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An Interview with Professor Hans Flaatten on Management in Intensive Care

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Researcher and head of intensive care at Haukeland University Hospital, Professor Hans Flaatten believes that two goals essential to quality intensive care are good intra- and inter-team cooperation and respect, and constantly implementing the latest research findings into intensive care guidelines and practice.

Introduction

Professor Hans Flaatten has been the Medical Director of the Intensive Care Unit at Haukeland University Hospital since 1994. The hospital is one of the largest in Norway, with 1100 beds, 8500 employees and a budget of 680 million USD in 2003. With a background in anaesthesia and key interest in outcome research, Hans Flaatten implemented a database early on in his unit, which soon developed to support clinical and outcome research. Organization of the Norwegian Registry of Intensive Care has now been awarded to Professor Flaatten's unit. With 65 nurses, 6-7 senior physicians intensivists and 10 beds, the unit has a turnover of 450 to 500 patients per year. The nurse to patient ratio isslightly higher than 1 to 1. The intensive care mortality rate is 20 to 25% and the hospital mortality rate is around 30%. Professor Flaatten believes that two goals essential to quality care are good intra- and interteam cooperation and respect, and constantly implementing the latest research findings to intensive care guidelines and practice. His research resulting in a 25% reduction in ventilator time was the direct result of promoting nursing intervention in sedation regimes.

What are the Main Directives of Your Role?

Our unit has a medical director and nursing director. As the medical director, one of my main directives is to maintain medical standards to the highest achievable level, which means ensuring that all my consultants and trainees have the highest possible level of competence. We have many internal methods to help achieve this, such as the internal education program for new residents and our written pocket guide describing our preferred methods. These guidelines are discussed and agreed within the department and I am responsible for keeping them up-to-date according to national and international guidelines. Although the guidelines should be followed in principle, people are allowed to think for themselves. If guidelines are not followed, we discuss the reasons with whoever has been on duty, not to criticise, but to understand and learn from practice. The guidelines can also be accessed on line via any of the eightterminals available to personnel in the department. We also have detailed routines for the nurses, to help with equipment testing and use.

Another responsibility is communication with other departments. Intensive care is not an isolated phenomenon; we live together with the rest of the hospital and it's important to communicate well with all the major departments who deliver patients to us. There is always room for improvement and I would like to have stronger links with other departments than we currently have.

We are responsible for the emergency team, for example for cardiac arrests. If someone pushes the button, we have to respond day or night. The intensivists are also responsible for a separate 8-bed burns unit. This is the only one in Norway. Although organizationally it belongs to the department of plastic surgery, we are responsible for the patients and this regularly keeps two of our consultants occupied.

We are responsible for the initial response to push the buttons for alert in the event of a disaster. The intensivist in charge at the time is called to the emergency central, briefed on the situation and decides which of three levels of alert to action. We lead the hospital catastrophe team until the hospital directors and formal catastrophe team are present. This may only require 10 minutes, but during a holiday night time, it can take several hours, so our organization needs to be alert and react fast. This is a very important role for us.

Strategically, I have two main medical goals: appraising and implementing recent research into our own practices, to keep up with progress, and contributing our own findings to the intensive care society. We aim to be in the forefront of research in certain areas, to provide input to others.

We can appraise our own performance using the Norwegian registry of intensive care, which allows benchmarking and highlights outliers. For

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example, there is an ICU (not ours) with an average length of stay in intensive care of 15 days, whereas the average in Norway is 5. We can also use international standards, for example for mortality we use the SAPS II scoring system and compare with standard mortality. Although it's 11 years old, we have used the system from year to year, so we can compare against our previous performance.

From time to time we set our own new targets. We had a recent break-through in reducing ventilator time through changing attitudes to sedation practices. We used a new method for us, statistical process control, which has been used extensively in industry, and is now increasingly used in health care. We gave more responsibility to the nurses to follow up and implement changes in the sedation regime and achieved a 25% reduction in ventilator time (Brattebo et al. 2004).

How Would a Typical Day Proceed?

We first meet with the whole surgical services department, of which we are a subsection, and then go to intensive care where the physician in training, who has been on call for intensive care, reports on the patients. At 0900 the surgeons, consultants, physicians, nursing director and nurses discuss each patient to outline what the major tasks are for the day. This may change when we see the patient, but we try to plan as much as possible. Nurses only join the meeting for the discussion of the patients they are managing; otherwise too many people are present. At 0930 we start the round, and we write on a blackboard which physicians and nurses are responsible for which patients, so that everyone can see this clearly. Rounds are documented and unless a procedure is necessary earlier, these are usually performed after lunch, for example central venous catheters, tracheotomies etc. X ray rounds are done at about 1330 and at 1500 we start reporting for the next team coming on duty. Working hours already implemented for 10- 15 years in Norway are now being implemented elsewhere in Europe. Junior doctors in Norway work about 46 hours per week, which is considerably less than in many other parts of Europe. Our shifts are 0730 to 1600 and 1600 to 0800. For both shifts there is a small overlap for handover.

I try to alternate weeks of administrative and clinical work. I still find clinical work very rewarding and necessary for me to keep up my own standards. Direct patient contact takes the majority of my time during my clinical working weeks.

Describe Two Extremes in Your Role

It's easy to find extremes in intensive care. For example, patients' ages range from a 3 month old child to an 85 year old adult. The most extreme challenge is terminating active treatment for a patient who you know is going to die, but still needing to find the optimism to fight 100% for the next patient's survival. To adjust from one situation to the other can be difficult. If we have enough staff, and we know that terminating active treatment will take several days, we try to let the physician in charge work on that task alone. Even with treatment withdrawal, there is still much we can do for the patient and relatives.

What Kind of Training and Support have You been Given for These Tasks?

I have no formal training in intensive care; I learnt by doing it. Training programs have therefore become one of my major tasks. Newcomers should not have to learn on the job; they need a structured education. We've set up a 2 year training program in Scandinavia for intensivists, with annual intakes.

I've always been interested in research and this has helped me structure knowledge for myself. One of the first things I did as director was to create a clinical database to record data on activities, for documentation purposes internally, for hospital administration, and to create a platform for research. This strategic move (which has been constantly improved) now provides a comprehensive system with which to support follow up of patients and clinical research.

An essential need in intensive care is the implementation of medical therapies which have been shown to be of value to patients. This may seem simple, but very often even the original researchers themselves have difficulty applying their own findings to all of their patients, even with the knowledge that this would save lives. We need to implement the best possible standards. This is really an essential role as a medical intensive care manager.

Personal relationships are also very important; mutual respect and cooperation amongst colleagues. Nurses and doctors should be treated equally. Although their tasks differ, both are essential to intensive care. In fact, there are few places where doctors and nurses need to work so closely together.

Good cooperation within the group and between groups and keeping up with the best medical standards are two fundamental goals.

What is the Hardest Decision You've had to Make as an ICU Manager?

I still find it very hard when there is nothing more we can do for a child, and we have to communicate this to the parents. I often have children in intensive care the same age as my own, and at these times I feel emotional. Realising that we have nothing more to offer a child towards survival is a very tough time. It never gets better. It's a tough burden.

What has Been the Most Satisfying Experience as an ICU Manager?

Our intensive care unit has developed from being a normal standard unit to probably one of the best performing in Norway.

In our area of outcome research, we equal many centres in Europe. This is difficult to measure, although based on the number of abstracts from Norwegian units to ESICM, we are happy to have had the highest number accepted for the last five to six years. In 2004 there were six or seven abstracts from Norway and four of these were from our unit. Measured in this way, we have been successful in having an impact on the European society of intensive care.

Regarding clinical standards, I think we are also very high, but this is harder to prove, of course, because the case mix is very different from hospital to hospital and crude mortality rate should never be used as an outcome measure by itself. We're also extremely fortunate that our equipment is regularly updated.

We recently founded a Norwegian registry of intensive care. It is important to collect high quality data to be able to monitor the impact of Norwegian intensive care for new research. It's a good way to document whether there are deficits, for example in the number of available beds in Norway, which is low compared with European standards. We have had the registry for two years, but funding has only been awarded this year. The registry has now been allocated for organization from my ICU and I'm very proud of that.

Globally, in intensive care, I think we need to know more about differences, for example in standards and economics of intensive care in Europe.

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David Edbrooke's team (Edbrooke et al. 2004) is doing good work in this area, but it's difficult to get good quality data. We published a study (Flaatten et al. 2003) looking at costs in different settings between 1997 and 1999. We researched expected survival years for patients who survived, based on publicly available statistics in Norway. Two years following intensive care, mortality is the same as in the normal Norwegian population. For survivors we could therefore estimate the group total for future years of survival and divide this by the expenditure. We calculated that the cost was 650 euros per year, which isn't very much. This is another way of looking at costs, no less relevant than looking at daily ICU costs, and provides an efficiency parameter. In Norway patients are tracked by their social security cards, and data is available to researchers, so this type of cost analysis based on survival predictions is straightforward.

What is Your Supporting Infrastructure and Who are Your Contacts in Your Work?

We work with the hospital's radiology department, laboratory sciences, and surgeons, and I'm well supported by my anaesthesia partners. This infrastructure is very important to us.

We are very well supported by the hospital administration regarding equipment, and we were also able to rebuild the unit in 2001-2. We need the support of the hospital administration because intensive care is expensive. We communicate continuously to justify expenditure and get the funding we need. It's very difficult because we can't plan intensive care. Patients just arrive.

Legal claims are well supported by a government setup, which patients can use to apply for advice and compensation for malpractice. With this system, the issue is dealt with externally to the hospital, using consultants from other hospitals. We've only had one such experience in 10 years, but I act as a consultant in such cases for other hospitals.

What Sorts of Medical/Clinical Management Issues do You Currently Need to Deal With?

My priority is to have an outreach team. We lack evidence for this, but I believe the approach will save lives and resources. It's very logical. Once a patient has had a heart attack, there is little to be done. Records show that many patients deteriorate a couple of hours before an attack. A system to signal this as early as possible would be a very good thing.

I also want to have an on-line clinical management system that's able to interact from different sources (reference information and also in-house protocols) and guide treatment. For example, if you tried to prescribe nephro-toxic drugs for a patient who recently had elevated markers of bad renal function, the system would proactively alert on this, to avoid human error.

What Sort of Financial Tasks are You Dealing with?

Our financing is based on the work done in the previous year. The nursing director monitors finances and records what we have done and used. If the administrators request expense cuts, we demand that they also specify which patients should be refused treatment, those with 90% certainty of dying, or over a certain age, because we don't have waiting lists and or selective intake and the budget decision makers need to understand the difficulties. We only use 5% of the hospital budget in intensive care, whereas many European hospitals use 10%.

When equipment is old enough we replace it all at once. We recently replaced all the monitors, not only in ICU but in the whole hospital. We buy the same equipment from a single company. We have replaced 250 multi-monitors from the whole hospital, from all the operating theatres, post operative wards and intensive care. We are now in the process of changing all our ventilators which are nine to ten years old, and will buy 25 new versions of a particular type. We have done this with syringe pumps, ceiling mounted arms, infusion pumps, and other kinds of medical equipment. Homogeneity in equipment has many advantages:

- Users are only exposed to a small number of equipment types;
- Learning how to use equipment is minimised;
- There is consistency in equipment for people working across different departments;
- Testing and maintenance and the expertise required are minimised for the medical technical department;
- Purchasing in bulk offers huge reductions in price. We are the only hospital in Norway to have implemented this over the last 20 years. Old equipment which is still in good working order is recycled in hospitals within Norway or to under developed countries.

What Personnel Issues are You Dealing With?

There are sometimes problems or conflicts to solve with the consultants, although with only six or seven, this is not so difficult. Training and education is the focus for the junior doctors. The nursing director manages issues amongst the nursing staff.

We don't receive many applications from elsewhere, so we tend to recruit from our large department of anaesthetists. Candidates are sent to the Scandinavian training program for intensivists, and we have internal training for doctors and nurses. On the nursing side, we always have a shortage of four to eight positions, which we are constantly trying to fill. We try to retain nursing staff through credit recognition, respect and by promoting professional development. 25 nurses from my department attended the ESICM Congress in Berlin last year. In Scandinavia, tasks that normally require a doctor's order elsewhere are more often delegated to nurses. Within a rational framework, nursing staff are given responsibility to wean a patient from a ventilator and extubate patients, depending on predefined criteria. Such delegation requires rational thinking and planning, but is very important.

I arrange the rotas for the consultants and 25 junior doctors. Special consultants rotate from the pain clinic to anaesthesia to outpatients. Nurse rotation is handled by the nursing director. Some protocols are designed by a working group and then I approve them; or I design them and circulate for review. I delegate representatives to research purchasing of ventilator equipment etc. All staff members understand their roles very clearly. Turnover of nursing staff is 10%, but we have a very stable team of physicians. We don't measure staff performance by individual. We measure our performance collectively by how the patients are doing.

Thank you Professor Flaatten, for this insight into the management of your department.

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