A key issue in Norwegian ICU care is how to give adequate ICU treatment to all patients despite a scattered population and geographically and meteorologically challenging conditions for patient transfers. These conditions necessitate that many patients are treated at local hospitals in relatively small ICU units. These compact ICU units are usually combined intensive care and postoperative care units. In the smallest hospitals, ICU is also organised together with coronary care units.

Additionally, these hospitals often do not have the ability to employ the number of specialised ICU physicians needed for 24-hour ICU physician's coverage. Therefore, intensive care medicine is performed at most of the hospitals by anaesthesiologists, who are involved in all four of the traditional four medical themes of Norwegian anaesthesiology: anaesthesiology, emergency medicine, pain medicine and intensive care medicine. This training ensures that small hospitals will have sufficient support for treating critically ill patients. In these hospitals the professional life of the physicians delivering ICU care includes combining ICU medicine with several other medical duties.

However, patients requiring multidisciplinary or specialised intensive care (i.e. paediatric intensive care) are transferred to tertiary ICU departments at university hospitals. During the last decade there is an emerging trend that in several of the university hospitals anaesthesiologists specially trained in intensive care medicine exert this competency on a full-time basis. Norwegian physicians working full-time in intensive care units are certified anaesthesiologists. To date there is no formal mandatory certification to become an intensive care physician, but in recent years most doctors entering the field are following the Scandinavian Society for Anaesthesiology and Intensive Care training programme in Intensive Care Medicine and complete the European Diploma of Intensive Care Medicine.

Norwegian ICU Recruitment

As anaesthesiologists almost exclusively deliver ICU care in Norway, there is no specific fast track
professional road into the ICU directly from medical school. While studying to become a certified anaesthesiologist, at least six months of residency should be performed in an ICU, three of which should be in a university hospital. In addition, most anaesthesiologists will be allocated to ICU work for a large part of their in-house on-call duty. Thus, all anaesthesiologists in Norway are quite familiar with ICU work tasks. Most physicians working in Norwegian ICUs began with the aim of becoming general anaesthesiologists and developed a special interest in intensive care medicine during their training. There is no formula for which trainees will be recruited to the ICU; senior staff generally decides who they believe are most suited for the positions. In my hospital, ICU care seems to be popular amongst anaesthesiology trainees and a number of physicians express an interest in pursuing a career as full-time ICU physicians. Recruitment of physicians is not a problem for me as Medical Director in fact I sometimes have to turn down promising candidates.

Norwegian ICU - Professional Environment

Norwegian ICU units are organised as closed units with most treatment decided on and delivered by ICU physicians. Of course, treatment is given in collaboration with the department that referred the patient into ICU care, for instance, surgeons who decide part of the treatment related to surgical procedures. Also the role of the ICU physician is frequently to bring other specialist doctors into the unit; some frequent examples from my own unit are infection specialists, microbiologists, nephrologists or haematologists.

Norwegian ICU physicians work closely together with the ICU nurses. Norwegian ICU nurses are educated though an educational programme of 18 months offered to registered nurses. For most ICU departments, the majority of nurses have this ICU specialisation. In addition, large ICUs also employ physical therapists. The high educational level of co-workers in ICUs makes patient treatment a multidisciplinary effort. While the chain of medical command is undisputed, a multidisciplinary approach results in the working environment becoming more about discussions and consensus than medical paternalism.

The situation with regards to medical equipment is relatively good in Norwegian ICUs. Departments have modern ventilators, syringes pumps, monitors and those treating patients with severe organ failure can deliver continuous renal replacement treatment. Some treatments are centralised to one department; examples are severe burns, ECMO and MARS treatment. The trend for centralisation is rooted not in economics but more in the need to have a large enough patient population in order to get the appropriate level of training. So while medical directors in Norwegian ICUs have to argue for the need for new equipment and to know hospital politics, the end result is generally a nicely equipped ICU. An exception to this is the use of electronic patient records, which are presently available in only a few Norwegian ICUs. However, in many departments, including the ICU at our hospital, the age of electronics is currently invading the departments with electronic patient records, electronic systems for medical imaging and electronic handling of administrative patient data.

Daily Issues for Norwegian ICU Professionals

The most pressing ICU issue in Norway as in most other countries is the discrepancy between available number of ICU beds and patients requiring ICU treatment. In my department, many days we struggle with both diverting new patients and transferring patients to other wards or hospitals. There is a fine line in practicing quality medicine with the continuous risk of allowing the lack of ICU beds to endanger patient safety. One factor contributing to this situation is that in most Norwegian hospitals ICU funding is not based on the number of patients treated but rather to a fixed budget given by the hospital. Thus, there are no economic incentives to treat more patients.

Another constraint experienced by colleagues is the limited resources allocated for clinical ICU research. This is partly caused by lack of funding, but perhaps even more by the day-to-day demand of clinical work tasks, which give little time available for research. The limited clinical research has for the last years been enhanced by the recent Biobank Act that prevents healthcare workers from obtaining a biological sample from patients who are not able to give informed consent. As ICU patients in general lack the ability to give a qualified
informed consent this has stalled most ICU Norwegian clinical research for some years. Luckily, the Biobank Act has recently been revised and it is now possible to obtain consent from next-of-kin or deferred consent from patients participating in a clinical ICU study.

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