we coordinate all the ICU bed planning processes with each other, that the available number of intensive care beds will be sufficient. For this reason, it was really, really important for me to involve the senior physicians, but also everyone who is affected on the ground and who works with the situation on a daily basis. It was my goal to thoroughly discuss the problems from the ground up, and then collectively identify solutions that the department managers would then also be on board with."

Helping drive transformation

Philips has assisted healthcare organizations across the globe in making improvements in productivity, quality, safety, experience and cost-effectiveness by focusing on the human side of change. "We can give an organization a holistic view of their patient flow, and help them identify the people who are factors in that process so they can improve the delivery of healthcare services," said Katrin Spohn, Healthcare Consultant. "We make complex challenges more transparent for healthcare professionals at all levels of the organization to create a shared understanding of issues and motivation to resolve them."

The customized consultancy approach for this ICU bed management project included the following key phases:



- **Assess** the current level of ICU bed management performance, based on data analysis, stakeholder interviews and observations to establish a baseline and identify critical areas for improvement



- **Co-create** – the assessment identified several improvement areas that were addressed during the co-creation workshop with multiple stakeholders across the process



- **Transform** – this project helped the hospital reorganize their ICU transfer process and improve communication between physicians and nurses, and between departments



- **Sustain** – the hospital continues to work on the improvement areas identified, and this project has triggered improvement projects in other areas as well

Collaborative effort

Prof. Schröder: “This problem of intensive care bed shortages, came up again and again in our chief physician and business management meetings. We realized, we only have this limited resource for intensive care so we need to develop ideas on how to better manage the situation.” Hospital management chose Philips consultants as their partners for the ICU bed management project to get a fresh perspective on resolving this issue. Prof. Schröder was appointed as project lead. The goal for the project was to improve operational work processes, patient and staff satisfaction and prevent income loss.

“Communication between the different professional groups has improved and runs more smoothly now, and staff satisfaction is much higher. The patient throughput in and out of the intensive care unit has improved and is better synchronized with other workflows in the hospital.”

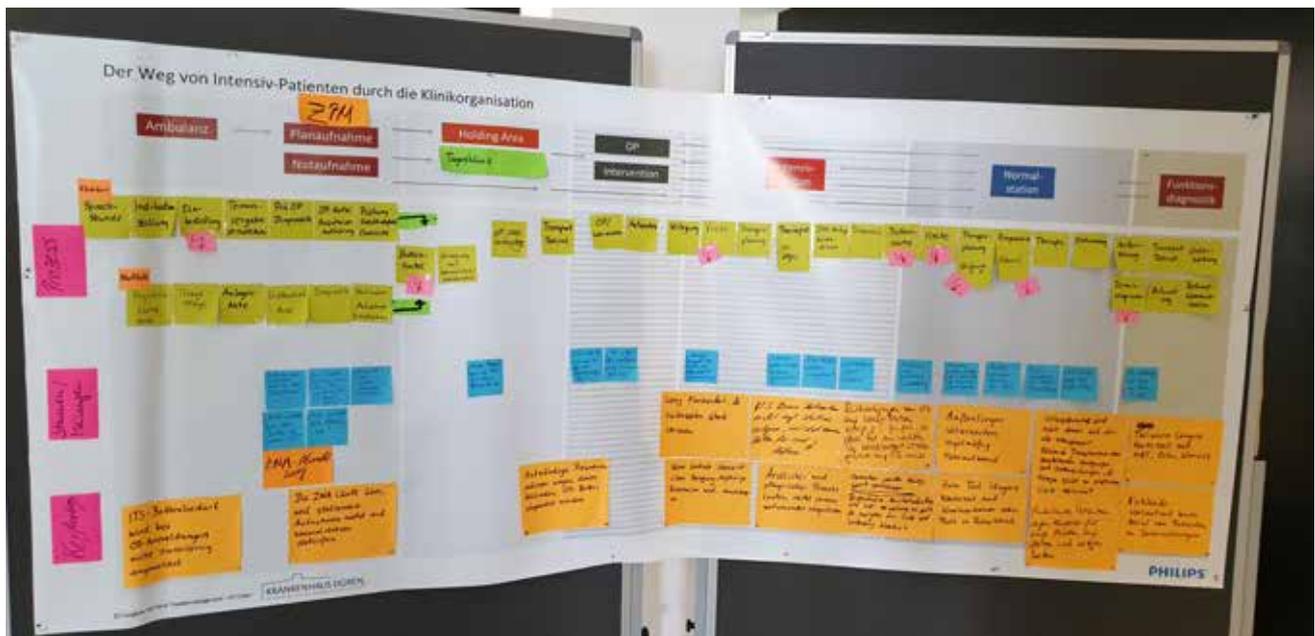
Prof. Schröder, Chief Physician of Anesthesia

New insights into complexity of situation

Philips consultants began by reviewing data in the Paragraph 21 document from the last three years. This document records information about the individual case of a patient. For example when a patient entered the hospital, the ward they went to, how long they stayed on the ward, as well as the scans, diagnostic exams, and types of surgery or treatment that were administered. Hospitals in Germany need to report this information to the national government. The aim of this yearly report is to achieve a high level of transparency about the service providers in the healthcare sector and to continuously improve the German Diagnostic Related Group (DRG) system. Additionally, internal benchmark data from the hospital was analyzed.

The Philips consultancy team then held a kick-off meeting where they presented the findings from the data analysis to several clinical and financial stakeholders, including the hospital CEO.

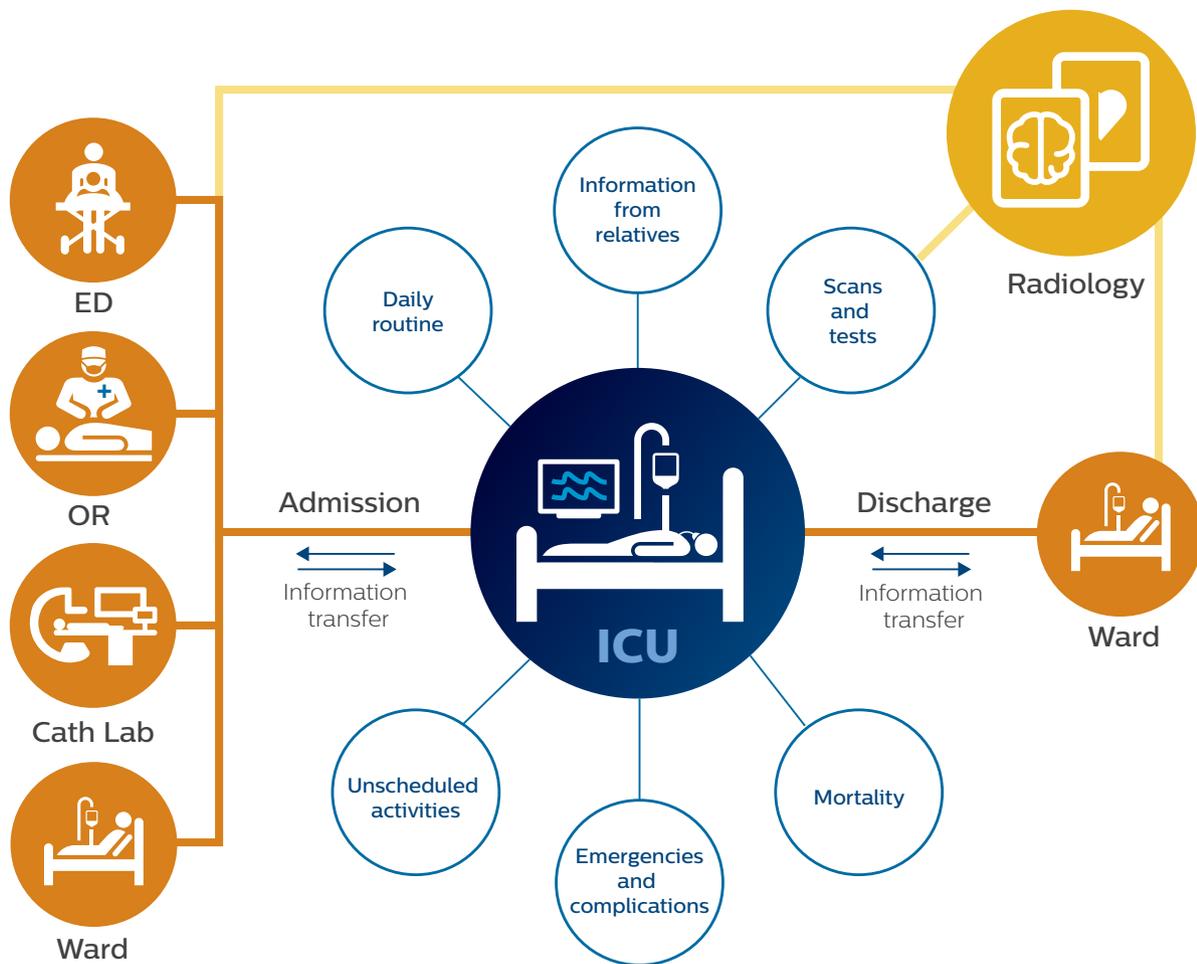
After the kick-off meeting, the Philips consultants interviewed stakeholders involved with the entire process, including general surgery, cardiology, ICU, bed management and finance. A process flow poster was created that visualized the key findings and bottlenecks.



Process flow poster visualizing key findings and bottlenecks

“The Philips consultants carried out a very thorough, data-based study and examined the issue in great detail,” says Prof. Schröder. “The process flow poster gave us insight into the fact that the ICU bed management issue is a very complex issue. I think that many of us did not realize that the intensive care bed planning is impacted by several factors: how we schedule

patients, the number of patients that are emergencies, how we communicate with doctors and nurses, and when and how we define discharge criteria. Ultimately, all departments and all staff members in some form or another are involved. The process flow poster visualized this complexity very clearly.”



Complexity of the Intensive Care Unit (ICU)

Areas for improvement

A one-day co-creation workshop was held with stakeholders involved in the process. Four multi-disciplinary teams were created from people at different levels of the organization to tackle four areas of improvement. Each team was given one topic and came up with solutions for it.

- Optimize booking process for elective surgery
- Optimize patient flows to positively impact length of stay
- Optimize bed management with structured communication flows
- Improve physician-nurse communication

“What makes the Philips team stand out is their high level of competence both from the specialist nursing and clinical side, as well as their knowledge of the healthcare business and considerable social skills. This is an excellent recipe for implementing project management and change management in our hospital.”

Prof. Schröder, Chief Physician of Anesthesia

Constructive co-creation workshop

“Overall I received extremely positive feedback on the co-creation workshop. It was a very constructive collaboration that created a common understanding and trust between the nurses, managers and doctors. By discussing and tackling the issues it became clear that we are all involved in the ICU bed management issue, and we all have to work well together to resolve it,” says Prof. Schröder. “The Philips consultants created a working group mentality that was very productive.”

The process flow poster showed how various factors related to the ICU bed shortage problem are interconnected. “It made clear that the hospital must be regarded as a system in order to positively influence patient flows collectively with all those involved” says Prof. Schröder. “It was also very useful to have the Philips consultants as an outside party, reflecting some aspects that we already knew, but also opening our eyes to other new issues.”

For the booking process, for example, the group identified a huge issue, due to the fact that different contact persons were responsible for the allocation of intensive care beds. Additionally, it became apparent that the communication between the stakeholders involved, needed to be improved.



Collaborative and constructive co-creation workshop



Improving efficiency and staff satisfaction

As a result of the workshop, the team introduced one contact person and one phone number for all ICU bed allocations, and all stakeholders are working according to this new process. This bed coordinator indicates whether intensive care capacity is available or where capacity can be freed up, and says to which ward a patient should be transferred. This has made the allocation of intensive care beds much more harmonious, constructive and in the best interests of all.

Prof. Schroder says, "Communication between the different professional groups has improved and runs more smoothly now. The patient throughput in and out of the intensive care

unit has improved and is better synchronized with other workflows in the hospital." Several follow-up projects are being defined for example, standardizing intensive care transfer criteria.

For this project, the length of stay was also analyzed and opportunities to positively impact the length of stay were identified, which could potentially improve financial outcomes. As a result of this project, a monthly financial report is now compiled, tracking the number of patients, revenue and other relevant data per department. These reports are discussed with the involved senior physicians.

Results include:



Restructured ICU bed planning process



Improved communication between wards



Smoother patient throughput



Improved staff satisfaction

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

