Year Report of the Institute of Medical Education Research Rotterdam (iMERR) 2016

Prof. Dr. W.W. van den Broek, director of Medical Education Erasmus MC

Introduction

In 2016 iMERR has become affiliated with the NIHES and it became an Academic Center (AC) both at the Erasmus MC.

Primary aims of ACs at the Erasmus MC include but are not restricted to: Create learning and professional development opportunities; Combine the best and latest diagnostic or therapeutic technologies with educational practices. They are characterized as multidisciplinary, societally relevant and (qualitatively) viable. Provide opportunities for ongoing quality improvement. Foster a network/collaborative community on research, education and care. Address at least two levels of the research continuum: fundamental, translational, clinical and epidemiological. Are distinctive and relevant for the ambition of Erasmus MC.

The primary aim of iMERR as an AC is to improve health care by developing the scientific basis of medical education and providing evidence-based approaches to educate the future health care providers.

The evidence found in IMERR research and the translation of results to educational practice contributes to obtaining a high quality and continual innovation in medical schools and postgraduate training.

Research carried out by IMERR will help to alleviate the inequity that exists in health care between groups of patients, such as patients from lower social-economic backgrounds and from minority groups, both at the level of training by providing methods to increase MDs' cultural skills and sensitivity and by studying how the population of future health care workers better mirrors the general patient population. Improving diagnostic reasoning and improving postgraduate training will also lead to more sustainable health care.

Besides the collaboration with NIHES and becoming an AC we need to be more recognizable. Since recent we started a LinkedIn group and updated the website.

In the 2016 Laura Zwaan acquired a VENI grant. Chantal van Andel recently started her PhD with a grant from the studievoorschotmiddelen. The topic approved by the Gemeenschappelijke Vergadering (GV) as eligible for subsidizing was the finding that ethnic majority students are more likely to receive higher grades as compared to ethnic minority students during their clerkships.

The coming year we will keep on focusing on acquiring grants and collaborating in research networks (national, international)

Key words: medical education, continuing medical education, admission test college, clinical clerkship, internship and residency, problem-based learning,

distance education, e-learning, clinical reasoning, minority recruitment.

Scientific Publications in International Journals

- Alqahtani DA, Rotgans JI, Mamede S, Alalwan I, Magzoub MEM, Altayeb FM, et al. Does time pressure have a negative effect on diagnostic accuracy? Academic Medicine. 2016;91(5):710-6.
- Badenhorst E, Mamede S, Abrahams A, Bugarith K, Friedling J, Gunston G, et al. First-year medical students' naïve beliefs about respiratory physiology. Advances in Physiology Education. 2016;40(3):342-8.
- Dankbaar MEW, Alsma J, Jansen EEH, van Merrienboer JJG, van Saase JLCM, Schuit SCE. An experimental study on the effects of a simulation game on students' clinical cognitive skills and motivation. Advances in Health Sciences Education. 2016;21(3):505-21.
- Hopmans W, Damman OC, Porsius JT, Zwaan L, Senan S, Timmermans DRM. Treatment recommendations by clinicians in stage I non-small cell lung cancer: A study of factors that influence the likelihood of accounting for the patient's preference. Patient Education and Counseling. 2016;99(11):1808-13.
- Lucieer SM, Jonker L, Visscher C, Rikers RMJP, Themmen APN. Self-regulated learning and academic performance in medical education. Medical Teacher. 2016;38(6):585-93.
- Lucieer SM, Stegers-Jager KM, Rikers RM, Themmen AP. Non-cognitive selected students do not outperform lottery-admitted students in the pre-clinical stage of medical school. Adv Health Sci Educ Theory Pract. 2016;21(1):51-61.
- Norman GR, Schmidt HG. Revisiting 'Effectiveness of problem-based learning curricula: theory, practice and paper darts'. Medical Education. 2016;50(8):793-7.
- Servant VFC, Schmidt HG. Revisiting 'Foundations of problem-based learning: some explanatory notes'. Medical Education. 2016;50(7):698-701.
- Singh H, Zwaan L. Inpatient notes: Reducing diagnostic error-a new horizon of opportunities for hospital medicine. Annals of Internal Medicine. 2016;165(8):H02-H4.
- St-Onge C, Landry M, Xhignesse M, Voyer G, Tremblay-Lavoie S, Mamede S, et al. Age-related decline and diagnostic performance of more and less prevalent clinical cases. Advances in Health Sciences Education. 2016;21(3):561-70.

- Stegers-Jager KM, Brommet FN, Themmen APN. Ethnic and social disparities in different types of examinations in undergraduate pre-clinical training. Advances in Health Sciences Education. 2016;21(5):1023-46.
- Stegers-Jager KM, Brommet FN, Themmen APN. Impact of ethnicity and social background on examination results of medical students. Nederlands Tijdschrift voor Geneeskunde. 2016;160(42).
- Tan CP, Van der Molen HT, Schmidt HG. To what extent does problem-based learning contribute to students' professional identity development? Teaching and Teacher Education. 2016;54:54-64.
- Wagner C, Merten H, Zwaan L, Lubberding S, Timmermans D, Smits M. Unit-based incident reporting and root cause analysis: Variation at three hospital unit types. BMJ Open. 2016;6(6).
- Wijnia L, Loyens SMM, Derous E, Schmidt HG. University teacher judgments in problem-based learning: Their accuracy and reasoning. Teaching and Teacher Education. 2016;59:203-12.
- Zwaan L, Monteiro S, Sherbino J, Ilgen J, Howey B, Norman G. Is bias in the eye of the beholder? A vignette study to assess recognition of cognitive biases in clinical case workups. BMJ Qual Saf. 2016.
- Zwaan, L., Tjon Soei Len, L., Wagner, C., Van Groeningen, D., Kolenbrander, M., Krage, R., The Reliability and Usability of the Anesthesiologists' Non-Technical Skills (ANTS) system in simulation research, Advances in Simulation 2016, 1(18) New journal, no IF.

Grants

Dr. Laura Zwaan obtained an NWO Veni Grant 'Diagnosing X-rays in a split-second. Unravelling the diagnostic process of radiologists.' €250.000

Chantal van Andel recently started her PhD with a grant from the studievoorschotmiddelen. The topic approved by the Gemeenschappelijke Vergadering (GV) as eligible for subsidizing was the finding that ethnic majority students are more likely to receive higher grades as compared to ethnic minority students during their clerkships.

Conference proceedings

- Di Nardo D, Tilstra SA, McNeil M, Follansbee W, Zimmer SM, Farris C, et al., editors. Evaluation of a diagnostic checklist for use in internal medicine resident education. J Gen Intern Med; 2015.
- Dankbaar, M.E.W. The effects of a simulation game on skills and motivation of doctors and students: the expertise-reversal effect in medical practice.

Games for Health Europe 2016, 6th annual conference.

- Stegers-Jager K, Van Rossum E, Woltman A. Effect of raising the standards on medical students' perceived stress levels. Ottawa 2016 conference, Perth, March 19-23.
- De Leng W, Stegers-Jager K, Born M, Themmen A.The effect of hybrid development on the construct validity of an integrity situational judgment test for medical school selection. (poster presentation)Ottawa 2016 conference, Perth, March 19-23.
- Dankbaar M, Alsma J, Van Merrienboer J, Van Saase J, Schuit S.Game-based or text-based patient cases: what do they add to online instruction? Ottawa 2016 conference, Perth, March 19-23.
- Stegers-Jager K, Brommet F, Themmen A.Ethnicity and social background as predictors of performance on different types of examinations in undergraduate pre-clinical training. Ottawa 2016 conference, Perth, March 19-23.
- Kremer T, Mamede S, Nunes MPT, Martins M, WW Van den Broek, Schmidt HG. The influence of negative emotions on medical residents' learning. AMEE 2016, Barcelona, Spain, August 28-31. Ribeiro LMC, Mamede S, Moura AS, de Brito EM, de Faria RMD, Schmidt HG.The effects of reflection on clinical problems on medical students' awareness of knowledge gaps and situational interest. (poster presentation) AMEE 2016, Barcelona, Spain, August 28-31.
- Gennissen L, Stegers-Jager K, Fluit L, de Graaf J, de Hoog M. Does socio-cultural background influence prospective medical students' perception on prestige of the different medical specialties? AMEE 2016, Barcelona, Spain, August 28-31.
- Stegers-Jager K, Urlings-Strop LC, Themmen APN. Selection of students on extracurricular activities predicts persistent activities during medical school and better clinical achievement. AMEE 2016, Barcelona, Spain, August 28-31.
- 6th Rogano Meeting, Barcelona, September 1-2. The focus of Rogano meetings is the development of PhD students and early postdoctoral researchers. It aims at expanding international network of fellow researchers in medical education and foster scientific discussion of research dilemmas. In the 2016 meeting, besides chairing a session, we presented three 'case studies' of our PhD students' research: Ligia Cayres Telma Kremer and Lokke Gennissen.
- NVMO 2016, Egmond aan Zee, November 17-18 The NVMO (Dutch society on Medical Education) conference yearly has 700-800 participants. We contributed in the form of one pre-conference workshop, one regular

workshop, one scientific presentation and two poster presentations. The poster presentation of Lokke Gennissen was awarded with the poster prize.

- Stegers-Jager K, Fluit L, De Groot E. De rol van leertheorieën bij onderzoek van onderwijs (pre-conference workshop). NVMO 2016, Egmond aan Zee, November 17-18.
- Dankbaar M, Doets M, Van Mierlo S. Ontwerpen van Blended leren voor vaardigheidstraining (workshop). NVMO 2016, Egmond aan Zee, November 17-18.
- Gennissen L, Stegers-Jager K, Fluit L, De Graaf J, De Hoog M. Heeft socioculturele achtergrond invloed op de prestige perceptie van de medisch specialismen? (scientific presentation). NVMO 2016, Egmond aan Zee, November 17-18.
- De Leng W, Stegers-Jager K, Born M, Themmen A. Hybride ontwikkeling van een Situational Judgement Test voor de selectie van geneeskundestudenten op integriteit (poster presentation). NVMO 2016, Egmond aan Zee, November 17-18.
- Gennissen L, Stegers-Jager K, Fluit L, De Graaf J, De Hoog M. Specialisme voorkeuren van niet-traditionele medische studenten en overige medische studenten (poster presentation). NVMO 2016, Egmond aan Zee, November 17-18.

Promoties

The influence of peers on medical students learning of psychomotor skills necessary for physical examination. Bernard Martineau MD, general practitioner, Faculty of Medicine, Sherbrooke University, Canada.

Ongoing PhD trajectories within the EUR

Situational Judgment Test (SJT) for the Selection into Medical School (Wendy de Leng)

Wendy started her PhD in April 2014 under the supervision of dr. Karen Stegers-Jager (co-promotor), prof. dr. Axel Themmen (1st promotor) and prof. dr. Marise Born (2nd promotor). Her PhD-project is focused on selection into medical school using a Situational Judgment Test (SJT). An SJT presents applicants with challenging situations that may be encountered during medical school. These situations are followed by a number of possible reactions of which applicants need to judge the appropriateness. During the selection procedures of 2014 and 2015, a first SJT originating from the UK was administered to the applicants for the Erasmus MC Medical School. This SJT,

created to measure integrity, aims at extending the range of constructs on which medical students are selected. In addition, an SJT displays lower ethnic subgroup differences that exist on traditional cognitive tests and can thereby increase the ethnic diversity among medical students.

In order to develop a scoring key, we administered the SJT to a group of Subject Matter Experts (SMEs), i.e., individuals directly involved in the assessment of professional behavior of medical students. Examination of the literature revealed a large number of methods to convert the answers on an SJT to a score. Wendy's first study focused on the comparison of 28 different methods to score an SJT. These scoring methods were compared on the internal consistency reliability, ethnic subgroup differences and correlation with personality. This first study is described in a paper titled 'Scoring method of a Situational Judgment Test: influence on internal consistency reliability, adverse impact and correlation with personality?', which has been accepted for publication in Advances in Health Sciences Education.

Because of the overall low reliability of the UK SJT as well as concerns with the realism of some of the scenarios, Wendy started with the development of a new SJT to measure integrity. The SJT was created using two development approaches. The first inductive approach bases the content of the SJT on real incidents which are collected using interviews. The second deductive approach bases the content of the SJT on an explicit construct (i.e., integrity) using established theoretical models. The Integrity SJT is based on two theoretical models: one positively related to integrity and the other negatively related to integrity. The Integrity SJT has been administered during the selection procedures of 2016 and 2017. A study on the construct validity indicated that the Integrity SJT had convergent and discriminant validity. This study is described in a paper titled 'Integrity Situational Judgment Test for medical school selection: "bright" and "dark" side'.

In a third study, Wendy will examine the extent of social desirable responding to an SJT by comparing the answers on the Integrity SJT in two contexts; one context in which the selection is more noticeable than in the other context. In addition, individual differences in social desirable responding will be examined.

Recruitment and selection for a future diverse medical workforce (Lokke Gennissen, MD)

Lokke Gennissen started her PhD in July 2014, under supervision by Karen Stegers-Jager, Matthijs de Hoog (Erasmus Medical Center), Lia Fluit and Jacqueline de Graaf (Radboud University Medical Center Nijmegen).

In order to make a more fluent transition from undergraduate to postgraduate medical training and in that way pursuing an educational continuum a fast track program is introduced in the Netherlands. The fast track program is a

program for last year medical students, where they can already acquire competencies at the level of first year residents in training in their specialty of choice. These acquired competencies enable speedy transition to residencies and a reduction of the duration of postgraduate training.

In the context of these recent changes this PhD trajectory is focused on the specialism choice of medical students and the recruitment and selection of the future medical specialists. These recent changes confront students and (postgraduate) educators with an earlier decision moment. Students are confronted with an earlier specialism choice, while postgraduate educators are confronted with an earlier selection of students eligible for postgraduate training in their specialty.

Besides this early confrontation, we focus on two already existing workforce problems. First of all, the lack of alignment between students preferences and the (future) societal health care demands. Secondly, the lack of diversity in our workforce is problematic, not only from a social justice kind of view, but also given the rapidly diversifying society and the need for cultural competent health care providers. To address the lack of diversity in the medical specialty population, the focus in the studies concerning the specialism choice will be on the role of ethnicity, socio-economic class and gender. In the studies regarding the entry of medical residency, we will be looking into possible barriers for minority applicants.

Lokke will be using different methodologies, quantitative, mixed-method and qualitative to explore the medical specialty choice process and the selection of the residents with this focus on diversity. In her first study she will interview both selection committee members and applicants regarding the selection of residents and observe the group discussions in which the selection decisions are made.

In a second study she will look into prestige perception differences of medical specialties between Dutch and ethnic minority medical students and between first generation and not first generation university students.

Does ethnic bias in rater-scores differ across clerkships? (Chantal van Andel, MsC)

Previous research at Erasmus MC Medical School has shown that ethnic majority students are more likely to receive higher grades as compared to ethnic minority students during their clerkships. A potential explanation for this difference is that students' individual characteristics affect raters' judgments, even though these characteristics are not related to the competences that need to be evaluated.

Does ethnic bias in rater-scores differ across clerkships? And is an assessment tool such as a global rating scale (GRSs) more susceptible to ethnic bias as

compared to a checklist?

Two studies examine to what extent those situational factors (i.e. type of clerkship and type of assessment) influence clerkship grades. These studies are part of a research project that is generally aimed at ensuring a fair and just method of assessing all future doctors, such that a diverse healthcare workforce can be ensured.

Checklists and GRSs are widely used assessment tools and both have their strengths and weaknesses. A weakness of the GRS, as opposed to a checklist, is that it is more susceptible for quick, first impressions. The first study investigates to what extent rater-score variance due to differences in students' ethnicities is more likely to occur when a GRS is being used (as compared to a checklist). This study will also test whether rater confidence (the extent to which a rater beliefs he/she made an accurate judgment) is associated with students' ethnicities and the assessment tool (GRS versus checklist) being used.

The second study examines to what extent rater-score variance due to differences in students' ethnicities is more likely to occur in clerkships of "high preferred" medical specialties (such as pediatrics) than in clerkships of "low preferred" medical specialties (such as psychiatry). Social psychological research has shown that high status groups tend to have more prejudice toward out-group members as compared to low status groups.

This research examines whether ethnic minority students receive lower grades, as compared to ethnic majority students, when they are evaluated by means of an observation exam, as compared to a computer exam. This research will also examine whether ethnic bias in grades varies across clerkships in the period between 2012-2017.

Ongoing PhD trajectories outside the EUR

The following external PhD projects have been ongoing, under the supervision of Prof.dr. Henk Schmidt, with dr. Sílvia Mamede as co-supervisor:

1. Telma Kremer, psychologist, University of São Paulo, São Paulo, Brazil. Thesis theme: Students' emotions and learning in medical education.
2. Elmi Badenhorst, psychologist, Faculty of Health Sciences, University of Cape Town, Cape Town, South Africa. Theme of the thesis: Students' misconceptions in medical education.
3. Dalal Al Qahtani, dentist, Medical College, King Saud bin Abdul-Aziz University for Health Sciences, Riyadh, Saudi Arabia. Thesis theme: Contextual factors influencing physicians' diagnostic performance.
4. Ligia Cayres Ribeiro, internist, Medical College, UNIFENAS, Belo Horizonte, Brazil. Thesis theme: The influence of reflection upon clinical experiences on medical

students' learning process and outcomes.

5. Ahmed Al Rumayyan, medical doctor, Medical College, King Saud bin Abdul-Aziz University for Health Sciences, Riyadh, Saudi Arabia. Thesis theme: Theme: Teaching clinical reasoning: professionalism.
6. Daniel de Castro, medical doctor, Faculty of Medicine, University of the State of Ceará, Fortaleza, Brazil. Theme of the thesis: Instructional approaches to foster medical students' clinical reasoning.
7. Lucy Victoria Rosby, medical doctor, Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore. Thesis theme: In search of System 1 versus System 2.
8. Daniel Franci, medical doctor, Faculty of Medicine, UNICAMP, Brazil. Thesis theme: Multimedia learning in medical education: Point-of-care ultrasound in the teaching of clinical reasoning

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Projects

International

The iMERR clinical reasoning research group has collaborated with the following international partners in projects carried out during 2016:

• Prof. dr. Geoff Norman and colls from the McMaster University, Canada, leading to two co-authored publications, one article published in Academic Medicine in Jan 2017 and a chapter in the Cambridge Handbook of Expertise (in press);

• Researchers (Prof.dr. Silvana Eloi, Dr. Rosa Malena) from the Faculty of Medicine, Federal University of Minas Gerais, Belo Horizonte, Brazil, with one new study on approaches for the teaching of clinical reasoning jointly conducted in 2016 (data is presently being analysed). The collaboration started when a research grant was obtained from the CAPES-NUFFIC Program (Call for Proposals for cooperation with the Brazilian higher education on the level of Ph.D). The original project finished in 2015, but joint studies have been conducted with local funds.

• Researchers from the Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore (Dr. Jerome Rotgans, Dr. Naomi Low-Beer), with whom a grant was obtained for a pilot project on the use of functional near-infrared spectroscopy (fNIRS) in research on diagnostic reasoning. The grant was acquired, the pilot project conducted throughout 2016, and the two research groups have now applied for a major grant for a 5-year research project.

• Researchers from the Faculty of Medicine, Sherbrooke University, Canada (Dr. Martine Chamberland; Dr. Christina St-Onge), with whom a series of joint studies on the role of self-explanation in clinical teaching and the influence of

aging on diagnostic performance have been conducted, leading to articles published in co-authorship.

• The iMERR clinical reasoning research group (Laura Zwaan) collaborates with the university of McMaster University, Canada, and the University of Washington (USA) on a project on cognitive biases in clinical reasoning. One study has been published and a grant application for a follow-up study will be submitted.

• The iMERR clinical reasoning research group (Laura Zwaan) collaborates with Dr. Hardeep Singh (Houston Veterans Affairs Center for Innovations in Quality, Effectiveness and Safety and Baylor College of Medicine, Houston, Texas) on several papers regarding measurement of diagnostic error. This resulted in several papers (including an invited paper in the Annals of Internal Medicine (impact factor 16.593).

• The iMERR clinical reasoning research group (Laura Zwaan) collaborates with a research group that include researchers from Bern, Switzerland (Inselspital, Universitätsspital) and Max Planck Institute for Human Development, Berlin, Germany and the Centre for Educational Measurement University of Oslo, Norway.

National – Internal

Relation between biological and psychological stress and well-being, and academic performance (Karen Stegers-Jager & Andrea Woltman). This pilot study aims to investigate the relation between chronic psychological and biological stress levels and academic performance. Furthermore, both student-related factors as well as school-related factors will be studied that may influence stress levels, academic performance and students' well-being as defined by time use, including extracurricular activities, and (absence of) conflicts between life domains (study, family, work, leisure time).

Chronic psychological and biological stress levels, as measured by psychological stress questionnaires and hair cortisol concentrations respectively, and academic performance of the last medical student cohort entering before and the first cohort entering after the implementation of a strict academic dismissal policy will be compared. In this project we collaborate with the Section Endocrinology of the Department of Internal Medicine, and with the Section Pedagogical Sciences of the Faculty of Social Sciences of the EUR.

Research on the sources of cognitive diagnostic errors and strategies to minimize them and on approaches for the teaching of clinical reasoning have been conducted by the iMERR research group on clinical reasoning ((Henk Schmidt, Sílvia Mamede, Laura Zwaan) in collaboration with other departments in ErasmusMC. Five studies were conducted by the during 2016, in collaboration with others departments in Erasmus MC:

1. the influence of difficult patients behaviors on physicians' diagnostic accuracy: two joint studies with the general practice and the internal medicine departments (two articles published in BMJ Q&S in Jan 2017);
2. the effect of different instructional approaches on students' learning of clinical diagnosis: two studies were conducted with 2nd-year and 4th-year medical students, in partnership with the general practice department (data presently being analysed).
3. the effect of salient distracting clinical features reasoning on physicians' diagnostic reasoning and diagnostic performance, an eye-tracking study was designed and conducted in collaboration with the neurosciences department (article presently being written).
4. the effect of a deliberate cognitive processing strategy on the quality of handover of pediatrics patients, a study conducted with pediatrics residents, in collaboration with the pediatrics department.

In all the studies, direct research costs (research assistant, participants' recruitment) were covered by a grant received from the Executive Board of the Erasmus University Rotterdam.

In addition, iMERR and the general practice department have worked together on the project titled "Teaching reflective reasoning through modeling as a strategy to counteract diagnostic mistakes in general practice". The project, funded by a grant obtained in the ZonMW 2015 call of the subsidy round "Onderwijs 2015", includes a PhD student who has been jointly supervised by researchers from iMERR (Prof.dr. Tamara van Gog; Dr. Silvia Mamede) and from the general practice department (Prof.dr. Patrick Bindels; Dr. Pieter van den Berg).

The iMERR clinical reasoning group (Laura Zwaan) collaborates with the department of General Practice of the Erasmus MC and the VvAA (liability insurance company) on studying the causes of diagnostic error in malpractice claims.

Collaboration (international/national)

Research group 'Dedicated Schakeljaar' (NFU/ all Dutch medical schools)

InReSH (International Network for Researchers in Selection into Healthcare)

Dutch Flemish network of Researchers in Personnel Recruitment and Selection

Research reputation

Ad hoc reviewing

In 2016, the iMERR researchers worked as ad hoc reviewers:

1. For the top medical education journals (Medical Education, Academic Medicine, Advances in Health Sciences Education and others) and general

higher education journals (Studies in Higher Education and others) as well for manuscripts on medical education submitted to top medical journals (JAMA, BMJ).

2. For international medical education conferences (Association for Medical Education in Europe- AMEE conference), including abstracts and grant reviewing.

Presentation in national and international conferences

Research conducted by the iMERR members and by internal and external PhD students was presented at the 2016 NVMO, AMEE and Ottawa conferences. The latter are the largest international medical education conferences.

Conference Organization

Mrs. Dr. Laura Zwaan was on the planning committee of the international Diagnostic Error in Medicine conference that took place November 6-8 in Hollywood, USA. Dr. Laura Zwaan chaired the first European Diagnostic Error in Medicine conference June 30-July 1 in Rotterdam, the Netherlands.

Mrs. Dr. Karen Stegers-Jager chaired the abstract committee of the first European Diagnostic Error in Medicine conference June 30-July 1 in Rotterdam, the Netherlands.

Mrs. Dr. Karen Stegers-Jager is since December 2016 member of the planning committee of the NVMO conference. She will chair the NVMO conference in November 2019 in Rotterdam.

Positions in professional society

Mrs. Dr. Laura Zwaan is the chair of the research committee of the Society to Improve Diagnosis in Medicine.

Mrs. Dr. Karen Stegers-Jager is member of the scientific committee of the Dutch society on medical education (NVMO).

Mrs. Dr. Laura Zwaan was invited by the WHO to participate in the meeting on 'Setting Priorities for Global Patient Safety' in Florence, September 26-28 2016.

Editorial Board

Mrs. Dr. Laura Zwaan is on the editorial board of Diagnosis. Prof. Dr. Walter van den Broek is on the editorial board of the Dutch Flemish Journal of Psychiatry and Current Drug Therapy.

Fellows

- Mrs. Dr. Silvia Mamede, MD, PhD, co-director of iMERR
- Prof. Dr. Ir. Axel Themmen, chair of the advisory board of iMERR
- Prof. Dr. Matthijs de Hoog, MD, PhD
- Mrs. Dr. Karen Stegers-Jager, PhD, member advisory board iMERR
- Mrs. Dr. Andrea Woltman, PhD, member advisory board iMERR
- Prof Dr. Henk Schmidt, PhD, member advisory board iMERR
- Mrs. L. Zwaan, PhD, member advisory board iMERR

Associate members

- Jelmer Alsma, MD
- Prof. Dr. Patrick Bindels, MD, PhD
- Dr. Herman Bueving, MD, PhD
- Mrs. Mary Dankbaar
- Mrs. Dr. Stephanie Klein Nagelvoort-Schuit, MD, PhD
- Prof. Dr. Els Berns, PhD
- Dr. Jerome Rotgans, PhD

Honorary members

- Prof. Dr. Geoff Norman, PhD

Societal impact

- KeyLime Podcast (episode 109) on medical education about the article of Laura Zwaan: 'Is Bias in the Eye of the Beholder? A vignette study to assess recognition of cognitive biases in clinical case workups.
- Interviewed (Laura Zwaan) by 'Algemeen Dagblad' about the first Diagnostic Error in Medicine conference in Rotterdam. Article: 'Register voor foute diagnose' published July 1 2016.
- Interviewed (Laura Zwaan) by Roelof Hemmen on 'BNR nieuwsradio' about diagnostic error in medicine, June 29, 2016.
- Interviewed (Laura Zwaan) by 'The Pathologist' for two articles on medical error disclosure (part 1 was published in the June edition) , part 2 in the July/august edition of 2016).
- Two articles on the influence of patients' disruptive behaviors on

physicians' diagnostic performance, published online in BMJ Q&S in March 2016, generated much discussion of the consequences of the findings for patient safety. Interviews were given to international and national newspapers, radios, and websites on news about medical research both for lay people and the medical community, such as Medscape and CBS News. On March 15, 2016, a Google search on news on the topic showed the research as the website's headline on 10 consecutive pages.

- Article on the fluent transition from undergraduate to postgraduate medical training ("Dedicated schakeljaar kent nu nog meerdere vormen") in Medisch Contact (general journal for all doctors in the Netherlands) where the institution and importance of this project was explained to healthcare professionals.
- Prof.dr. Axel P.N. Themmen: Coachingsday for Participants of the Erasmus MC Medical School Selection, Short interview in NOS Journaal (main news on Dutch TV) – 11 december 2016: On the development of an Integrity SJT for Medical School selection. Main article with interview in Algemeen Dagblad (national news paper) – Saturday 3 december 2016.Radio: NPO Radio 1 – De Nieuws BV – 13 december 2016, NPO Radio 1 – De Kwesties – 18 december 2016.