

**Karolinska
Institutet**



Aging Research Center

**Stockholm
University**



Activity Report

Year 2003

IN COLLABORATION
WITH



*Gerontology
Research Center*

Activity Report compiled by:

Eva von Strauss

Stockholm, February 2004

Introduction

The center was established in the year 2000 thanks to the initiative of The Swedish Council for Working Life and Social Research (FAS) that announced a call for applications to promote multidisciplinary centers focused on aging research. FAS supplies the basic economical support equally matched by Karolinska Institutet (KI) and Stockholm University (SU) for a first three-year period followed by a second triennium after a scientific evaluation.

Organisation

ARC is a multidisciplinary center in which both the medical university KI and SU are collaborating, as reflected by the board members. The administration of the center is placed at the Division of Geriatric Epidemiology, Department of Neurotec, KI.

ARC is led by a board, whose members are elected every three years. The new board was installed in September 2003 with most of previous members still remaining in their positions. Three members left their positions: *Sigbritt Werner*, *Stig Berg* and *Anna-Karin Jönsson*. New members are: *Maria G Masucci*, Vice Dean of Research, KI, *Boo Johansson*, Professor at Göteborg University, and *Karin Rehnblad* from Luppens Kunskapscentrum, Jönköping (see ARC Board, page 4).

ARC is organised into three units: geriatric medicine, psychology, and social gerontology. Each unit has two seniors (a professor and a lecturer) who are financed by the basic grant from FAS. Post docs, Phd students and other staff are financed by KI, SU, Äldrecentrum, or through other research grants (see personnel, page 5).

New positions at ARC

During 2003 the last two positions were filled in social gerontology: one professor, *Mats Thorslund*, and one lecturer, *Marti Parker*. *Sofia Österman* obtained the position as university secretary and will replace *Helene Hægglund* when she retires in April 2004.

Collaboration with ISAL

During the year there have been two meetings where ARC and the Institute for the Study of Ageing and Later Life (ISAL) have been discussing future activities for the two centers to create a closer connection between education and research. On February 12 five representatives from ARC visited ISAL at the Norrköping campus, and on April 24 five representatives from ISAL came to visit ARC.

Tentative plans for a conference/seminar/workshop were outlined, with the objective to provide a forum for the post-docs financed by FAS to present their work, and for doctoral students from both institutions to present their research plans. Another area for cooperation and pooling of resources is education, as for example the organisation of a PhD course in theory and methods that would include both qualitative and quantitative methods.

During 2003 the following persons from ISAL were invited to give seminars at ARC:

- *Welat Songar*, PhD, "The paradoxes of growing up in two cultures." (May 8);
- *Britt Östlund*, PhD, "IT and the elderly: A stormy marriage. The example of home shopping." (May 15);
- *Els-Marie Ansbäcken*, PhD, "Pros and cons in comparative qualitative research - reporting from two research projects on older people and community care in Japan and Sweden." (Sept 4);
- *Ingrid Hellström*, PhD student, "Awareness of Dementia in Later Life - ethical considerations on the method." (Dec 4).

Furthermore, the coordinator of ARC, *Bengt Winblad*, is a member in the Board of ISAL, and *Bengt Sandin* from ISAL is a member of the Board of ARC.

Public Health evaluation

Based on the government request for a description and inventory of Swedish public health research, FAS and the National Institute of Public Health (NIPH) appointed an international panel to conduct an external and independent evaluation. Several Swedish research institutions were invited to provide a report covering their research concerning public health, as well as list the highest priority in Swedish public health research in the years to come. ARC was one of those departments. The Public Health evaluation from ARC can be found on our homepage www.ki-su-arc.se.

The panel has concluded their work and on February 12 the evaluation was presented in a hearing at NIPH. One of the priority aims for public health research underlined by the panel was aging. Special stress was given to the relevance of a multidisciplinary approaches as well as life-course perspectives in aging research. In this context, ARC was mentioned as an example.

ARC Board

New Board at ARC 2003-09-01 — 2006-08-31	
Daniel Tarschys	Professor, Stockholm University (chairman)
Gunn Johansson	Professor, Stockholm University
Maria G Masucci	Vice Dean of Research, Karolinska Institutet
Lena Borell	Professor, Karolinska Institutet
Boo Johansson	Professor, Göteborg University
Karin Renblad	Luppens Kunskapscentrum, Jönköping
Gabriel Romanus	Member of parliament
Bengt Sandin	Professor, Linköping University
Sven-Erik Wånell	Chairman, Stockholm Gerontology Research Center
<i>Additional members:</i>	
Bengt Winblad	Professor, coordinator ARC
Laura Fratiglioni	Professor, substitute coordinator ARC
Åke Seiger	Department Chair, Neurotec, Karolinska Institutet
<i>Secretary:</i>	
Magnus Ericson	Administrator, Board of Research, Karolinska Institutet

Personnel

Coordinator: Bengt Winblad, professor
Vice coordinator: Laura Fratiglioni, professor
Scientific coordinator: Eva von Strauss, RN, PhD
Administration: Helene Hägglund, Sofia Österman

Geriatric medicine

Senior researchers: Laura Fratiglioni, professor; Johan Fastbom, lecturer
Post doc: Hedda Agüero-Eklund, PhD; Vesna Jelic, PhD; Miia Kivipelto, PhD; Eva von Strauss, PhD; Hui-Xin Wang, PhD; Anders Wimo, associate professor
PhD Students: Tiia Anttila, Anna Beckman; Christel Cornelius; Diana DeRonchi; Erik Jedenius; Linus Jönsson; Anita Karp; Inga Klarin; Alessandra Marengoni; Gunilla Nordberg; Stephanie Paillard-Borg; Katie Palmer; Galina Passare; Chengxuan Qiu; Margareta Westerbotn
Research assistants: Cecilia Larsson, Tora Dahlin, Annika Iyer

Psychology

Senior researchers: Lars Bäckman, professor; Agneta Herlitz, lecturer
Post doc: Cindy de Frias, PhD; Håkan Fischer, associate professor; Stuart MacDonald, PhD; Åke Wahlén, associate professor
PhD Students: Anna-Karin Berger; Petra Dahlström; Anna Derwinger; Sari Jones; Erika Jonsson Laukka; Åsa Livner; Erik Nilsson; Jenny Rehnman; Julie Yonker
Research assistant: Joakim Gavazzeni

Social gerontology

Senior researchers: Mats Thorslund, professor; Marti Parker, lecturer
Post doc: Kozma Ahacic, PhD; Ingemar Kåreholt, PhD; Carin Lennartsson, PhD
PhD Students: Neda Agahi; Kristina Larsson; Bettina Meinow; Emilia Forssell
Research assistant: Stefan Andersson

Database (in collaboration with Äldrecentrum)

Database managers: Maria Wahlberg, Peter Axelsson

Data input (in collaboration with Äldrecentrum)

Coordinators: Tina Kiderud, Gunilla Svanhagen (vice)
Nurses: Linda Hermansson; Emma Josefsson; Annika Lind; Anna Lowe; Cecilia Rahn
Physicians: Christel Cornelius (senior); Birger Andersson; Annika Garmén; Jelena Johnsson; Anna-Lisa Melin; Eija Mustapirtti
Psychologists: Maud Aminoff Fyring; Tiina Carlstedt (pt); Tsahai Jägerfeldt (pt); Ingemar Karlsson (pt); Maria Larsson (pt); Tanja Talarek (pt)
Research assistant: Weihua Liu

Information (in collaboration with Äldrecentrum)

Information manager: Inger Raune
Librarian: Carl-Erik Olsson

Research

Ongoing research projects

ARC carries out epidemiological studies on different health related aspects of brain aging and the elderly. New projects have been initiated using a more experimental study design.

The Kungsholmen Project. (Project leader: Bengt Winblad) Data collection was ongoing during 1987 to 2000. A total of 2 500 persons participated, who were 75 years or older living in the Kungsholmen area in central Stockholm. Twenty-four PhD theses have been written using data from the first three examinations (1987-1993) and much data remain to be analysed from the last three follow-up examinations (1994-2000). Most of the ARC research that has been ongoing in 2003 has been conducted using this data. **Kungsholmen in Nordanstig.** Since 1995, the project was expanded to include a rural elderly population in Nordanstig, in northern Hälsingland. At baseline examination, over 900 people aged 75+ years participated. The first follow-up of the whole population ended in 2000. The same interview protocol and methods that were used in the Kungsholmen Project were also implemented in Nordanstig.

SNACK population-based study. (Project leader: Laura Fratiglioni) Within the framework of the national SNAC-study (Swedish National study on Aging and Care), SNAC-Kungsholmen has a special focus on physical and mental functioning in the elderly around and after the age of retirement. Participants in SNACK are aged 60 years and older. During 2003, 1 760 persons were examined by a doctor, nurse and psychologist. A total of 2 720 persons have participated since 2001. Of these, 540 have been examined with magnetic resonance imaging (MRI), and 255 have had Electro-Encephalography (EEG) examinations. On March 25 all participants were invited to ad hoc seminars where preliminary data were being presented (see Information, page 13).

The Betula Project. (Project leaders: Lars-Göran Nilsson and Lars Bäckman) The project started in Umeå in 1988. At baseline examination, 1000 participants were randomly selected from residents of Umeå, aged 35-80 years. Since then, a further two follow-up examinations have been conducted in the same individuals. In addition, new cohorts were examined during 1993-1994 and 1998-1999. A fourth follow-up examination started in 2003 and will be finished in 2004. Publication of data is now underway to investigate how memory functioning and health status change in adulthood and aging.

SWEOLD. (Project leader: Mats Thorslund) Nationally representative samples of 550 persons (77+ years) were interviewed in 1992 and 2002. Both samples are based on a panel study which began in 1968 and focused on socio-economic status, function, and social relations. The work with SWEOLD II has been conducted in collaboration with the Center for Health Equity Studies (CHESS), and The Swedish Institute for Social Research (SOFI) at Stockholm University. The second wave of SWEOLD was finished in early 2003. In total, 561 persons aged 77 to 98 from all of Sweden were interviewed and evaluated. Non-response was 11.5%. Various analyses have been done to assess and document the data. Much work has been done on preparing a code book that will include the questionnaire and frequencies for most variables. The aim is to make the material accessible for researchers who have not been involved in the data collection.

HARMONY. (Project leaders: Margaret Gatz and Nancy Pedersen) The goal is to map genetic and non-genetic risk factors for dementia. The project includes 14 435 twins that underwent a screening test via a telephone interview. About 1 569 persons were suspected to have cognitive impairment and were examined by a doctor and nurses. Of them, 620 persons received a diagnosis of dementia according to DSM-IV criteria, and two thirds of these had Alzheimer's disease. ARC,

in collaboration with the University of Gothenburg, is responsible for the physician examinations and the diagnoses. During 2003, all dementia diagnoses with and without neuroimaging have been completed using a computerised system with all available medical, psychological and social information. A longitudinal examination for the diagnosed questionable dementia cases has been planned and implemented. The first report including the study design and description of the demented cases detected have been submitted.

Brain imaging. (Project leaders: Lars Bäckman and Håkan Fischer) This recently started project, investigates the biological basis for cognitive processing in the brains of older adults, with focus on memory for emotional and neutral personal experiences (especially episodic memory). In this topical study, functional magnetic resonance imaging (fMRI) is used to register brain activity during performance of different types of cognitive tasks. This brain imaging method provides a unique possibility to study the human brain at work. The study is conducted at Karolinska Institutet's MRI-center. In another brain imaging project, Positron Emission Tomography (PET) is used measure dopamine functioning in the human brain. The relationship between dopamine functioning and cognitive functioning in the elderly is of particular interest. The project is conducted in collaboration with Lars Farde's research group at the Department of Psychiatry, Karolinska hospital. In planned projects, fMRI and molecular imaging will be combined, in order to elucidate the chain that progresses from neuromodulation through blood flow to cognitive performance.

The dementia project - SBU (The Swedish Council on Technology Assessment in Health Care). The aim of the project is to provide a scientific overview of dementing disorders by compiling a systematic review of already established knowledge. This is done by thorough reviewing of published scientific studies. Experts from the Nordic countries have been invited to participate. Those responsible at ARC are: Hedda Agüero-Torres, Johan Fastbom, Laura Fratiglioni, and Eva von Strauss. ARC has developed a computerised evaluation form to be used to score the quality of each article. The work in the epidemiological group has been organised as a teaching activity for PhD students. During 2003 more than 500 scientific papers were evaluated on occurrence, risk factors and consequences (institutionalisation and mortality) of dementia.

Main research results

All of the results during 2003 are presented in detail in the 2003 Annual Report, which can be downloaded as a PDF from ARC's homepage. A short summary is given below.

Geriatric medicine

The research activities have followed four major research lines: 1) Prevention of dementia; 2) Mild cognitive impairment; 3) Use of drugs; and 4) Health economy. Major findings in each of the research lines are the following:

1. Prevention of dementia

- a. It has been already shown by our project and by others that high blood pressure is a risk factor for dementia. Our group was the first to demonstrate that the use of antihypertensive drugs may decrease the risk of dementia and Alzheimer's disease. We have now suggested a possible mechanism: antihypertensive drugs may counteract the combined effect on dementia due to the genetic risk factor APOE-e4 and high systolic blood pressure (*Qiu et al, Neurology, 2003*).
- b. We found that not only high blood pressure but even low diastolic blood pressure was associated with increased risk of dementia. The direction of causality remains unclear, as dementia pathology may lower blood pressure even some years before diagnosis (*Qiu et al, Arch Neurol, 2003*).
- c. It has been consistently reported that subjects with low education are at a higher risk to develop dementia and Alzheimer's disease. We tried to verify whether this association was due to factors related to lower socio-economic status. An increased risk of dementia was found in subjects with only elementary schooling independently of their occupation-based socio-economic status or socio-economic mobility during life. These findings suggest that factors operating during the first two decades of life are relevant for the development of dementia in late life (*Karp et al, Am J Epidemiol, in press*).

2. Mild cognitive impairment

- a. An increasing amount of research is devoted to study the preclinical phases of Alzheimer's disease and to differentiate normal age-related cognitive decline from impairment which will lead to dementia. A new entity has been suggested, denominated Mild Cognitive Impairment (MCI). Most of the research performed until now is based on patients derived from clinical settings. We tried to verify the predictivity of the cognitive impairment in non-dementia subjects. We found that only one third of these subjects will develop dementia in three years, whereas one third will remain stable or even improve. The improvers will not have an increased risk of dementia even if followed for three more years (*Palmer et al, Am J Psychiatr, 2003*).
- b. In order to identify a procedure that can lead to the early detection of dementia and AD in the preclinical phase, we tested the predictivity of a three-step procedure, which simulates daily clinical practice: a. reports of memory problems; b. administration of a simple cognitive test; c. assessment with a complete neuropsychological battery. Almost all persons (positive predictive value ranging from 85 to 100%) with memory complaints, impairment on the global cognitive test, and deficits in specific cognitive domains will develop dementia over 3 years. Unfortunately, this procedure can identify only 18% of all future demented subjects (*Palmer et al, BMJ, 2003*).

3. Use of drugs

- a. The quality indicators for drug use in the elderly that have been developed at the Swedish National board of Health and Welfare (project leader Johan Fastbom), were published at the turn of the year 2003. These indicators can be used for measuring and following the quality

of drug use in national surveys and epidemiological studies, but also in the work to improve the quality of drug use in the elderly, for example in drug utilisation reviews.

- b. A study of the use of antidepressants in nursing homes showed deficient routines both for diagnosing depression and for evaluating the antidepressant therapy. Among others we found that the diagnosis and treatment of depression in most cases were not based on an examination of the patient. In addition, most doctors did not have any systematic routines for evaluating the therapeutic effect and for reconsidering the indication for the antidepressant treatment.

4. Health economy

Research activities within the health economy sector has shown that costs for community care, informal care and total costs of care increase, while proxy-rated utility and quality of life decreases with the degree of cognitive impairment in AD patients (Jönsson *et al*, 2003). Model simulations employed to simulate the progressive cognitive impairment of AD patients on costs and transition probabilities, show that even modest and short-term effects on the progression of AD can be associated with important cost-savings and gains in quality-adjusted life-years (Jönsson *et al*, 2003).

Psychology

Research activities during 2003 have been pursued along three major lines: 1) Cognitive functioning in normal and pathological aging; 2) Sex differences in brain and cognition; and 3) Cognitive intervention.

1. Cognitive functioning

We have established the existence of a preclinical period with cognitive deficits not only in AD, but also in vascular dementia (Jones *et al*, *Dementia*, 2004; Jonsson Laukka *et al*, *JINS*, 2004). We have also shown that mortality-related cognitive deficits generalize across different causes of death (Small *et al*, *Psychology and Aging*, 2003), that age differences are pronounced for episodic, but not for semantic, memory over the life span (Nyberg *et al*, *Psychology and Aging*, 2003), and that persons who will develop both AD and depression over three years have somewhat more marked cognitive deficits at baseline compared to those who will develop AD alone (Berger *et al*, *Cortex*, 2004). All cognitive research that we have conducted within the Kungsholmen Project was integrated in an extensive review article (Bäckman *et al*, *Aging, Neuropsychology and Cognition*, 2004).

2. Sex differences in brain and cognition

We have provided further evidence that women outperform men in episodic memory tasks (Maitland *et al*, *Memory & Cognition*, *in press*). We have also found that sex differences remained in episodic memory tasks despite matched levels of estradiol in men and women, indicating that estradiol is not of paramount consequence for these differences (Yonker *et al*, *Brain and Cognition*, 2003). Further, we have demonstrated interesting brain-based differences in the way in which men and women process facial information about the other sex (Fischer *et al*, *Neuro Report*, 2004).

3. Cognitive intervention

Our cognitive intervention work indicates that training in a specific mnemonic technique as well as self-guided training may improve elderly persons' ability to remember PIN-codes, and that this improvement is maintained 8 months after the completion of training (Derwinger *et al*, *Aging, Neuropsychology and Cognition*, 2003; Derwinger *et al*, *Neuropsychological Rehabilitation*, 2004). In a PET study (Nyberg *et al*, *PNAS*, 2003), we showed different patterns of brain activation as a function of memory training in young and older adults. These differences were linked to behavioural data showing an age-related reduction in the ability to benefit from training.

Social gerontology

Research activities during 2003 have been conducted in four major areas: 1) Health among the oldest old; 2) Changes in population health; 3) Utilization of eldercare services; and 4) Methodological studies.

1. Health among the oldest old

- a. Some of the first results from SWEOLD 2002 have been presented in the media and at conferences. Comparisons between the 1992 and 2002 waves of SWEOLD show very little improvements over time in measures of health or function. Most of the indicators showed worsening or unchanged levels of health and function during this time period. Objective measures, such as peak expiratory flow, showed worsening health, while ADL showed no significant change. Contrary to earlier Swedish and international results showing improvements in health among elderly people, the SWEOLD data seem to indicate a worsening of health among the oldest portion of the population during this time period (*Thorslund et al, Läkartidningen, in press*).
- b. Despite the lack of improvement in health, the proportion of elderly people who participate in leisure time activities has increased during this decade. Visits to restaurants and cultural activities have increased significantly. This could be due to increased accessibility. Or it could be that later cohorts are more used to these activities.
- c. The ability of elderly Swedes to manage their medicines was analyzed with five tests included in SWEOLD 2002. The tests included cognitive and physical function abilities related to managing medicine. Over half the persons taking the tests could not do at least one of the tests. Among people living at home alone, one third failed one or more of the tests. As many people could not even take the tests due to poor vision or cognition, these rates must be considered an underestimation of potential problems in medication management.

2. Changes in population health

A study examined possible explanations for the improvement in population mobility from 1974 to 1991. Rather than an actual improvement in mobility in comparable groups, the changes in the labor market and social structure, i.e., the increased proportion of women in employment and the increased proportion of white-collar workers seemed to account for the major part of the improvement in mobility (*Ahacic et al, Soc Sc Med, 2003*).

3. Utilization of eldercare services

A study has examined the gender and educational differences in utilization of formal home help services, adjusting for health and level of functioning. One conclusion is that the decision to grant home help is primarily based on those needs that gain attention. An important factor is whether or not the person lives alone. To obtain services, people who live with someone must have a much greater need for services compared to people living alone (*Larsson et al, J Aging Health, in press*).

4. Methodological studies

A mortality analysis examined how time since baseline affects the strength of the correlation between mortality and common predictors (*Meinow et al, J Gerontol, in press*). Another analysis examined prevalence rates for ADL and mobility limitations in the population for different interview modes. Depending on which interview modes that are analysed (e.g., direct, proxy, telephone interviews) prevalence rates can vary greatly. The conclusion is that it is very difficult to compare results from studies with differing data collection strategies.

Other research activities

Activities during 2003 include the successful publication of 77 articles in peer reviewed journals. Many of these articles were published in highly respected journals. Furthermore, five of our students have carried out their half-time examinations and two students have completed and defended their PhD theses.

To summarize our production from a qualitative perspective, we have chosen to list below our activities concerning PhD students and post docs, foreign guest researchers that came with their own research financing to work at ARC, our national and international collaborators as well as education, information and conference presentations.

PhD students

During the year seven new research students have been registered (*Neda Agahi, Tiia Anttila, Erik Jedenius, Alessandra Marengoni, Petra Dahlström, Åsa Livner and Jenny Rehnman*).

Five of our students have carried out their half-time examinations and two students have completed and defended their PhD theses.

Half time controls:

- *Katie Palmer*: "Early detection of dementia in the general population", January 21. Main supervisor: Laura Fratiglioni
- *Erika Jonsson Laukka*: "Cognitive functioning in the transition between normal aging and dementia", February 21. Main supervisor: Lars Bäckman
- *Anna Derwinger*: "Remembering numbers in old age: Mnemonic training versus self-generated strategy training and issues of immediate and long-term effects", March 20. Main supervisor: Lars Bäckman
- *Anita Karp*: "Socioeconomic and lifestyle factors in relation to dementia – exploring the reserve hypothesis in the longitudinal data of the Kungsholmen Project", December 12. Main supervisor: Laura Fratiglioni
- *Inga Klarin*: "Drug use in the elderly - are quantity and quality compatible?", December 18. Main supervisor: Anders Wimo

Dissertations:

- *Julie Yonker*: "Hormones and cognition: Testosterone and visuospatial ability, estrogen and episodic memory", November 25. Main supervisor: Agneta Herlitz
- *Linus Jönsson*: "Economic evaluation of treatment for Alzheimer's disease", December 5. Main supervisor: Anders Wimo

Guest PhD student: Roberto Monastero, MD, neurologist, University of Palermo, Italy (Jan – Sept and Dec, scholarship from Italy).

Students doing their research training with us: Samiul Islam (10 weeks) and Stefan Andersson (10 weeks).

Post doc

Three new post doc positions (*Kozma Ahacic, Miia Kivipelto*, a two-year post doc position from the Academy of Finland, and *Carin Lennartsson*).

We have had three post docs from other countries: Cindy de Frias and Stuart MacDonald from Canada, and Wenyong Huang from China.

Two of our post docs passed their teaching lecture for Docentur and became associate professors:

- *Håkan Fischer*: Attention, April 24. Docentur in cognitive psychology.
- *Åke Wahlin*: Aging and individual differences in health and cognition, January 12. Docentur in cognitive psychology.

Guest researchers

During the year we have had five guest researchers visiting ARC: 1 from England, 1 from Germany, 2 from Italy, and 1 from USA.

- *David Bunce*, PhD, professor, Goldsmiths College, University of London (2 months)
- *Henrike Wolf*, MD, Dept of Psychology, University of Leipzig (Dec 2003 – Feb 2004).
- *Anna-Rita Atti*, MD, University of Ferrara (January – March, scholarship from Italy).
- *Patrizia Mecocci*, professor, University of Perugia (six weeks).
- *Merril Silverstein*, associate professor in gerontology and sociology at the University of Southern California (May-June).

Collaborators

National:

- *University Departments*: Geriatric Units in Neurotec Dpt, Dpt of Medical Epidemiology and Biostatistics, The Institute of Environmental Medicine, and the MR Center, all at Karolinska Institutet; Dpt of Psychology, Stockholm and Umeå Universities; Center for Health Equity Studies (CHES) and The Swedish Institute for Social Research (SOFI), Stockholm University; Dpt of Pharmacology, Göteborg University, and The Institute for the Study of Ageing & Later Life (ISAL), Linköping University.
- *National Institutions*: National Board of Health and Welfare; National Corporation of Swedish Pharmacies; The Swedish Handicap Institute.

International:

- *EU projects*: 1) A collaborative study of 11 population-based projects, supported by the EU: “Frequency and impact of neurologic diseases in the elderly of Europe”. 2) Invited experts in The European Forum on Population Ageing Research, a project funded by the European Commission’s Framework 5 Research Program.
- *Universities in Europe*: Universities of Bologna, Brescia and London.
- *Universities outside Europe*: University of Alberta & Rothman Research Institute in Toronto, Canada; the University of Tampa, and Andrus Gerontology Center, University of Southern California, USA; and Australian University, Canberra

Education

PhD course: Annual methodological course for PhD students “Applying epidemiological methods in brain aging research”. Course leaders: *Laura Fratiglioni and Zarina N Kabir*

Post doc course: Elderly and Medication (Äldre och läkemedel, 5 p), aimed for dentists, November 2003. Course leaders: *Johan Fastbom and Gunilla Nordenram*.

Weekly seminars: 31 seminars have been carried out in collaboration with Äldrecentrum (every Thursday morning between 9-10). Organisers: *Johan Fastbom, Agneta Herlitz and Marti Parker*

Data management: One-week course in database management using the program ORACLE. Course leader: *Peter Axelsson*

Evidence-based scientific assessment: Teaching students how to apply evidence-based methods in dementia research and invention of a computerized evaluation tool. Responsible: *Laura Fratiglioni, Eva von Strauss and Miia Kivipelto*

Information

SNACK-day on March 25: Subjects participating in the SNACK population study were invited to Landstingshuset in Kungsholmen to listen to researchers from ARC and ÄC presenting the study and preliminary results so far. The program was held three times and around 500 people came evenly spread over the day.

Journalist seminars: Four press conferences on aging research have been carried out where invited journalists could meet with one of our research leaders at each session (*Bengt Winblad, Lars Bäckman, Mats Thorslund and Laura Fratiglioni*). Organiser: *Inger Raune*

Brochure: Together with Äldrecentrum ARC has produced a brochure about The House of Aging Research. There is both an English and a Swedish version. Editors: *Inger Raune and Eva von Strauss*

Website: Our website has been finalized this year and can be reached via www.ki-su-arc.se

Media: Information about our research has been provided to the public on several occasions through the media (TV, newspapers and magazines).

Conferences

We have been organisers of the following international conferences:

- The first key symposium on Mild Cognitive Impairment, 3-5 Sept in Saltsjöbaden, Stockholm. *Bengt Winblad*
- Vascular factors in midlife and dementia in later life, Symposium at The 8th congress of Norage 27-29 April in Reykjavik, Iceland. *Laura Fratiglioni*
- International workshop on cognitive aging, 24-26 June in Castiglione della Pescaia, Italy. *Lars Bäckman*

National and international conference attendance:

Data have been presented and discussed at both national and international conferences. Researchers from ARC have visited several conferences and had both oral and poster presentations during 2003.

Social events

Meeting: On September 23, SNACK data collection personnel and the dementia risk factor group (Laura's group) spent the day at Laura's summerhouse for both administrative tasks and play. The day was both productive and enjoyable.

Celebrations: During the year, we have celebrated three major birthdays; Bengt Winblad, 60 years; Eva von Strauss and Christel Cornelius, 50 years each.

Christmas lunch: On December 10 all individuals working within the House of Aging Research, the Boards of ARC and Äldrecentrum, and the administration at Neurotec were invited for a Christmas lunch at Elfviks Gård, Lidingö. All together we were 80 persons eating and having a good time.

Other

A donation by Greta Barthelsson to the Kungsholmen project enables Äldrecentrum to award graduate students who have completed their half-time examination or defended their thesis. During 2003 five students were awarded 5 000 SEK each for having passed their half-time examination (*Anna Derwinger, Sari Jones, Erika Jonsson Laukka, Katie Palmer and Chengxuan Qiu*).

External financing

Grants from FAS cover the operational costs and the salaries for senior researchers. Grants from KI and SU are used to maintain and update our large databases, and provide salaries for post docs and some PhD Students. The large research grants, which are reported below, make it possible for us to employ PhD students and carry out research to the standard that is necessary to maintain our position as a national center of excellence.

Institution	Title and Project leader	Period	Amount (SEK)
Swedish Council for Working Life and Social Research (FAS)	"Cognitive and physical functioning in old age" <i>Lars Bäckman, Laura Fratiglioni</i>	2003-2005	3 900 000
The Swedish Research Council (VR)	"Brain and memory in aging and dementia" <i>Lars Bäckman</i>	2002-2004	1 100 000
The Swedish Research Council (VR) – (special grant for excellent research)	"Brain and memory in aging and dementia" <i>Lars Bäckman</i>	2002-2003	1 300 000
The Bank of Sweden Tercentenary Foundation	"Cognitive aging: The role of dopamine functions" <i>Lars Bäckman</i>	2003-2005	3 400 000
National Corporation of Swedish Pharmacies (Apoteket AB)	"Quality indicators & Drug use in the elderly (the KÄLLA-project)" <i>Johan Fastbom</i>	2003	320 000
The Swedish Research Council (VR)	"Study of age and sex differences in the neuronal underpinnings of emotion" <i>Håkan Fischer</i>	2002-2006	2 500 000
The Swedish Research Council (VR), longitudinal studies	"SNAC in Kungsholmen" <i>Laura Fratiglioni</i>	2001-2004	4 400 000
The Swedish Research Council (VR), Medicine	"The relationship between blood pressure, cognitive impairment and dementia in aging" <i>Laura Fratiglioni</i>	2002-2004	640 000
Swedish Council for Working Life and Social Research (FAS)	"Psychosocial factors in relation to cognitive disturbances and dementia in the elderly" <i>Laura Fratiglioni</i>	2004-2007	2 300 000
The Bank of Sweden Tercentenary Foundation	"Sex differences in cognitive functions" <i>Agneta Herlitz</i>	2002-2003	2 100 000
		2003	455 000
The Swedish Research Council (VR)	"Sex differences in cognitive functions: the impact of age, education, and cultural setting" <i>Agneta Herlitz</i>	2004	420 000
		2005	695 000
		2006	430 000

Swedish Council for Working Life and Social Research (FAS)	“How have the living conditions for the elderly (77+) changed during 1992-2002?” <i>Ingemar Kåreholt</i>	2003 2004	600 000 600 000
Swedish Council for Working Life and Social Research (FAS)	“Formal and informal care among elderly people” <i>Mats Thorslund</i>	2002 2003 2004	130 000 260 000 130 000
The Swedish Research Council (VR)	“Health, disease and cognitive aging” <i>Åke Wahlin</i>	2003-2005	800 000
The Swedish Research Council (VR), longitudinal studies	“The Kungsholmen Project database on aging and dementia. Maintenance of the 13 years long database” <i>Bengt Winblad, Laura Fratiglioni</i>	2003-2005	1 300 000
The American Alzheimer Association	“Exploring the hypothesis that an active life and rigorous health control in late-life decrease the risk of Alzheimer’s disease and dementia” <i>Bengt Winblad, Laura Fratiglioni</i>	2004-2006	USD 221 000

Other funding

Adolf Fredriks Kyrkoråd, Laura Fratiglioni

Gamla Tjänarinnor, Anita Karp, Katie Palmer, Chengxuan Qiu, Wenyong Huang

Karolinska Institutet, Katie Palmer and Chengxuan Qiu, graduate position, six months each

Karolinska Institutet, Katie Palmer, Chengxuan Qiu, travel grants

Marie Curie Foundation EUROGENDIS, Roberto Monastero has been awarded a one-year scholarship.

Solstickan, Åsa Livner, Erika Jonsson Laukka, Stephanie Paillard-Borg, 3-months schoolships

The Alzheimer Foundation Sweden, Anders Wimo

The Swedish Society of Medicine, Åke Wahlin

The Vårdal Institute, Neda Agahi, graduate position, half-time

Vårdförbundet, Eva von Strauss

Activities planned for 2004

The goals for 2004 are summarized in the following points:

Organisation

- To establish a close contact among the seniors by implementing a monthly meeting at lunch time, organised by Laura Fratiglioni.
- To establish a creative and active network among the post docs and the students by implementing special meetings and social events.
- To promote better health at work by supporting physical and relaxing activities, such as yoga.

New collaborations

New collaborations are planned with The Italian Research Council in Milan, San Raffaele-Pisana di Roma, and The National University of Singapore.

Education

- To create a research education program that includes four one-week courses in epidemiology, pharmacology, social gerontology and cognition.
- Weekly seminars in collaboration with Äldrecentrum, and practice seminars for half time examinations and disputations.
- An evening "brain-storm" at ARC on "Frailty in the elderly" together with ISAL.

Information

- Open House together with Äldrecentrum is planned for February 10.
- To continue the seminars where invited journalists meet with researchers on a specific topic.

Research

- Four disputations are planned for the spring of 2004 and one for the autumn. At least three half-time examinations will also be carried out.
- A major brain-imaging project integrating functional imaging and dopamine imaging in relation to cognitive aging will start.
- Data collection for the SNACK project will continue, and the first follow-up will start in the autumn.
- Data analysis and reporting of results to the research community and the public will continue as before in 12 main research areas:

Dementia: Risk factors for dementia Early detection of dementia Natural history of dementia Pharmacoepidemiology in the elderly	Functional decline in the elderly Cognitive aging Gender differences in cognition Health and cognitive functioning in the elderly Brain imaging in emotion and cognition	Multifaceted aging Health economics Well-being in the elderly International aging research Successful aging
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Finances

- Applications will be sent to the major Swedish research councils.
- Strategies for receiving donations from companies and private person will be implemented.
- Possibilities to obtain financing from abroad will be investigated.