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### Organisation of IC in Luxembourg

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FTE = Full time equivalent nurses budgeted for each ICU

Source: UCM with the agreement of the Directorate of Health.

Dr Hemmer describes the organisation of health- and intensive care in Luxembourg, one of the smallest countries in Europe.

#### Healthcare in Luxembourg

Luxembourg is one of the smallest countries of the European Union, with a population of 468,571 and 15% over 65 years old. The fundamental principles of the national healthcare system are: free choice of the doctor by the patient, compulsory health insurance and compulsory fee-for service set by the insurance system.

Luxembourg's Ministries of Health and Social Security share the responsibility for the country's healthcare system. A number of organisations offer advice to the Ministry of Health and the Directorate of Health, including the Luxembourg Hospital Association (Entente des Hôpitaux Luxembourgeoise), the Physicians Association (AMMD) and the "College Médical", whose mission is surveillance of the medical profession and its deontology. Healthcare costs are paid by a compulsory health insurance which has three sources of financing: contributions from employers, employees and from the State.

Different Insurance Companies are grouped together in the "Union of Sickness Funds" (UCM).

#### Hospitals and ICUs

Several hospitals are owned by religious organisations and others belong to towns. The largest hospital, Centre Hospitalier de Luxembourg (CHL) is owned both by the state and by the City of Luxembourg. The number of hospitals and hospital beds as well as the number of ICU beds is defined by the National Hospital Plan (last version published in 2001). The country is divided into three hospital regions: the North (population about 70,000); the Centre (population about 250,000) and the South (population about 150,000). The hospitals with more than 175 beds are considered as general hospitals and those with less than 175 beds are considered as proximity hospitals. All general hospitals are equipped with ICU beds, 2 proximity hospitals have small ICU units (6 and 8 beds) and the National Institute for Cardiology and Cardiac Surgery (INCCI), which has only 15 beds, uses 8 ICU beds for cardiac surgery patients.

The figures in tables 1 and 2 display data for all hospitals in Luxembourg, including the total number of ICU beds, ICU days, ICU personnel and ICU costs, but do not distinguish true ICU from intermediate care beds. In reality, only half of these beds represent "true" ICU beds (80-85) i.e. use for patients with multi-organ failure with ICU therapies and technologies available. The other half represent intermediate care beds, either general or specialised. Specialised intermediate care beds are often located in the larger hospitals (neurosurgical, cardiology, stroke and neonatal units in CHL, cardiology, neurological and postoperative unit in the main hospital of the South-Centre Hospitalier Emile Mayrisch (CHEM)). These units are usually run by different specialists (cardiologists, neurosurgeons, neurologists, neonatologists). The "true" ICU beds in Luxembourg are mostly run by anaesthesiologists (Anesthésiste – Réanimateur) with the exception of the Polyvalent ICU of CHL, where 2 internists / intensivists are members of the ICU team. In the majority of hospitals the Anaesthesiologists rotate in the three sections: Anaesthesiology, Intensive Care and SAMU (Medical Ambulance Service) with some members of the team being more exclusively dedicated to ICU work. The ICUs in the 6 largest hospitals are based on the closed ICU model, and in the smaller ICUs the anaesthesiologists share their

activities with cardiologists and internists.

In 2004 about 1700 intubated and ventilated patients were treated in ICUs in Luxembourg. Global mortality for all ICU patients varied from 3.5 % to 11%; however the mortality of ventilated patients was as high as 21.5 to 30%.

All ICUS participate on voluntary basis in the NOSIX programme of surveillance of nosocomial infections which is a part of European IPSE programme. Surveillance of nosocomial infections in ICU is considered as a quality incentive, which may provide a financial bonus from the UCM. Some ICUs have adopted the EFQM model of total quality assurance.

#### **Teaching and Research**

Several Luxembourg ICUs have recently participated in multi-centre prospective studies, (e.g. CHL in ENHANCE and Clinique Ste Thérèse in DOLOREA), organised by pharmaceutical companies or scientific societies from other countries. CHL and CHEM ICUs have also contributed substantial amounts of patient data to the SAPS III database.

With no Medical School in Luxembourg, medical students study abroad, mostly in Belgium, France, Germany and Austria. ICU physicians from Luxembourg participate actively in teaching activities of ESICM and ESA and also in the teaching of nurses specialising in Anaesthesiology and Intensive Care. The Department of Anaesthesiology and ICU of CHL regularly rotate interns with the Anaesthesiology Departments of Belgian university Hospitals, for example Liège and ULB.

Although there is no national scientific society of intensive care in Luxembourg, doctors are members of other national and international societies (French, Belgian, German, ESA, ESICM and SCCM).

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