



BIOMEDICAL SCIENCES

Health Technology

Assessment

Radboud Universiteit



Radboudumc

Health Technology Assessment (HTA)

A specialisation in the Biomedical Sciences Master's

The sustainability of our health care system is under pressure, making it essential to decide which interventions to purchase, reimburse, or implement. These decisions are based on careful consideration. Learn to assess the consequences of employing health care interventions, while striving to make a visible impact on healthcare.

Specialisation Coordinators

Dr. Wietske Kievit

Department: Science Department IQ Health

Email address: Wietske.Kievit@radboudumc.nl

Dr. Ir. Rob Reuzel

Department: Science Department IQ Health

Email address: Rob.Reuzel@radboudumc.nl

The BMS Master's

Our Master's programme in Biomedical Sciences offers eight specialisations and four career profiles. In the first semester, each specialisation starts with four courses that reflect its central topics and methodology, followed by an elective course. In the second semester of the first year students do a research internship. In the second year students follow elective courses and courses of their career profile, followed by a profile internship. Furthermore, the course 'Personal & Professional Development' runs throughout the entire programme under the guidance of a coach. It covers topics such as personal learning goals, responsible research & innovation, well-being, and career prospects.

The specialisation

Health Technology Assessment (HTA) is a globally used instrument to inform decisions about purchase, reimburse, or implement of new health care technologies. It is a formal, systematic, and transparent process that applies state-of-the-art methods to assess the best available evidence.

"Technology" refers to any intervention aimed at improving health or care delivery—ranging from pharmaceuticals and medical devices to public health programs and organizational systems. HTA evaluates value across multiple dimensions: clinical effectiveness, safety, costs, ethical, social, legal, and environmental aspects, as well as broader implications for patients, caregivers, and society. The overall value depends on the perspective, stakeholders, and decision context.

Within this specialisation, we address questions such as:

- How can we evaluate the cost-effectiveness of new medical technologies and treatments?
- How do we assess the impact of health technologies on patient outcomes and quality of life?
- What methodologies are best for comparing the long-term benefits and risks of medical interventions?
- What are the ethical implications of adopting or rejecting specific health technologies?



It is a challenging process requiring strong communication skills and insight into deliberative processes. This young and dynamic field offers space for ambitious students eager to make a visible contribution to health care. HTA researchers work in diverse organizations worldwide: academic hospitals, pharmaceutical companies, government advisory bodies, research institutes, and consultancy firms. Does this sound like you?

Internship possibilities

You will do two internships of your own choice. One research internship and one profile internship. Internships in the field of HTA can be done at various departments of the Radboudumc, but there are also plenty opportunities at other locations in the Netherlands or abroad. We have many connections with research institutes, companies, and universities all over the world. So the possibilities are endless! Examples are: other universities, academic hospitals, research organisations such as RIVM, governmental institutes such as the Dutch Healthcare Institute (ZIN) and consultancy companies such as BeBright.

Career perspectives for HTA alumni

Career perspectives for a HTA alumnus are diverse and span across various sectors. Alumni work as researchers or PhD candidates in the field of HTA or specific clinical disciplines. Many pursue academic careers at universities or research institutions, focusing on the evaluation of healthcare interventions and technologies. Others take



Internship example: Economic modelling in ultrasound strategies

"I developed an economic model designed to compare the costs and outcomes of two healthcare strategies on a societal level. The comparison was 2D ultrasound and 3D volumetric ultrasound for anomaly screening during pregnancy. It made me feel like it really contributed to Dutch health care."

1st year HTA student

on roles as consultants, providing expertise in healthcare strategy and market analysis. Alumni can find positions in the market access departments of pharmaceutical companies, where they assess the economic and clinical value of treatments. In the public sector, graduates work for governmental bodies such as the Knowledge Institute for Medical Specialists or the National Health Care Institute, contributing to the development and implementation of healthcare policies.

Specialisation courses

Introduction to health technology assessment

This course equips students with skills to navigate the dynamic landscape of health technologies, their implications, and resource allocation. Students learn to comprehend the purpose of HTA across the entire health technology lifecycle. It covers various HTA processes and their analysis requirements. It encourages critical thinking about ill-structured and well-structured policy problems in health technology development. Additionally, students gain competence in stakeholder mapping and participation organisation. Students will gain a foundational understanding of HTA and practical application to inform decisions in the rapidly evolving healthcare environment.

Societal aspects of health technologies

In this course we will focus on the broader implications of new technology for our health care system and society as a whole. We

will start the course with ways to determine which aspects of different types of technologies are relevant in the given context and perspectives. Then, we will cover methods of assessing certain aspects such as ethical aspects, patient and societal aspects, and environmental impact. At last we will discuss how these different aspects might influence the decision making process and the HTA recommendation.

Clinical trials and real-world evidence

This advanced course explores the evolving landscape of clinical research, focusing on innovative trial designs and the integration of real-world data to enhance evidence generation. Topics include clinical trials with advanced designs such as non-inferiority and stepped-wedge trials, as well as special trial designs that combine randomized and observational data. Participants will learn to critically assess and utilize real world data sources including electronic medical records, biobanks, hospital databases, and registries. Emphasis is placed on evaluating safety, quality of care, and practice variation, with practical examples of chronic diseases such as rheumatic and mental disorders illustrating how real-world evidence can complement traditional clinical trials in healthcare decision-making. You will work together with students from the specialization Epidemiology which will broaden your view by learning from each other's perspective.

Cost-effectiveness analyses in health care

This course delves into the realm of health economics, equipping students with knowledge and skills to assess the efficiency of healthcare strategies and inform rational decision-making in resource allocation. Students learn to define efficiency in healthcare, comprehend the design, execution, and analysis of cost-effectiveness analyses (CEAs), both in a prospective trial based design and a modelling approach. The course includes methods to measure direct and indirect costs and Quality Adjusted Life Years (QALYs) in CEAs in a prospective manner. Furthermore, the course explores healthcare decision modelling, equipping students with the tools to construct, assess, and validate decision models crucial for healthcare decision makers. Students gain expertise in handling uncertainties in the analyses and their impact on the recommendation. At last, the course delves into budget impact analysis, providing students with a comprehensive understanding of how changes in healthcare can impact financial budgets.

Other courses

In your elective space you can take additional courses at other faculties or universities if you want. Many students choose to do courses outside of the Radboudumc, for example at other universities with master programmes containing HTA related



courses in the Netherlands. Additionally, some students opt to go abroad to pursue specialized courses in health technology assessment at international institutions.

Internship example: Validating guidelines for breast cancer

"I went abroad to Copenhagen to use the enormous database of breast cancer patients in Denmark to validate the treatment guidelines for post-menopausal patients with ER+ and HER2- disease. My internship abroad gave me the opportunity to apply and deepen my knowledge in an international setting."

1st year HTA student

Please email us for more information about the programme, the specialisation or the application process.
Admissions@radboudumc.nl

For general information, or a chat with current students, please visit our website.
www.ru.nl/masters/bms