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Willem van Mechelen, Johannes Brug and Pim Cuijpers
Research to inform and improve public and occupational health, primary care, rehabilitation and long-term care practice requires a multi-disciplinary approach. To fulfill its mission and to further improve its scientific performance and societal impact, the former EMGO Institute has joined forces with research groups from psychology & education and from health sciences. In 2009 we have started together the 'interfaculty' EMGO Institute for Health and Care Research, or EMGO⁺.

With great pleasure we hereby present the first annual report of this new EMGO⁺ research institute.

Please find hereafter core information about who we are, what we do and what we strive for. You will find information about the highlights of our research programs, our ongoing and newly started longitudinal studies, our academic collaborative centers, our quality control system, and our scientific and societal achievements.

Further and more detailed information about our institute's inputs and outputs in terms of organization, projects, staff, grants, publications, citations, doctoral theses, societal impact and so forth is readily available via our EMGO⁺ website (www.emgo.nl).

Yours sincerely,

on behalf of the EMGO Institute for Health and Care Research,

Prof. Johannes Brug, PhD  
Director

Prof. Pim Cuijpers, PhD  
Vice-director

Prof. Willem van Mechelen, MD, PhD  
Vice-director
Introduction
On January 1st 2009 a new research Institute was founded: the EMGO Institute for Health and Care Research, or ‘EMGO+’ in short. This new institute is an 'interfaculty' research institute. It brings together researchers from departments of three faculties, i.e. from the VU University Medical Center, the Faculty of Psychology and Education, and from the Faculty of Earth and Life Sciences. The aim of this new institute, that builds on the strong 'old' EMGO foundations, is to further improve public and occupational health, primary care, rehabilitation and long-term care, by means of trans-disciplinary research. The 2009 annual report shows that EMGO+ had a good start.

In this first chapter, we present our mission, goals and strategy. Thereafter, separate chapters will report on the organization and achievements of our four research programs, EMGO+’s scientific output and societal impact, EMGO+’s committees that help us to ensure good quality control and strategic planning, our financial status and a list of our scientific publications.

Mission
The EMGO+ mission is excellence in research in public and occupational health, primary care, rehabilitation and long-term care.

More specifically, by fulfilling its mission EMGO+ is aiming to contribute to improving evidence based:
- public and occupational health;
- primary health care;
- mental health care;
- rehabilitation practice;
- long-term health and health care.

In these fields the institute aims to contribute to:
- strengthening the evidence-base for current ongoing practices;
- innovation of practice;
- innovation of relevant research methodology;
- provide input and direction for education and training for researchers and practitioners.
Strategy
EMGO+ contributes to the evidence base of prevention and care by generating and disseminating evidence. Our aim is to perform trans-disciplinary research of both high scientific quality and high societal relevance. Research projects carried out at EMGO+ mainly have a health outcome or health determinants as primary endpoints of interest. Many studies are executed within large population-based cohorts and many projects are carried out in general practices, nursing homes, in specialized mental health care organizations or homes for the elderly. Other studies recruit participants in schools, in occupational settings and in outpatient departments, or survey a sample of the general population. A strong team of methodological experts is present within the institute, with expertise in epidemiological and biostatistical methods as well as qualitative research approaches. EMGO+ is closely linked to masters and PhD programs in epidemiology, public health research and psychology.

Operation
EMGO+ is one of five research institutes primarily embedded within the VU University Medical Center (VUmc). In 2009, the EMGO+ directorate consisted of the director Johannes Brug, and two vice-directors, Willem van Mechelen and Pim Cuijpers, supported by a policy officer (Iris Strating). The organizational structure is depicted in annex 1 of this report. EMGO+ hosts investigators based in research groups and departments of VUmc, the VU University Amsterdam and affiliated organizations. All research projects are grouped in one of our four research programs, each led by two program directors:
1. Lifestyle, Overweight and Diabetes,
2. Mental Health,
3. Quality of Care,
EMGO+ only accepts and supports research studies that fit well within one of these programs, and that have rigorous methodology and sufficient financial support. A quality promotion and control system involving an internal Science Committee, a quality handbook supported by a Quality Committee, and an external Advisory Board help us to stick to our standards. Studies that are embedded within EMGO+ are supervised by a full professor and advised by at least one other senior tenured staff member, and guided and supported by a formal research quality control infrastructure. We conduct a self-evaluation every three years to reflect on the institute's strengths, weaknesses, opportunities and threats, to monitor trends in input and outputs of the institute, in order to inform new policy plans. The most recent self-evaluation concerned the period of 2004 to 2007 and was published in 2008. The self-evaluation report can be accessed via our website (www.emgo.nl/about-emgo/mission-strategy-and-operation). Every six years EMGO+ undergoes an external evaluation, in line with the Standard Evaluation Protocol of the Netherlands Academy of Arts and Sciences. In 2010 EMGO+ will be evaluated for the first time in its new interfaculty format.

SWOT analysis
The EMGO Institute for Health and Care Research puts much emphasis on the internal quality assurance and promotion efforts, primarily conducted by our standing committees, and on the research infrastructure consisting of research methodology and data-management support, maintaining large scale longitudinal cohort studies as well as academic collaborative centers to ensure and promote practiced based research. A full analysis of EMGO’s strengths, weaknesses, opportunities and threats can be accessed via our website (www.emgo.nl/about-emgo/SWOT).
Giel Nijpels

Marjolein Visser
LIFESTYLE, OVERWEIGHT AND DIABETES

Program directors: Prof. Giel Nijpels, MD, PhD and Prof. Marjolein Visser, PhD

Mission
Overweight and diabetes are two of the main public health problems of our society and are strongly linked to common lifestyle determinants such as physical inactivity and poor dietary habits. This research program is aiming to curb the obesity and diabetes epidemics by identification of the primary lifestyle and biological determinants and by evaluation of efficient ways to improve lifestyle in the context of chronic disease management.

Specific research themes
■ 1. Patho-physiology of overweight and diabetes. This theme includes the study of biological, genetic and behavioral determinants of overweight and diabetes and their potential interrelations.
■ 2. Prevention of overweight and diabetes. Research within this theme aims to modify unhealthy lifestyles with a particular emphasis on improving dietary intake and promoting or increasing physical activity. This research is conducted in a variety of settings, including communities, schools and workplaces.
■ 3. Care of patients with overweight and diabetes. This theme studies the effectiveness and efficiency of health care aimed at chronic disease management of obesity and type 2 diabetes.

These themes are studied in children, adults and the elderly population.

Rationale and focus
Physical inactivity and overweight are two important factors contributing to the development of diabetes and cardiovascular disease. The program Lifestyle, Overweight and Diabetes combines the expertise of the pathophysiology and epidemiology of metabolic and cardiovascular abnormalities, expertise and practical experience of diabetes, prevention programs and the development of health care.

Future perspectives
The prevalence of obesity has risen over the last decades, and incidence and prevalence of Type 2 diabetes is still on the rise, in the Netherlands as well as abroad. Further curbing these epidemics requires better insight in their biological, including genetic, and behavioral determinants and their interactions and interrelations. Furthermore, there is still a lack of evidence-based prevention schemes and the growing number of patients asks for evidence-based chronic disease management interventions, including self-management schemes. For the coming years our research efforts will focus on gaining further insight in the causal pathways, effective lifestyle interventions to contribute to prevention, and on improving chronic disease management.
HIGHLIGHTS 2009

An example project

Saskia te Velde, Mai Chin A Paw, Amika Singh and Johannes Brug.

EuropeaN Energy balance Research to prevent excessive weight Gain among Youth: theory and evidence-based development and validation of an intervention scheme to promote healthy nutrition and physical activity (ENERGY).

The EuropeaN Energy balance Research to prevent excessive weight Gain among Youth concerns a theory and evidence-based development and validation of an intervention scheme to promote healthy nutrition and physical activity. This project, ENERGY for short, is funded by the European Commission, DG Research, from their 7th framework program. This is the first European Commission funded project for which EMGO+ acts as coordinator and thus holds final responsibility. The project is aiming to inform evidence-based obesity prevention programs for youth across Europe, and is of importance for EMGO+’s internationalization agenda. In different work packages, involving partners from 11 countries across the European Union, systematic reviews, secondary analyses, and original cross European school-based survey and intervention research will be conducted. More information can be found on www.projectenergy.eu.

A paper of importance


This study aimed to test the accuracy of the Framingham, Systematic Coronary Risk Evaluation (SCORE), and UK Prospective Diabetes Study (UKPDS) risk function in the prediction of risk of coronary heart disease (CHD) in populations with normal glucose tolerance (NGT), intermediate hyperglycemia, and type 2 diabetes. We tested calibration (the ability to predict the number of observed events during follow-up) and discrimination (the ability to distinguish between those who experience an event during follow-up from those who do not) of the three prediction models using prospective data for 1,482 Caucasian men and women, 50-75 years of age, who participated in the Hoorn Study. The discriminatory ability of the models was assessed by calculating the area under the receiver operating characteristic curve (AUROC). The discriminatory power of the models is graded as low for an AUROC between 0.5 and 0.7, moderate between 0.7 and 0.9 and high if > 0.9. All analyses were stratified by glucose status. During 10 years of follow-up, a total of 197 CHD events, of which 43 were fatal, were observed in this population, with the highest percentage of first CHD events in the diabetic group. The Framingham and UKPDS prediction models overestimated the risk of first CHD event in all glucose tolerance groups.
Overall, the prediction models had a low to moderate ability to distinguish between persons with an event during follow-up from persons who did not develop an event (discrimination). The SCORE risk function was the best predictor of fatal CHD events in the group with NGT (AUROC: 0.79 [95% CI 0.70-0.87]), whereas the UKPDS performed better in the intermediate hyperglycemia group (0.84 [0.74-0.94]) in the estimation of fatal CHD risk. After exclusion of known diabetic patients, all prediction models had a higher discriminatory ability in the group with newly diagnosed diabetes patients. It was concluded that the use of the Framingham function for prediction of the first CHD event is likely to overestimate an individual's absolute CHD risk. In CHD prevention, application of the SCORE and UKPDS functions might be useful in the absence of a more valid tool.

An example of societal impact

Within the LOD program the Schoolgruiten Project was conducted. In this project the long-term effects of providing free fruit and vegetables (F&V) at Dutch primary schools was evaluated. Participating schoolchildren (mean age 9-9 years at baseline) and their parents completed parallel questionnaires at baseline, at 1-year and at 2-year follow-up, including questions on usual F&V intake of the child, potential behavioral determinants, their appreciation of the project and general demographics. Primary outcomes were usual F&V intakes as assessed by parent and child self-reported food frequency measures. Secondary outcome measures were taste preference, knowledge of daily recommendations, availability and accessibility for fruit intake. Multilevel linear regression analyses were used to assess differences at second follow-up adjusted for baseline values between control and intervention groups. Reports were available for 346 intervention children (148 parents) and 425 control children (287 parents). Both child and parent reports indicated that the intervention group had a significantly higher fruit intake at 2-year follow-up. No significant effects on vegetable intake were observed. This study indicates that the Schoolgruiten scheme was effective in increasing children's fruit intake and that appreciation of the project partially mediated this effect.

This paper was awarded with the 2008 EMGO+ societal impact award. This study, along with similar studies conducted in other EU countries, motivated the European Commission to support such programs throughout Europe. For more details about the study, please read the publication.
LIFESTYLE, OVERWEIGHT AND DIABETES

Scientific output

Table 1: Total number and quality of peer-reviewed publications in 2009

<table>
<thead>
<tr>
<th>Lifestyle, Overweight and Diabetes</th>
<th>2009</th>
<th>Mean per year 2005-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Total number of indexed international articles published with a top quartile impact factor for the relevant field</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>Total number of international scientific papers published in indexed journals</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>Total number of international scientific papers published in non-indexed journals</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Total number of doctoral theses</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Acquisition in 2009 (in k€) and the annual average in 2005-2009 per type of funding

<table>
<thead>
<tr>
<th>Lifestyle, Overweight and Diabetes</th>
<th>2009</th>
<th>Mean per year 2005-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Funding</td>
<td>3.829,4</td>
<td>1.617,7</td>
</tr>
<tr>
<td>Contract Funding</td>
<td>737,8</td>
<td>1.074,2</td>
</tr>
<tr>
<td>Industry Funding</td>
<td>447,4</td>
<td>1.219,4</td>
</tr>
<tr>
<td>Total</td>
<td>5.015,0</td>
<td>3.911,4</td>
</tr>
</tbody>
</table>
LIFESTYLE, OVERWEIGHT AND DIABETES

Senior research staff and post docs*

M.C. Adriaanse, PhD*  
Ms. M.J. Alssema, PhD*  
Ms. T. Altenburg, PhD*  
Ms. M.A.E. van Bokhorst-van der Schueren, PhD  
Ms. S.D.M. Bot, PhD*  
Ms. I.A. Brouwer, PhD  
Prof. J. Brug, PhD  
Ms. L.M. Buffart, PhD*  
Ms. M.J.M. Chin A Paw, PhD  
Ms. Prof. J.M. Dekker, PhD  
Ms. M. Diamant, MD, PhD  
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Prof. M.B. Katan, PhD  
P.J. Kostense, PhD  
Ms. W. Kroeze, PhD*  
Ms. H.M. Kruizenga, PhD  
Prof. W. van Mechelen, MD, PhD  
Prof. M.G.A.A.M. Nijpels, MD, PhD  
Ms. M.R. Olthof, PhD  
Ms. Prof. B.C.P. Polak, MD, PhD  
Ms. M.N.M. van Poppel, PhD  
Ms. K.I. Proper, PhD  
Ms. C.M. Renders, PhD  
Ms. Prof. A.J. Schuit, PhD  
Prof. J.C. Seidell, PhD  
Ms. A.S. Singh, PhD*  
Prof. Y.M. Smulders, MD, PhD  
Prof. F.J. Snoek, PhD  
Ms. I.H.M. Steenhuis, PhD  
Prof. J.W.R. Twisk, PhD  
Ms. S.J. te Velde, PhD*  
Ms. E. de Vet, PhD*  
T.L.S. Visscher, PhD  
Ms. Prof. M. Visser, PhD  
Ms. L.M.C. Welschen, PhD*  
Ms. H.A.H. Wijnhoven, PhD*  
T.L.S. Visscher, PhD  
Ms. Prof. M. Visser, PhD  
Ms. L.M.C. Welschen, PhD*  
Ms. H.A.H. Wijnhoven, PhD*
Brenda Penninx

Hans Koot
Program directors: Prof. Hans Koot, PhD and Prof. Brenda Penninx, PhD

Mission
The research program Mental Health (MH) has as central objectives to encourage, initiate, conduct and publish excellent research to increase our understanding of mental health and stimulate evidence-based mental health care and prevention, thereby improving overall public health. When studying mental health, the focus is mainly on the entire developmental trajectory towards the most common mental disorders, especially focusing on depression, anxiety and disruptive disorders.

Specific research themes
1. Epidemiology of Mental Health. This theme includes observational research either in the community setting, the general practice setting as well as the psychiatric care setting, that increases our evidence-base for the occurrence, the determinants and consequences of mental health disorders.
2. Prevention and treatment in Mental Health. This theme refers to research that contributes to evidence-based information on innovative prevention and treatment interventions to improve mental health and reduce associated disability.
3. Developmental perspective in Mental Health. This theme refers to research that examines developmental trajectories of psychopathology across the lifespan, as they often start in childhood and continue into late adulthood.

Rationale and focus
Common mental disorders have a major impact on public health and are among the conditions with the world-wide highest disease burden. Consequently, prevention of mental health disorders as well as more effective treatment of mental health disorders is needed to further improve overall (mental) health. By applying observational as well as intervention research, the Mental Health (MH) program contributes to a better evidence-base for the existence, development, prevention and treatment of mental health disorders thereby improving general mental health.
Future perspectives

In the near future, we aim to further build on both our observational as well as intervention research themes. For observational research we will in the future have more longitudinal data available from current research infrastructures that will allow us to examine risk factors of and developmental trajectories in the course of mental health. In addition, in the subsequent years we expect to expand our involvement in international study projects, and to extend our focus on the interaction between somatic and mental health research through newly initiated research projects.
HIGHLIGHTS 2009

An example project

Bob Last, Agnes Willemen, Carlo Schuengel, Martha Grootenhuis.
Effectiveness of a cognitive-behavioral based group intervention for children with chronic disease: A randomized controlled trial.

Children with a chronic illness (CI), like asthma, diabetes, sickle cell anemia, cystic fibrosis, and inflammatory bowel diseases, are twice as likely to develop psychosocial problems as healthy children. About 25% of children with a chronic illness need any mental health services. To adequately prevent children with CI from developing psychosocial problems, evidenced based intervention programs are needed. In the Emma Children's hospital AMC, a standardized group-based intervention program was developed, called Op Koers ('On course'). Based on cognitive-behavioral principles, children learn to use skills to help them to cope with the consequences of their disease. Children who participated in Op Koers reported significant improvement of social-emotional functioning. Parents were, however, not involved in this program, while they may be the best support of their ill child. To enhance the effect of intervention, a complementary program for parents called Samen Sterk ('Together strong') was developed. Samen Sterk is aimed to support parents in encouraging their children in using learned cognitive skills, which may be especially important for achieving long term effects. Effects will be evaluated in a randomized controlled design. First, the effects of Op Koers on social-emotional outcomes will be compared with a control group. Second, the additional value of Samen Sterk will be investigated in relation to both conditions. Effects of the different conditions will be investigated in a moderate (6 months) to long term (12 months) schedule. Five hospitals will cooperate in this study to provide a sample size sufficient for comparing effects of interventions and to explore whether the intervention will catch on in academic as well as non-academic medical settings. If proven effective, Op Koers will be made available to all medical centers. The ultimate goal of this study is that children with a chronic illness and their parents will have access to an evidence based program that limits the mental health consequences of their physical health problems.

A paper of importance


Stress is thought to play a role in depression. One reason is that depressive disorder occurs frequently after a stressful event. One of the physical reactions to stress is an elevation of the stress hormone cortisol. A temporary elevation of cortisol is beneficial.
However, a chronic increase in cortisol level may have a detrimental effect on, for instance, the brain and the cardiovascular system. Higher cortisol levels could therefore (partly) explain the higher risk of cardiovascular disease observed in depressed persons. Therefore, to understand the onset and course of depressive disorder, it is important to know the role of cortisol in depression.

We examined whether there is an association between depression and various cortisol indicators in a large cohort study. Data are from 1588 participants of the Netherlands Study of Depression and Anxiety who were recruited from the community, general practice care, and specialized mental health care. Three groups were compared: 308 control subjects without psychiatric disorders, 579 persons with remitted (episode in the past, but not current) depressive disorder, and 701 persons with a current diagnosis, as assessed using the DSM-IV Composite International Diagnostic Interview. Cortisol levels were measured in 7 saliva samples to determine the 1-hour cortisol awakening response (at awakening, and 30, 45, and 60 min afterwards, when cortisol is normally the highest), evening cortisol levels (at 22h00 and 23h00, when cortisol is normally low), and cortisol suppression after a 0.5-mg dexamethasone suppression test. The latter test is used to examine the function of the feedback-system of cortisol. Normally, after ingestion of 0.5 mg dexamethasone (which resembles cortisol) cortisol levels are lowered as a correction of the increase in perceived cortisol level. When this feedback mechanism is impaired, cortisol after dexamethasone is not sufficiently suppressed.

Persons with a depressive episode in the past or with a current depression showed a significantly but modestly increased cortisol awakening response as compared to controls. The evening level at 22h00 was also increased in the group with current depression. The dexamethasone suppression test did not differ between groups.

This large cohort study shows a significantly, although modestly, increased cortisol awakening response among persons with a depressive disorder. Because a higher cortisol awakening response was observed among both persons with a current depression as well as persons with a depression in the past, this may be indicative of an increased biological vulnerability for depression (present before the depression) or a ‘scar’-effect (as a result of the depression), as opposed to a temporarily increased cortisol level during the depressive episode. Whether this slight elevation of the cortisol awakening response has clinically relevant consequences, such as an increased risk of cardiovascular disease or an unfavorable course of depression needs to be determined.
An example of societal impact

In the Netherlands, all suicides of patients under treatment of mental health care must be reported to the Inspectorate of Health Care. This notification procedure is meant to monitor and improve the quality of mental health care provision. In the current project, supervision on suicides in mental health care has been evaluated. About 10% of all 5,483 suicide notifications (n=505) sent to the inspectorate between 1996 and 2006 were studied quantitatively and qualitatively. Responses made by the inspectorate to these suicide notifications were compared to international guidelines on assessment and treatment of suicidal patients. The conclusion is that the inspectorate might improve its supervision system by placing greater emphasis on suicidal impulses in general, but especially on (1) older and severely suicidal patients and (2) patients who have been discharged recently (3) restrained use of no suicide contracts. The project has resulted in advice to the inspectorate to improve their procedures.
Scientific output

Table 3: Total number and quality of peer-reviewed publications in 2009

<table>
<thead>
<tr>
<th>Mental Health</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
<td>68%</td>
</tr>
<tr>
<td>Total number of indexed international articles published with a top quartile impact factor for the relevant field</td>
<td>189</td>
</tr>
<tr>
<td>Total number of international scientific papers published in indexed journals</td>
<td>245</td>
</tr>
<tr>
<td>Total number of international scientific papers published in non-indexed journals</td>
<td>56</td>
</tr>
<tr>
<td>Total number of doctoral theses</td>
<td>16</td>
</tr>
</tbody>
</table>

Table 4: Acquisition in 2009 (in k€) and the annual average in 2005-2009 per type of funding

<table>
<thead>
<tr>
<th>Mental Health</th>
<th>Acquisition 2009</th>
<th>Mean per year 2005-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Funding</td>
<td>2.976,0</td>
<td>1.722,8</td>
</tr>
<tr>
<td>Contract Funding</td>
<td>2.872,9</td>
<td>2.192,6</td>
</tr>
<tr>
<td>Industry Funding</td>
<td>-</td>
<td>105,6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5.848,9</strong></td>
<td><strong>3.570,9</strong></td>
</tr>
</tbody>
</table>
Senior research staff and post docs*

Prof. A.J.L.M. van Balkom, MD, PhD
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S. Begeer, PhD*
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J.D. Bosch, PhD
Ms. J. Bosmans, PhD*
Ms. Prof. D.I. Boomsma, PhD
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J.B. Hoeksma, PhD
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J.J. Hottenga, PhD*
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Ms. A.P.D. Jansen, PhD*
C.G.C. Janssen, PhD
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Ms. F. Lamers, PhD*
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H.W.J. van Marwijk, MD, PhD
M. Meerum Terwogt, PhD
Ms. F.J.M. Meiland, PhD
Ms. M.H.M. de Moor, PhD*
Ms. L.M.C. Nauta-Jansen, PhD
Ms. P.C. van Oppen, PhD
T. Olthof, PhD
Ms. M. Oosterman, PhD*
Ms. Prof. B.W.J.H. Penninx, PhD
Ms. J.C. Polderman, PhD*
A. Popma, MD, PhD
Ms. Prof. A.M. Pot, PhD
Prof. M.W. Ribbe, MD, PhD
Ms. H. Riper, PhD
Ms. D.J.F. van Schaik, MD, PhD
Ms. J.C. de Schipper, PhD
Ms. G.A. Schreuders, PhD*
Prof. C. Schuengel, PhD
Prof. H.J. Schulze, PhD
Ms. J. Schuurmans, PhD
Prof. N.W. Slot, PhD
Prof. F. Smit, PhD
J.H. Smit, PhD
N. Smits, PhD
Ms. Prof. H. Stegge, PhD
Ms. Prof. P.S. Sterkenburg, PhD
B. Steunenburg, PhD*
Ms. A. van Straten, PhD
B. Terluin, MD, PhD
P. van de Ven, PhD
Prof. R.R.J.M. Vermeiren, MD, PhD
Ms. A.H.M. Willemsen, PhD
Ms. F. van Zuuren, PhD
QUALITY OF CARE

Program directors: Prof. Bregje Onwuteaka-Philipsen, PhD and Prof. Daniëlle Timmermans, PhD

Mission
The research program Quality of Care (QofC) wants to improve the quality of prevention programs and healthcare services, empowering people to make informed health decisions, to prevent or delay the onset of chronic disease and disablement, to improve the quality of life of disabled patients, and of patients in their terminal phase.

Specific research themes
- 1. Quality of care, shared decision making and patient safety. Research measures the extent to which available preventive or healthcare interventions conform with or improve upon professional standards and whether the care corresponds to the care desired or needed by the patient.
- 2. Community genetics, screening and risk communication. Studies are conducted on translating the growing knowledge on genes and their interaction with environmental factors into optimal care and prevention. Research also focuses on how to communicate health risks to health care consumers.
- 4. Care for patients with chronic diseases and participation in society. Studies address the process of ageing, and the way maintaining functional autonomy and quality of life can be improved or maintained.

Rationale and focus
A long healthy life requires not only disease specific prevention and care, but also attention for more generic themes such effective health communication, patient perspectives in prevention and care, and patient safety issues. In this program research focuses on the organization of care, such as regulations for end-of-life care, on health professionals, such as educational programs in genetics, and on individual health care consumers, such as improving quality of life of chronically ill.
Research within this program focuses on all stages in life: genetic predisposition to disease, development of risk factors, onset of disease, early manifestation, progression, rehabilitation and the end of life. Medical, psychological, psychosocial, ethical as well as judicial perspectives are explicitly taken into account.

**Future perspectives**
In order to make the program more coherent and to make the best use of the multi-disciplinary expertise in the program, different actions are undertaken to encourage active and concrete collaborations between researchers from different departments within and across the four research themes. Further priorities in this program's policy plan are to strengthen international cooperative projects, and to further develop and strengthen and apply the expertise on mixed methods research in health care research.

**HIGHLIGHTS 2009**
An example project
Olga Damman, Daniëlle Timmermans, Allard van der Beek
Improving health risk communication for cardiovascular diseases, diabetes and kidney disease by taking into account people's prior beliefs and cognitive abilities; a mental model approach.

Health risk assessments, 'appraisals' or other kind of health (risk) checks are more and more common, in occupational and primary care settings, and are also readily available on the Internet. Based on self-reports and/or measures of a person's risk factors health risk assessment programs calculate and communicate an individual's disease risk or life expectancy. Based on the assessment personalized risk reduction recommendations are often provided, for example for lifestyle changes.

These programs' risk communications have two purposes: (1) to let people understand their (increased) risk on developing a disease; and (2) to let people accept this information as relevant for them and to motivate behavioral change to reduce this risk. Previous research has not shown these to be very powerful in changing people's health behavior.

One reason for this could be that people have a hard time understanding their risk or misinterpret it because of the presentation of the risk information or cognitive limitations of the recipient. The aim of the study is to assess how people understand health risks and how risk information in health checks promotes this understanding and their motivation for behavioral change.
A paper of importance
Roeline Pasman, Mette Rurup, Dick Willems, Bregje Onwuteaka-Philipsen. The concept of unbearable suffering in the context of euthanasia requests. Qualitative interviews with patients and physicians about euthanasia requests that were not granted. British Medical Journal 2009; 339:b4362.

The purpose of this study was to obtain in-depth information about the views of patients and physicians on suffering in patients who's euthanasia requests were denied or not carried out. The study consisted of in-depth interviews with 10 patients and 8 of their physicians. The results indicate that although they had a lasting will to die, not all patients who requested euthanasia, nor their physicians thought their suffering was unbearable. In cases in which patients indicated that their suffering was unbearably there was less agreement between patients and physicians about what constitutes unbearable suffering. Patients appeared to put more emphasis on psychosocial suffering, such as dependence and deterioration, whereas physicians referred more often to physical suffering. It is recommended that physicians use a structured way of assessing suffering, because then the assessment will at least be more in line with the nature of suffering, more systematic, and open for discussion and evaluation. This attention to patients' suffering is not only useful in discussing requests for euthanasia but in end of life care in general.

An example of societal impact
On June 19, 2009 Prof. Dorly Deeg, professor of epidemiology of aging, received the prestigious 'Federaprijs' for her research on changes in health, illness, functioning and health care use in older people. This price is awarded yearly by the federation of medical scientific societies to a researcher with a significant contribution on a specifically chosen theme.

Since 1991 Deeg leads the Longitudinal Aging Study Amsterdam (LASA study; www.lasa-vu.nl). This study focuses on daily functioning of older people (55 years and older) with measurements conducted every 3 years.

The fact that the price was awarded to Prof. Deeg initiated a great deal of publicity and published interviews in the popular and professional press. Her work was also used by the expert committee from the Social Economic Advisory Board to advice the national government on increasing age of retirement and possible alternatives in an aging society.
Scientific output

Table 5: Total number and quality of peer-reviewed publications in 2009

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<tr>
<th>Quality of Care</th>
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<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
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Table 6: Acquisition in 2009 (in k€) and the annual average in 2005-2009 per type of funding

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### Senior research staff and post docs*

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<td>Ms. H.G. van der Roest</td>
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<td>Ms. A.A. Zekveld</td>
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</tbody>
</table>
Maurits van Tulder

Joost Dekker
Program directors: Prof. Joost Dekker, PhD and Prof. Maurits van Tulder, PhD

Mission
The research program Musculoskeletal Health (MSH) seeks knowledge about the development and lifelong maintenance of a healthy musculoskeletal system and about the occurrence, prognosis, treatment and prevention of musculoskeletal disorders.

Specific research themes
1. Research methodology. This theme refers to methodological studies in the fields of epidemiology, clinimetrics, systematic reviews, economic evaluation, and prognostic models.
2. Chronic and persistent symptoms. This theme refers to research that contributes to evidence-based information on diagnosis, treatment and rehabilitation of chronic and persistent musculoskeletal disorders such as arthritis, back pain, chronic widespread pain, complex pain syndromes and sports injuries.
3. Activities of daily living and participation. This theme refers to research that focuses on improving activities of daily living and participation, including return to work, as primary outcome measures.

Rationale and focus
Musculoskeletal disorders occur frequently and their incidence and prevalence are expected to increase rapidly as the population ages and people engage in unhealthy lifestyles. The research program contributes to evidence-based practice on musculoskeletal disorders and health in the setting of occupational health, primary health care and rehabilitation practice. Furthermore, the research program strongly contributes to the development of research methodology.

Future perspectives
The goals for the near future are to:
- Increase the number of submitted grant proposals
- Increase collaboration with more basic movement scientists to encourage joint projects
- Increase the program's societal impact and visibility
- Improve the collaboration with the Rehabilitation Center Amsterdam/Jan van Breemen Institute, i.e. the rehabilitation medicine institute that will join the VU University Medical Center
- Strengthen international collaboration
HIGHLIGHTS 2009
An example project
Ludeke Lambeek, Willem van Mechelen, Judith Bosmans, Barend van Royen, Dirk Knol, Patrick Loisel,
Maurits van Tulder, Han Anema

Cost-effectiveness of an integrated care program for sick-listed patients due to chronic low back pain. Chronic low back pain is associated with considerable loss of occupational productivity. We studied the (cost)effectiveness of an integrated care program, combining a patient-directed and a workplace directed intervention, for sick-listed patients with chronic low back pain. The outcome of the intervention was evaluated in a population based randomized controlled trial. Patients were randomly assigned to usual care or integrated care. The integrated care consisted of a workplace intervention based on participatory ergonomics, also involving their supervisor, and a graded activity program based on cognitive behavioral principles. The primary outcome was the duration of work disability due to low back pain. Health care utilization was measured from a societal perspective. A total of 134 patients between 18-65 years of age, sick-listed due to chronic low back pain participated in the trial. The median duration until sustainable return to work was considerably shorter in the integrated care group than in the usual care group. Total costs for society were in the integrated care group considerably lower compared to costs in the usual care group.

A paper of importance
Vincent de Groot, Heleen Beckerman, Bernard Uitdehaag, Rogier Hintzen, Arjan Minneboo, Martijn Heymans, Guus Lankhorst, Chris Polman and Lex Bouter, on behalf of the Functional Prognostication and Disability (FuPro) Study Group. Physical and cognitive functioning after 3 years can be predicted using information from the diagnostic process in recently diagnosed multiple sclerosis. Archives of Physical Medicine and Rehabilitation. 2009; 90:1478-88.

Multiple sclerosis (MS) is characterized by variable neurologic symptomatology, which causes uncertainty in both physicians and patients about the clinical course of the disease. The aim of the study was to predict functioning after 3 years in patients with recently diagnosed MS. The study was designed as an inception cohort on patients with MS (N=156) with 3 years of follow-up. At baseline, predictors were obtained from medical history taking, neurologic examination, and magnetic resonance imaging (MRI). Main outcome measures included inability to walk at least 500 meters, impaired dexterity, and cognitive impairments.
The inability to walk at least 500 meters was predicted by the perceived ability to walk, impairment of the cerebellar tract, and the number of MRI lesions in the spinal cord. Impaired dexterity was predicted by the perceived ability to use the hands, impairments of the pyramidal, cerebellar, and sensory tracts, and the T2-weighted infratentorial lesion load. Cognitive impairment was predicted by age, gender, the perceived ability to concentrate, and the T2-weighted supratentorial lesion load. It is concluded that inability to walk at least 500 meters, impaired dexterity, and cognitive impairments can be predicted with predictors that are derived from medical history taking, neurologic examination, and MRI shortly after a definite diagnosis of MS has been made.

**An example of societal impact**

In The Netherlands, the Health Care Insurance Board (College voor Zorgverzekeringen; CVZ) has a central and independent position between politicians and ministries, health insurers and care providers, and citizens. One of the tasks of CVZ is to examine whether the care provided within the basic public health insurance package is accessible, affordable and necessary.

Low-back pain is a common and disabling disorder in western society, which represents a great financial burden in the form of direct costs resulting from loss of work and medical expenses, as well as indirect costs. In the Netherlands, the costs are estimated to be more than € 4.2 billion annually. Effective and adequate treatment is an important issue for patients, clinicians and policy makers. Researchers from the MSH program have conducted a number of systematic reviews issued and funded by CVZ on treatments for chronic low back pain: medication, physical therapies, complementary and alternative treatment, interventional techniques, surgery and disc prosthesis. Also four systematic reviews were conducted evaluating the diagnostic accuracy of X-ray, CT, MRI and myelography. These reviews will result in recommendations to the Minister of Health and health insurers enabling them to make well-informed decisions regarding reimbursements of interventions for low back pain.
Scientific output

Table 7: Total number and quality of peer-reviewed publications in 2009

<table>
<thead>
<tr>
<th>Musculoskeletal Health</th>
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<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
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<td>Total number of indexed international articles published with a top quartile impact factor for the relevant field</td>
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<td>Total number of doctoral theses</td>
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Table 8: Acquisition in 2009 (in k€) and the annual average in 2005-2009 per type of funding

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<th>Acquisition 2009</th>
<th>Mean per year 2005-2009</th>
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### Senior research staff and post docs*

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<td>Ms. D.A.W.M. van der Windt, PhD</td>
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</table>
Scientific output

In 2009 EMGO+ researchers co-authored a total number of 664 international scientific publications (excluding letters to the editor and Cochrane reviews and protocols); a full list is printed on the final pages of this report. Table 9 shows that a total number of 576 international scientific publications, letters to the editor and Cochrane reviews and protocols were published in ISI indexed journals. Of these 576 publications, 337 articles were published in journals with a top quartile impact factor for the relevant research field (table 10). The 10 most cited EMGO+ publications of the past five years are shown in table 12. Additionally, 75 national scientific and professional publications were published. It can be concluded that the number of dissertations and international scientific publications per 10 FTE direct funded scientific staff has increased (table 11).

In 2009 our total number of scientific publications reached an all-time high. Although the proportion of publications in the top quartile journals of the relevant scientific fields was lower than in previous years, with the exception of the Mental Health research program, the absolute total number of publications in these top journals was again somewhat higher (table 10).

Furthermore, the total number of scientific publications in 2009 was higher than the sum of the total number of these publications in 2008 of the partners that have formed EMGO+. This indicates that the formation of the new institute is at least associated with a further growth in publication output.

The independent bibliometric analysis of research papers in peer-reviewed international scientific journals as conducted by the Center for Science & Technology Studies (CWTS) in Leiden reports a 'crown indicator' of 1.86 for EMGO+’s research. This reflects that the scientific impact of EMGO+’s research is 86% above world average in the scientific fields that EMGO+ contributes to. In 2009, 51 students defended their PhD theses. The total amount of € 19.7 M obtained in grant money in 2009 will help us to maintain our research activities in the years to come. Again, this total amount of grant money is more than what was acquired in 2008 by the groups that joined forces in EMGO+.

The independent bibliometric analysis of research papers in peer-reviewed international scientific journals as conducted by the Center for Science & Technology Studies (CWTS) in Leiden reports a ‘crown indicator’ of 1.86 for EMGO+’s research. This reflects that the scientific impact of EMGO+’s research is 86% above world average in the scientific fields that EMGO+ contributes to. All four research programs have a crown indicator well above 1.0. A table with an overview of the results of the EMGO+ citation analysis can be found at www.emgo.nl/about-emgo/scientific-achievements.
Table 9: Total number and quality of peer-reviewed international publications

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<tr>
<th>LOD</th>
<th>MH</th>
<th>QofC</th>
<th>MSH</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>128</td>
<td>189</td>
<td>115</td>
<td>144</td>
<td>576</td>
</tr>
<tr>
<td>37</td>
<td>56</td>
<td>28</td>
<td>9</td>
<td>130</td>
</tr>
<tr>
<td>165</td>
<td>245</td>
<td>143</td>
<td>153</td>
<td>706</td>
</tr>
</tbody>
</table>

Table 10: Total number and proportion of publications in journals with a top quartile impact factor for the relevant research field (2005-2009)

<table>
<thead>
<tr>
<th>Year</th>
<th>LOD</th>
<th>MH</th>
<th>QofC</th>
<th>MSH</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>58/80  (73%)</td>
<td>58/85 (68%)</td>
<td>70/115 (61%)</td>
<td>69/115 (60%)</td>
<td>255/395 (65%)</td>
</tr>
<tr>
<td>2006</td>
<td>39/57  (68%)</td>
<td>52/85 (61%)</td>
<td>58/94  (62%)</td>
<td>73/119 (61%)</td>
<td>222/355 (63%)</td>
</tr>
<tr>
<td>2007</td>
<td>64/91  (68%)</td>
<td>48/68 (71%)</td>
<td>48/80  (60%)</td>
<td>65/117 (56%)</td>
<td>225/355 (63%)</td>
</tr>
<tr>
<td>2008</td>
<td>59/110 (54%)</td>
<td>56/98 (57%)</td>
<td>42/94  (45%)</td>
<td>73/109 (67%)</td>
<td>230/411 (56%)</td>
</tr>
<tr>
<td>2009</td>
<td>66/128 (52%)</td>
<td>128/189 (68%)</td>
<td>49/115 (43%)</td>
<td>94/144 (65%)</td>
<td>337/576 (59%)</td>
</tr>
</tbody>
</table>

Table 11: Number of dissertations and publications during the period 2005-2009 per 10 FTE direct funded scientific staff, excluding PhD students

<table>
<thead>
<tr>
<th>Year</th>
<th>Dissertations</th>
<th>International scientific publications</th>
<th>National scientific publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6,4</td>
<td>104,7</td>
<td>25,0</td>
</tr>
<tr>
<td>2006</td>
<td>11,7</td>
<td>118,8</td>
<td>25,0</td>
</tr>
<tr>
<td>2007</td>
<td>6,6</td>
<td>94,6</td>
<td>15,0</td>
</tr>
<tr>
<td>2008</td>
<td>7,3</td>
<td>90,9</td>
<td>15,9</td>
</tr>
<tr>
<td>2009</td>
<td>7,4</td>
<td>97,0</td>
<td>11,0</td>
</tr>
<tr>
<td>Rank</td>
<td>Citation count</td>
<td>Publication</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
Societal impact

EMGO+ aims to produce excellent scientific research, but we really only fulfill our potential when that research benefits society at large. Striving for societal impact not only justifies our use of public funds, but also gives EMGO+ direction. We use the Dutch Health Council proposed indicators of societal impact to evaluate and monitor our performances. In 2009 EMGO+ researchers worked on 35 clinical guidelines on various topics in the form of co-authorships. A detailed list of the clinical guidelines can be found on our website (www.emgo.nl/about-emgo/societal-impact). In 2009, EMGO+ staff was also involved as committee members or co-authors in the publication of 26 health policy reports on a great variety of topics. For a short overview of health policy reports, please be referred to www.emgo.nl/about-emgo/societal-impact. In addition to the clinical guidelines and health policy reports, there are trial reviews, national journal articles and books that we consider important for societal impact as well. These publications are listed in the publication list in chapter 13.

In 2009, the results of EMGO+ research projects attracted substantial attention from the media. Members of our staff were interviewed on television about 27 times, and some 40 interviews on national public radio were broadcasted. Interviews and articles about research projects and their results were published locally or nationally in approximately 71 newspapers and 98 magazines and newsletters and on at least 99 different websites on the internet.

Another indicator of societal impact is the number of invitations of EMGO+ staff receives to deliver lectures to healthcare professionals, policy makers and non-professionals. Topics covered in these presentations can also be found on our website (www.emgo.nl/about-emgo/societal-impact).

Note: this list contains articles published in 2005-2009 on projects embedded in EMGO+ mentioned in any of the Annual reports of which at least one of the authors is still working as a senior researcher at EMGO+. The top 10 articles with the highest citations, according to the (Social) Science Citation Index on 31 March 2010, are included in the table.
EMGO+ IN 2009

EMGO+ staff members sit on many boards and committees, of which a selection is also presented on www.emgo.nl/about-emgo/societal-impact.

Members of our staff are frequently involved in teaching programs based on the results of EMGO+ research projects. The most important contributions to the post-initial education of healthcare professionals are listed on the same website, with the exception of our contributions to the regular curriculum of the bachelor and master programs of medicine and health sciences.

The internet is arguably the most important source of health information. Therefore, websites can be highly relevant for measuring the societal impact of EMGO+’s research. The list of our most important websites is placed on our website (www.emgo.nl/about-emgo/societal-impact). The websites are divided into four categories: health information, research infrastructure, collaborating partners and research projects.

New professors
On April 14th Marijke Hopman-Rock accepted her endowed chair at EMGO+ in 'Physical Activity and Health in Older Persons' at the department of public and occupational health. This new professorship further confirms EMGO+’s strong focus on research relevant for our aging society.

On August 1st 2009, Cordula Wagner, senior researcher at Nivel (The Netherlands Institute for Health Services Research) and at the Department of Public and Occupational Health of the VU University Medical Center was appointed professor of 'Patient Safety'. On August 1st 2009, Adriaan Honig, was appointed professor, holding the chair "Hospital Psychiatry" at the Department of Psychiatry of the VU University Medical Center. On September 1st Rose Marie Dröes, senior researcher at the Department of Psychiatry of the VU University Medical Center, was appointed Professor of 'Psychosocial Care for People with Dementia' at the Department of Nursing Home Medicine. On October 1st, Irma Verdonck - de Leeuw was appointed professor, holding the chair 'Living with Cancer' on behalf of the Alpe D'Huzes foundation. On October 1st, Cees Hertogh, elderly care physician and senior researcher at the Department of Nursing Home Medicine of the VU University Medical Center was appointed professor of 'Geriatric Ethics'. On October 29th Filip Smit accepted his professorship of Evidence-Based Public Mental Health at the department of Epidemiology and Biostatistics. The title of his inaugural lecture was 'Public mental health: analysis and synthesis'. This chair shows EMGO+’s strong research focus on the epidemiology of mental health.
EMGO+ Awards
The EMGO+ awards are traditionally announced during the annual EMGO+ retreat, which was held on April 15th. Marijn Distel received the EMGO+ Science Award for the best scientific paper published in Biological Psychiatry, titled 'The five-factor model of personality and borderline personality disorder: a genetic analysis of comorbidity'.

The Societal Impact Award was given to Wilma Waterlander and Ingrid Steenhuis for their studies and ministerial advice on pricing strategies to promote a healthier diet. In promoting healthy lifestyles, using pricing strategies to motivate or better enable healthier eating and/or discourage unhealthier eating habits is considered, but often strongly opposed by the food industry and retail. Ms. Waterlander and dr. Steenhuis with other colleagues from the department of Health Sciences conducted several studies and systematically reviewed the available evidence on the feasibility and effectiveness of different food pricing strategies. They concluded that price is an important factor in food choice, that currently the healthier choice is the more expensive choice and that evidence suggests that financial incentives can indeed contribute to promoting healthier eating habits. Therefore, pricing strategies should be seriously considered as a health incentive. Still, they advised the Minister that before pricing strategies are widely introduced, their true effectiveness should be carefully studied in large experimental studies. The minister of Health, Welfare and Sports stated in an official letter that he very much appreciated the research and that he will follow the conclusions of the report by not changing food pricing policies right away. The Minister did state to be interested in the outcomes of future research on this topic.
Table 13: Publications that have won the EMGO+ Science Award in 2005-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Reference</th>
</tr>
</thead>
</table>

Note: This list contains the articles from 2005 that have won the annual EMGO+ Award. For this competition, junior researchers at EMGO+ may submit one article published or accepted for publication during the year prior to the deadline for submission. Members of the advisory board and the scientific committee judge the articles according to a predefined criteria list, with strong emphasis on the relevance for extramural healthcare. Please be referred to the website www.emgo.nl/about-emgo/societal-impact for the complete list.
Table 14: Research products or activities that have won the EMGO+ Societal Impact Award in 2005-2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Ms. W.E. Waterlander, MSc; Ms. I.H.M. Steenhuis, PhD Studies and ministerial advice on pricing strategies to promote a healthier diet</td>
</tr>
<tr>
<td>2008</td>
<td>Ms. N.I.Tak, MSc Evaluation of fruit and vegetable schemes in primary schools, based on the 'Schoolgruiten' and 'Pro Children' projects</td>
</tr>
<tr>
<td>2007</td>
<td>Ms. H.M. Kruizenga, PhD SNAQ: Short Nutritional Assessment Questionnaire (the development of a simple screening instrument)</td>
</tr>
<tr>
<td>2006</td>
<td>F. den Hertog, PhD 'De gezonde wijk' (The healthy neighborhood in Amsterdam - guidelines)</td>
</tr>
<tr>
<td>2005</td>
<td>Ms. B.A.M. The, PhD In de wachtkamer van de dood. (In the waiting room of death; ISBN 9080811378)</td>
</tr>
</tbody>
</table>

Note: This list contains the products that have won the Societal Impact Award since 2005. Please be referred the website www.emgo.nl/about-emgo/societal-impact for the complete list.

**EMGO+ Fellowships**

One of the main goals defined in the EMGO+ project proposal was to promote and initiate interfaculty research initiatives. To achieve this, EMGO+ junior and senior fellowships were introduced in 2009. Investment in these post-doc positions is also aiming to improve talent-development in the institute. During the 2-year period of the fellowship, the fellows are supported and trained to pursue the high-quality and most prestigious grants, especially those issued by the European Commission and the Netherlands Organization for Scientific Research.

In 2009 Lannie Ligthart was awarded the EMGO+ fellowship to contribute to further strengthening the Netherlands Twin Registry. She was appointed at the department of Biological Psychology.

One junior fellowships was appointed to Laurien Buffart, working at the department of Epidemiology and Biostatistics. Laurien will focus on longitudinal monitoring of cancer patients and cancer survivors in order to prove insight in the course of cancer related fatigue and in its correlates. The second junior fellowship was appointed to Nicole Vogelzangs, working at the department of Psychiatry. Nicole will gain more insight into the underlying mechanisms of co-morbidity between mental and somatic health. The senior fellowship was appointed to Meike Bartels, working at the department for Biological Psychology.
An example of an EMGO+ fellowship: Dr. Meike Bartels, senior fellow

Information on causes of individual differences in subjective well-being and health can provide insights into the causes of variation in psychopathology and provide handles for prevention and treatment of mental health problems. Founded in the field of epidemiology and somatic medicine, it has been proposed that larger benefits to overall public health and mental capital is to be expected when the bell curve of mental health in the human population is shifted a little to the healthy site, the so-called population strategy. A relative slight increase in the level of subjective wellbeing of the bulk of the population may have a larger preventive effect than targeting the much smaller group of people at high risk. To this end knowledge on the causes of individual differences in subjective wellbeing and the factors that jeopardize or promote wellbeing (so-called risk and protective factors) is crucial. Hence, the overall aim of Meikes research is to determine the causes of individual differences in wellbeing. This may be a more powerful approach than focusing on the 10 to 25% of the population that suffer from some type of psychopathology or mental illness. Numerous years of research have been dedicated to identify the causes of individual differences in liability to these disorders, with mild to moderate success. Dr. Bartels, however, hypothesizes that answers to this major health problem may be more readily found when the focus broadens and research includes those individuals who do not show signs of psychopathology, but on the contrary are happy and well adjusted.

EMGO+ Travel Grants

In order to promote further internationalization of the institute, EMGO+ stimulates PhD students to gain international experience. Therefore EMGO+ offered 10 travel grants of maximum € 5000 each for travelling of talented PhD students abroad to gain international experience and work with our international research partners.
### Table 15: Awarded travel grants in 2009

<table>
<thead>
<tr>
<th>PhD student</th>
<th>Institute</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Apeldoorn, MSc</td>
<td>Department of Physical Therapy, University of Utah, USA</td>
</tr>
<tr>
<td>Ms. L. Eijckelhof, MSc</td>
<td>Harvard School of Public Health, Harvard University, Boston, USA</td>
</tr>
<tr>
<td>Ms. T. Hoekstra, MSc</td>
<td>Washington State University (WSU), Department of Social Medicine, USA</td>
</tr>
<tr>
<td>Ms. K. van den Hurk, MSc</td>
<td>Baker IDI Heart and Diabetes Institute, Melbourne, Australia</td>
</tr>
<tr>
<td>J. Lakerveld, MSc</td>
<td>Baker IDI Heart and Diabetes Institute, Melbourne, Australia</td>
</tr>
<tr>
<td>U.L Malanda, MSc</td>
<td>Department of Primary Health Care of the University of Oxford, UK</td>
</tr>
<tr>
<td>Ms. M. Simons, MSc</td>
<td>Baylor College of Medicine, Children’s Nutrition Research Center, Department Behavioral Nutrition, Houston, Texas, USA</td>
</tr>
<tr>
<td>Ms. W.E. Waterlander, MSc</td>
<td>University of Cambridge, UK, University of Stirling, Scotland, Center for Public Health Nutrition Research, University of Dundee, Scotland, Scottish Government, Healthy living and Screening team, Strategy division, Edinburgh, Scotland</td>
</tr>
<tr>
<td>Ms. J. Wiersma, MSc</td>
<td>Clinical Research Unit for Anxiety and Depression, UNSW at St Vincent's hospital, Sydney, Australia</td>
</tr>
<tr>
<td>Ms. M. Wijdenes-Pijl, MSc</td>
<td>University of Nottingham, UK, University of Cambridge, UK</td>
</tr>
</tbody>
</table>

**An example of an EMGO+ travel grant: Jeroen Lakerveld**

Jeroen Lakerveld travelled to Australia in November 2009 to visit the Baker IDI Heart and Diabetes Institute in Melbourne. His main scientific goals were to examine the prospective associations of abdominal obesity status and TV viewing time with five-year reductions in physical activity level for men and women. Longitudinal data are essential for the analysis of changes in time. Jeroen used data from the Australian Diabetes, Obesity and Lifestyle Study (AusDiab), a large population-based cohort study with measures collected in 1999-2000 and 2004-2005. His findings suggest that abdominal obesity is associated prospectively with reductions in physical activity level, and that high levels of television viewing time can have an additional adverse influence for women. The results were written in a scientific paper, which is expected to be published in the International Journal of Obesity. Furthermore, an abstract has been accepted for an oral presentation at the congress of the International Society of Behavioral Nutrition and Physical Activity (ISBNPA) in Minneapolis (Minnesota, USA).
Personal Grants and Awards
In 2009 a number of EMGO+ colleagues have been able to obtain prestigious prizes or personal grants. A few examples are the Implementation Fellowship of Han Anema and the Dr. Hendrik Muller Prize for Social and Behavioral Sciences from the Royal Netherlands Academy of Arts for Dorret Boomsma, and not the least, Miel Ribbe was honoured by Queen Beatrix as Officer in the Order of Orange-Nassau. For the complete list of all personal grants, awards and prizes that EMGO+ researchers have received in 2009, please surf to our website www.emgo.nl/about-emgo/societal-impact.

International Collaboration
Diabetes and overweight, musculoskeletal disorders, mental health problems, and quality of care issues are of international importance, and excellent scientific research requires an international arena. EMGO+ researchers participate in diverse international scientific networks, collaborate intensively with international colleagues, participate in and help lead a range of relevant international societies, and sit on editorial boards of different international scientific journals. In this brief annual report we would like to explicitly mention four highlights in international collaboration in 2009.

- In 2009 EMGO+ was successful in acquiring European Commission (EC) funding for 2 projects, among which the ENERGY project for which EMGO+ is the coordinating center.
- In 2009 Johannes Brug was appointed as an honorary professor in the School of Exercise and Nutrition Sciences at Deakin University in Melbourne Australia.
- EMGO+ was visited in 2009 by a number of international scientists for research visits, seminars or longer visits, among which Prof. David Crawford, Deakin University, Australia.
- 340 of EMGO+’s scientific papers in 2009 were co-authored with international colleagues.

More detailed lists of international collaboration per program can be found at www.emgo.nl/about-emgo/international-collaboration.
for success
Interfaculty Research Institute
In 2009 EMGO became 'EMGO+', an interfaculty research institute striving for stronger trans-disciplinary research. This means that EMGO+ now has formally joined forces with strong research groups in the fields of psychology and education as well as health sciences, building on already established collaborations of the past. The initiative to form an interfaculty research institute was supported by a 3.6 M € grant by the Executive Board of VU University Amsterdam for the start-up phase of four years of EMGO+.

The participating faculties and research groups within EMGO+ are:

1. The former EMGO Institute, in which the VUmc departments of Epidemiology and Biostatistics, General Practice, Nursing Home Medicine, Psychiatry, Public and Occupational Health and Rehabilitation Medicine have concentrated most of their research efforts with additional contributions from a number of other VUmc departments;
2. The department of Health Sciences of the faculty of Earth and Life Sciences;
3. The departments of Clinical Psychology, Biological Psychology, Developmental Psychology and Special Education of the faculty of Psychology and Education

Collaboration within the VU/VUmc Campus
EMGO+ will further strengthen its collaboration with the other VUmc research institutes, and all signs indicate that the interest is mutual. EMGO+ already collaborates with the other (interfaculty) research institutes led by VUmc and we expect further projects in which fundamental, translational and applied research are combined in collaboration with these other institutes on the VU/VUmc campus. Our work with CCA/V-ICI, the Oncology and Immunology Institute, is in a serious process of further intensive extension in the fields of research on palliative care and rehabilitation programs and social support for cancer patients. Our collaboration with the movement sciences institute MOVE is explicit in joined projects and research meetings. With the Neurosciences Campus Amsterdam, we share a focus on mental disorders and have joined projects, with the Netherlands Study of Depression and Anxiety as the main example.
DATAMANAGEMENT

At the start of EMGO+ in 2009, part of the funds to promote the new institute was invested in strengthening the data management support and advice. This extra investment was specifically focused on strengthening and coordinating the data-management of the EMGO+ longitudinal cohort studies.

In 2009 a start was made with the further expansion and development of an integrated data management infrastructure consisting of improvements in:

- the centrally available facilities and systems for data collection, data processing, data handling, data documentation and archiving;
- the standards, procedures, guidelines, training, and assistance to promote and facilitate a standardized working method in every project;
- the availability of qualified staff for the development and management of the infrastructure and providing support for its use; in 2009 four new data-managers were appointed.

Besides the development of an infrastructure, a center for data management has been set up, for projects to call upon for various forms of service provision: consultancy, the design and creation of data entry systems and research databases, the conversion and reorganization of files, et cetera. Basic support and first instructions are free of charge, but more intensive operational tasks are invoiced internally, and should therefore be covered by project funding. The center should thus eventually be able to support itself by means of contributions of the participating faculties and externally funded projects.
STANDING COMMITTEES

Science Committee
In 2009 the members of the science committee were: Cécile Boot, PhD, Sandra Bot, PhD (chair), Judith Bosmans, PhD, Ingeborg Brouwer, PhD, Sophia Kramer, PhD, Piet Kostense, PhD, Harm van Marwijk, PhD, Karin Proper, PhD, Mette Rurup, PhD, Martijn Steultjens, PhD, Bas Steunenberg, PhD and Natasja van Schoor, PhD. Secretarial support was provided by Saliha Bouchiba and Karin Johnson.

The science committee consists of EMGO+ senior staff and meets every two weeks. Each of EMGO+’s research programs has at least two representatives on the science committee. The committee advises the management team about the methodological quality of all new research proposals brought forward by researchers for inclusion in the research programs. In 2009, advice was given on more than 100 new research proposals. The majority of these research proposals met EMGO+’s methodological standards. In most cases, the committee’s advice consisted of minor suggestions for improving the grant application. Only after approval of the management team, advised by the science committee, will a project be labeled within the institute and can affiliated personnel be allocated.

Part of EMGO+ intentions was to start a program to award junior and senior fellowships for further talent development and support within the institute. The science committee drafted the selection procedures and criteria and made the initial selection of applicants; one member of the committee participated in interviewing the candidates to come to the final selection.

To further encourage talent development among junior researchers and contribute to international collaboration the institute offered 10 travel grants of up to 5000 euro for PhD students. The science committee advised the directorate which applications should be granted. Furthermore, in 2009 four direct funding PhD positions were made available. The science committee received 26 applications and prioritized them in their advice to the directorate.

Finally, the science committee was responsible for the selection and ceremony of the EMGO+ science and societal impact awards, which were awarded during the annual meeting of EMGO+.
Quality Committee
The quality committee consists of a representation of various professions, programs and departments of the institute. In 2008 the members were: Prof. Joost Dekker, PhD, Michael Echteld, PhD, Marleen van der Horst, MSc, Hein van Hout, PhD, Wim Kraan, MSc, Michel Paardekooper, PhD (quality officer), Roeliene Pasman, PhD, Carry Renders, PhD, Esther van 't Riet, MSc and Annemieke van Straten, PhD (who was appointed as Chair after Caroline Terwee stepped down), Caroline Terwee, PhD (chair until September 1st).

The quality committee is responsible for developing, implementing and maintaining a system for quality assurance and control for the institute. The system is aimed at supporting and improving the research process. Moreover, the quality committee advises the directorate on quality issues. To fulfill its tasks the quality committee audits research projects, maintains and expands a web-based quality manual, gives personal introductions to all newly appointed researchers within the institute, and organizes introduction courses on quality issues. A series of introduction meetings and presentations was given to the new research groups who joined the institute in forming EMGO+ this year.

In 2009 the quality committee has audited 14 research projects and has performed a theme-audit on coaching of junior researchers. The quality officer has given 52 personal introductions for newly appointed investigators. The report on last year’s theme-audit, on inclusion problems in research studies, was finalized and presented at the EMGO+ policy day, and guidelines based on this report were developed and disseminated.

Finally practical guidelines on e-research and paperless archiving were developed.
PhD Committee
The PhD committee consists of four senior investigators and one PhD student. Mai Chin A Paw, PhD, Prof. Pim Cuijpers, PhD (senior staff), Jeroen Lakerveld, MSc (PhD student), Raymond Ostelo, PhD, (Chair) and Prof. Marjolein Visser, PhD (senior staff).

The PhD committee advises the directorate on matters concerning education, supervision and assessment of PhD students. The PhD committee is responsible for reviewing the 'education and supervision agreement' that is designed and signed at the beginning of each PhD project. This agreement lists the auxiliary courses as defined by EMGO+ and other selected courses that the student must complete alongside the PhD research project. The overall aim of the agreement is to ensure a course program that combines a general academic education with specialized training tailored to the individual PhD student and project requirements. Supervised by the PhD committee PhD students can choose one of four 'PhD training profiles': clinical epidemiology, social sciences, health care professionals, and a free profile. The committee further reviews the evaluations of PhD trajectories conducted by the main supervisor after ten months and three years into the usual four year period. Beyond its review and advice functions, the committee offers assistance when PhD students find themselves in a dispute with their supervisors, and directs and supports a 'PhD student buddy system' that links each new PhD student to a more experienced student in order to provide new students a way to get quickly introduced within the institute.

External Advisory Committee
An external advisory board advises the management team of EMGO+ on policy plans, evaluations, and other relevant research and organizational issues. Members of this external advisory committee in 2009 were (in alphabetical order): Prof. M.G. Boekholdt, PhD (Former Director of Vereniging het Zonnehuis), Prof. P.C. Huijgens, MD, PhD (Director CCA/V-ICI, VUmc), Prof. A. Knottnerus, MD, PhD (Chair of the Netherlands Health Council), Prof. J. van der Meer, MD, PhD (Chair until April 2009 - Emeritus Professor of Internal Medicine), Prof. F.D. Pot, PhD (Professor of Social Innovation, Radboud University Nijmegen), Prof. K. Stronks, PhD (Head of the department of Social Medicine, AMC/UvA), Prof. W. van Tilburg, MD, PhD (Chair - Former head of department Psychiatry, VUmc), Prof. S.P. Verloove-Vanhorick, MD, PhD (Former head of the department of Youth Health Care, TNO Quality of Life).
METHODOLOGICAL EXPERTISE

Clinimetrics
Clinimetrics concerns the quality of measurements in medical and health science research as well as in clinical practice. Much attention is paid to patient reported outcomes.

The clinimetrics group consists of 15 investigators, including PhD students, postdocs, and senior researchers from the various EMGO+ research programs. The clinimetrics group convenes once a month to discuss clinimetric issues on the basis of own research, manuscripts in preparation, or methodological papers from the literature.

The clinimetric group aims to promote research on the quality of measurement instruments; to publish educational papers on clinimetric issues; and to advise colleagues on the choice of measurement instruments, the development of new ones, and the interpretation of results.

Topics of interest are methods to determine minimal important changes on patient reported outcomes, the application of item response theory methods to improve health status measurement instruments and the development of methods to perform clinimetric reviews. Recently, consensus-based standards for selection of health status measurement instruments have been established in the COSMIN study (www.cosmin.nl).

Health technology assessment
The ever-rising cost of healthcare demands questions about how limited resources can be allocated to optimize health within the population. Health technology assessment (HTA) is an important tool in answering those questions.

HTA is scientific research that systematically examines the short- and long-term consequences of the application of health-related technologies. It is characterized by its multidisciplinary and comprehensive nature. HTA's goal is to disseminate objective, valid, and reliable information that informs both the daily practice of healthcare professionals and the far-reaching decisions of policymakers.

While it overlaps with other research sectors such as epidemiology, HTA at EMGO+ focuses on economic evaluation. At EMGO+, with its ample expertise in intervention studies, economic HTA evaluations are conducted alongside randomized controlled trials of diagnostic, preventive, and therapeutic interventions within the four research programs.
In addition to economic evaluations, HTA researchers at EMGO+ also perform systematic reviews on interventions’ effectiveness (within the framework of the Cochrane Collaboration), develop evidence-based guidelines, and evaluate the implementation of those guidelines.

The HTA Unit’s main objective is to establish a high quality scientific research program, but it also consults, offers support and advice concerning economic evaluations to colleagues within the VUMc, and educates, training students in economic evaluation.

Prognosis and Prediction
Prognostic and prediction studies aim to distinguish between patients with a favorable and poor outcome. The aim of a prognostic model is to estimate (predict) the probability of a particular outcome as optimally as possible, and not just to explore the causality of the association between a specific factor and the outcome (explanatory). The results of these predictive studies are important to inform the patients about the probable course of their disease, to make adequate treatment decisions, or to plan health care facilities. Furthermore, evidence for causal prognostic factors may trigger the development of new interventions. The prediction working group of EMGO+ examines which methods are most adequate to design and analyze prognostic factors and prediction studies. Guidelines have been produced for EMGO+ researchers for the optimal performance of prognosis and prediction studies.

Longitudinal data analysis
Longitudinal data analysis aims to measure change in repeated measurements over time and the factors that influence this change. A typical feature of these measurements is that they are clustered. If measurements are taken from the same individual, within and between individual change can be assessed. The clusters than consist of repeated measurements over time obtained from a single individual. Because these measurements are obtained from the same individual, they will show positive correlation. Techniques have been developed that are able to account for this correlation. Most used techniques are generalized estimating equations (GEE) and Mixed models. When information is obtained from different measurement levels, i.e. time and individuals, these techniques are also called multilevel techniques.

The EMGO+ Institute is well known for their large longitudinal cohort studies that are conducted in the different research programs. Specific methodological expertise exists within the EMGO+ Institute to offer support and advice concerning longitudinal data analysis and to conduct high quality methodological longitudinal research.
Mixed methods
When research questions are leading for the choice of a research method, a mix of quantitative and qualitative methods will often be the most appropriate method. For instance, quantitative methods can give insight in the frequency of a phenomenon, while qualitative can shed light on the way this phenomenon is experienced and impacts the life of people who encounter this phenomenon.

Especially within the research program Quality of Care there is substantial experience with mixed methods of research. This not only requires knowledge on both quantitative and qualitative methods, but also on how to combine these types of methods within one research project. Mixed methods is more than combining results of separate quantitative and qualitative studies on the level of interpretation, but require integrating both methods in the design and analysis of a study. An example is nesting of a qualitative study in a quantitative framework: the information collected in for instance a quantitative survey is used to select a relevant selection of respondents for in-depth interviews.

LONGITUDINAL STUDIES
EMGO+ continues to manage four major large-scale longitudinal studies that form an important basis for much of our research.

The Amsterdam Growth and Health Longitudinal Study (AGGO, http://130.37.200.50/) was initiated in 1974, to monitor the growth, health, and lifestyle of 600 boys and girls entering secondary school over a period of four years. After the original four years, the follow-up was extended to take measurements when the participants were 21-, 27-, 29-, 32-, and 36 years old. In 2006, almost 350 41-year-old participants attended the tenth repeated measurement, so that almost 30-year follow-up data are now available.

The Hoorn Study (Hoorn Study, http://www.diabetes-zorg.nl/onderzoek_nieuwehoornstudie.html) was initiated in 1989 to study the prevalence and determinants of type 2 diabetes in the general population in the Netherlands. The Hoorn Study cohort has been monitored ever since and has been extended to include additional study populations. Furthermore, in 1996, to support diabetes care in the study region, the Diabetes Care System West-Friesland was initiated and a diabetes research center was built.

The Netherlands Study of Depression and Anxiety (NESDA, www.nesda.nl) is a ten year longitudinal investigation into the course of depression and anxiety disorders in the adult population, and was started in 2003. NESDA was recently enriched with NESDO, the Netherlands Study of Depression in Older Adults, http://nesdo.amstad.nl), a longitudinal study that examines the course of depression in older adults (60+ years).
Another major cohort study within EMGO+ is the Longitudinal Aging Study Amsterdam (LASA, www.lasa-vu.nl). The LASA-team, under professor Dorly Deeg's leadership, ensured extensive additional funding for this study, enabling a new wave of data collection.

New cohort studies that will also require the input of longitudinal data analyses expertise have started in recent years. With the formation of the interfaculty research institute, the world famous Netherlands Twin Registry (NTR, www.tweelingenregister.org) and the Amsterdam Born Children and their Development (ABCD, www.abcd-studie.nl) study are now also embedded with EMGO+.

NTR is managed by the department of Biological Psychology and is embedded in EMGO+ as well as in the Neurosciences Campus Amsterdam (NCA, www.neurosciencecampus-amsterdam.nl). NTR aims at providing insight into what extent the causes of differences between individuals are determined by genetic and environmental influences.

The Amsterdam Born Children and their Development (ABCD) study is led by the Municipal Health Service of Amsterdam and is conducted in close collaboration with the Academic Medical Center of the University of Amsterdam. ABCD aims at analyzing the effect of early risk factors on child health outcomes.

In recent years two further main cohorts studies were started within the institute. The ChecKid study aims to provide recent data on the prevalence of overweight, obesity, (un)healthy nutrition, physical (in)activity behavior, and environmental determinants of these behaviors among 4 to 12 year old children in Zwolle. The new Generations² study is described below.

Table 16: EMGO+ Longitudinal Studies

<table>
<thead>
<tr>
<th>Longitudinal study</th>
<th>Research Leader(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCD (Amsterdam Born Children and their Development)</td>
<td>Prof. Reinoud Gemke, PhD</td>
</tr>
<tr>
<td>AGGO (The Amsterdam Longitudinal Growth and Health Study)</td>
<td>Prof. Willem van Mechelen, MD, PhD and Prof. Jos Twisk, PhD</td>
</tr>
<tr>
<td>ChecKid</td>
<td>Prof. Remy Hira Sing, MD, PhD, Carry Renders, PhD and Tommy Visscher, PhD</td>
</tr>
<tr>
<td>Generations²</td>
<td>Prof. Carlo Schuengel, PhD and Mirjam Oosterman, PhD</td>
</tr>
<tr>
<td>Hoorn Study</td>
<td>Prof. Jacqueline Dekker, PhD and Prof. Giel Nijpels, MD, PhD</td>
</tr>
<tr>
<td>LASA (The Longitudinal Aging Study Amsterdam)</td>
<td>Prof. Dorly Deeg, PhD</td>
</tr>
<tr>
<td>NESDO (The Netherlands Study of Depression in Older People)</td>
<td>Prof. Brenda Penninx, PhD</td>
</tr>
<tr>
<td>NESDA (The Netherlands Study of Depression and Anxiety)</td>
<td>Prof. Brenda Penninx, PhD</td>
</tr>
<tr>
<td>NTR (Netherlands Twin Registry)</td>
<td>Prof. Dorret Boomsma, PhD</td>
</tr>
</tbody>
</table>
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STRENGTHS
One example: Generations

Generations is a large study on the development of parenting and mental health. A cohort of 5000 women in the Amsterdam area will be followed through their first pregnancy and the first six years of their children's lives. The second pregnancy and child will also be a focus of investigation. The overall question is how women are prepared for parenthood, how they adjust to actual parenting challenges, and how mental models of parenting and their own attachment backgrounds as well as psychophysiological indicators of affect-regulation predict attachment in the child and socio-emotional development. The research strategy is a combination of large-scale longitudinal survey, screening for specific risk group studies, and intensive and experimental studies on randomly selected subsamples.

Through midwives and the client database of a chain of baby stores, women are invited to participate during the first trimester of pregnancy. They are surveyed at 12, 22, and 32 weeks into their pregnancy on parenting self-efficacy, mental health, and childhood background risk factors. Currently at 3, 12, 24, and 36 months after delivery, follow-up measurements are planned on parenting self-efficacy, parenting stress, mental health, and child socio-emotional and cognitive development. Further assessment will be timed in accordance to an eventual second pregnancy. Currently, five subgroups are defined for intensive study, including (a) 150 low risk mothers; (b) 150 mothers with a high risk background indicated by a history of youth care involvement; (c) 150 mothers with a migrant background; (d) 138 mothers who have received a prenatal diagnosis of congenital abnormalities of their unborn child; (e) 750 mothers scoring high on depression or anxiety disorder symptoms lists. Further study of these subgroups includes interviews, observations of the parent-child relation and psychophysiological assessments of affect-regulation (both during prenatal experimental parenting tasks as well as parent-child interaction tasks). Moreover, in collaboration with the VU medical center (Department of Clinical Genetics, Obstetrics and Gynecology, and Medical Psychology), a short intervention has been developed for mothers and their partners who received a prenatal diagnosis of congenital abnormalities of their unborn child (subgroup d). The effectiveness of this intervention will be tested in terms of parental self-efficacy, parental stress and child socio-emotional development.
The Generations² project is an initiative from the Department of Clinical Child and Family Studies (Faculty of Psychology and Education; Principal investigators Prof. Carlo Schuengel, PhD and Mirjam Oosterman, PhD). The Generations² team collaborates with VU University Medical Center (Department of Clinical Genetics, Prof. Hanne Meijers, PhD, Obstetrics and Gynaecology, Prof. John van Vugt, MD, PhD, Medical Psychology, Prof. Peggy Cohen-Kettenis, PhD, and Psychiatry, Prof. Aart-Jan Beekman, MD, PhD) and the New School for Social Research, New York (Department of Psychology, Prof. Howard Steele, PhD).

Photo: Generations² has received significant funding of 'Stichting tot Steun Nederland'. On September 11th, an official agreement between both parties has been signed.

Photo: On November 23rd, Generations² launched its new website (www.generaties2.nl).
The ambition of EMGO+ is to conduct research that has a true impact on the daily practice of extramural health care. In order to facilitate this ambition EMGO+ has established over the years a number of Research Centers (table 16) and Academic Collaborative Centers (table 17). The research centers cover specific topics of dedicated research and service to the public, whereas the academic collaborative centers provide direct links with daily practice. In academic collaborative centers, research, policy and practice are brought together. Research centers and academic collaborative centers that were active in 2009 are all described on EMGO+’s website (www.emgo.nl/research).

Table 17: EMGO+ Research Centers

<table>
<thead>
<tr>
<th>Research centers</th>
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<tbody>
<tr>
<td>Body@Work Joint forces of EMGO+ and TNO (Applied Scientific Research) to research, consult, and solve problems in the broad field of occupational health.</td>
<td></td>
</tr>
<tr>
<td>Center of Expertise in Palliative Care Enhancing the quality of palliative care.</td>
<td></td>
</tr>
<tr>
<td>Clinimetrics Improving the quality of measurements in medical and health science research as well as clinical practice.</td>
<td></td>
</tr>
<tr>
<td>Health Technology Assessment Unit (HTA) Establishing a high quality research program, by offering consult, support and advice concerning economic evaluations to colleagues within VU University Medical Center.</td>
<td></td>
</tr>
<tr>
<td>Insurance Medicine Research aiming at improving work disability assessments.</td>
<td></td>
</tr>
<tr>
<td>Knowledge Center Overweight Enhancing knowledge about the etiology, prevention, treatment options and consequences of overweight and obesity.</td>
<td></td>
</tr>
<tr>
<td>Safety4Patients Enhancing insight into the method and culture that can improve patient safety and to apply these in the health care setting.</td>
<td></td>
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</tbody>
</table>
Table 18: EMGO+ Academic Collaborative Centers

<table>
<thead>
<tr>
<th>Academic collaborative centers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Network of General Practice</strong></td>
<td>Integrates scientific research, medical education, vocational training and innovation in general-practice care.</td>
</tr>
<tr>
<td><strong>Bipolar Disorders</strong></td>
<td>Contributes to restoration and maintenance of health and well being of patients with bipolar disorders (manic depressive illness) and others involved, through research, health care innovation, education and health advocacy.</td>
</tr>
<tr>
<td><strong>Child and Youth Health Care North-Holland VUmc</strong></td>
<td>Improves knowledge transfer between the academic collaborative center, health policy, research and education.</td>
</tr>
<tr>
<td><strong>Depression and Anxiety</strong></td>
<td>Provides an environment in with research and vocational training strengthen and inspire relevant professionals and researchers.</td>
</tr>
<tr>
<td><strong>Domiciliary Care - Overweight</strong></td>
<td>Integrates primary care for both children and the elderly (60+) with overweight and obesity in Zwolle.</td>
</tr>
<tr>
<td><strong>Academic Network Medical Practice for Frail Elderly (GerI Medica)</strong></td>
<td>General practitioners, teachers and researchers work together to improve the quality of primary care concerning frail elderly.</td>
</tr>
<tr>
<td><strong>KLM Health Services</strong></td>
<td>Improving work conditions, lifestyle and workers health.</td>
</tr>
<tr>
<td><strong>National Institute for Employee Benefit Schemes (UWV)</strong></td>
<td>Improving the quality of work disability assessments and developing and evaluating new return-to-work strategies and tools.</td>
</tr>
<tr>
<td><strong>Old Age Psychiatry</strong></td>
<td>Focusses on heterogeneity of affective disorders in old age, studied from three perspectives: population based epidemiological studies, collaborative care studies carried out mostly in primary care, and studies in clinical populations.</td>
</tr>
<tr>
<td><strong>Occupational and Environmental Health Service VU/VUmc</strong></td>
<td>Focuses on both the prevention of work-related complaints and disease, and on effective return-to work intervention for those off work because of sickness.</td>
</tr>
<tr>
<td><strong>Severe Mental-illness 1,2 and 3</strong></td>
<td>Focuses on the epidemiology of long-term mental illness and on the recovery and rehabilitation in long-term care.</td>
</tr>
<tr>
<td><strong>University Network of Organizations for elderly care (UNO)</strong></td>
<td>Building a bridge between research and practice in long term elderly care, especially nursing home care.</td>
</tr>
</tbody>
</table>
One example: Academic Collaborative Center for Domiciliary Care - Overweight

The Academic Collaborative Center for Domiciliary Care - Overweight (ATW Overweight) is a collaborative initiative by the Icare Foundation, a homecare providing organization, and the EMGO+ affiliated Research Center for the Prevention of Overweight (OPOZ, a collaboration between the VU-University and Windesheim College in Zwolle, the Netherlands). The academic collaborative center has been set up in April 2008 and will be supported by a grant from the Netherlands Organization for Health Research and Development until April 2011.

The objective of ATW Overweight is to develop a chronic disease management model for overweight and obesity in children and the elderly (60+) in the city of Zwolle, located in the East of the Netherlands. Strong linkage between research and practice, striving to improve evidence-based practice by means of practice-based research, will lead to new insights in care and research. Research is used to both develop and monitor a practice- and evidence-based chronic disease model for overweight and obesity. Linking prevention and care is a typical aspect of this initiative.

To obtain integrated care, different perspectives (from policy makers, health care practitioners and researchers) are taken into account. Icare and OPOZ work together with different health professionals (i.e. general practitioners, dieticians, physiotherapists, nurses) in Zwolle to realize integrated care. Focus group interviews and expert interviews are held with different stakeholders (e.g. health professionals, parents of overweight/obese children, and overweight and obese elderly).
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The purpose of these interviews is to obtain information on the perceptions, ideas, opinions and experiences of health professionals, parents and elderly concerning current status of care and an 'ideal' model for integrated care in Zwolle. The various mono-disciplinary focus group and expert interviews are being discussed in interdisciplinary settings. Outcomes will be used for innovation and improvement of care and further (quantitative) research, with specific attention to a continue structure of monitoring and evaluation (November 2009 until December 2010).

The following results are expected in April 2011:
- A description and exploration of current care for overweight and obesity in children and the elderly
- A description of and decisions on optimal care for overweight and obesity in children and the elderly in the Zwolle region
- A detailed implementation plan, describing conditions needed for optimal care, including professional development, financing, monitoring, evaluation etc.
EpidM team: Marjolein Stuij, Jos Twisk, Yvonne van Loon and Eva Stokx
Since 1989 the Department of Epidemiology & Biostatistics organizes in co-operation with the EMGO+ a postgraduate epidemiology program called EPIDEM. The program includes a full Master’s Program in Epidemiology and offers additional courses in epidemiological and advanced statistical methods.

The Master's Program in Epidemiology trains postgraduates from a range of disciplines (Medicine, Health Sciences, Biomedical Sciences, Pharmaceutical Sciences etc.). It focuses on applied research in primary care and public health. The program provides the methodological tools for evidence-based medicine and evidence-based health policy. The theoretical section of this Master's program consists of six compulsory courses and one optional course. The program also includes a scientific internship which spans a period of six months. The students taking part in the program are researchers (including PhD students) and professionals working in the health services field. They often combine their work (including clinical work) with research activities. The research that they carry out at their place of work represents their scientific internship.

The Master's Program in Epidemiology meets the Netherlands Epidemiological Society's registration requirements for epidemiologists. The program has also been registered by the Executive Board of VU University Amsterdam as an official Master's program. A new revised curriculum will start in January 2010. This program is scheduled for assessment by the NVAO (Accreditation Organization of the Netherlands and Flanders) in 2010.

In 2009, 31 students successfully completed the Master's Program in Epidemiology and 383 students attended one or more courses, resulting in a total of 660 course registrations.

24% of these students were employees of the EMGO+, 19% of the VU University Medical Center or an institute that participates in the research school CaRe and the remaining 58% were students employed at a range of other institutes.

The program is entirely funded from course fees and is not supported by regular government-funding for higher education. The fact that the program attracts certainly enough students to be in a financially good shape, indicates that the program is well attended, and the course evaluations indicate that the program is well appreciated by the participating students. More information can be found on www.epidm.nl.
EMGO+ has never in its history acquired more than the €19.7 million in 2009. The acquisition level in 2009 has reached this all-time high, partly due to 5 major grants:

- € 2.8 M - European Commission - project ENERGY (EuropeaN Energy balance Research to prevent excessive weight Gain among Youth)
- € 1.4 M - Stichting tot Steun Nederland - project Generations²
- € 2.0 M - Ministry of Health, Welfare and Sport - project Monitor Patient Safety
- € 1.2 M - The Netherlands Organization for Health Research and Development - VICI project Patient Perspective in the end of life
- € 1.3 M - Dutch Cancer Society - project A-CaRe (Alpe D’Huzes Cancer Rehabilitation)

The growth in acquired funding is further caused by the extension of the institute in the formation of EMGO+. However, the total acquired funding in 2009 is more than the sum of funding acquired by the groups who have merged to form EMGO+, before the merger (€ 15.1 M).
Table 19: Acquisition of grants per year, 2005-2009 (in €)

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Funding (DF)</th>
<th>Research Funding (RF)</th>
<th>Contract Funding (CF)</th>
<th>Industry Funding (IF)</th>
<th>RF+CF+IF</th>
</tr>
</thead>
</table>

**Direct Funding**
Is university funding
Concerns the annual available budgets allocated by VU/VUMc.
To convert formation into money, we used:
1 FTE Scientific Staff € 102.700 (in 2008 € 94.005, 2007 € 90.666, 2006 € 89.443)
1 FTE Support Staff € 55.272 (in 2008 € 59.024, 2007 € 50.811, 2006 € 49.696)

**Research Funding**
Are funds allocated by the Netherlands Organization for Scientific Research, European Union, and the Netherlands Organization for Health Research and Development.

**Contract Funding**
Are funds allocated by the so-called money-box funds (Dutch Heart Foundation, Dutch Diabetes Research Funds, Dutch Cancer Society, etc) as well as allocated grants directly from the government and government grants allocated through 'College voor Zorgverzekeringen'.

**Industry Funding**
Grants allocated by businesses, the pharmaceutical industries in particular and other additional smaller funds without a peer review procedure.

Figure 1: Acquisition of grants, 2005-2009 (in €)
Table 20: Acquired external grants in 2009 per research program (in €)

<table>
<thead>
<tr>
<th>Research Program</th>
<th>Research Funding</th>
<th>Contact Funding</th>
<th>Industry Funding</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total LOD</td>
<td>€ 3,829,801</td>
<td>€ 737,794</td>
<td>€ 447,358</td>
<td>€ 5,014,953</td>
</tr>
<tr>
<td>Total MH</td>
<td>€ 2,976,000</td>
<td>€ 2,872,895</td>
<td>€ 0</td>
<td>€ 5,848,895</td>
</tr>
<tr>
<td>Total QoFC</td>
<td>€ 3,719,986</td>
<td>€ 3,045,014</td>
<td>€ 95,014</td>
<td>€ 6,860,014</td>
</tr>
<tr>
<td>Total MSH</td>
<td>€ 12,500</td>
<td>€ 1,927,224</td>
<td>€ 38,588</td>
<td>€ 1,978,312</td>
</tr>
<tr>
<td>Total EMGO+</td>
<td>€ 10,538,287</td>
<td>€ 8,582,927</td>
<td>€ 580,960</td>
<td>€ 19,702,174</td>
</tr>
</tbody>
</table>
LIFESTYLE, OVERWEIGHT AND DIABETES
1. Dullemeijer C. Very long-chain n-3 polyunsaturated fatty acids; Promotor: Prof. F.J. Kok, PhD; Prof. R.J.M. Brummer, PhD; Co-promotor: Ms. I.A. Brouwer, PhD. (Cat. D).
2. Gerards FA. Fetal pulmonary hypoplasia; Promotor: Prof. J.M.G. van Vught, PhD; Prof. J.W.R. Twisk, PhD. (Cat. D).
3. van der Horst K. Endorse: Environmental determinants of overweight in Rotterdam schoolchildren; Promotor: Prof. J. Brug, PhD; Co-promotor: A. Onema, PhD. (Cat. D).
4. Jansen W. Prevention of childhood obesity in a municipal setting; Promotor: Prof. J. Brug, PhD; Prof. J.P. Mackenbach, PhD. (Cat. D).
5. Meijers JMM. Awareness of malnutrition in healthcare. The Dutch perspective; Promotor: Prof. J.M.G.A. Schols, PhD; Prof. T. Dassen, PhD; Co-promotor: Prof. R. Halfens, PhD; Ms. M.A.E. van Bokhorst-de van der Schueren, PhD. (Cat. D).
6. Nicolaou M. Diet and overweight perception. An explorative study among Turkish, Moroccan and Surinamese migrants living in the Netherlands; Promotor: Prof. J.C. Seidell, PhD; Prof. K. Stronks, PhD; Co-promotor: C.M. Doak, PhD; R.M. van Dam, PhD. (Cat. A).
7. Scholtens S. Breastfeeding, overweight and asthma in Dutch children. (Universiteit Utrecht; Promotor: Prof. B. Bruinekreef, PhD; Prof. J.C. Seidell, PhD; Co-promotor: A.H. Wijga, PhD). (Cat. D).
8. Slootmaker SM. Promoting physical activity using an activity monitor and a tailored web-based advice; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. J. Brug, PhD; Co-promotor: Ms. S.J. te Velde, PhD). (Cat. A).
9. Tak NI. The Schoolgruiten Project. Evaluation of a primary school fruit and vegetable scheme in the Netherlands; Promotor: Prof. J. Brug, PhD; Co-promotor: Ms. S.J. te Velde, PhD). (Cat. A).
10. de Vries SI. Activity-friendly neighborhoods for children. Measurement of physical activity and environmental correlates.; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. H.A. Hira Sing, MD, PhD; Co-promotor: Ms. M. Hopman-Rock, PhD; Ms. I. Bakker, PhD. (Cat. A).

MENTAL HEALTH
1. Acarturk ZC. Epidemiology and psychological treatment of social phobia; Promotor: Prof. P. Cuijpers, PhD; Ms. A. van Straten, PhD; R. de Graaf, PhD. (Cat. A).
3. van Bergen DD. Suicidal behavior of young immigrant women in the Netherlands; Promotor: Prof. S. Saharso, PhD; Prof. A.J.L.M. van Balkom, MD, PhD; Prof. R. Koopmans, PhD; Co-promotor: J. Smit, PhD). (Cat. B).
5. van Domburgh L. Very young offenders: characteristics of children and their environment in relation to (re)-offending; (Promotor: Prof. T.A.H. Doreleijers, MD, PhD; Prof. R.R.J.M. Vermeiren, MD, PhD; Co-promotor: L.M.C. Nauta-Jansen, PhD; Prof. L. Loeber, PhD). (Cat. A).
7. Kroneman LM. Girls’ disruptive behavior: A study of explanatory factors; Promotor: Prof. J.M. Koot, PhD; Prof. R. Loeber, PhD; Co-promotor: A. Hipwell, PhD). (Cat. A).
8. de Moor MHM. Exercise behavior and mental health - A genetic perspective; Promotor: Ms. D.I. Boomsma, PhD; Prof. E.J.C. de Geus, PhD). (Cat. A).
9. Nuijen J. Depression and co-morbidity: general practice-based studies on occurrence and health care consequences. (Promotor: Prof. Schellevis, MD, PhD; Prof. G.A.M. van den Bos, PhD; Prof P.P. Groenewegen). (Cat. B).
10. Peen J. Mental health and urbanization. An Investigation of urban-rural and inner-city differences in psychiatric morbidity; Promotor: Prof. J.J.M. Dekker, PhD; Prof. A.T.F. Beekman, MD, PhD; Co-promotor: R.A. Schoevers, PhD). (Cat. A).
11. van Outsem R. Exploring psychological characteristics of sexually abusive juveniles; Promotor: Prof. R.A.R. Bullens, PhD; Prof. T.A.H. Doreleijers, MD, PhD). (Cat. D).
12. Plaisier I. Work and Mental Health. Studies on the impact of job characteristics, social roles and gender.; Promotor: Ms. Prof B.W.J.H. Penninx, PhD; Prof. J.G.M. de Bruijn, PhD; Co-promotor: J.H. Smit, PhD; Prof. R. van Dyck, PhD). (Cat. A).

13. Rhebergen DS. Effectiveness of guideline-based care of workers with mental health problems; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. A.J. van der Beek, PhD; Co-promotor: D.J. Bruinvels, PhD). (Cat. A).

14. van der Roest HG. Care needs in dementia and digital interactive information provisioning; Promotor: Prof. C. Jonker, PhD; Ms. Prof. R.M. Dröes, PhD; Co-promotor: Ms. F.J.M. Meiland, PhD; Prof. Ph. Schelten, PhD). (Cat. A).

15. Schreuders GA. Problem Solving Treatment provided by nurses for patients with mental health problems in general practice.; Promotor: Prof. W.A.B. Stalman, MD, PhD; Co-promotor: Prof. P.A.C. van Lier, PhD). (Cat. A).

16. van der Roest HG. Care needs in dementia and digital interactive information provisioning; Promotor: Prof. C. Jonker, PhD; Ms. Prof. R.M. Dröes, PhD; Co-promotor: Ms. F.J.M. Meiland, PhD; Prof. Ph. Schelten, PhD). (Cat. A).

QUALITY OF CARE
1. van den Belt-Dusebout S. Late adverse effects of treatment for testicular cancer or Hodgkin's lymphoma. (Promotor: Prof. F.E. van Leeuwen, PhD; Prof. J.A. Gietema, PhD; Co-promotor: B.M.P. Aleman, PhD; R. de Wit, PhD). (Cat. D).

2. Bongers F. General practice 1987 and 2001. Changes in morbidity and interventions; Promotor: Prof. J. van der Zee, PhD; Prof. W. van den Bosch, MD, PhD; Prof. F. Schellevis, MD, PhD). (Cat. D).

3. Buiting HM. Euthanasia and other medical decisions at the end of life. Societal control and cultural aspects.; Promotor: Prof. P.J. van der Maas, PhD; Prof. J.J.M. van der Heide, PhD; Co-promotor: A. van der Heide, PhD; B.D. Onwuteaka-Philipsen, PhD). (Cat. D).

4. Ceelen M. Growth and development of children born after IVF treatment; Promotor: Prof. H.A. Delemarre-van der Waal, MD, PhD; Prof. F.E. van Leeuwen, PhD; Co-promotor: M.M. van Weissenbruch, PhD; J.P.W. Vermeiden, PhD). (Cat. A).

5. Dubbelboer F. The concept of signal-to-noise ratio in the modulation domain. Predicting the intelligibility of processed noisy speech; Promotor: Prof. T. Houtgast, MD, PhD; Prof. J.M. Festen, MD, PhD). (Cat. C).

6. Kleinjan M. Dawning dependence: processes underlying smoking cessation; Promotor: Prof. R.C.E.M. Engels, PhD; Prof. J. Brug, PhD). (Cat. D).

7. Maessen M. Care and decision-making at the end of life of ALS patients; Promotor: Prof. L.H. van den Berg, PhD; Prof. G. van der Wal, PhD; Co-promotor: J.H. Veldink, PhD; Ms. B.D. Onwuteaka-Philipsen, PhD). (Cat. D).

8. van Nispen RMA. Longitudinal measurement of the older patient’s vision-related quality of life; Promotor: Prof. G. van Rens, MD, PhD; Prof. P.J. Ringens, MD, PhD; Co-promotor: D.L. Knol). (Cat. A).

9. van der Ploeg ES. Care for vulnerable older persons. Need, utilization and appropriateness.; Promotor: Prof. J.P. Mackenbach, PhD; Prof. G. Nijpels, MD, PhD; Co-promotor: M.F.I.A. Depla, PhD; J.J.P. van Hout, PhD). (Cat. D).

10. Smits M. Unintended events in hospitals. Causes and the role of patient safety culture.; Promotor: Prof. P.P. Groenewegen, PhD; Prof. G. van der Wal, PhD; Co-promotor: Ms. C. Wagner, PhD; Ms. Prof. D.R.M. Timmermans, PhD). (Cat. B).

11. Vogel I. Music-listening behavior of adolescents and hearing conservation: many risks, few precautions; Promotor: Prof. J. Brug, PhD; Co-promotor: H. Raat, PhD). (Cat. D).


13. Zegers HWM. Adverse events among hospitalized patients : results and methodological aspects of a record review study. (NIVEL; Promotor: Prof. G. van der Wal, PhD; Prof. P.P. Groenewegen, PhD; Co-promotor: Ms. M.C. de Bruijne, PhD; Ms. C. Wagner, PhD). (Cat. B).

14. de Zwart O. Exploring risk perceptions of emerging infectious diseases; Promotor: Prof. J. Brug, PhD; Co-promotor: J.H. Richards, PhD). (Cat. D).
## MUSCULOSKELETAL HEALTH

1. van Dijk GM. Course of limitations in activities in elderly patients with osteoarthritis of the hip or knee. (NIVEL; Promotor: Prof. J. Dekker, PhD; Prof. G.J. Lankhorst, MD, PhD; Co-promotor: C. Veenhof, PhD). (Cat. B).

2. Hlobil H. The management of occupational low back pain and its cost-effectiveness; Promotor: Prof. W. van Mechelean, MD, PhD; Prof. T. Smid, PhD). (Cat. A).

3. van der Leeden M. Foot impairments and related disability in patients with rheumatoid arthritis; Promotor: Prof. J. Dekker, PhD; M.P.M. Steultjens, PhD). (Cat. B).

4. Nijrolder I. Fatigue in Primary Care. Course, Prognosis and Diagnosis; Promotor: Mw. Prof. H.E. van der Horst, MD, PhD; Co-promotor: Mw. D.A.W.M. van der Windt, PhD). (Cat. A).

5. Peeters GMEE. Prevention of falling in older persons with a high risk of recurrent falling; Promotor: Prof. P.T.A.M. Lips, PhD; Prof. L.M. Bouter, PhD; Co-promotor: Ms. P.J.M. Elders; Ms. N.M. van Schoor, PhD). (Cat. A).

6. Post B. Clinimetrics, clinical profile and prognosis in early Parkinson’s disease; Promotor: Prof. M. Vermeulen, PhD; Prof. R. de Haan, PhD; Prof. J. Dekker, PhD; Co-promotor: J.D. Speelman, PhD). (Cat. D).

7. Spies-Dorgelo MN. Hand and wrist problems in general practice: diagnosis and prognosis/; Promotor: Ms. Prof. H.E. van der Horst, MD, PhD; Co-promotor: Ms. D.A.W.M. van der Windt, PhD). (Cat. A).

8. Stolwijk-Swâste JM. Functioning and ageing with late-onset sequelae of poliomyelitis; Promotor: Prof. F. Nollet, MD, PhD; Prof. G.J. Lankhorst, MD, PhD; Co-promotor: Ms. A. Beelen, PhD). (Cat. A).

9. Voorman JM. Cerebral Palsy and the transition to adolescence: Course of functioning, self-perception and quality of life.; Promotor: Prof. J. Becher, MD, PhD; Prof. C. Schuengel, PhD; Ms. A.J. Dallmeijer, PhD). (Cat. A).

10. van der Wees PJ. Evaluation of evidence-based clinical guidelines in physiotherapy. Ankle sprain as an example; Promotor: Prof. R.A. de Bie, PhD; Prof. J. Dekker, PhD; Co-promotor: H.J.M. Hendriks, PhD). (Cat. D).

11. Wijlhuizen GJ. Physical activity and falls in older persons; Promotor: Prof. D.J. Knoop, PhD; Ms. Prof. M. Hopman-Rock, PhD). (Cat. D).

**Cat A:** dissertation at EMGO+, prepared at EMGO+
**Cat B:** dissertation at EMGO+, prepared externally with an EMGO+ senior advisor
**Cat C:** external dissertation, prepared at EMGO+
**Cat D:** external dissertation, prepared externally
Claimetric properties of 3 instruments measuring postoperative recovery in a gynaecologic surgical population

...
Table 21: Number of dissertations and indexed scientific publications, 2005-2009 (in relation to scientific staff formation)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total WP(^1)</th>
<th>Dissertations</th>
<th>International scientific publications</th>
<th>National scientific publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>149.4</td>
<td>26</td>
<td>428</td>
<td>102</td>
</tr>
<tr>
<td>2006</td>
<td>165.7</td>
<td>45</td>
<td>457</td>
<td>104</td>
</tr>
<tr>
<td>2007</td>
<td>162.4</td>
<td>29</td>
<td>415</td>
<td>66</td>
</tr>
<tr>
<td>2008</td>
<td>181.0</td>
<td>36</td>
<td>446</td>
<td>78</td>
</tr>
<tr>
<td>2009</td>
<td>254.1</td>
<td>51</td>
<td>664</td>
<td>75</td>
</tr>
</tbody>
</table>

\(^1\) Concerns all scientific staff formation

Figure 2: Number of dissertations and publications in relation to total scientific staff formation
## Table 22: Number of dissertations and publications, 2005-2009 per 10 FTE direct funded scientific staff excluding PhD students

<table>
<thead>
<tr>
<th>year</th>
<th>DF scientific staff</th>
<th>Dissertations</th>
<th>Scientific publications international</th>
<th>Scientific publications national</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>40.9</td>
<td>6.4</td>
<td>104.7</td>
<td>25.0</td>
</tr>
<tr>
<td>2006</td>
<td>38.5</td>
<td>11.7</td>
<td>118.8</td>
<td>25.0</td>
</tr>
<tr>
<td>2007</td>
<td>43.9</td>
<td>6.6</td>
<td>94.6</td>
<td>15.0</td>
</tr>
<tr>
<td>2008</td>
<td>49.1</td>
<td>7.3</td>
<td>90.9</td>
<td>15.9</td>
</tr>
<tr>
<td>2009</td>
<td>68.5</td>
<td>7.4</td>
<td>97.0</td>
<td>11.0</td>
</tr>
</tbody>
</table>

1 Concerns the realised appointments with directly funded research formation and the additional research formation from VUmc departments participating in EMGO

## Figure 3: Number of dissertations and publications, 2005-2009 per 10 FTE direct funded scientific staff excluding PhD students

Figure 3 illustrates the number of dissertations and publications from 2005 to 2009 per 10 FTE direct funded scientific staff excluding PhD students. The data shows a consistent trend with slight variations across the years.
International scientific publications


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55. de Hert M, Dekker JM, Wood D, Kahl KG, Holt RJG, Moller HJ. Cardiovascular disease and diabetes in people with severe mental illness position statement from the European Psychiatric Association (EPA), supported by the European Association for the Study of Diabetes (EASD) and the European Society of Cardiology (ESC). European Psychiatry 2009; 24: 412-24.


136. Swinnen SGHA, Snoek FJ, Dain MP, DeVries JH, Hoekstra JBL, Holleman F. Rationale, design, and baseline data of the insulin glargine (Lantus) versus insulin detemir (Levemir) Treat-To-Target (L2T3) study: A multinational, randomized noninferiority trial of basal insulin initiation in type 2 diabetes. Diabetes Technology & Therapeutics 2009; 11: 739-43.


Cochrane reviews and protocols


Letters to the editor


National scientific publications


Books and proceedings


Other publications


Reports

MENTAL HEALTH

International scientific publications


42. Cuijpers P, Smits N, Donker T, Ten Have ML, de Graaf R. Screening for mood and anxiety disorders with the five-item, the three-item, and the two-item Mental Health Inventory. Psychiatry Research 2009; 168: 250-5.


44. Cuijpers P. Relaxation better than wait-list, minimal or no treatment for depression but not as good as psychological treatments. Evidence Based Mental Health 2009; 12: 76-7.


73. Ferreira MAR, Zhao ZZ, Thomsen SF, James M, Evans DM, Postmus PE, Kyvik KO, Backer V, Boomsma DI, Martin NG, Montgomery GW, Duffy DL. Association and interaction analyses of eight genes under asthma linkage peaks. Allergy 2009; 64: 1623-8.


141. Meynen G. Should or should not forensic psychiatrists think about free will? Medicine, Health Care and Philosophy 2009; 12: 203-12.


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1. Cuijpers P. Review: relaxation better than wait-list, minimal or no treatment for depression but not as good as psychological treatments. Evidence-Based Mental Health 2009; 12: 76-7.


National scientific publications


Books and proceedings


thirteen PUBLICATIONS


Other publications


Reports


QUALITY OF CARE

International scientific publications


72. van Nispen RMA, de Boer MR, Hoeijmakers JGJ, Ringens PJ, van Rens GHMB. Co-morbidity and visual acuity are risk factors for health-related quality of life decline: five-month follow-up EQ-5D data of visually impaired older patients. Health and Quality of Life Outcomes 2009; 7.

73. van Nispen RMA, de Boer MR, van Rens GHMB. Additional psychometric information and vision-specific questionnaires are available for age-related macular degeneration. Quality of Life Research 2009; 18: 65-9.


Letters to the editor


National scientific publications


Books and proceedings


other publications


Reports


**MUSCULOSKELETAL HEALTH**

International scientific publications


50. de Jong T, Heinrich J, Blatter BM, Anema JR, van der Beek AJ. The feasibility of a web-based counselling program for occupational physicians and employees on sick leave due to back or neck pain. BMC Medical Informatics and Decision Making 2009; 9: 46.


87. Proper Kl, Deeg DJH, van der Beek AJ. Challenges at work and financial rewards to stimulate longer workforce participation. Human Resources for Health 2009; 7: 70.


15. Welschen LMC, Bloemendal E, Nijpels G, Dekker JM, Heine RJ, Staalman WAB, Bouter LM. Self-monitoring of blood glucose in patients with type 2 diabetes who are not using insulin. Cochrane Database of Systematic Reviews 2005; CD005060.


Letters to the editor


National scientific publications


Books and proceedings


Other publications


**Reports**


ANNEX 1: ORGANIZATIONAL STRUCTURE EMGO+
EMGO+ has a direct management structure. Research is coordinated within four research programs, each managed by two program directors who advise the directorate on eligibility of studies, developments and performance of the four research programs. Within and across these programs themes and specific studies are initiated and led by senior researchers.

A directorate, consisting of a director and two vice-directors takes responsibility for the daily management of the institute, mandated by the board of deans of the participating faculties, and supported and advised by a management committee of department chairs. Additionally an external advisory committee of experts from outside EMGO+ advises the directorate on policy and research-related matters.

The science committee advises the directorate on eligibility of studies within EMGO+, the quality committee advises the directorate, program directors and all researchers on quality control and quality promotion concerning all aspects of scientific research. The PhD committee advises on all matters concerning PhD training.