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The EMGO Institute for Health and Care Research is going strong. In 2010 we had our external international evaluation according to the Standard Evaluation Protocol of the Royal Academy of the Arts and Sciences. The evaluation committee judged our performance, our viability and perspectives as excellent on all counts. Additionally, our epidemiology master education program EpidM was officially accredited in 2010. Furthermore, this annual report indicates that 2010 was even better than the evaluation period: we again published more scientific publications and acquired more research funding than in previous years.

Therefore, in this Annual Report with pride and pleasure we present the core information about who we are, what we do, what we strive for, and what we accomplished. 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.

Information about our institute’s inputs and outputs in terms of organization, projects, staff, grants, publications, citations, doctoral theses, societal impact, trends and so forth is readily available here at http://www.emgo.nl/annual-report/.

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
The EMGO Institute for Health and Care Research (EMGO+) is an 'interfaculty' research institute. It brings together researchers from departments of three faculties, i.e. from the VU University Medical Center, and the VU University faculties of Psychology and Education, and Earth and Life Sciences. The aim of the institute is to further improve public and occupational health, mental health, primary care, rehabilitation and long-term care, by means of trans-disciplinary research. This 2010 annual report shows that EMGO+ is doing well.

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 to encourage, initiate, conduct and publish excellent research of international standing to improve public and occupational health, primary care, rehabilitation and long-term care.

Objectives
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.
Our aim is thus to perform translational and trans-disciplinary research of both high scientific quality and societal relevance. Research projects carried out at EMGO+ mainly have health outcomes or health determinants as primary endpoints of interest. The research is embedded in four research programs that link to main burdens of disease in the Netherlands, as well as internationally:

- **1. Lifestyle, Overweight and Diabetes (LOD)**
- **2. Mental Health (MH)**
- **3. Quality of Care (QofC)**
- **4. Musculoskeletal Health (MSH)**

EMGO+ focuses on applied and strategic research involving issues that are relevant for public and occupational health, mental health, primary care, rehabilitation, and long-term care. Many studies are either executed within large population-based cohorts or in public health and extramural medical practice settings, such as general practices, nursing homes, in specialized mental health care organizations, homes for the elderly, schools, worksites, occupational health care settings and in outpatient services. These latter studies are often conducted within so-called Academic Collaborative Centers, i.e. formal collaborations between EMGO+ and the practice settings to conduct practice-based research of strong methodological rigor, in order to promote and enable evidence-based practice. Such studies include observational research and intervention studies.

**Operation**

EMGO+ is one of five research institutes primarily embedded within the VU University Medical Center (VUmc). 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**, 
- **4. Musculoskeletal Health**.

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. 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+ was evaluated for the 2004-2009 period, covering the institute's transition to its present interfaculty organization. EMGO+ was rated as excellent. The institute as a whole as well as our four research programs were all rated as 'excellent', i.e. we received the best possible score. The 2004-2009 self evaluation report with its annexes and the external evaluation report are all available via our website.

**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 is depicted in annex 2 of this report.
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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.
The aim of this guideline is the prevention of cardiovascular diseases (CVD), type 2 diabetes, and chronic kidney disease in potentially high-risk adults not previously diagnosed with hypertension, hypercholesterolemia, or the above-mentioned cardiometabolic diseases. The purpose of the guideline will be actively established by offering risk assessment together with treatment and (lifestyle) advices if indicated, embedded within primary health care. For identification of persons at high risk of cardiometabolic disease, a self-report questionnaire will be used. People with a risk score above threshold are advised to visit their general practitioner for measurement of height, weight, waist circumference, blood pressure, fasting glucose, cholesterol, and HDL-cholesterol. At a subsequent practice visit, the risk of CVD, type 2 diabetes, and chronic kidney disease and lifestyle behaviors will be evaluated. If indicated, the general practitioner will initiate treatment according to the guidelines of the Dutch College of General Practitioners.

In addition to helping consumers make healthier food choices, front-of-pack nutrition labels could encourage companies to reformulate existing products and develop new ones with a healthier product composition. This is the largest study to date to investigate the effect of a nutrition logo on healthier product development.

A total of 47 food manufacturers joining the Choices Foundation in the Netherlands (response: 39.5%) indicated whether their Choices products were newly developed, reformulated or already complied with the Choices criteria and provided nutrient composition data for their products (n = 821; 23.5% of the available Choices products in August 2009).

Most products carrying the logo as a result of reformulation and new product development were soups and snacks. Sodium reduction was the most common change found in processed meats, sandwiches, soups and sandwich fillings. Dietary fiber, saturated fatty acids and added sugar also showed positive changes.

The results indicate that the Choices logo has motivated food manufacturers to develop healthier products.
Two examples of societal impact

An example of high societal impact research is the project ‘Financial barriers and pricing strategies related to participation in sports activities: the perceptions of people of low income’ from Ingrid Steenhuis, Steffie Nooy, Machiel Moes and Albertine Schuit. This study was awarded with the 2010 EMGO+ societal impact award. The paper was published in the Journal of Physical Activity & Health 2009; 6:716-21.

Particularly for people with a low income, economic strategies seem promising to stimulate taking part in sports activities. This study investigated the importance of economic restraints for taking part in sports activities as well as perceptions of low-income people toward different pricing interventions. A qualitative study was conducted, using semi-structured, individual interviews with 27 low-income men and women. The framework approach was used to analyze the transcripts of the interviews. The respondents considered finances to be an important barrier for participating in sports activities, together with some individual barriers. Examples of promising pricing strategies are a discount on the subscription to the fitness or sports club, a one month free trial, and free entrance to the swimming pool once a week. Pricing strategies may be a promising intervention to increase physical activity levels of low-income people. However, this study indicates that this should be coupled with an intervention directed at individual barriers. Some pricing strategies will be used and appreciated more by low-income people than other pricing strategies. In addition, pricing strategies should be tailored to individual needs and preferences.

The study received much attention in the daily newspapers and Ingrid Steenhuis was able to present the results on several symposia and congresses.

Another example of a high societal impact study is the so-called ‘ENERGY-project’. The overall aim of the ENERGY-project is the development and formative evaluation of a school-based, family-involved intervention scheme to promote healthful energy balance-related behaviors (EBRBs) in school-aged children from countries located in different regions of Europe. The primary target group of the ENERGY-project is children aged 10-12, i.e. youth in the transition between childhood and adolescence. Secondary intermediate target groups are their parents and school staff.

So far, with the ENERGY-project different methods have been applied to inform the intervention development, including systematic reviews, focus group interviews, secondary analyses of existing data sets, as well as original survey research. The results of the qualitative and quantitative research were used to inform the development of the measurement instruments for the further original studies, and to inform the school-based, family-involved intervention development.

From April to July 2010 a large-scale cross-sectional study was conducted among more than 7,000 children and their parents in seven countries in Europe. Weight, EBRBs and potential determinants of these behaviors were assessed with the above-mentioned instruments.
LIFESTYLE, OVERWEIGHT AND DIABETES

These data will provide up-to-date prevalence rates of overweight, obesity and engagement in EBRBs among school-aged children in countries in different regions of Europe and significant personal, family-environmental and school-environmental correlates of these EBRBs will be identified.

Scientific output

Based on the publication and citation analysis of the Center for Science & Technology Studies (CWTS; the organization who conducts publication and citation analysis for the Dutch University Medical Centers and their research institutes) the CWTS crown indicator (i.e. the number of citations per publication divided by the average number of citations per publications in the relevant field, corrected for self-citations, 1997-2009) for the Lifestyle, Overweight and Diabetes program is 2.19.

Table 1: Total number and quality of publications in 2010

<table>
<thead>
<tr>
<th>Lifestyle, Overweight and Diabetes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific papers published in indexed(^1) journals</td>
<td>139</td>
</tr>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
<td>64%</td>
</tr>
<tr>
<td>Scientific papers published in non-indexed journals</td>
<td>15</td>
</tr>
<tr>
<td>Books and book chapters</td>
<td>15</td>
</tr>
<tr>
<td>PhD-theses</td>
<td>3</td>
</tr>
<tr>
<td>Conference papers</td>
<td>55</td>
</tr>
<tr>
<td>Professional publications</td>
<td>9</td>
</tr>
<tr>
<td>Publications aimed at the general public</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index
Table 2: Acquisition in 2010 (in k€) and the annual average in 2006-2010 per type of funding

<table>
<thead>
<tr>
<th>Lifestyle, Overweight and Diabetes</th>
<th>2010</th>
<th>Mean per year 2006-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Funding¹</td>
<td>3,717.0</td>
<td>1,968.0</td>
</tr>
<tr>
<td>Contract Funding²</td>
<td>2,200.5</td>
<td>1,801.6</td>
</tr>
<tr>
<td>Industry Funding³</td>
<td>170.0</td>
<td>320.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,087.4</strong></td>
<td><strong>4,090.3</strong></td>
</tr>
</tbody>
</table>

¹ Research Funding: are funds allocated by the Netherlands Organization for Scientific Research, the Netherlands Organization for Health Research and Development, and the European Commission.

² Contract Funding: are funds allocated by the so-called money-box funds (Dutch Heart Foundation, Dutch Diabetes Research Funds, Dutch Cancer Society, et cetera) as well as allocated grants directly from the government and government grants allocated through 'College voor Zorgverzekeringen'.

³ Industry Funding: are funds allocated by businesses, the pharmaceutical industries in particular and other additional smaller funds without a peer review procedure.
Human resources
On 31/12/2010, 16.28 FTE tenured staff and 29.63 non-tenured staff participated in the LOD research program. Administrative support for the program is 0.2 FTE.

Table 3: Research staff - Lifestyle, Overweight and Diabetes (in FTE)

<table>
<thead>
<tr>
<th>Lifestyle, Overweight and Diabetes</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured staff</td>
<td>13.20</td>
<td>12.60</td>
<td>14.44</td>
<td>13.35</td>
<td>16.28</td>
</tr>
<tr>
<td>Non-tenured staff</td>
<td>13.40</td>
<td>11.80</td>
<td>14.00</td>
<td>29.20</td>
<td>29.63</td>
</tr>
<tr>
<td>PhD-students</td>
<td>22.80</td>
<td>22.10</td>
<td>22.60</td>
<td>23.60</td>
<td>26.29</td>
</tr>
<tr>
<td>Total research staff</td>
<td>49.40</td>
<td>46.50</td>
<td>51.04</td>
<td>66.15</td>
<td>72.20</td>
</tr>
</tbody>
</table>
three

LIFESTYLE, OVERWEIGHT AND DIABETES

- Senior research staff and post docs*

M.C. Adriaanse, PhD
Ms. M.J. Alssema, PhD*
Ms. T.M. Altenburg, PhD*
B. van den Berg, PhD
Ms. M. Boorsma-Meerman, PhD
Ms. S.D.M. Bot, PhD*
Ms. I.A. Brouwer, PhD
Prof. J. Brug, PhD
Ms. J.M.M. Chin A Paw, PhD
Ms. Prof. J.M. Dekker, PhD
Ms. Prof. M. Diamant, MD, PhD
Ms. C.M. Doak, PhD
M.D. Dubbelman, PhD
Prof. R.J.B.J. Gemke, MD, PhD
Prof. R.J. Heine, MD, PhD
Ms. I.J.M. Hendriksen, PhD
Prof. R.A. Hira Sing, MD, PhD
Ms. J.G. Hugtenburg, PhD
Ms. W. IJzelenberg, PhD*
Prof. M.B. Katan, PhD
Ms. J.E. van Kist-Holthe tot Echten, MD, PhD
P.J. Kostense, PhD
Ms. M.L.A. de Kroon, MD, PhD
Ms. H.M. Kruizenga, PhD
Prof. W. van Mechelen, MD, PhD
Prof. M.G.A.A.M. Nijpels, Md, PhD
Ms. M.R. M. 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
Ms. M.B. Snijder, PhD*
Prof. F.J. Snoek, PhD
Ms. I.H.M. Steenhuis, PhD
T. Stocks, PhD*
Ms. M.M. van Stralen, 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
P.J.M. Weijs, PhD
Ms. L.M.C. Welschen, PhD*
Ms. H.A.H. Wijnhoven, PhD*
Ms. M. de Wit, PhD*
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 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 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 2010
An example project
RADAR: Research on Adolescent Development and Relationships
Hans Koot, Wim Meeus, Pol van Lier, Tom Frijns, Carlo Schuengel, Catruien Bijleveld, Lucres Jansen, Theo Doreleijers, Robert Vermeiren, Maja Dekovic and Marcel van Aken

The RADAR study is a population-based prospective cohort study in which adolescents are followed from age 13 to 22 years. The study was designed to identify mechanisms of influence from the family and peer context on adolescent normal and abnormal behavior development. RADAR focuses on five domains of development including (1) adolescent parent and peer relationships, (2) personality and identity, (3) psychopathology and delinquency, (4) substance use, and (5) academic achievement. RADAR has a full family approach. That is, 497 adolescents, both of their parents, a sibling and friend are part of the study, making the total study population at the first wave 2,293 participants. A dual screening phase (teacher screen, followed by parent interviews) was used to include the 497 families and friends in the study. Families are followed for consecutive years. Each year, four assessments, with a three month interval are conducted: one full family assessment, and three internet assessments. In the full family assessment, all family members and the friend participate. In the internet assessments the adolescent, his/her mother and friend fill out questionnaire data through internet during five consecutive days within one week. Outcome information is assessed at each time point (so with three month intervals). In addition to these domains of outcomes, in the full family assessment, reciprocal data on family relationships is collected for all family members. During the internet assessments, data on relationship quality is collected each day (5 consecutive days), allowing to test for between day variability in personal and relationship characteristics as influencing mechanism on adolescent development. The study is now in its 6th year and is expected to yield insight into mechanisms of development in psychologically and clinically relevant areas that may help developing context sensitive interventions.

A paper of importance

The importance of neuroticism for mental health care use and public health is well established. However, most research has focused on the association between neuroticism and a single specific disorder or health outcome, and the overall effect of neuroticism on use of somatic and mental health care and on society is not clear. We used cross-sectional data from a large representative sample of the Dutch general population (n = 5,504) to examine the economic costs of neuroticism to get an impression of the overall effect of neuroticism on mental health care and on society in general. The costs (health service uptake in primary and secondary mental health care, out-of-pocket costs, and production losses) were assessed and associated with neuroticism scores.
four

MENTAL HEALTH

The total per capita excess costs were $12,362 per year for the reference year 2007 in the 5% highest scorers of neuroticism, $8,243 in the 10% highest scorers, and $5,572 in the 25% highest scorers. The per capita excess costs of neuroticism are considerably higher than those of mental disorders such as depressive or anxiety disorders. The total excess costs of neuroticism per 1 million inhabitants resulting from the 25% highest scorers ($1,393 billion) were approximately 2.5 times as high as the excess costs of common mental disorders ($585 million). The economic costs of neuroticism are enormous and exceed those of common mental disorders. We should start thinking about interventions that focus not on each of the specific negative outcomes of neuroticism but rather on the starting point itself.

An example of societal impact

Since 2007, various persons involved in the EMGO+ Mental Health program have been involved in the development of multidisciplinary guidelines to be implemented in daily clinical practice. Psychiatrist and Professor in Evidence-based Practice in Psychiatry Anton van Balkom is chairing the Netherlands multidisciplinary guidelines committee on depressive disorder and anxiety disorders. The present treatment guidelines are being revised with respect to new scientific evidence for all disciplines that are confronted with patients with these common mental disorders. The committee includes psychiatrists, psychotherapists, general practitioners and psychiatric nurses. In 2010 the following parts of the guideline have been completed: depressive disorder, posttraumatic stress disorder, panic disorder and social anxiety disorder. Currently the guidelines committee is working on updating the guidelines on generalized anxiety disorder and hypochondriasis and will develop new guidelines on chronic depression, dysthymia and recurrent depression.
Scientific output

Table 4: Total number and quality of publications in 2010

<table>
<thead>
<tr>
<th>Mental Health</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific papers published in indexed(^1) journals</td>
<td>270</td>
</tr>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
<td>65%</td>
</tr>
<tr>
<td>Scientific papers published in non-indexed journals</td>
<td>42</td>
</tr>
<tr>
<td>Books and book chapters</td>
<td>62</td>
</tr>
<tr>
<td>PhD-theses</td>
<td>29</td>
</tr>
<tr>
<td>Conference papers</td>
<td>14</td>
</tr>
<tr>
<td>Professional publications</td>
<td>12</td>
</tr>
<tr>
<td>Publications aimed at the general public</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index

Table 5: Acquisition in 2010 (in k€) and the annual average in 2006-2010 per type of funding

| Mental Health
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2010</td>
<td>Mean per year 2006-2010</td>
</tr>
<tr>
<td>Research Funding(^1)</td>
<td>7,892.5</td>
<td>2,519.2</td>
<td></td>
</tr>
<tr>
<td>Contract Funding(^2)</td>
<td>3,399.4</td>
<td>2,677.6</td>
<td></td>
</tr>
<tr>
<td>Industry Funding(^3)</td>
<td>0.0</td>
<td>105.6</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11,291.9</td>
<td><strong>5,302.4</strong></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Research Funding: are funds allocated by the Netherlands Organization for Scientific Research, the Netherlands Organization for Health Research and Development, and the European Commission.

\(^2\) Contract Funding: are funds allocated by the so-called money-box funds (Dutch Heart Foundation, Dutch Diabetes Research Funds, Dutch Cancer Society, et cetera) as well as allocated grants directly from the government and government grants allocated through 'College voor Zorgverzekeringen'.

\(^3\) Industry Funding: are funds allocated by businesses, the pharmaceutical industries in particular and other additional smaller funds without a peer review procedure.
Human resources
On 31/12/2010, 22.66 FTE tenured staff and 28.74 FTE non-tenured staff participated in the MH research program. Administrative support for the program is 0.2 FTE.

Table 6: Research staff – Mental Health (in FTE)

<table>
<thead>
<tr>
<th>Mental Health</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured staff</td>
<td>13.00</td>
<td>11.90</td>
<td>9.93</td>
<td>16.31</td>
<td>22.66</td>
</tr>
<tr>
<td>Non-tenured staff</td>
<td>7.30</td>
<td>5.80</td>
<td>9.20</td>
<td>27.00</td>
<td>28.74</td>
</tr>
<tr>
<td>PhD-students</td>
<td>17.10</td>
<td>16.90</td>
<td>18.70</td>
<td>40.10</td>
<td>45.80</td>
</tr>
<tr>
<td>Total research staff</td>
<td>37.40</td>
<td>34.60</td>
<td>37.83</td>
<td>83.41</td>
<td>97.20</td>
</tr>
</tbody>
</table>
Senior research staff and post docs

- Prof. A.J.L.M. van Balkom, MD, PhD
- Ms. M. Bartels, PhD
- Prof. A.T.F. Beekman, MD, PhD
- S. Begeer, PhD
- Ms. C.E.M. van Beijsterveldt, PhD
- Ms. Prof. D.I. Boomsma, PhD
- Ms. J.E. Bosmans, PhD
- Ms. H.C. Comijs, PhD
- Prof. P. Cuijpers, PhD
- Prof. J. Dekker, PhD
- Ms. L. van Domburgh, PhD
- Prof. Th.A.H. Doreleijers, MD, PhD
- Ms. N. Draijer, PhD
- H.H.M. Draisma, PhD*
- Ms. Prof. R.M. Droës, PhD
- Prof. R. van Dyck, MD, PhD
- E. van Exel, MD, PhD
- Prof. M. van der Gaag, PhD
- Prof. E.J.C. de Geus, PhD
- S.M. Goldsztein, PhD*
- F.A. Goossens, PhD
- Prof. M. de Haan, MD, PhD
- Ms. J. Hatzmann, PhD*
- J.B. Hoeksmia, PhD
- Prof. A. Honig, PhD
- Ms. Prof. H.E. van der Horst, MD, PhD
- J.J. Hottenga, PhD*
- H.P.J. van Hout, PhD
- Ms. N. Jabben, PhD*
- C.G.C. Janssen, PhD
- Prof. C. Jonker, MD, PhD
- Ms. S. Kef, PhD
- Prof. A.J.F.M. Kerkhof, PhD
- Prof. J.M. Koot, PhD
- Prof. R. Kupka, PhD
- Ms. Prof. F. Lamers-Winkelman, PhD
- Ms. F.J.M. Lamers, PhD*
- Prof. P.A.C. van Lier, PhD
- Ms. C. Licht, PhD*
- Ms. E. Licht-Strunk, MD, PhD*
- H.W.J. van Marwijk, MD, PhD
- Ms. 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. M. van Nieuwenhuijzen, PhD
- T. Olothof, PhD
- Ms. M. Oosterman, PhD
- Ms. P.C. van Oppen, PhD
- Prof. B.W.J.H. Penninx, 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
- M. Stek, MD, PhD
- Ms. Prof. P.S. Sterkenburg, PhD
- B. Steunenberg, PhD*
- Ms. A. van Straten, PhD
- B. Terluin, MD, PhD
- Ms. Prof. I. Verdonck - de Leeuw, PhD
- Ms. N. Vogelzangs, PhD*
- Prof. R.R.J.M. Vermeiren, MD, PhD
- Ms. A.M. Willemen, PhD
- Ms. A.H.M. Willemsen, PhD
Daniëlle Timmermans

Bregje Onwuteaka-Philipsen
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 as 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 multidisciplinary 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.
QUALITY OF CARE

HIGHLIGHTS 2010

An example project
Trudy Klomp, Evelien Spelten, Monique Pereboom, Judith Manniën
Deliver study (http://www.deliver-studie.nl)

Much like the Netherlands Institute for Health Services Research (NIVEL)’s National Survey of general practice, the Deliver study is concerned with the organization and quality of care. Its aim is to survey and describe the current patterns of demand and service provision in midwifery in the Netherlands. The central questions that are addressed by Deliver are:

- What is the quality of the care provided by midwives?
- How is primary care midwifery organized?
- How accessible is midwifery care?

The Deliver study is a collaboration between the department of Midwifery Science, AVAG/EMGO+ and NIVEL. The data collection will take place over the course of a year. Data collection will involve professionals, practice personnel and clients. Various collection methods will be employed, including the extraction of National Midwifery Register data and pregnancy card data, questionnaires, interviews and video recording of discussions between midwives and their clients. In addition, the data collected will be used for PhD projects of which seven are in progress. The first results will be presented at a symposium for the 150th birthday of the Midwifery Academy in September 2011, in Amsterdam.

A paper of importance

Diagnostic errors often result in patient harm. Previous studies have shown that there is large variability in results in different medical specialties. The present study explored diagnostic adverse events (DAEs) across all medical specialties to determine their incidence and to gain insight into their causes and consequences by comparing them with other AE types.

A structured review study of 7,926 patient records was conducted. Randomly selected records were reviewed by trained physicians in 21 hospitals across the Netherlands. The method used in this study was based on the well-known protocol developed by the Harvard Medical Practice Study.
All AEs with diagnostic error as the main category were selected for analysis and were compared with other AE types. Results show that diagnostic AEs occurred in 0.4% of hospital admissions and represented 6.4% of all AEs. Of the DAEs, 83.3% were judged to be preventable. Human failure was identified as the main cause (96.3%), although organizational- and patient-related factors also contributed (25.0% and 30.0%, respectively). The consequences of DAEs were more severe (higher mortality rate) than for other AEs (29.1% vs. 7.4%). This paper concludes that diagnostic AEs represent an important error type, and the consequences of DAEs are severe. The causes of DAEs were mostly human, with the main causes being knowledge-based mistakes and information transfer problems. Prevention strategies should focus on training physicians and on the organization of knowledge and information transfer.

An example of societal impact
In September 2010 Rose-Marie Dröes, Professor of Psychosocial care for people with dementia affiliated to the department of Nursing Home Medicine, department of Psychiatry and the Alzheimer Center VUmc, was nominated for the ‘Senior Societal Impact Award’ of the VU University.

Dröes, movement scientist and psychogeriatric researcher, developed and investigated a movement activation program for people with dementia. When the program appeared to have positive effects on the behavior and mood of people with dementia, together with the Netherlands Organisation for Applied Scientific Research (TNO) and several colleague psychomotor therapists, she succeeded in disseminating the program in many homes for the elderly and nursing homes throughout the country. She also developed and investigated the effect of the Meeting Centers Support Program (MCSP), a combined intensive support program for community dwelling people with dementia and their carers, including a social club, informative meetings, peer groups and a weekly public consulting hour. The MCSP proved to have a significant surplus value on behavior and mood of people with dementia, the feeling of competence and burden of their carers and delay of admission into a nursing home. At present there are 66 meeting centers throughout the country in 2010 and another 24 in preparation. The MCSP was awarded several times and in 2010 even selected by Alzheimer’s Disease International and Fondation Médéric Alzheimer as second best evidence based psychosocial intervention. Publications of Dröes have been used in several policy reports and guidelines in the care for people with dementia.
Scientific output

Table 7: Total number and quality of publications in 2010

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific papers published in indexed(^1) journals</td>
<td>199</td>
</tr>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor</td>
<td>54%</td>
</tr>
<tr>
<td>for the relevant research field</td>
<td></td>
</tr>
<tr>
<td>Scientific papers published in non-indexed journals</td>
<td>76</td>
</tr>
<tr>
<td>Books and book chapters</td>
<td>47</td>
</tr>
<tr>
<td>PhD-theses</td>
<td>10</td>
</tr>
<tr>
<td>Conference papers</td>
<td>23</td>
</tr>
<tr>
<td>Professional publications</td>
<td>39</td>
</tr>
<tr>
<td>Publications aimed at the general public</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index

Table 8: Acquisition in 2010 (in k€) and the annual average in 2006-2010 per type of funding

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th>2010</th>
<th>Mean per year 2006-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Funding(^1)</td>
<td>4,489.2</td>
<td>2,179.7</td>
</tr>
<tr>
<td>Contract Funding(^2)</td>
<td>1,796.9</td>
<td>2,343.2</td>
</tr>
<tr>
<td>Industry Funding(^3)</td>
<td>267.1</td>
<td>72.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,553.2</strong></td>
<td><strong>4,595.3</strong></td>
</tr>
</tbody>
</table>

\(^1\) Research Funding: are funds allocated by the Netherlands Organization for Scientific Research, the Netherlands Organization for Health Research and Development, and the European Commission.

\(^2\) Contract Funding: are funds allocated by the so-called money-box funds (Dutch Heart Foundation, Dutch Diabetes Research Funds, Dutch Cancer Society, et cetera) as well as allocated grants directly from the government and government grants allocated through 'College voor Zorgverzekeringen'.

\(^3\) Industry Funding: are funds allocated by businesses, the pharmaceutical industries in particular and other additional smaller funds without a peer review procedure.
Human resources
On 31/12/2010, 19.30 FTE tenured staff and 27.53 FTE non-tenured staff participated in the QofC research program. Administrative support for the program is 0.2 FTE.

Table 9: Research staff – Quality of Care (in FTE)

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured staff</td>
<td>13.00</td>
<td>14.80</td>
<td>14.55</td>
<td>14.33</td>
<td>19.30</td>
</tr>
<tr>
<td>Non-tenured staff</td>
<td>19.30</td>
<td>22.20</td>
<td>22.80</td>
<td>23.00</td>
<td>27.53</td>
</tr>
<tr>
<td>PhD-students</td>
<td>12.60</td>
<td>12.80</td>
<td>15.00</td>
<td>19.59</td>
<td>19.95</td>
</tr>
<tr>
<td>Total research staff</td>
<td>44.90</td>
<td>49.80</td>
<td>52.35</td>
<td>56.92</td>
<td>66.78</td>
</tr>
</tbody>
</table>

Senior research staff and post docs*

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Prof. T.A. Abma, PhD</td>
</tr>
<tr>
<td>W.P. Achterberg, PhD</td>
</tr>
<tr>
<td>Ms. C.R.L. Boot, PhD</td>
</tr>
<tr>
<td>Prof. J. Brug, PhD</td>
</tr>
<tr>
<td>Ms. M.C. de Bruijne, PhD</td>
</tr>
<tr>
<td>H. Buiting, PhD*</td>
</tr>
<tr>
<td>Ms. A.M.W. Bulk, PhD</td>
</tr>
<tr>
<td>Ms. Prof. M.C. Cornel, MD, PhD</td>
</tr>
<tr>
<td>A. Crijnen, PhD</td>
</tr>
<tr>
<td>Ms. O.C. Damman, PhD*</td>
</tr>
<tr>
<td>Ms. Prof. D.J.H. Deeg, PhD</td>
</tr>
<tr>
<td>Prof. L. Deliens, PhD</td>
</tr>
<tr>
<td>Ms. M.F.I.A. Depla, PhD</td>
</tr>
<tr>
<td>Ms. M.G. Dik, PhD</td>
</tr>
<tr>
<td>Prof. R.M. Dröes, PhD</td>
</tr>
<tr>
<td>M.A. Echteld, PhD</td>
</tr>
<tr>
<td>Prof. J.A. Eefsting, MD, PhD</td>
</tr>
<tr>
<td>Prof. J.M. Festen, PhD</td>
</tr>
<tr>
<td>Ms. Prof. A.L. Francke, PhD</td>
</tr>
<tr>
<td>Ms. B.J.M. Frederiks, PhD, LLM</td>
</tr>
<tr>
<td>D.H.M. Frijters, PhD</td>
</tr>
<tr>
<td>E.L.J. George, PhD*</td>
</tr>
<tr>
<td>S.T. Goverts, PhD</td>
</tr>
<tr>
<td>G.L. van der Heijde, PhD</td>
</tr>
<tr>
<td>Ms. L. Henneman, PhD</td>
</tr>
<tr>
<td>Prof. C.M.P.M. Hertogh, MD, PhD</td>
</tr>
<tr>
<td>T. Hout gast, PhD</td>
</tr>
<tr>
<td>M. Huisman, PhD</td>
</tr>
<tr>
<td>Ms. Prof. E. Hutton, PhD</td>
</tr>
<tr>
<td>Ms. A.P.D. Jansen, PhD*</td>
</tr>
<tr>
<td>Ms. J. de Jonge, PhD</td>
</tr>
<tr>
<td>Prof. H.C.G. Kemper, PhD</td>
</tr>
<tr>
<td>T. Koelewijn, PhD*</td>
</tr>
<tr>
<td>Ms. S.E. Kramer, PhD</td>
</tr>
<tr>
<td>Prof. F.E. van Leeuwen, PhD</td>
</tr>
<tr>
<td>Prof. J. Legemaate, PhD, LLM</td>
</tr>
<tr>
<td>J. Lyzenga, PhD*</td>
</tr>
<tr>
<td>Ms. J. Mannien, PhD</td>
</tr>
<tr>
<td>P. Merkus, MD, PhD</td>
</tr>
<tr>
<td>Ms. F.J. Meiland, PhD</td>
</tr>
<tr>
<td>B.A.C. Molewijk, PhD</td>
</tr>
<tr>
<td>Ms. A.C. Moll, PhD</td>
</tr>
<tr>
<td>Ms. R. van Nispen, MD, PhD</td>
</tr>
<tr>
<td>Ms. Prof. B.D. Onwuteaka-Philipsen, PhD</td>
</tr>
<tr>
<td>J. Oudhoff, PhD*</td>
</tr>
<tr>
<td>Ms. H.R.W. Pasman, PhD</td>
</tr>
<tr>
<td>Ms. A.M.C. Plass, PhD</td>
</tr>
<tr>
<td>H.N. Plomp, PhD</td>
</tr>
<tr>
<td>Ms. Prof. B.C.P. Polak, MD, PhD</td>
</tr>
<tr>
<td>Prof. G.H.M.B. van Rens, MD, PhD</td>
</tr>
<tr>
<td>Prof. M.W. Ribbe, PhD</td>
</tr>
<tr>
<td>Prof. P.J. Ringens, MD, PhD</td>
</tr>
<tr>
<td>Ms. H.G. van der Roest, PhD*</td>
</tr>
<tr>
<td>Ms. M. Rurup, PhD*</td>
</tr>
<tr>
<td>T. Schellart, PhD, MBA</td>
</tr>
<tr>
<td>Prof. F. Schellevis, MD, PhD</td>
</tr>
<tr>
<td>M. Smallbrugge, PhD</td>
</tr>
<tr>
<td>Prof. T. Smid, PhD</td>
</tr>
<tr>
<td>J.C.M. Smits, PhD</td>
</tr>
<tr>
<td>Ms. J.T. van der Steen, PhD</td>
</tr>
<tr>
<td>Ms. Prof. D.R.M. Timmermans, PhD</td>
</tr>
<tr>
<td>E. Vermeulen, PhD*</td>
</tr>
<tr>
<td>M.S.M.G. Vlaming, PhD</td>
</tr>
<tr>
<td>H. de Vries, PhD</td>
</tr>
<tr>
<td>Ms. Prof. C. Wagner, PhD</td>
</tr>
<tr>
<td>Prof. G. van der Wal, MD, PhD</td>
</tr>
<tr>
<td>Ms. S. Weinreich, PhD</td>
</tr>
<tr>
<td>Prof. G.A.M. Widdershoven, PhD</td>
</tr>
<tr>
<td>Ms. A.A. Zekveld, PhD*</td>
</tr>
</tbody>
</table>
Maurits van Tulder

Allard van der Beek
Program directors: Prof. Allard van der Beek, 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 prevalence, incidence, etiology, prognosis, prevention and treatment of musculoskeletal disorders.

Specific research themes
1. **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.
2. **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.
3. **Research methodology.** This theme refers to methodological studies in the fields of epidemiology, clinimetrics, systematic reviews, economic evaluation, and prognostic models.

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:
1. Increase the number of submitted grant proposals.
2. Increase collaboration with more basic movement scientists to encourage joint projects.
3. Increase the program's societal impact and visibility.
4. Improve collaboration with ‘Reade’ (Rehabilitation Center Amsterdam and the Jan van Breemen Rheumatology Institute, which will join VU University Medical Center).
5. Further strengthen international collaboration.
six

MUSCULOSKELETAL HEALTH

HIGHLIGHTS 2010
An example project
Wieneke Mokkink, Caroline Terwee, Dirk Knol, Lex Bouter, Riekie de Vet.
COSMIN consensus-based standards for the selection of health status measurement instruments.

The COSMIN initiative aims to improve the selection of health measurement instruments. When selecting a measurement instrument, its measurement properties should be taken into account. The objective was to develop a checklist containing standards for appropriate design requirements and statistical methods, for evaluating the methodological quality of studies on the measurement properties of health measurement instruments. The resulting COSMIN checklist is a tool for assessing the methodological quality of studies on measurement properties, useful when selecting a measurement instrument, designing or reporting a study on measurement properties, or for educational purposes. Consensus on taxonomy, terminology, and definitions of measurement properties are important to improve the reporting and interpretation of studies on measurement properties and their reviews.

In a recent study the inter-rater reliability of the COSMIN checklist was investigated. Overall, the ICCs were low, while the percentage agreement was appropriate (i.e. above 80%) for two thirds of the items. When researchers use the checklist in a systematic review of measurement instruments, we recommend to complete the checklist by at least two independent raters, and to reach consensus on one final rating. This way the checklist’s reliability may be increased. Further information on COSMIN can be found at http://www.cosmin.nl.

A paper of importance
Ludeke Lambeek, Judith Bosmans, Barend van Royen, Maurits van Tulder, Willem van Mechelen, Han Anema.
Effect of integrated care for sick listed patients with chronic low back pain: economic evaluation alongside a randomized controlled trial. British Medical Journal. 2010;341:c6414.

Patients sick listed due to chronic low back pain in the integrated care program (n = 66) showed substantially reduced disability due to chronic low back pain compared to those receiving usual care (n = 68). The median duration until sustainable return to work was 88 days in the integrated care group and 208 days in the usual care group (p = 0.003). This economic evaluation, i.e. cost-effectiveness, cost-utility as well as cost-benefit from a societal perspective, showed that integrated care was cost-effective in comparison with usual care after 12 months. Both effect outcomes sustainable return to work and quality-adjusted life years significantly differed between the two groups. Total costs in the integrated care group were US$ 153,875 (SD 15,686) compared to US$ 22,278 (SD 16,419) in the usual care group. Productivity losses were the greatest contributor to total costs in both groups (89% in the integrated care and 93% in usual care, respectively). The cost-benefit analyses showed that every US$ invested in integrated care will return an estimated US$ 24. Thus, integrated care has a high potential to improve care for patients sick listed due to chronic low back pain and to reduce costs due to chronic low back pain for society and employers.
MUSCULOSKELETAL HEALTH

An example of societal impact
Reade – Center for Rehabilitation and Rheumatology has established the outpatient clinic for osteoarthritis. The Reade outpatient clinic is the direct result of research in collaboration with the MSH research program on neuromuscular factors and disability in osteoarthritis.

Osteoarthritis is a major health problem: it is among the top 10 of most disabling diseases in the European region. The prevalence of symptomatic osteoarthritis in the population of 60 years and older is 9.6% in men and 18.0% in women. The prevalence is rising rapidly, as a result of the ageing population.
Osteoarthritis patients are treated in primary care (general practitioner, physiotherapist, and dietician), with complex and advanced cases being referred to hospital based care (multidisciplinary care, rheumatologist, and orthopedic surgeon). There is a strong need for the services of this outpatient clinic at Reade since it provides: (i) expert diagnostic and treatment advice for clinicians in primary care, and (ii) multidisciplinary outpatient treatment for complex cases of osteoarthritis.
All patients referred to the outpatient clinic are also included in the Amsterdam Osteoarthritis cohort, which consists of a biobank and data on neuromuscular factors, pain, disability, and quality of life. This cohort provides exciting opportunities for further research.

Scientific output

Table 10: Total number and quality of publications in 2010

<table>
<thead>
<tr>
<th>Musculoskeletal Health</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific papers published in indexed(^1) journals</td>
<td>178</td>
</tr>
<tr>
<td>Proportion of publications in journals with a top quartile impact factor for the relevant research field</td>
<td>57%</td>
</tr>
<tr>
<td>Scientific papers published in non-indexed journals</td>
<td>24</td>
</tr>
<tr>
<td>Books and book chapters</td>
<td>7</td>
</tr>
<tr>
<td>PhD-theses</td>
<td>10</td>
</tr>
<tr>
<td>Conference papers</td>
<td>7</td>
</tr>
<tr>
<td>Professional publications</td>
<td>15</td>
</tr>
<tr>
<td>Publications aimed at the general public</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index
Table 11: Acquisition in 2010 (in k€) and the annual average in 2006-2010 per type of funding

<table>
<thead>
<tr>
<th>Musculoskeletal Health</th>
<th>2010</th>
<th>Mean per year 2006-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Funding¹</td>
<td>2,717.3</td>
<td>862.0</td>
</tr>
<tr>
<td>Contract Funding²</td>
<td>2,317.0</td>
<td>1,514.4</td>
</tr>
<tr>
<td>Industry Funding³</td>
<td>0.0</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,034.3</strong></td>
<td><strong>2,384.1</strong></td>
</tr>
</tbody>
</table>

¹ Research Funding: are funds allocated by the Netherlands Organization for Scientific Research, the Netherlands Organization for Health Research and Development, and the European Commission.

² Contract Funding: are funds allocated by the so-called money-box funds (Dutch Heart Foundation, Dutch Diabetes Research Funds, Dutch Cancer Society, et cetera) as well as allocated grants directly from the government and government grants allocated through 'College voor Zorgverzekeringen'.

³ Industry Funding: are funds allocated by businesses, the pharmaceutical industries in particular and other additional smaller funds without a peer review procedure.

Human resources

On 31/12/2010, 15.72 FTE tenured staff and 15.82 FTE non-tenured staff participated in the MSH research program. Administrative support for the program is 0.2 FTE.

Table 12: Research staff – Musculoskeletal Health (in FTE)

<table>
<thead>
<tr>
<th>Musculoskeletal Health</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured staff</td>
<td>9.80</td>
<td>9.20</td>
<td>13.24</td>
<td>10.89</td>
<td>15.72</td>
</tr>
<tr>
<td>Non-tenured staff</td>
<td>16.80</td>
<td>14.70</td>
<td>12.80</td>
<td>15.50</td>
<td>15.82</td>
</tr>
<tr>
<td>PhD-students</td>
<td>7.60</td>
<td>7.70</td>
<td>8.90</td>
<td>14.00</td>
<td>17.31</td>
</tr>
<tr>
<td><strong>Total research staff</strong></td>
<td><strong>34.20</strong></td>
<td><strong>31.60</strong></td>
<td><strong>34.94</strong></td>
<td><strong>40.39</strong></td>
<td><strong>48.85</strong></td>
</tr>
</tbody>
</table>
Senior research staff and post docs*

- J.R. Anema, MD, PhD
- Prof. J.G. Becher, MD, PhD
- Ms. H. Beckerman, PhD
- Prof. A.J. van der Beek, PhD
- Ms. A.H. Blankenstein, MD, PhD
- Ms. B.M. Blatter, PhD
- M. de Boer, PhD
- Ms. Prof. P.M. Bongers, PhD
- Ms. L. Buffart, PhD*
- Ms. A.J. Dallmeijer, PhD
- Prof. J. Dekker, PhD
- Ms. P.J.M. Elders, MD, PhD
- V. de Groot, MD, PhD
- M.W. Heymans, PhD
- V.H. Hildebrandt, PhD
- Ms. Prof. M. Hopman-Rock, PhD
- Ms. Prof. H.E. van der Horst, PhD
- Ms. M.A. Huysmans, PhD*

- Ms. E.S.M. de Klerk - de Lange, MD, PhD
- D.L. Knol, PhD
- Prof. P.Th.A.M. Lips, MD, PhD
- Prof. W. van Mechelen, MD, PhD
- R.W.J.G. Ostelo, PhD
- R.S.G.M. Perez, PhD
- S.M. Rubinstein, PhD*
- Ms. P.E.M. van Schie, PhD
- Ms. N.M. van Schoor, PhD*
- Prof. T. Smid, PhD
- Prof. W. Stalman, MD, PhD
- M.P.M. Steultjens, PhD
- Ms. C.B. Terwee, PhD
- Prof. M.W. van Tulder, PhD
- E.A.L.M. Verhagen, PhD
- Ms. Prof. H.C.W. de Vet, PhD
- Prof. G.J.J.M. Zwetsloot, PhD

*Senior research staff
Scientific output
In 2010 EMGO+ researchers co-authored 943 scientific publications; 786 were published in ISI indexed journals (table 13 and 14). A full list is printed on the final pages of this report. The number of publications in total and per 10 FTE direct funded research staff has again gone up in comparison to previous years (table 16).
The proportion of publications in the top scientific fields was also overall higher than in previous years (table 14).

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 (http://www.emgo.nl/about-emgo/scientific-achievements/).

In comparison with the other VUmc research institutes, EMGO+ has the highest scientific impact as indicated by CWTS’s crown indicator (table 19).

In 2010, 52 students defended their PhD theses. The total amount of €28.9M obtained in grant money in 2010 will help us to maintain our research activities in the years to come. Again, this total amount of grant money reached an all-time high.
Table 13: Total number of indexed\(^1\) and non-indexed scientific publications per research program and for the Institute

<table>
<thead>
<tr>
<th></th>
<th>LOD</th>
<th>MH</th>
<th>QofC</th>
<th>MSH</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of scientific papers published in indexed journals</td>
<td>139</td>
<td>270</td>
<td>199</td>
<td>178</td>
<td>786</td>
</tr>
<tr>
<td>Total number of scientific papers published in non-indexed journals</td>
<td>15</td>
<td>42</td>
<td>76</td>
<td>24</td>
<td>157</td>
</tr>
<tr>
<td>Total</td>
<td>154</td>
<td>312</td>
<td>275</td>
<td>202</td>
<td>943</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index

Table 14: Total number of publications in journals with a top quartile impact factor for the relevant research field in SCI or SSCI\(^1\)/total number of all indexed (international) publications (% of publication in top quartile journals) per research program

<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>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>
<tr>
<td>2010</td>
<td>89/139 (64%)</td>
<td>175/270 (65%)</td>
<td>107/199 (54%)</td>
<td>101/178 (57%)</td>
<td>472/786 (60%)</td>
</tr>
</tbody>
</table>

\(^1\) Indexed in the Science and/or Social Science Citation Index
Table 15: FTE total research staff, number of dissertations, international/indexed scientific publications and national/non-indexed scientific publications, 2006-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>Total research staff¹</th>
<th>Dissertations</th>
<th>International/indexed scientific publications²</th>
<th>National/non-indexed scientific publications³</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>2010</td>
<td>285.0</td>
<td>52</td>
<td>786</td>
<td>157</td>
</tr>
</tbody>
</table>

¹ Concerns all research staff (in FTE)
² Since 2010 only indexed scientific publications are listed
³ Since 2010 only non-indexed scientific publications are listed

Figure 1: FTE total research staff, number of dissertations, international/indexed scientific publications and national/non-indexed scientific publications, 2006-2010
Table 16: Number of dissertations and publications, 2006-2010 per 10 FTE direct funded research staff, excluding PhD students

<table>
<thead>
<tr>
<th>Year</th>
<th>DF research staff¹</th>
<th>Dissertations</th>
<th>International/indexed scientific publications²</th>
<th>National/non-indexed scientific publications³</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>2010</td>
<td>69.5</td>
<td>7.5</td>
<td>113.1</td>
<td>22.6</td>
</tr>
</tbody>
</table>

¹ Concerns the realized appointments with directly funded research formation and the additional research formation from VUMc departments participating in EMGO⁺

² Since 2010 only indexed scientific publications are listed

³ Since 2010 only non-indexed scientific publications are listed

Figure 2: Number of dissertations and publications, 2006-2010 per 10 FTE direct funded research staff, excluding PhD students
Table 17: Number of dissertations and publications, 2006-2010 per 10 FTE tenured, direct university funded research staff (DFRS)

<table>
<thead>
<tr>
<th>Year</th>
<th>DFRS (FTE)</th>
<th>Dissertations/10 FTE DFRS</th>
<th>International/indexed scientific publications/10 FTE DFRS</th>
<th>National/non-indexed scientific publications/10 FTE DFRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>49.0</td>
<td>9.2</td>
<td>93.3</td>
<td>21.2</td>
</tr>
<tr>
<td>2007</td>
<td>48.5</td>
<td>6.0</td>
<td>85.4</td>
<td>13.6</td>
</tr>
<tr>
<td>2008</td>
<td>50.5</td>
<td>7.1</td>
<td>88.5</td>
<td>15.5</td>
</tr>
<tr>
<td>2009</td>
<td>54.9</td>
<td>9.3</td>
<td>120.9</td>
<td>13.7</td>
</tr>
<tr>
<td>2010</td>
<td>55.4</td>
<td>9.4</td>
<td>142.0</td>
<td>28.4</td>
</tr>
</tbody>
</table>

1 DFRS = tenured, direct university funded research staff
2 Since 2010 only indexed scientific publications are listed
3 Since 2010 only non-indexed scientific publications are listed

Figure 3: Number of dissertations and publications, 2006-2010 per 10 FTE tenured, direct university funded research staff (DFRS)
### Table 18: Top 10 citation toppers of EMGO+ of articles published in 2005-2010

<table>
<thead>
<tr>
<th>Rank</th>
<th>Citation count</th>
<th>Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>177</td>
<td>Terwee CB, Bot SD, de Boer MR, van der Windt DA, Knol DL, Dekker J, Bouter LM, de Vet HC. Quality criteria were proposed for measurement properties of health status questionnaires. Journal of Clinical Epidemiology. 2007;60:34-42.</td>
</tr>
</tbody>
</table>


Note: this list contains articles published in 2005-2010 on projects embedded in the EMGO+ institute mentioned in any of the Annual Reports of which at least one of the authors is still working as a senior researcher at the EMGO+ institute. The top 10 articles with the highest citations, according to the (Social) Science Citation Index on 29 March 2011, are included in the table.

Table 19: CWTS crown indicator (trend analysis 1997-2009) per VUmc research institute

<table>
<thead>
<tr>
<th>Years</th>
<th>CCA-V-ICI</th>
<th>EMGO+</th>
<th>ICaR-VU</th>
<th>NCA</th>
<th>MOVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997-2009</td>
<td>1.60</td>
<td>1.86</td>
<td>1.41</td>
<td>1.76</td>
<td>1.56</td>
</tr>
</tbody>
</table>

Note: A crown indicator of 1.86 reflects that the scientific impact of EMGO+’s research is 86% above world average in the scientific fields that EMGO+ contributes to.

**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 2010 EMGO+ researchers worked on 61 clinical guidelines on various topics in the form of co-authorships. A detailed list of the clinical guidelines can be found on our website (http://www.emgo.nl/about-emgo/societal-impact/).

In 2010, EMGO+ staff was also involved as committee members or co-authors in the publication of 57 health policy reports on a great variety of topics. For a short overview of health policy reports, please be referred to http://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 2010, 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 56 interviews on national public radio were broadcasted. Interviews and articles about research projects and their results were published locally or nationally in more than 100 newspapers and 144 magazines and newsletters and on at least 130 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 http://www.emgo.nl/about-emgo/societal-impact/.

EMGO+ staff members sit on many boards and committees, of which a selection is also presented on http://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 http://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
Ten new professors were appointed in 2010:

- On April 1st 2010 Jan Smit, managing director of NESDA at the department of Psychiatry of VU University Medical Center, was appointed Professor of ‘Methodology of Longitudinal Psychiatric Research’.
- On April 26th 2010 Bregje Onwuteaka-Philipsen, program director of the research program ‘Quality of Care’ was appointed Professor in ‘End of Life Research’.
- Per August 1st 2010 Ralph Kupka was appointed as Professor of ‘Bipolar Disorder’. His chair is embedded within the department of Psychiatry of the VU University Medical Center and the EMGO+ Institute.
- Also on August 1st 2010 Eileen Hutton was appointed as Professor of ‘Midwifery Science’. This endowed chair is embedded at the Academie Verloskunde Amsterdam Groningen and the department of Midwifery Science.
- On August 23rd 2010 Han Anema, occupational and insurance physician and senior researcher at the department of Public and Occupational Health was appointed as Professor of ‘Social Medicine’, in particular the academic development of Occupational Medicine and Insurance Medicine.
- On September 1st 2010 Max Stek, director of the Academic Collaborative Center ‘Old Age Psychiatry’, was appointed as Professor in ‘Old age psychiatry’.
- On September 9th 2010 Tineke Abma and Guy Widdershoven held their inaugural addresses. Both professors are with the department of Medical Humanities and the EMGO+ Institute. Tineke Abma is Professor of ‘Client Participation in Elderly Care’ and research director at the department of Medical Humanities. Guy Widdershoven is professor of ‘Philosophy and Ethics of Medicine’ and head of the department of Medical Humanities.
- In November 2010 Ellen Kampman was appointed Professor of ‘Nutrition and Cancer’ at the department of Health Sciences and the EMGO+ Institute. This endowed chair was established on behalf of the Alpe D'Huzes foundation.
- On December 3rd 2010 Professor Pol van Lier held his inaugural address. Pol van Lier is Professor in ‘Developmental Psychology’ and his chair is embedded at the Faculty of Psychology and Education and the EMGO+ Institute.
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 two 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.

Six EMGO+ program fellowships were appointed in 2010 to:

- Laura Schaap, LOD, working at the department of Epidemiology and Biostatistics;
- Sander Begeer, MH, working at the department of Developmental Psychology and Special Education;
- Carmilla Licht, MH, working at the department of Psychiatry;
- Cécile Boot, QofC, working at the department of Public and Occupational Health;
- Ruth van Nispen, QofC, working at the department of Ophthalmology;
- Maaike Huysmans, MSH, working at the department of Public and Occupational Health.
An example of an EMGO+ fellowship: Dr. Cécile Boot, Quality of Care fellow

Having a chronic disorder has major consequences for participation in society. Not being able to participate in work, or social activities has unfavorable consequences for health. General practitioners and occupational physicians play a key role in improving societal participation of individuals with chronic disorders. Teams consisting of medical specialists have been developing care guidelines for each specific chronic disorder separately. Societal participation is often only a single paragraph in these guidelines. Similar to care, research regarding societal participation of individuals with a chronic disorder is mostly conducted per specific disorder. It is hypothesized that common processes play a role in improving societal participation for different chronic disorders. These common processes may be used as a starting point to improve quality of care for individuals with chronic disorders.

The overall aim of Cécile’s research is to investigate similarities and differences in predictors of societal participation for different chronic disorders. These similarities will be investigated from the scientific and patient perspective, by a combination of qualitative and quantitative research methods. This fellowship is imbedded in the department of Public and Occupational Health, the LASA department, and the department of Medical Humanities.
An autism spectrum disorder (abbreviated as ‘autism’ from here) is a lifelong neuro-developmental disorder affecting about 1% of the population. The disorder is known for its wide phenotypical variety. Poorly functioning individuals with autism, who depend on care and fail to develop a social life, exist alongside adequately functioning individuals with autism, who have successful careers and develop satisfactory social lives. Little is known about the underlying factors of this - IQ independent - variety in development.

The current project aims to delineate developmental trajectories of autism, and relate these to individual differences in psychosocial and demographic characteristics. Using two large existing datasets, we aim to (1) analyze the core social emotional problems, such as empathy, in various subgroups with autism (n = 450), (2) study the impact of individual characteristics on general functioning in a cohort of individuals with autism aged 0 to 85 (n = 2300), and (3) design a longitudinal study monitoring this cohort over a 6 year period. Due to the unprecedented sizes, we will be able to delineate trajectories and associated outcomes in autism subgroups, and test subsequent hypotheses longitudinally. The knowledge obtained from this study will optimize targeted treatment and assessment.
Personal Grants and Awards
In 2010 a number of EMGO+ colleagues have been able to obtain prestigious prizes or personal grants. A few examples are:

- Veni Grants (i.e. more junior fellowships from the Dutch NWO Innovation Research Incentive Scheme): Ank de Jonge, Marleen de Moor and Adriana Zekveld.
- Vidi Grant (i.e. NWO midcareer fellowship): Jenny van der Steen.
- Queen Wilhelmina Research Award from the Dutch Cancer Society: Floor van Leeuwen.
- 2010 citation award of the American College of Sports Medicine: Willem van Mechelen.
- Albert Reynold Travel Fellowship from the European Foundation for the Study of Diabetes (EFSD): Maartje van Stralen.

For the complete list of all personal grants, awards and prizes that EMGO+ researchers have received in 2010, please surf to our website http://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 three highlights in international collaboration in 2010.

- In 2010 EMGO+ was coordinator or workpackage leader in 12 European Commission funded projects.
- Researchers from the Mental Health program obtained €1.6 mln funding from the US National Institutes of Health.
- Approximately 60 percent of EMGO+ indexed scientific publications were co-authored by international colleagues.

More detailed lists of international collaboration per program can be found at http://www.emgo.nl/about-emgo/international-collaboration/.
EMGO+ was externally evaluated in 2010. The institute as well as its four research programs were rated as excellent. In its evaluation report, the committee was very positive about the Institute’s viability and future perspectives. This external evaluation covered the 2004-2009 period. In 2010, EMGO+’s output in terms of publications, PhD theses, and acquired research grants was again better than in 2009.

The external evaluation committee recommended to further rationalize and strengthen the Institute’s governance structure, and to promote cross program collaboration, as well as further strengthening the collaboration with more basic sciences, especially in the Musculoskeletal Health and Mental Health programs, and to further strengthen the focus in the Quality of Care program. These issues are indirectly covered in the 2011-2012 EMGO+ policy plan, so that the Institute’s performance can be maintained in the years to come.

EMGO+’s VU/VUmc campus collaboration with CCA/V-ICI, the Cancer and Immunology Institute, the Neuroscience Campus Amsterdam, the movement sciences institute MOVE and the cardiovascular disease research institute IcaR-VU will be further improved and formalized where and when needed.
DATA MANAGEMENT

Data management support is one of the EMGO+ crucial research facilities. At the start of EMGO+ in 2009, part of the funds to promote the new institute was invested in strengthening and coordinating data management, with particular attention to the large longitudinal cohort studies.

The main tasks and responsibilities of the central data management department within EMGO+:

- The development, maintenance and facilitating of an integrated data management infrastructure to promote and facilitate a standardized working method in every project.
- Data management consultancy to researchers and providing executive data management support when necessary in the areas of data collection, data processing, data-handling, data cleaning, data-documentation and data-archiving.
- Dedicated support for large (longitudinal) cohort studies within EMGO+.
- The organization of working meetings with decentral data managers to promote and exchange standards and best practices.

In 2010 a further step was made in the expansion of the data management infrastructure. In collaboration with the Knowledgecenter Measurement Instruments, an online database for frequently used research instruments was developed. This database will be operational in 2011. The development of a generic database for controlling and managing the dataflow in research projects has been completed. A system was built for the online registration of patient data through practices like general practitioners, therapists etc. participating in research projects. Also a new system for online questionnaires was implemented and supported.

Besides the development and facilitating of an infrastructure, the data management department is also available for various forms of executive or advisory service provision. These services are primary intended for EMGO+, but in some cases also available for researchers from other VUmc departments or external clients. Basic support and first instruction are free of charge, but more operational tasks are invoiced internally, and should therefore be covered by project funding.

In 2010 (funded) executive data management support, in the areas of data collection and data processing, was provided to about 40 research projects. Activities consisted of the design and creation of data entry and interview systems, databases for controlling and managing the dataflow in projects, setting up online questionnaires and research databases, the conversion and reorganization of files. Furthermore data management participated in the BROK course with the focus on Good Clinical Data Management Practices and twice a year an introductory course SPSS was given.
Additional support was made available to support the large EMGO+ cohort studies. The backlogs in proper data documentation of the Hoorn and AGGO cohorts were eliminated. For the Hoorn study also a tool was created to extract data, for research purposes, from a patient information system. Furthermore a new modern interview program for the LASA cohort was built replacing an obsolete program.

Since summer 2010 the data management department is part of the VUmc Division Office 6 and consisted on average of 5 FTE’s.

**STRENGTHS**

Datamanagement team: Guiselaine Capella, Marc Heuvelmans, Wim Kraan, Azar Lalmohamed, Maikel Eersel, Cees de Boer

**STANDING COMMITTEES**

**Science Committee**

In 2010 the members of the Science Committee were: Ingeborg Brouwer, PhD (chair), Cécile Boot, PhD (secretary), Marcel Adriaanse, PhD, Marjan Alssema, PhD, Ingrid Baart, PhD, Sander Begeer, PhD, Judith Bosmans, PhD, Annet Dallmeijer, PhD, Sophia Kramer, PhD, Piet Kostense, PhD, Natasja van Schoor, PhD, and Evert Verhagen, PhD. Secretarial support was provided by 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 EMGO+ research programs.

In 2010, advice was given on more than 120 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. In addition, approval of the EMGO+ Science Committee is required before evaluation of a project by the Medical Ethical Committee of the VU University Medical Center. A list of approved protocols in 2010 can be found on the website.

Part of EMGO+ intentions was to start a program to award program fellowships for further talent development and support within the institute. The program leaders 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.

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 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 and provides personal introductions to all newly appointed researchers within the institute. The Quality Committee consists of a representation of various professions, programs and departments of the institute. In 2010 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), Carry Renders, PhD, Esther van ’t Riet, MSc, Annemieke van Straten, PhD (Chair) and Agnes Willemen, PhD.

In 2010 the Quality Committee has audited 15 research projects. The quality officer has given 52 personal introductions for newly appointed investigators. A campaign was started to promote the proper handling of privacy sensitive data. A series of presentations on the audit results of 2009 was given for the different departments participating in the institute. Finally, the development of a web-based self evaluation for the EMGO+ researchers was started.
**PhD Committee**
The PhD Committee consists of four senior investigators and one PhD student. Mai Chin A Paw, PhD (senior staff), Prof. Pim Cuijpers, PhD (senior staff), Femke van Nassau, MSc (PhD student), Raymond Ostelo, PhD, (Chair) and Prof. Marjolein Visser, PhD (senior staff).

The central objective of the PhD Committee is to facilitate a high quality supervision of and education for the PhDs’ of the EMGO+ Institute in order to deliver excellent researchers.

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 2010 were (in alphabetical order): Prof. S. Buitendijk, PhD (Professor of Maternal Health and Midwifery at AMC, Professor of Maternal and Child Health at LUMC, Head Child Health Program at TNO), Prof. P.C. Huijgens, MD, PhD (Director CCA/V-ICI, VUmc), Prof. A. Knottnerus, MD, PhD (Chair of the Netherlands Health Council), M.N. Pieters, PhD (Director of the Public Health and Health Services Division, RIVM), 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).
VUmc Knowledgecenter Measurement Instruments

The Knowledgecenter Measurement Instruments (http://www.kmin-vumc.nl) is an infrastructure of experts in the field of clinimetrics (Caroline Terwee, PhD (coordinator), Prof. Riekie de Vet, PhD, Wieneke Mokkink, PhD, Raymond Ostelo, PhD; Prof. Joost Dekker, PhD), psychometrics (Dirk Knol, PhD), and medical informatics (Ilse Jansma, MSc, clinical librarian). The Knowledgecenter Measurement Instruments has been set up in January 2010. It is part of the department of Epidemiology and Biostatistics and embedded in the EMGO Institute for Health and Care Research.

The mission of the Knowledgecenter Measurement Instruments is to optimize the quality of measurement in health science and medical research by consultations, education, and research. For this purpose, the center gives advice and cooperates with researchers from different fields of health science and medical research in searching for available measurement instruments, examining the quality of the available measurement instruments, choosing the most appropriate measurement instrument for a certain purpose, and designing and performing studies on measurement properties of measurement instruments.

Consultations
The Knowledgecenter offers researchers tailored advice and support in searching for measurement instrument(s) and designing and performing studies on measurement properties of instruments. In 2010 58 researchers visited the center for advice and 77 researchers asked advice by e-mail.

Education
The Knowledgecenter gave three courses in Clinimetrics in 2010: two for researchers (one organized by EpidM and one in Norway), and one for master students of the VU. Two master classes were organized on ‘reliability’ and ‘Cronbach’s alpha’. A textbook has been written (“Measurement in Medicine”), which will be published in the summer of 2011.

Research
The Knowledgecenter performs research to optimize and develop new methodology in the field of measurement and validation of measurement instruments. The clinimetrics working group aims to improve the knowledge on clinimetrics by writing methodological articles on clinimetric issues and by performing methodological and applied clinimetric research. This group consists of 15 investigators, including PhD students, postdocs, and senior researchers from the various EMGO+ research programs.
They convene once a month to discuss clinimetric issues on the basis of own research, manuscripts in preparation, or methodological papers from the literature. Main research topics of interest are the methodology of systematic reviews of measurement instruments, methods to determine minimal important changes in patient reported outcomes, and the application of item response theory methods to improve health status measurement instruments.

In 2010 Wienke Mokkink completed her PhD thesis on the development of the Consensus-based Standards for the selection of health Measurement Instruments (COSMIN) checklist (http://www.cosmin.nl). The COSMIN checklist contains standards for the methodological quality of studies on measurement properties. Currently, five PhD students are working on clinimetric projects. In 2010, the Knowledgecenter published 28 clinimetric articles, including 4 systematic reviews of measurement properties.

Three scientific symposia were organized in 2010, in cooperation with the Dutch chapter of the International Society for Quality of Life Research (ISOQOL-NL), on the measurement of participation, grading the evidence in systematic reviews, and the interpretation of patient-reported outcomes. In addition, a workshop was given on systematic reviews of measurement properties at the Annual international ISOQOL meeting in London.
In 2010 the Knowledgecenter received three grants for starting new research; a grant from the Dutch Physiotherapy Association (€37,613) for the validation of the Dutch Neck Disability Index, a health care innovation voucher from AgentschapNL for a reliability study on the Timed Up and Go test (€3,229), and a grant from the Dutch Arthritis Association (€100,308) for translating a large US item bank (PROMIS) for measuring aspects of health status (http://www.nihpromis.org).

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. Measurements obtained from the same individual will induce 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.

EMGO+ is well known for their large longitudinal cohort studies that are conducted in the different research programs. Specific methodological expertise exists within EMGO+ 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://www.aggo.nl) 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, http://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). The NESDA study is described below.

Another major cohort study within EMGO+ is the Longitudinal Aging Study Amsterdam (LASA, http://www.lasa-vu.nl). The LASA-team, under Prof. 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, http://www.tweelingenregister.org) and the Amsterdam Born Children and their Development (ABCD, http://www.abcd-studie.nl) study are 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, http://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 three further main cohorts studies were started within the institute. The Advance Directive Cohort (ADC), consisting of people with one or more of the 4 most common advance directives in the Netherlands, aims at getting insight in motives and expectations underlying the completion of an advance directive, whether wishes concerning the end of life change over time, and the role of advance directives in situations in which they have become applicable.

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 Generations2 study (http://www.generaties2.nl) is a large study on the development of parenting and mental health. A cohort of 5,000 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 Generations2 project is an initiative from the department of Clinical Child and Family Studies.
### Longitudinal study

<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>ADC (Advance Directives Cohort)</td>
<td>Prof. Bregje Onwuteaka-Philipsen, PhD and Roeline Pasman, 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, Prof. J.C. Seidell, 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>
<tr>
<td>RADAR (Research on Adolescent Development and Relationships)</td>
<td>Prof. Hans Koot, PhD</td>
</tr>
</tbody>
</table>

### One example: Netherlands Study of Depression and Anxiety

The Netherlands Study of Depression and Anxiety (NESDA) is a longitudinal investigation into the course of depression and anxiety disorders. Inaugurated on December 1\textsuperscript{st}, 2003, and funded by a research grant from the GeestKracht program of the Netherlands Organization for Health Research and Development (ZonMw), NESDA is a cooperative effort of several national academic and non-academic institutes consisting of the VU University Medical Center (departments of General Practice, Psychiatry, and Clinical Psychology), the University Medical Center Groningen, and the Leiden University Medical Center, along with IQ Healthcare, the Netherlands Institute for Health Services Research (NIVEL), and the Dutch National Institute for Mental Health and Addiction (the Trimbos Institute). Also mental health care organizations (GGZ inGeest, GGZ Rivierduinen, Lentis, GGZ Drenthe, GGZ Friesland) participate in the NESDA consortium.

The main aim of NESDA is to describe the long-term prognosis and co-morbidity of anxiety and depression in order to improve quality of care and prevent chronicity. A second aim is to identify the most important demographic, psychosocial, clinical, biological, and genetic determinants of the long-term course of anxiety and depression. To address these aims, 2,981 respondents, aged 18-65 years, have been recruited between September 2004 and February 2007 from three settings: the general population, primary care practices and specialized mental health care practices.
The NESDA sample includes 1,701 persons with a current DSM-IV based depressive and/or anxiety disorder, 628 persons with remitted disorders, and 652 healthy controls without lifetime diagnoses. A total of 2,596 persons (87%) participated in the 2-year follow-up assessment. Currently, we are finalizing the 4-year follow-up assessment and have started the 6-year follow-up assessment.

The NESDA infrastructure has been shown to be fruitful for obtaining additional funding resources, such as VIDI grants to Prof. Brenda Penninx, PhD, Bernet Elzinga, PhD and Karin Roelofs, PhD, a VICI grant to Prof. Brenda Penninx, NIH grants for obtaining genome wide and gene expression data, and grants from e.g. the Netherlands Heart Foundation, the Hersenstichting and the Center for Medical Systems Biology (CMSB). In addition, the NESDA study has within the first 2 years of data availability already yielded >100 scientific publications. A total of 10 PhD-trajectories have been successfully finalized with the use of data from the NESDA study. Papers and theses cover a wide range of topics including the genetics of depressive disorder, the pathophysiology of depressive and anxiety disorders, brain imaging results for depressive and anxiety disorders, health care utilization and experienced needs, and the social consequences of depressive and anxiety disorders. The output so far mainly concerns cross-sectional results. The coming years we expect to report on further longitudinal results.
RESEARCH CENTERS AND ACADEMIC COLLABORATIVE CENTERS

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 21) and Academic Collaborative Centers (table 22). 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 2010 are all described on EMGO+’s website (http://www.emgo.nl/research/infrastructure/).

Table 21: EMGO+ Research Centers

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

Table 22: EMGO+ Academic Collaborative Centers

<table>
<thead>
<tr>
<th>Academic collaborative centers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Network Medical Practice for Frail Elderly (GeriMedica)</td>
<td>General practitioners, teachers and researchers work together to improve the quality of primary care concerning frail elderly.</td>
</tr>
<tr>
<td>Bipolar Disorders</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>Nine STRENGTHS</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></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 which 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>Insurance Medicine</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>KLM Health Services</strong></td>
<td>Improving work conditions, lifestyle and workers health.</td>
</tr>
<tr>
<td><strong>Network of General Practices</strong></td>
<td>Integrates scientific research, medical education, vocational training and innovation in general-practice care.</td>
</tr>
<tr>
<td><strong>University Network of Organizations for Elderly Care (UNO)</strong></td>
<td>(i) Improvement of patient care via consensus on assessment instruments, use of research outcome data, guideline implementation, exchange of best-practices and collegial peer-review and support among relevant professionals; (ii) participation in VUmc research projects and feedback on quality of care; and (iii) participation in education for medical students (VUmc-compas).</td>
</tr>
<tr>
<td><strong>Old Age Psychiatry</strong></td>
<td>Focuses 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>
Since 1989 the department of Epidemiology & Biostatistics organizes in co-operation with the EMGO+ institute a postgraduate epidemiology program called EpidM. The program includes a full Master of Science Program in Epidemiology and offers additional courses in epidemiological and advanced statistical methods. The theoretical part (27 EC) of the curriculum consists of six compulsory courses and three optional courses. The program also includes a scientific internship (33 EC).

The Master of Science 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 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.

A new revised curriculum of the program has started in January 2010. In December 2010 this program has been positively assessed by the Accreditation Organization of The Netherlands and Flanders (NVAO). NVAO independently ensures the quality of higher education in the Netherlands and Flanders by assessing and accrediting programs and contributes to enhancing this quality. This means that upon successful completion of the program students will receive a Master of Science degree.

In 2010 22 students successfully completed the ‘old’ curriculum of the Master’s Program in Epidemiology and 461 students attended one or more courses, resulting in a total of 630 course registrations. 23% of these students were employees of the EMGO+, 17% of the VU University Medical Center or an institute that participates in the research school CaRe and the remaining 60% 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 [http://www.epidm.nl](http://www.epidm.nl).
RESEARCH STAFF OF THE INSTITUTE

Table 23: Research staff of the institute, 2006-2010 (in FTE)

<table>
<thead>
<tr>
<th>EMGO+</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenured, direct university funded research staff (DFRS)</td>
<td>49.0</td>
<td>48.5</td>
<td>52.2</td>
<td>54.9</td>
<td>55.4</td>
</tr>
<tr>
<td>Tenured, externally funded research staff</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>18.5</td>
</tr>
<tr>
<td>Non-tenured staff</td>
<td>56.8</td>
<td>54.5</td>
<td>58.7</td>
<td>94.6</td>
<td>101.7</td>
</tr>
<tr>
<td>PhD-students</td>
<td>60.1</td>
<td>59.5</td>
<td>65.1</td>
<td>97.3</td>
<td>109.4</td>
</tr>
<tr>
<td>Total research staff</td>
<td>165.9</td>
<td>162.5</td>
<td>176.0</td>
<td>246.8</td>
<td>285.0</td>
</tr>
</tbody>
</table>

Table 24: Overview research staff per type of funding, 2006-2010 (FTE per year)

<table>
<thead>
<tr>
<th>Year</th>
<th>Research staff</th>
<th>Research staff</th>
<th>Research staff</th>
<th>Research staff</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct funding</td>
<td>Research funding</td>
<td>Contract funding</td>
<td>Industry funding</td>
<td>RF + CF + IF</td>
</tr>
<tr>
<td>2006</td>
<td>58.60</td>
<td>39.62</td>
<td>63.80</td>
<td>3.70</td>
<td>107.12</td>
</tr>
<tr>
<td>2007</td>
<td>57.61</td>
<td>34.98</td>
<td>64.38</td>
<td>5.43</td>
<td>104.79</td>
</tr>
<tr>
<td>2008</td>
<td>65.83</td>
<td>47.35</td>
<td>65.22</td>
<td>2.60</td>
<td>115.17</td>
</tr>
<tr>
<td>2009</td>
<td>73.21</td>
<td>66.38</td>
<td>91.12</td>
<td>9.79</td>
<td>167.29</td>
</tr>
<tr>
<td>2010</td>
<td>86.77</td>
<td>89.80</td>
<td>99.82</td>
<td>8.64</td>
<td>198.26</td>
</tr>
</tbody>
</table>

1 Concerns the yearly average of the direct funding realized formation within the guaranteed formation for the Institute, plus the additional research formation from the departments of General Practice, Nursing Home Medicine, Public and Occupational Health, and a part of the research formation from the departments of Nutrition and Dietetics, Audiology, Endocrinology, Pediatrics, Epidemiology and Biostatistics, Clinical Genetics, Medical Psychology, Ophthalmology, Psychiatry, Rehabilitation Medicine and the faculties of Earth and Life Sciences and Psychology and Education.

2 Research funding, contract funding and industry funding formation concerns the real appointments on acquired grants or at the expense of reserves until December 31st 2010.
FINANCIAL STATUS
EMGO+ has never in its history acquired more than the €28.9 million in 2010. The acquisition level in 2010 has reached this all-time high, partly due to 5 major grants:

- €1.5M – The Netherlands Organization for Health Research and Development – project Consortium Integrale Actie tegen overgewicht fase 2
- €1.3M – The Netherlands Organization for Health Research and Development – Academische Werkplaats Aanpak Kindermishandeling
- €1.6M – The Netherlands Organization for Health Research and Development – project StIDA (health care for persons with dementia)
- €1.6M – US National Institutes of Health – project Determinants of Adolescent Exercise Behavior: Towards Evidence-Based Intervention
- €1.1M - The Netherlands Organization for Health Research and Development – project TREFAMS ACE (TREatment of FAtigue in MS: Aerobic training, Cognitive behavioral therapy, Energy management)

Table 25: Acquisition of grants per year, 2006-2010 (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>
<tbody>
<tr>
<td>2006</td>
<td>6,464,743</td>
<td>2,445,581</td>
<td>4,786,891</td>
<td>40,975</td>
<td>7,273,447</td>
</tr>
<tr>
<td>2007</td>
<td>6,785,073</td>
<td>4,134,805</td>
<td>6,816,592</td>
<td>378,183</td>
<td>11,329,580</td>
</tr>
<tr>
<td>2008</td>
<td>7,256,214</td>
<td>3,564,580</td>
<td>8,593,411</td>
<td>404,109</td>
<td>12,562,100</td>
</tr>
<tr>
<td>2009</td>
<td>10,060,858</td>
<td>10,538,287</td>
<td>8,582,927</td>
<td>580,960</td>
<td>19,702,174</td>
</tr>
<tr>
<td>2010</td>
<td>9,813,318</td>
<td>18,815,942</td>
<td>9,713,825</td>
<td>437,078</td>
<td>28,966,845</td>
</tr>
</tbody>
</table>

Direct Funding  Is university funding.
Concerns the annual available budgets allocated by VU/VUmc.
To convert formation into money, we used:
- 1 FTE Research Staff: €102,700
  (in 2009 €102,700, 2008 €94,005, 2007 €90,666, 2006 €89,443)
- 1 FTE Support Staff: €55,272

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.
eleven

ADDITIONAL KEY INFORMATION

Figure 4: Direct funding and externally acquired funding per year, 2006-2010 (in €)

Table 26: Acquired external grants in 2010 per research program (in €)

<table>
<thead>
<tr>
<th>Research Program</th>
<th>Research Funding</th>
<th>Contract Funding</th>
<th>Industry Funding</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total LOD</td>
<td>3,716,977</td>
<td>2,200,517</td>
<td>169,953</td>
<td>6,087,447</td>
</tr>
<tr>
<td>Total MH</td>
<td>7,892,491</td>
<td>3,399,377</td>
<td>-</td>
<td>11,291,869</td>
</tr>
<tr>
<td>Total QofC</td>
<td>4,489,200</td>
<td>1,796,925</td>
<td>267,121</td>
<td>6,553,246</td>
</tr>
<tr>
<td>Total MSH</td>
<td>2,717,274</td>
<td>2,317,006</td>
<td>-</td>
<td>5,034,283</td>
</tr>
<tr>
<td>Total EMGO+</td>
<td>18,815,942</td>
<td>9,713,826</td>
<td>437,078</td>
<td>28,966,846</td>
</tr>
</tbody>
</table>
Muscles growing older
inflammatory markers and sex hormones
as determinants of sarcopenia
and decline in physical functioning

Laura A. Schaap
LIFESTYLE, OVERWEIGHT AND DIABETES

1. Sandvik C. Personal, social and environmental correlates of fruit and vegetable intake in European schoolchildren.; Promotor: Prof. dr. K.I. Klepp; Prof. dr. Ir. J. Brug). (Cat. D).

2. Schickenberg B. Towards strategies to stimulate first time trial of unfamiliar healthful food products; Promotor: Prof. dr. N.K. de Vries; Prof dr. ir. J. Brug; Co-promotor: P. van Assema). (Cat. D).

3. van Keulen HM. Development and evaluation of tailored print communication and telephone motivational interviewing to improve lifestyle behaviors among older adults; Promotor: Prof. dr. ir. J. Brug; Prof. dr. H. de Vries; Co-promotor: I. Mesters). (Cat. D).

MENTAL HEALTH

1. 't Hart-Kerkhoffs LA. Juvenile sex offenders: mental health and re-offending. (VU University Amsterdam; Promotor: Prof. dr. Th.A.J. Doreleijers; Prof. dr. R,R.J.M. Vermeiren). (Cat. A).

2. Anholt GE. Obsessive-compulsive disorder: spectrum theory and issues in measurement. (VU University Amsterdam; Promotor: Prof. dr. A.J.L.M. van Balkom; Co-promotor: Dr. P. van Oppen, Dr. C.D. Cath). (Cat. A).

3. Bakker T. Integrative reactivation and rehabilitation to reduce multiple psychiatric symptoms of psychogeriatric patients and caregiver burden; Promotor: Prof. dr. M.W. Ribbe; Prof. dr. A.T.F. Beekman; Co-promotor: Prof. dr. M.G.M. Olde Rikkert; Dr. R. Huijsman). (Cat. B).

4. Batelaan NM. Panic en public health: diagnosis, prognosis and consequences. (Trimbos Institute, VU Medical Center Amsterdam and GGZ inGeest; Promotor: Prof. dr. A.T.F. Beekman; Prof. dr. A,J.L.M. van Balkom; Co-promotor: Prof. dr. W. Vollebergh; Dr. R. de Graaf). (Cat. A).

5. Bruijn J. Quality of life and psychosocial functioning in childhood migraine; Promotor: Prof. W.F. Aarts; Prof. J. Passchier; Co-promotor: H.J. Duivenvoorden). (Cat. D).

6. de Niet JE. New approaches in obesity treatment; Promotor: Prof. J. Passchier; Prof. J. Laven; Co-promotor: R. Timman, C. de Klerk). (Cat. D).

7. de Vries ALC. Gender dysphoria in adolescents. Mental health and treatment evaluation. (VU University Amsterdam; Promotor: Prof. dr. P.T. Cohen-Kettenis; Prof. dr. Th.A.H. Doreleijers). (Cat. A).

8. de Wit L.M. A heavy mind, a heavy body? An epidemiological study in the association between mood disorders and body weight.; Promotor: Prof. P. Cuijpers; Prof. B. Penninx; Co-promotor: Dr. A. van Straten). (Cat. A).

9. Donker T. Low-intensity screening and treatment for common mental disorders. (VU University Amsterdam; Promotor: Prof.dr. P. Cuijpers; Prof.dr. I. Marks). (Cat. A).

10. Gerritsen L. Stress, the brain and cognition; Promotor: Prof. dr. Y. van der Graaf; Prof. dr. B.W.J.H. Penninx; Co-promotor: M.I. Geerlings; H.C. Comijs). (Cat. D).

11. Goedhart-Wolf de G. Perinatal health epidemiology in multi-ethnic Amsterdam: Psychobiological processes; Promotor: Prof. G.J. Bonsel; Prof P. Cuijpers; Co-promotor: Dr. M. van der Wal). (Cat. D).

12. Huisman A. Learning from suicides: towards an improved supervision procedure of suicides in mental health care in the Netherlands. (VU University Amsterdam and GGZ inGeest; Promotor: Prof.dr. A.J.F.M. Kerkhof; Prof.dr. P.B.M. Robben). (Cat. A).


14. Licht CMM. Autonomic nervous system functioning in major depression and anxiety disorders; Promotor: Prof. B.W.J.H. Penninx, PhD; Prof. J.C.N. de Geus, PhD; Co-promotor: Prof. R. van Dyck, PhD). (Cat. A).

15. Ligthart RSL. The genetics & comorbidity of migraine. (VU University Amsterdam; Promotor: Dr D. Nyholt). (Cat. A).

16. Maarsingh OR. Dizziness in older patients in general practice: a diagnostic challenge. (VU University; Promotor: Prof. dr. H.E. van der Graaf; Prof. dr. F.G. Schellevis; Co-promotor: Dr. H.C.P.M. van Weert). (Cat. A).


18. Meulenbeek PAM. Prevention and early intervention in panic disorder. The effectiveness of the 'don't panic' course; Promotor: Prof. dr. P. Cuijpers; Prof. dr. Ph. Spinhoven; Co-promotor: Prof. dr. A,J.L.M. van Balkom). (Cat. B).

19. Neumann A. Affect dysregulation and adolescent psychopathology in the family context. (VU University Amsterdam; Promotor: Prof.dr. J.M. Koot). (Cat. A).

20. Prins MA. Mental health care from the patient’s perspective. (Universiteit Utrecht; Promotor: Prof. J.M. Bensing, PhD; Prof. K. van der Meer, PhD; Prof. P.F.M. Verhaak, PhD). (Cat. D).

21. Reinders ME. Patient feedback in general practice training; Promotor: Prof. H.E. van der Horst, MD, PhD; Co-promotor: A.H. Blankenstein, PhD; H.W.J. van Marwijk, MD, PhD). (Cat. A).
22. Sauter F. The @school project: Developmental Considerations in the Design and Delivery of Cognitive-Behavioural Therapy for Adolescent School Refusal; Promotor: Prof.dr. P.M. Westenberg; Prof.dr. R.J.J.M. Vermeiren). (Cat. D).

23. Simonis-Bik AMC. Genetic influences on B-cell function. A Dutch twin-family study; Promotor: Prof. dr. M.H.H. Kramer; Prof. dr. J.C.N. de Geus; Co-promotor: Dr. E.M.W. Eekhoff). (Cat. A).


25. van ’t Veer-Tazelaar PJ. Prevention of depression and anxiety in older people; Promotor: Prof. H.E. van der Horst, MD, PhD; Prof. A.T.F. Beekman, MD, PhD; Co-promotor: H.W.J. van Marwijk, MD, PhD; P. van Oppen, PhD). (Cat. A).

26. van Baardewijk Y. Self-reported psychopathic traits and socio-emotional functioning in 9-12 year old children from the community; Promotor: Prof.dr. R.R.J.M. Vermeiren; Prof.dr. G.T.M. Stegge; Prof.dr. T.A.H. Doreleijers). (Cat. C).

27. Vogelzangs N. Depression & metabolic syndrome. (VU University Medical Center Amsterdam; Promotor: Prof.dr. B.W.J.H. Penninx; Prof. dr. A.T.F. Beekman). (Cat. A).


29. Warmerdam EH. Online treatment of adults with depression: clinical effects, economic evaluation, working mechanisms and predictors. (VU University Amsterdam; Promotor: Prof. dr. P. Cuijpers; Co-promotor: Dr. A. van Straten). (Cat. A).
QUALITY OF CARE

1. Berghout CC. A cohort study into the effectiveness of long-term psychoanalytic treatment for patients with personality disorders and/or chronic depression; Promotor: Prof. dr. J.T.V.M. de Jong; Co-promotor: Dr. D.J. Zevalkink). (Cat. B).
2. de Haas E. Exploring predictors of chemotherapy efficacy and toxicity in testicular cancer; Promotor: Prof.dr.J.A. Gietema; prof.dr. F.E. van Leeuwen; Co-promotor: D. Th. Sleijfer). (Cat. D).
4. Laban CJ. Dutch study Iraqi asylum seekers. Impact of a long asylum procedure on health and health related dimensions among Iraqi asylum seekers in the Netherlands; an epidemiological study; Promotor: Prof. dr. J.T.V.M. de Jong; Prof. dr. I.H. Komproe; Co-promotor: Dr. H.B.P.E. Gernaat). (Cat. B).
5. Marees T. Second primary malignancies and excess mortality after retinoblastoma; Promotor: Prof. F.E. van Leeuwen, MD, PhD; Prof. P.J. Ringens, MD, PhD; Co-promotor: A.C. Moll, PhD; Prof. S.M. Imhof, PhD). (Cat. A).
6. Meerhoff TJ. Respiratory syncytial virus. Improving surveillance and diagnostics in Europe; Promotor: Prof. dr. F.G. Schellevis; Prof. dr. J.L.L. Kimpen; Co-promotor: Dr. W.J. Paget). (Cat. B).
8. Peetsold MG. Long term results after repair of congenital diaphragmatic hernia and esophageal atresia; Promotor: Prof. dr. R.J.B.J. Gemke; Prof. dr. H.A. Heij). (Cat. A).
10. Schaap LA. Muscles growing older. Inflammatory markers and sex hormones as determinants of sarcopenia and decline in physical functioning. (VU University; Promotor: Prof.dr. M. Visser; Prof dr. D.J.H. Deeg; Co-promotor: Dr. S.M.F. Pluijm). (Cat. A).

MUSCULOSKELETAL HEALTH

3. Hupperets MDW. Preventing ankle sprain recurrence in sports; Promotor: Prof. W. van Mechelen, MD, PhD; Co-promotor: A.E.A.M. Verhagen, PhD). (Cat. A).
4. Lambeek LC. Return to work management for chronic low back pain; Promotor: Prof. W. van Mechelen, MD, PhD; Co-promotor: Prof. J.R. Anema, PhD; Prof. B.J. van Royen). (Cat. A).
5. Mokkink LB. COSMIN: Development and evaluation of a checklist to assess the methodological quality of studies on measurement properties. (VU University Amsterdam; Promotor: Prof. H.C.W. de Vet, PhD; Prof. L.M. Buter, PhD; Co-promotor: C.B. Terwee, PhD). (Cat. A).
6. Roelofs PDDM. Managing low back pain with lumbar supports and medication; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. B.W. Koes, PhD; Co-promotor: M.N.M. van Poppel, PhD; S.M.A. Bierma-Zeinstra, PhD). (Cat. B).
7. Sloots M. Drop-out from rehabilitation in non-native patients with chronic non-specific low back pain; Promotor: Prof.dr. J. Dekker; Prof.dr. J.H.B. Geertzen; Co-promotor: E. Bartels). (Cat. B).
8. Uegaki K. Economic evaluation of interventions for occupational health; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. M.W. van Tulder, PhD; Prof. A.J. van der Beek, PhD; Co-promotor: M.C. de Bruijne, PhD). (Cat. A).
9. van der Meer IM. Vitamin D deficiency in a multiethnic population; determinants, prevalence and consequences.; Promotor: Prof. dr. B.J.C. Middelkoop; Prof. dr. P.T.A.M. Lips; Co-promotor: Dr. A.J.P. Boeke). (Cat. B).
10. van Oostrom SH. Return to work for employees with distress; Promotor: Prof. W. van Mechelen, MD, PhD; Prof. H.C.W. de Vet, PhD; Co-promotor: J.R. Anema, PhD; B. Terluin, PhD). (Cat. A).

Cat A: dissertation at EMGO+, prepared at EMGO+ with an EMGO+ senior advisor
Cat B: dissertation at EMGO+, prepared externally with an EMGO+ senior advisor
Cat C: external dissertation, prepared at EMGO+ with an EMGO+ senior advisor
Cat D: external dissertation, prepared externally with an EMGO+ senior advisor
LIFESTYLE, OVERWEIGHT AND DIABETES

Scientific Publications - Indexed


3. Ahmad A, Hugtenburg J, Welschen LMC, Dekker JM, Nijpels G. Effect of medication review and cognitive behaviour treatment by community pharmacists of patients discharged from the hospital on drug related problems and compliance: design of a randomized controlled trial. BMC Public Health 2010; 10.


112. van Keulen HM, Mesters I, van Mechelen W, de Vries H. Single-item and multiple-item measures of adherence to public health behavior guidelines were incongruent. Journal of Clinical Epidemiology 2010; 63: 75-84.


Scientific Publications - Non-Indexed


9. Ridder MAM, Heuvelmans MA, Visscher TLS, Seidell JC, Renders CM. We are healthy so we can behave unhealthily - a qualitative study of health behaviour of Dutch lower vocational students. Health Education 2010; 110: 30-42.


Books and book chapters


Professional Publications


Popular Publications

thirteen

PUBLICATIONS

MENTAL HEALTH

Scientific Publications - Indexed


13

thirteen

PUBLICATIONS


PUBLICATIONS


231. van Nispen RMA, Knol DL, Mokkink LB, Comijs HC, Deeg DJH, van Rens GHMB. Vision-related quality of life Core Measure (VCM1) showed low-impact differential item functioning between groups with different administration modes. Journal of Clinical Epidemiology 2010; 63: 1232-41.


Scientific Publications - Non-Indexed


11. Donker T. Online behandeling voor depressie, stress en angst: rol van begeleiding. Psychopraktijk 2010; -


Books and book chapters


Professional Publications


5. Mierlo L, Meiland FJM, Dröes RM. Dementelcoach: effect of telephone coaching on family carers of community dwelling people with dementia. 2010. Amsterdam, Department of Psychiatry.


Popular Publications

-
QUALITY OF CARE

Scientific Publications - Indexed


22. Bruijning JE, van Nispen RMA, Verstraten P, van Rens GHMB. A Dutch ICF version of the Activity Inventory: results from focus groups with visually impaired persons and experts. Ophthalmic Epidemiology 2011; 17: 366-77.


84. Howard HC, Knoppers BM, Borry P. Blurring lines the research activities of direct-to-consumer genetic testing companies raise questions about consumers as research subjects. Embo Reports 2010; 11: 579-82.


104. Maarsingh OR, Dros J, Schellevis FG, van Weert HC, Bindels PJ, van der Horst HE. Dizziness reported by elderly patients in family practice: prevalence, incidence, and clinical characteristics. BMC Family Practice 2010; 11.


<table>
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<th>No.</th>
<th>Author(s)</th>
<th>Title</th>
<th>Journal</th>
<th>Volume</th>
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<tr>
<td>127</td>
<td>Onwuteaka-Philipsen BD, Rurup ML, Pasman HRW, van der Heide A.</td>
<td>The last phase of life who requests and who receives euthanasia or physician-assisted suicide?</td>
<td>Medical Care</td>
<td>48</td>
<td>596-603.</td>
</tr>
</tbody>
</table>


Scientific Publications - Non-Indexed


8. Buiting HM, van der Heide A, Ouwuteaka-Philipsen BD. No increase in demand for euthanasia following implementation of the euthanasia act in the Netherlands: pain as a reason for euthanasia request was increasing before implementation but declined subsequently. Evidence-based medicine 2010; 15: 159-60.


27. Frederiks BJM. Vrijheid en verantwoordelijkheid. GGZ en recht 2010; 142-3.


38. Legemaate J. Goed omgaan met klachten van patiënten. Tijdschrift voor Conflictantering 2010; 10-3.


Books and book chapters


thirteen PUBLICATIONS


Professional Publications


22. Manniën J, de Jonge A. Structureel wetenschappelijk onderzoek naar eerstelijns verloskunde (Department of Midwifery Science). CaRRe Bulletin Netherlands School of Primary Care Research 2010; 54: 11-5.

thirteen


Popular Publications


thirteen PUBLICATIONS

MUSCULOSKELETAL HEALTH

Scientific Publications - Indexed


30. de Vet HCW, Terwee CB. The minimal detectable change should not replace the minimal important difference. Journal of Clinical Epidemiology 2010; 63: 804-5.


36. Demoulin C, Ostelo RWJG, Knotternus JA, Smeets RJE. Quebec back pain disability scale was responsive and showed reasonable interpretability after a multidisciplinary treatment. Journal of Clinical Epidemiology 2010; 63: 1249-55.


39. Driessen MT, Groenewoud K, Proper KL, Anema JR, Bongers PM, van der Beek AJ. What are possible barriers and facilitators to implementation of a participatory ergonomics programme? Implementation Science 2010; 5: 64.


thirteen PUBLICATIONS


<table>
<thead>
<tr>
<th>Publication Number</th>
<th>Title</th>
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</table>


Scientific Publications - Non-Indexed


5. de Leeuw MA, Perez RSGM, Zuurmond WWA. Posterior lumbar plexus block in postoperative analgesia for total hip arthroplasty. A comparative study between 0.5% Bupivacaine with Epinephrine and 0.5% Ropivacaine. Revista Brasileira de Anestesiologia 2010; 60: 215-6.


Professional Publications


5. Hendriksen IJM, Bernaards CM, Hildebrandt VH. Lichamelijke inactiviteit en sedentair gedrag in de Nederlandse bevolking. Hildebrandt VH, Chorus AMJ, and Stubbe JH. 2011; 39-56. TNO.


11. Hopman-Rock M. A call to walk the talk despite proven benefits, walking remains an underprescribed and underused activity for seniors. Active Aging Today 2010; 2.

Popular Publications
ANNEX 1: ORGANIZATIONAL STRUCTURE EMGO+

**Board of Deans**
- Deans of participating faculties.
- Chair: Prof. W.A.B. Stalman, MD, PhD

**Management Team**
- Director: Prof. J. Brug, PhD
- Vice-directors: Prof. W. van Mechelen, MD, PhD, Prof. P. Cuijpers, PhD

**Management Committee**
- Department heads of:
  - Biological Psychology
  - Clinical Psychology
  - Epidemiology & Biostatistics
  - General Practice
  - Health Science
  - Nursing Home Medicine
  - Psychiatry
  - Public and Occupational Health
  - Rehabilitation Medicine
  - Special Education

**Support Staff**
- 1. Policy
- 2. Financial
- 3. Data management
- 4. Secretary

**Science Committee**
- Chair and 10 members
- Committee secretary

**Quality Committee**
- Chair and 8-10 members
- Quality Manager and Secretary

**PhD Committee**
- Chair and 2-4 members

**External Advisory Committee**
- Chair and 6 members

**Program Directors**

<table>
<thead>
<tr>
<th>Department, Overweight and Diabetes</th>
<th>Mental Health</th>
<th>Quality of Care</th>
<th>Musculoskeletal Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological Psychology</td>
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<tr>
<td>Epidemiology &amp; Biostatistics</td>
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<td>General Practice</td>
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<tr>
<td>Health Sciences</td>
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<td>Nursing Home Medicine</td>
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<td>Nutrition and Dietetics</td>
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<tr>
<td>Ophthalmology and Oto(rhino)laryngology</td>
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<tr>
<td>Paediatrics</td>
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<tr>
<td>Other</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5: 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.
ANNEX 2: SWOT ANALYSIS EMGO+

<table>
<thead>
<tr>
<th>SWOT analysis</th>
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<tbody>
<tr>
<td><strong>Strengths</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Staff | - Talented and highly motivated investigators;  
- Multi-disciplinary staff resulting in trans-disciplinary collaboration;  
- Methodological expertise;  
- Strong link with master programs in Health Sciences and Psychology, and a research master program in Lifestyle & Chronic Disease, from which PhD candidates are and can be recruited. |
| Governance | - Strong research program leaders and research theme initiators;  
- Clear leading role for research institutes in defining and implementing research policy, strategy and operations within VU University Medical Center. |
| Output | - Large scientific output in terms of peer reviewed scientific papers, PhD theses, external research funding;  
- High scientific quality in terms of citation indices; Strong societal relevance and significant societal impact. |
| Research themes | - Focus on important and emerging research themes and target populations (mental health, musculoskeletal health, obesity & diabetes; youth, workforce/employees, elderly);  
- Direct link to two of the five main focus themes of the VU University Medical Center, i.e. ‘trans and extra mural health care’ and ‘physical activity’, and strong bonds with the other main themes, especially ‘Brain’ (Neurosciences) and ‘Cancer & immunology’. |
| Infrastructure | - A series of ongoing large cohort studies, some of which are long-running, some of which have recently been established;  
- Established quality control and promotion system;  
- Well-organized data-management infrastructure;  
- Good methodology and statistics support;  
- Several formal and established academic collaborative centers, i.e. ‘workplaces’ where research and practice meet. |
| Funding | - University funding for a substantial proportion of senior research staff;  
- Continuous acquisition success from a range of funding sources. |
| Other | - Strong national reputation of the institute;  
- Strong international reputation of different specific groups and research themes within the institute, and within each of the research programs. |
| **Weaknesses** |  |
| Staff | - Small international staff and relatively few international PhD students;  
- Suboptimal number of staff that have acquired highly prestigious personal grants and fellowships, such as from the Netherlands Organization for Scientific Research (NWO) Innovation Research Incentives Scheme (‘vernieuwingsimpuls’) or the European Commission’s ERC program. Growth is however apparent in recent years. |
| Governance | - To date an unclear division of roles between research institutes and faculties in defining and implementing research policy, strategy and operations. |
**ANNEX 2: SWOT ANALYSIS EMGO**

<table>
<thead>
<tr>
<th>Infrastructure</th>
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<tbody>
<tr>
<td>- Lack of sufficient structural university funding for datamanagement, especially as related to continuation of the large cohort studies;</td>
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<tr>
<td>- Differences in funding, administrative and IT systems between the VU University Medical Center and the VU university faculties.</td>
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<thead>
<tr>
<th>Funding</th>
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<tbody>
<tr>
<td>- Strong dependency on external funding.</td>
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<tr>
<td>- Sub-optimal level of European Commission and other international funding.</td>
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<tr>
<th>Other</th>
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<tbody>
<tr>
<td>- Low attention and support for true internationalization on the VU/VU University Medical Center campus;</td>
</tr>
<tr>
<td>- Lack of formal collaboration agreements with excellent institutes internationally.</td>
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### Opportunities

<table>
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<tr>
<th>Staff</th>
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<tr>
<td>- Use fellowships, the track record and expertise of successful EMGO+ partners and university support system to further maintain and improve success in obtaining personal grants such as within the Innovation Research Incentive Scheme (‘vernieuwingsimpuls’) of ZonMW or ERC starting grants;</td>
</tr>
<tr>
<td>- Use strong and extensive international contacts that provide opportunities for acquiring international funding and establishing more formal international collaborations;</td>
</tr>
<tr>
<td>- Use (International Research) masters program in health sciences and psychology are good sources for scouting talent for PhD candidates.</td>
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<tr>
<th>Governance</th>
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<tbody>
<tr>
<td>- Active and financial support from the three faculties who participate in EMGO+;</td>
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<tr>
<td>- Growing role of interfaculty research institutes in shaping and implementing research policy and practice on the VU University Campus.</td>
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<tr>
<th>Output</th>
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<tr>
<td>- Quality of research provide opportunities for continuous publications in highest ranking journals in the relevant fields.</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>- Demand for evidence-based primary care and public health, including occupational health;</td>
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<tr>
<td>- International interest in general practitioners as gate-keepers to the healthcare system;</td>
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<tr>
<td>- Increasing focus and funding opportunities on youth health promotion and care;</td>
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<tr>
<td>- Aging populations in most countries including the Netherlands; research regarding prevention and care for the elderly is of growing priority;</td>
</tr>
<tr>
<td>- (still) Growing attention for obesity, physical inactivity and mental health problems as main determinants of burden of disease;</td>
</tr>
<tr>
<td>- Good opportunities for further collaboration with other research institutes on the VU/VUmc campus:</td>
</tr>
<tr>
<td>- CCA/V-ICI (the VUmc Cancer and Immunology Research Institute in cancer rehabilitation and end of life research within the Quality of Care program);</td>
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<tr>
<td>- MOVE (the VUmc/VU interfaculty Movement Sciences research institute) in musculoskeletal health research;</td>
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<tr>
<td>- NCA (the Neurosciences Campus Amsterdam, i.e. the VUmc/VU interfaculty neurosciences research institute) in the Mental Health program.</td>
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</tbody>
</table>
## ANNEX 2: SWOT ANALYSIS EMGO+

**Infrastructure**
- Formal and financial support on the VU/VU University Medical Center’s campus, including from the Board of the VU and VUMc for transdisciplinary research and interfaculty research institutes;
- Recently established support from VU University Medical Center for improvement of research infrastructure, including research project management, data-management and bio banking.

**Funding**
- Improved support for and possible opportunities to obtain European Commission funding, based on initial and growing success and ongoing improvements in acquisition support infrastructure.

**Other**
- Strong international networks of research staff provide good opportunities for further internationalization.

### Threats

**Staff**
- Growing success in acquisition of external research funds depends on stable and in some years even somewhat reduced permanent university-funded staff;
- Lack of opportunities for talented junior staff/post docs to get tenure.

**Output**
- Funding agencies focus more and more on implementation instead of 'true' research, making acquisition for research purposes more difficult;
- Strong and still growing competition in the field.

**Research themes**
- Dependency on research programming of external funding agencies.

**Infrastructure**
- The size of the institute and its acquisition success puts high demands on important quality assurance and promotion systems such as:
  - The quality committee
  - The scientific committee
  - Datamanagement support
  - Biostatistical support
  - Management team and program leaders
- The fact that different groups within the institute are located in different buildings hinders more intensive collaboration, and developing a true joint 'culture'.

**Funding**
- Decreases in university funding because of budget cuts because of the present national and international economic situation;
- Decreasing availability of external funding because of the same reason;
- Funding agencies appear to become more focused on fast results, implementation, and economic valorisation and relevance in stead of 'mere' or 'true' research.

**Other**
- The growth of the institute over the last decade, and further because of the formation of EMGO+, as well as requests from other research institutes, makes fruitful collaboration and communication to ensure full and efficient use of expertise challenging.