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Organisational Aspects of IC in the Netherlands

Contact

Arthur R. H. van Zanten MD,

Director of Intensive Care, Gelderse Vallei Hospital, Ede,

The Netherlands

Chairman of the committee on quality of intensive care medicine

Dutch Society of Intensive Care

Correspondence

zantena@zgv.nl

Website

www.nvic.nl

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Dr Van Zanten describes the current and future trends in intensive care medicine in the Netherlands.

Introduction

In recent years, the demand for Intensive Care capacity has increased markedly in the Netherlands. Factors such as the technical evolution and availability of new treatment modalities, more indications for high-risk surgery, increased number of co-morbidities in (elderly) patients and the awareness that optimal Intensive Care treatment can improve outcome have all contributed to this increased demand for critical care facilities. However, the increased demand for Intensive Care in the Netherlands has not been matched by a similar increase in available ICU capacity, for two main reasons: the shortage of available trained ICU nurses and physicians and because of financial restraints due to a non-transparent budget system for hospitals. In practice this results in ICU beds incurring major costs for hospitals without adequate financial reimbursement. Although the Ministry of Health has allowed the number of ICU beds to increase to meet the rapidly growing demand, (for the previous mentioned reasons) hospitals have only slowly increased the ICU capacity due to budgetary constraints.

The capacity problems lead to major media attention in 2001 after a report was published on ICU bed shortage. In larger hospitals, 1 out of 10 adult patients with an indication for ICU admission were refused admission. Surgeries were either cancelled or patients were transferred to other hospitals, in some cases over long distances across the country with some critically ill patients not surviving the transportation. The resulting publicity forced the Minister of Health to take immediate action and institute a national platform on ICU to improve the accessibility of ICUs for patients in need of intensive care, and order an investigation into the actual need for ICU capacity.

Statistics on Intensive Care in the Netherlands

In May 2005 the total registered population of the Netherlands was 16,292 353 (male 8, 058 928; female 8, 233 425). Of this total, 12, 307 823 persons were older than 20 years of age. The ICU data presented mirrors the adult patients' population requiring ICU expertise. In 2001, we conducted a national survey on ICU capacity. In 131 ICUs, some combined with Cardiac Care, spread over 118 hospital locations, a total 1,189 ICU beds were available. This equals 19.4 ICU beds per 100,000 inhabitants over 45 years of age. Due to financial constraints or shortages of nursing staff, 148 beds were unnecessarily closed (12%). Of all ICU beds, 77.5% were equipped with mechanical ventilators. The ratio of ventilated beds was 73% in non-university hospitals and 89% in university hospitals. Specialised areas such as post-cardiac surgery intensive care (14 hospitals), post neurosurgical intensive care (17 hospitals) and solid organ transplant intensive care (7 hospitals) make up 235 of the 1,189 ICU beds.

Recently, a new survey was conducted after the Ministry of Health had instituted financial incentives to increase the number of ICU beds with mechanical ventilation. This resulted in a moderate growth of 820 in 2001 to 922 in 2004. Of all ICU departments, 61% are equipped with continuous renal replacement devices (in most cases CVVH).

Levels of Care

The level of care can define Intensive Care units. In 2001 we used an artificial method to divide intensive care units into three levels:

Level I: More than 2000 ventilated days per year,

Level II: 1000-2000 ventilated days per year, and

Level III: less than 1000 ventilated days per year (high care).

Based on these specific criteria 25 level I, 23 level II and 70 level III units could be identified.

The proportions of ICU beds in each level are shown in table 1, together with the distribution of national mechanical ventilation capacity. This shows the relatively low mechanical ventilation capacity available in the level III units.

Specific Data on Mechanical Ventilation

There is a large variation in the clinical experience of units with mechanical ventilation. The majority of ICUs (52%) treat patients with mechanical ventilation for less than 730 days per year (on average < 2 patients per day). A small number of ICUs, mainly located in university hospitals, deliver more than 6,000 mechanical ventilation days per year. In total about 150,000 days on mechanical ventilators in the Netherlands per annum are documented.

Personnel Situation in Dutch ICUs: Nurses

In the Netherlands 645,900 healthcare workers are providing care to the national population. Of those 152,900 are registered nurses. The number of formally trained ICU nurses in September 2004 was 4,842 (1,243 of these were working in university hospitals). The full-time equivalent (FTE) is 36 working hours per week. There are large variations in part-time contracts, but on average, ICU nurses work 80% (28.8 hours per week). Absence for illnesses among ICU nurses is 6.5% excluding pregnancy related absences. 23% of ICU nurses in training are in eight university hospitals. In total 653 ICU nurses are in training.

Personnel Situation in Dutch ICUs: Intensivists

In the Netherlands, both officially recognised intensivists and other medical specialists, not formally registered for Intensive Care, treat patients in the intensive care environment. Following a retrospective registration in 1993, in total 446 intensivists are known (243 anaesthesiologists, 138 internists, 49 surgeons and 16 others from medical specialties such as cardiology, neurology and pulmonology). The numbers have increased over time after a new training programme for intensive care fellows was instituted (in 2000: 520 intensivists, in 2002: 539 intensivists and in June 2005: 592). The numbers of full-time intensivists are increasing gradually due to the fact that more level I and level II units have adopted closed-format organisation. In job adverts in medical journals in our country, intensivists are the most frequently sought out of any medical specialty.

Adult ICU Population Characteristics in the Netherlands

ICU patients, both male and female, have a mean age of 62.5 years on admission. Mean length of stay in the ICU is 3.12 days including cardiac surgery patients. Excluding cardiac surgery patients post ICU hospital length of stay is 9.31 days. Mean APACHE II scores are 14 and mean SAPS II scores, 28. National standardised mortality ratio of the 29 ICUs involved in the National Intensive Care Evaluation (NICE) project, based on APACHE II was significantly lower 0.88 (95% CI: 0.81- 0.95) compared to the reference database.

National Intensive Care Societies

The Netherlands' scientific society of intensive care specialists (Dutch Society of Intensive Care; NVIC; www.nvic.nl), founded in 1977, represents about 80% of all registered intensive care specialists. In total 1620 medical doctors (including medical specialists involved in intensive care without formal registration) are members of NVIC. The Dutch Society of Intensive Care Nurses (NVICV; www.nvicv.nl) has about 1000 members.

Quality Management in Intensive Care

The National Society of Intensive Care (NVIC) has instituted a committee on quality of intensive care medicine. The author has the privilege to chair this body. Five subcommittees address different quality areas: hospital audits (visitation), evidence-based practice guidelines, quality

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indicators, care innovation projects, and complication registration.

Future Perspectives

A 3% growth of jobs for ICU nurses is expected in the period of 2005-2008. The average retirement age of nurses is 59.7 years. In the future a higher age of retirement is expected due to shortage of personnel in the Dutch healthcare system. Data on intensivists are not available yet. In early 2006 the results of a national survey currently in process among medical specialists will be reported, including intensivists involved in intensive care medicine. Due to concentration of healthcare facilities, the number of ICU departments will decrease to 106 in 2010. A rapid increase in the number of intensive care step-down facilities (medium care, intermediate care, high care) is expected. A national practice guideline on alarming vital signs in patients on non-ICU wards will probably cause an increase in the number of intensive care outreach teams. At the moment less than 10 ICUs have such medical alert teams.

Recently, representatives of all medical associations involved in intensive care have developed evidencebased national guidelines on organisational aspects of intensive care. Although it is still a concept version, it has already been accepted by the medical associations most closely involved. This document will soon serve as the standard for quality management for Intensive Care of adults in the Netherlands. The guidelines address levels, coordination and continuity of care, staffing levels and quality of expertise, quality management, concentration/regionalisation of care and secondary transportation of ICU patients. The implementation is expected to take several years.

The new Diagnosis Related Groups financial reimbursement system for healthcare will probably induce new opportunities for intensive care in the Netherlands. Transparent budgets that are sufficient to meet the costs will probably lead to more ICU beds and staffing, and consequently reduce the number of patients refused admission.

Although there are still some hurdles to cross, the future for intensive care medicine in the Netherlands looks promising.

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