



Crossing borders: from Amsterdam to New Zealand

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Introduction

Back in the 17th century, a fellow Dutchman, Abel Tasman, became the first explorer to arrive in New Zealand. The country never turned into a copy of the Netherlands, even though we have been in contact for a long time. The differences between our countries are enormous. In the Netherlands, we travel by bike instead of car; soccer is the most popular sport instead of rugby; and our highest 'mountain' is not even a tenth of the height of Aoraki/Mount Cook. These differences in our countries are also seen within medical education and research. This exchange paper will hopefully give you some insights into how medical education and research works in the Netherlands.

Medical education

In the Netherlands, our journey to become a doctor begins shortly after we graduate from high school. We apply for a three-year-long bachelor's degree in medicine at one of eight universities. However, places are limited (each university offers ~350 places a year) and competition is fierce. The annual tuition fee for university is €2060 euros or \$3480 NZD, with another substantial amount being paid by the government (~€100,000 for six years). The Netherlands has eight academic medical centres that offer the six-year course: the Academic Medical Center (AMC) and VUMC are both located in our capital city of Amsterdam; Erasmus Medical Centre in Rotterdam; Leiden University Medical Center in Leiden; Maastricht University Medical Center+ in Maastricht; University Medical Center Groningen in Groningen; Radboudumc in Nijmegen; and University Medical Center Utrecht in Utrecht (see Figure 1). Very soon, AMC and VUMC are planned to merge into one centre in Amsterdam. The bachelor's programme consists of three academic years, mainly filled with theoretical courses. At the end of the three years, students write a systematic literature review in a chosen field of interest. This is known as their bachelor's thesis and is the first medical research experience for most students.

After completion of the bachelor's degree, all students have to complete a master's degree to become a medical doctor (MD). Due to the high number of medical students in Amsterdam, waiting periods for students to start their rotations are as long as four to eight months. Many students utilise this period to gain extra experience in research or to travel abroad. The master's degree programme is three years and consists of two and a half years' clinical rotations, followed by six months of research.

During the rotations, medical students get to see many different departments within the hospital. They rotate every six to ten weeks to a different department, mostly also in a different hospital, located in different cities. In the last year, students can choose an internship of four months in the field they're interested in. The goal for the research internship, which can be done before or after the clinical internships, is to work on a scientific research project in a self-chosen aspect of medical science. During this research internship, students are supervised by PhD students, post-docs, research fellows, or faculty staff.

Travel opportunities in the curriculum

During their bachelor's degree, 40 students from VUMC have the opportunity to follow a minor degree abroad. Several universities are connected to this project, including universities in the United Kingdom, United States of America and Australia.¹ Students from other countries who are interested in medical sciences and health care are welcome to join the exchange semester of VUMC.² More information can be found on the website of VUMC (www.vumc.nl).

Medical students from both universities in Amsterdam (AMC and VUMC) conduct part of their clinical rotations in one of the University Medical Centres, and another in out-of-town regional placements. These include smaller hospitals in surrounding towns. The travel

distance to surrounding towns are a maximum of one to one and a half hours by train.

Besides these placements, medical students have the opportunity to go on a clinical rotation abroad. Common countries for VUMC students are Aruba, Surinam or South Africa. AMC students often go to Surinam, Malawi and Tanzania.

Research opportunities

In addition to the bachelor's and master's thesis, there are many opportunities to gain additional research experience in parallel to the mandatory clinical internships. Motivated and academically-able students get the opportunity to join the university's 'honours program', which is a research project for the final two years of their bachelor's degree, along with their first half-year of their master's degree. Students can also join a research group during their bachelor's degree as an extracurricular activity that they can stay in for their research internship. Sometimes, students continue activities from their research internship during their clinical rotations.

The Amsterdam Medical Student Journal (AMSj) is a scientific medical journal facilitating the academic development and scientific writing skills of medical students. AMSj enables students to publish their own research and become more experienced in the process of submitting research to peer-reviewed journals. AMSj was founded in 2014 and is a collaboration between the two academic medical centres in Amsterdam, AMC and VUMC. Our editorial staff consists of 25 medical students, each supervised by a Doctor of Philosophy (PhD) student or doctor in a specialised field of medicine. Our editorial staff peer-reviews submitted articles, which contributes to our standard present items such as a clinical image, radiology image, or expert opinion. Every three months, a new edition is published and circulated throughout Amsterdam.

After becoming a doctor

After completion of the master's degree, a specialisation track needs to be done before doctors can work in a particular field of medicine. Due to the enormous number of graduated doctors and the low number of available positions for a speciality, newly graduated students will mostly not be able to start specialisation directly after graduation. Therefore, the majority of students gain experience in the clinical field or start a PhD program. Both options give students more experience in the field of medicine that they enjoy prior to enrolling for their specialisation.

Work experiences

A third of the medical students in the Netherlands aspire to become general practitioners (GPs),³ with general practice being by far the largest specialisation in the Netherlands in terms of numbers. The Dutch health care system promotes primary health care through GPs in general, and limits access to hospitals without GP referrals. A visit to the GP is always free of additional charge, apart from the compulsory and partially subsidised health care insurance fee.

Medical specialists who work in one of the eight academic medical centres of the Netherlands tend to combine their clinical work with research and educational activities. Most academic research is focused on specific areas of expertise that differ in all university medical centres across the Netherlands. For instance, the VUMC in Amsterdam has several research institutions specialising in neuroscience, cancer, cardiovascular science, and public health. VUMC Cancer Centre Amsterdam (CCA) is a leading centre for research in cancer and immunology. Important themes researchers work on in the CCA are cancer biology and immunology, imaging and biomarkers, and treatment and quality of life.⁴

Another innovative research project is the 100-plus study that aimed to find hereditary factors that protect against dementia in people older than 100 years⁵ Many have noticed that hospitals that are unaffiliated with a university contribute less to research, but more toward clinical work.

Social experiences

Several organisations organise social events for medical students. First, every medical faculty in the Netherlands has its own student association, organising the orientation week in the beginning of September for the first-year students and social and career events throughout the year for all students. For the master's students, there are special boards organising workshops, career events and social events. Furthermore, health care and career events are also organised by the Dutch Royal Medical Association, which works closely with politics and government and several other organisations in health care, such as patient organisations and health care insurance companies.⁶ In their spare time, most students are also members of a student-lead sport association, such as a rowing association.

Conclusion

Differences in New Zealand and the Netherlands are seen in cultural habits and geographic characteristics. Also, differences in the medical curriculums between New Zealand and the Netherlands might be found. With this exchange paper we aimed to give insight into the Dutch medical curriculum and common ways of living for medical students. Experience this for yourself and come visit us in the Netherlands for a semester abroad!



Figure 1 Map of The Netherlands with approximate locations of each academic medical centre.⁷

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