



NEDERLANDSE FEDERATIE VAN  
UNIVERSITAIR MEDISCHE CENTRA

# At a glance

FACTS AND FIGURES

FOR THE NETHERLANDS' UNIVERSITY MEDICAL CENTRES  
2009

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The University Medical Centres (UMCs) of the Netherlands combine university patient care with medical, biomedical and healthcare research and the education and training of doctors, medical researchers and other healthcare workers. These eight organisations are the result of the merger of the Netherlands' university hospitals and medical faculties. With some 60,000 employees working to advance medical knowledge and improve patient care, the UMCs are the largest care and knowledge institutions in the Netherlands.

The UMCs pursue innovation in healthcare by:

- carrying out groundbreaking research into the causes and treatment of diseases and bringing this new knowledge to clinical application;
- providing tertiary care to patients with rare and complex diseases, patients whose treatment requires specialized and expensive infrastructure, and patients whose treatment benefits from direct interaction with clinical research;
- training healthcare professionals and medical and biomedical researchers in accordance with the very latest insights in the field.



The UMCs work together within the Dutch Federation of University Medical Centres (NFU), which promotes the Centres' shared interests.



- 1 Academic Medical Centre, Amsterdam [www.amc.nl](http://www.amc.nl)
- 2 Maastricht University Medical Center [www.azm.nl](http://www.azm.nl)
- 3 Erasmus MC, University Medical Centre, Rotterdam [www.erasmusmc.nl](http://www.erasmusmc.nl)
- 4 Leiden University Medical Centre [www.lumc.nl](http://www.lumc.nl)
- 5 University Medical Centre Groningen [www.umcg.nl](http://www.umcg.nl)
- 6 Radboud University Nijmegen Medical Centre [www.umcn.nl](http://www.umcn.nl)
- 7 University Medical Centre Utrecht [www.umcutrecht.nl](http://www.umcutrecht.nl)
- 8 VU University Medical Centre, Amsterdam [www.vumc.nl](http://www.vumc.nl)

Scientific research leads to a better understanding of the development and treatment of diseases. A great deal of scientific medical research is done in the UMCs and is biomedical, translational and clinical in nature. Translational research involves the translation of basic knowledge into its application in the treatment of disease. The eight UMCs are responsible for one third of all scientific publications in the Netherlands.

The (bio)medical research done at the UMCs is of the highest quality, probably because of the strong interaction between basic and clinical research, also known as translational research. International observers say that the scientific research benefits from the close reciprocal orientation of faculty and university hospital. Good biomedical and clinical research is of major importance to the Netherlands. It enables healthcare to implement good findings swiftly, to prevent senseless innovations and to put dated measures forward for discontinuation.

Clinical practice should be able to take advantage of the new scientific products as quickly as possible (development function) and the Netherlands makes very significant contributions to treatment guidelines in this way. The UMCs can further intensify the existing close cooperation in the field of research; the integration stimulates the coordination of basic and clinical scientific research.

| <b>Overview of scientific research</b> | <b>Annual</b> |
|--|---------------|
| Scientific publications                | 7,500         |
| PhD theses                             | 900           |
| Clinical studies                       | 2,000         |

## **Translational research in the University Medical Centres**

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Much of the research done in the UMCs relates to the translation of the results of basic research into clinical practice. This is called translational research and it also operates in the reverse direction.

Translational research is pre-eminently multidisciplinary in nature, involving both basic and clinical researchers.

The process of translational research is a phased one and usually begins with the identification and validation of factors that contribute to the origin and course of disease.

In the first phase of a trial, the effectiveness and safety of treatments are tested on volunteers. It is often necessary in this phase to go back to the laboratory on the grounds of the clinical results and to re-test and modify the treatment.

Larger-scale research is done in the second phase, often in collaboration with the pharmaceutical industry, and the effectiveness and safety of the treatment are tested on people who suffer from the disease in question.

In phase 3, groups of patients are given the treatment in question and this treatment is compared with existing ones.

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It can be stated in summary that translational research is complex, time-consuming and expensive, which is why it is predominantly the task of the UMCs in the Netherlands. In view of the fact that large patient cohorts are involved and clinical trials with human subjects must comply with strict regulations, the UMCs have in-house experts and special procedures for this purpose, in addition to the high quality infrastructure required. A good example is the Parelsnoer Initiative (PSI or String of Pearls Initiative), which is a joint biobank infrastructure project participated in by the eight UMCs.

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The UMCs treat patients with every possible type of disease, from the simple to the extremely complex. The ‘care burden’ of the total UMC patient group is 26% higher than the average for Dutch hospitals.

In the Netherlands, care for patients with rare and complex diseases is concentrated in the UMCs. This group of tertiary referral patients benefit from the very latest medical insights and capabilities. In view of the nature of their disease and its treatment, they have been referred for highly specialized care. For these patients, treatment, scientific research and scientific progress go hand in hand. Some 40% of UMC patients are tertiary referral patients.

In the Netherlands, some specialized procedures can only be carried out in medical institutions that hold a license provided by the Ministry of Health. On the basis of these licenses, the UMCs carry out the majority of these procedures.

## Specialized procedures requiring a license

|                                      | Total no. carried out by UMCs per year | % of all procedures carried out in the Netherlands |
|--------------------------------------|--|--|
| Cardiac surgery                      | 8,489                                  | 84   |
| Cardiac ablation catheterization     | 2,231                                  | 53   |
| Heart defibrillator implantation     | 2,154                                  | 67   |
| Percutaneous angioplasty             | 16,660                                 | 36   |
| Heart stent implantation             | 18,823                                 | 44   |
| Autologous stem cell transplantation | 109                                    | 64   |
| Allogenic stem cell transplantation  | 280                                    | 100  |
| Kidney transplantation               | 828                                    | 100  |
| Heart transplantation                | 51                                     | 100  |
| Lung transplantation                 | 66                                     | 100  |
| Liver transplantation                | 147                                    | 100  |
| In vitro fertilization               | 12,073                                 | 65   |
| Epilepsy surgery                     | 91                                     | 100  |
| Cerebral bypass surgery              | 25                                     | 100  |
| Radiotherapy                         |  |  |
| • Teletherapy                        | 19,114                                 | 63   |
| • Brachytherapy                      | 1,474                                  | 69   |

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## **Patient satisfaction**

The UMCs regularly measure satisfaction levels among their patients. The most recent patient satisfaction survey dates from 2008. The overall picture is consistent with that in recent years. UMC patients are very satisfied with the different aspects of the care they receive and the variance in scores across the eight UMCs was exceptionally low.

## **University Hospital Clients' Participation Council**

The University Hospital Clients' Participation Council (CRAZ) is the UMCs' client participation council, as required under the Participation Act. Through the CRAZ, the UMCs strive to enable patients to participate in decisions and policies regarding the quality of care provided. Over fifty patient associations and organizations are represented on the Council. The CRAZ celebrated its tenth anniversary in 2009.

|                                   | <b>No. per year</b> | <b>% of total in<br/>the Netherlands</b> |
|-----------------------------------|---------------------|--|
| New patients in outpatient clinic | 1,106,000           | 11                                       |
| Admissions for daycare            | 188,000             | 14                                       |
| Hospital admissions               | 237,500             | 13                                       |
| Total number of hospitals days    | 1,740,000           | 17                                       |
| Beds                              | 7,600               | 15                                       |

The UMCs' shared budget for care duties comprises 20% of the total hospital budget in the Netherlands.

With more than 31,000 students following academic programs to become Doctors of Medicine, medical researchers or biomedical researchers, or taking part in specialized medical, nursing or paramedical training programs, the UMCs are the driving force for education in medical care and related sectors in the Netherlands.

Most of these programs are run in collaboration with general hospitals and other educational institutions. The UMCs coordinate this collaboration in the Netherlands' eight teaching regions.

On behalf of the Association of Universities in the Netherlands (VSNU), in 2004 Stichting Quality Assurance Netherlands Universities (QANU) assessed the academic medical curriculum of the eight UMCs. In its report, the Association stated that: *'The quality of doctors who have studied in the Netherlands is good: they are well prepared for any advanced program. By reviewing and updating its Medicine programs, the Netherlands has surged ahead of many other countries in Europe.'* This opinion was confirmed once more during a second partial visitation that took place at the end of 2008.

### **Academic programs**

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|                  |        |
|------------------|--------|
| Medical students | 16,500 |
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|-----------------|-------|
| Dental students | 1,600 |
|-----------------|-------|

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| Other university students<br>(Including biomedical sciences students,<br>health sciences students and medical<br>information science students) | 2,000 |
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### **Specialized programs**

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|-------------------------|-------|
| Specialists in training | 2,500 |
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|--------------|-------|
| PhD students | 3,500 |
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|---|-------|
| Students nursing and paramedical sciences | 3,000 |
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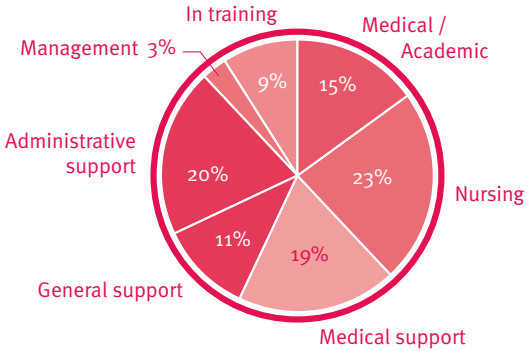
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|                         |       |
|-------------------------|-------|
| Students other programs | 2,000 |
|-------------------------|-------|

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No. of employees

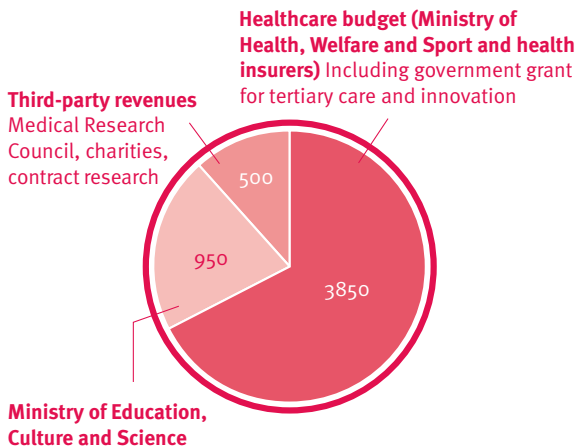
60,000



A collective labor agreement applies to all UMC employees.

Revenues (€ million)

5,300



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