REPORT

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Prevention of Falls Network Europe: a thematic network aimed at introducing good practice in effective falls prevention across Europe

Abstract The Prevention of Falls Network Europe (ProFaNE) aims to improve quality of life of the ageing population by focussing on a major cause of disability and distress: falls. The thematic network is funded by the European Commission and brings together scientists, clinicians and other health professionals from around Europe to focus on four main themes: taxonomy and coordination of trials, clinical assessment and management of falls, assessment of balance function, and psychological aspects of falling. There are 24 members across Europe as well as network associates who contribute expertise at workshops and meetings. ProFaNE, a 4-year project which started in January 2003, aims to improve and standardise health care processes, introducing and promoting good practice widely across Europe. ProFaNE undertakes workshops that bring together experts and observers around specific topics to exchange knowledge, expertise and resources on interventions that reduce falls. A key document for policy makers around Europe, written by ProFaNE members, was published by the World Health Organisation in March 2004. ProFaNE's website has both public and private areas with resources (web links to falls prevention, useful documents for policy makers, researchers and practitioners) and a discussion board to encourage informal networking between members and the public. The ultimate aim of ProFaNE is to submit a collaborative bid to undertake a multi-centre, randomised controlled trial of a multi-factorial fall prevention intervention with peripheral fracture as the primary outcome. The success of the networking and relationship building in the first year and a half of ProFaNE's work makes this an achievable goal.

Keywords Falls · Fall-related injuries · Aged · Interdisciplinary interventions · Assessment

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Introduction: the problem of falls across Europe

Falling is a common problem of old age in all European societies (Skelton and Todd 2004). Approximately 30% of persons aged over 65 years fall each year, and after the age of 75 years the rates are even higher (O'Loughlin et al. 1993). Between 20% and 30% of those who fall suffer injuries that reduce mobility and independence and increase the risk of premature death. Elderly people make up a large and increasing proportion of the population of European countries. As people grow older, they are increasingly at risk of falling and suffering injury from falling (Tinetti 2003). Falls are also associated with significant social and psychological consequences, as people lose confidence and become isolated and restrict their activity (Tinetti et al. 1994). A fall may be the first indication of undetected illness. Repeated falls often herald a decline in an older person's functional ability.

Unless action is taken, the number of falls and fall-related injuries is likely to increase over the next 25–30 years (Tinetti 2003). A number of assessment

strategies and interventions targeted at specific groups of individuals in specific settings have been shown to work (Chang et al. 2004). In practice, however, interventions are being used with different population groups and in different settings than the original research was based on. There is an overall need to standardise assessment procedures and tailor interventions to individual situations for effective practice. So far, population-based strategies have not been properly evaluated, and there is no evidence that successful interventions to reduce falls actually significantly reduce fractures and health care costs (Skelton and Todd 2004). This points to the need for monitoring, implementation and further evaluation of intervention strategies.

Prevention of Falls Network Europe (ProFaNE) has been funded by the European Commission to consolidate and disseminate good practice in taxonomy and clinical trial methodology as well as detailed clinical assessment and management protocols for those 'at risk' of falls. ProFaNE also aims to identify how best to assess balance function and to develop work in psychology across Europe in order to more fully understand the consequences of falls, delineate methods to reduce the fear of falling, and to determine how best to increase adherence to falls prevention interventions. Ultimately the aim of the Network is to put in place the necessary infrastructure to submit a collaborative multi-centre randomised controlled trial of practice implementation of a multi-factorial fall prevention intervention with peripheral fracture as the primary outcome. Other outcomes, such as health care costs, disability and quality of life will also be assessed.

Prevention of Falls Network Europe

Membership

ProFaNE has 24 originators (Fig. 1, Table 1) focusing on the issue of prevention of falls and improvement in postural stability amongst elderly people. It comprises four work packages which address key areas in the field of trial design, assessments of risk in different settings and fear of falling: (a) taxonomy and coordination of trials, (b) clinical assessment and management, (c) assessment of balance function and (d) psychological aspects of falling. Each work package has one or two leaders who coordinate the work within the work
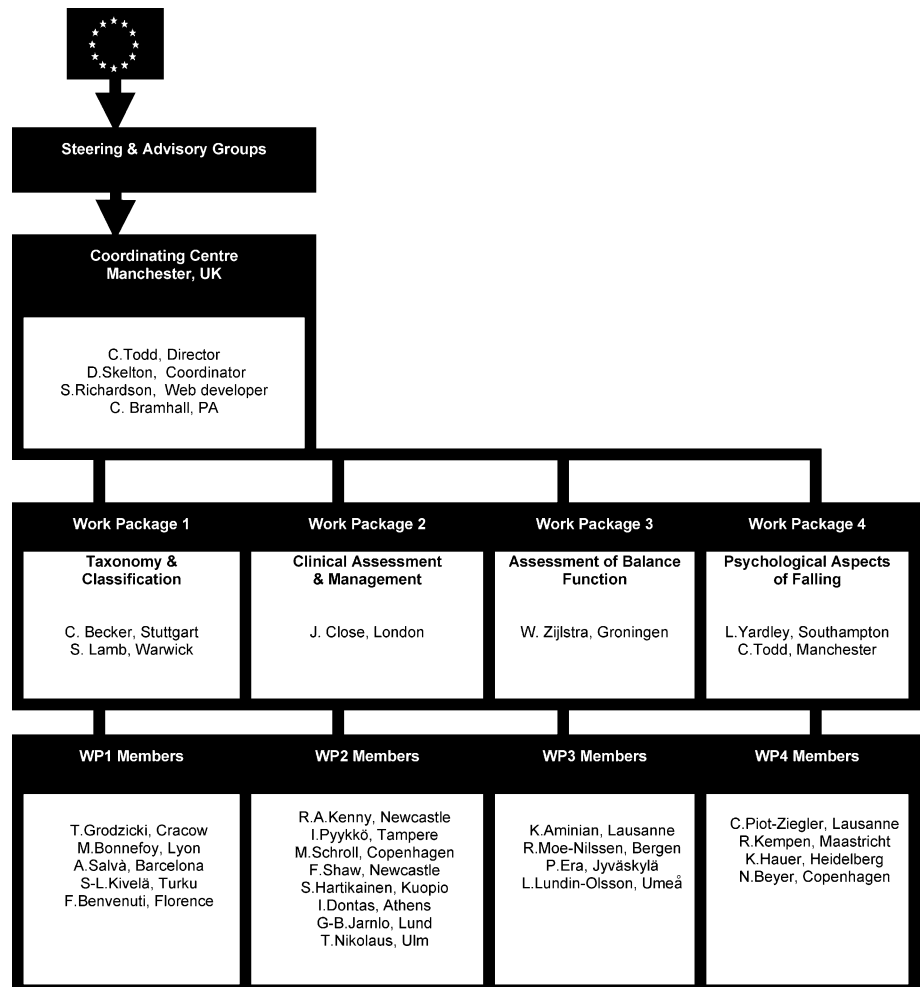

Fig. 1 ProFaNE membership

Table 1 ProFaNE membership

Name, position	Institution
Dr. Chris Todd, Professor of Primary Care and Community Health	School of Nursing, Midwifery and Social Work, University of Manchester, UK
Dr. Clemens Becker, Consultant, Chief Physician	Geriatric Centre, University of Ulm, Germany; Geriatric Medicine Clinic, Robert-Bosch Krankenhaus, Stuttgart, Germany
Dr. Sallie Lamb, Professor of Rehabilitation	Warwick Emergency Care and Rehabilitation, Warwick Medical School, Coventry, UK
Dr. Jacqueline Close, Consultant Physician	Department of Health Care of the Elderly, King's College Hospital, London, UK
Dr. Wiebren Zijlstra, Assistant Professor	Human Movement Sciences, University of Groningen, The Netherlands
Dr. Lucy Yardley, Professor of Health Psychology	School of Psychology, University of Southampton, UK
Dr. Francesco Benvenuti, Director	Rehabilitation Department, Infirmary Hospital, Pisa, Italy
Dr. Marc Bonnefoy, Head of Department	Geriatric Medical Service, Central Hospital, Lyon South, France
Dr. Tomasz Grodzicki, Professor	Department of Gerontology, Jagiellonian University Medical College, Cracow, Poland
Dr. Sirkka-Liisa Kivelä, Professor	Institute of General Practice/Family Medicine, University of Turku, Finland
Dr. Antoni Salvà, Professor/Director	Català Institute of Ageing, Autonomous University of Barcelona, Spain
Dr. Sirpa Hartikainen, Consultant Physician	Department of Public Health and General Practice, University of Kuopio, Finland
Dr. Gun-Britt Jarnlo, Associate Professor	Department of Physical Therapy, University of Lund, Sweden
Dr. Rose Anne Kenny, Professor	Institute for Ageing and Health, Wolfson Research Centre, Newcastle, UK
Dr. Ismene Dontas, Researcher	Laboratory for Research of Musculoskeletal System, University of Athens, Greece
Dr. Ilmari Pyykkö, Professor	Department of Otolaryngology, University of Tampere, Finland
Dr. Nina Beyer, Researcher	Sports Medicine Research Unit, Bispebjerg Hospital, Copenhagen, Denmark
Dr. Kamiar Aminian, Researcher	Laboratory of Movements Analysis and Measurement, Swiss Federal Institution of Technology, Lausanne, Switzerland
Dr. Pertti Era, Managing Director	Metitur Oy, Jyväskylä, Finland
Dr. Lillemor Lundin-Olsson, Researcher	Department of Community Medicine and Rehabilitation, Physiotherapy and Geriatric Medicine, Umeå, Sweden
Dr. Rolf Moe-Nilssen, Professor	Department of Public Health and Primary Health Care, University of Bergen, Norway
Dr. Klaus Hauer, Research Scientist	Research Department, Hospital, University of Heidelberg, Germany
Dr. G.I.J.M Kempen, Professor, Social Gerontology	Faculty of Health Sciences, Maastricht University, The Netherlands
Dr. Chantal Piot-Ziegler, Professor	Institute of Psychology, University of Lausanne, Switzerland
Dr. Dawn Skelton, Project Coordinator	Coordinating Centre, School of Nursing, Midwifery and Social Work, University of Manchester, UK
Steve Richardson, Website Developer	Coordinating Centre, School of Nursing, Midwifery and Social Work, University of Manchester, UK
Cindy Bramhall, PA to Prof. Chris Todd	Coordinating Centre, School of Nursing, Midwifery and Social Work, University of Manchester, UK

packages and have an overview of the synergies between work packages. Each work package also has invited network associates from a wide variety of scientific and medical/health profession disciplines which extend the knowledge and expertise within the area.

Working across Europe

Centralised coordination ensures that there is horizontal integration of work packages so that everyone is working together. The essence of ProFaNE's methodology is to engender joint working across disciplines, specialities and sites as well as breaking down barriers (by speaking plain English, standardised terminology and exchange programmes) to build a critical mass of scientists and clinicians focusing on falls assessment and effective implementation of interventions. This will be facilitated in two ways: by selected members attending workshops from other work packages and by the use of a state of the art web based project management system supplied and maintained by the coordinating centre in Manchester, which acts both as communication medium within the Network and a user-friendly window for the outside world to access the work of ProFaNE. Observers from clinical and academic institutions, non-governmental organisations, policy makers and planners are invited to meetings so as to facilitate the roll out of conclusions, recommendations and protocols into effective practice.

Work to date

In the first 18 months the Network has made good progress toward the project aims. Each work package operates by convening workshops, undertaking personnel exchanges, transferring technology and knowledge, setting up collaborative studies (funded separately from this Network), sharing data and working to develop evidence based protocols and other documents which represent state of the art statements on the topic area. Many of the members have made exchange visits to different countries to exchange knowledge and resources

and spread good practice on interventions that reduce falls. ProFaNE's work has been disseminated at a number of pan-European conferences and a key document for policy makers around Europe, written by ProFaNE members during 2003, was published by the World Health Organisation in March 2004. Several papers produced by the ProFaNE Consensus and Outcomes Meeting in November 2003 have been sent to scientific journals for publication. New funding for research by members (in their own countries) and collaborative pan-European bids have been successful. Some of this success may be due to the backing that the European ProFaNE Network can provide to their work.

The first major meeting of the overall Network was in June 2004 (Manchester, UK) to synthesise work from all the work packages. Eighty clinicians and researchers from across Europe gathered to discuss key questions and review evidence in falls prevention. The Network has also forged links outside of Europe—with Exercise for Continued Enhanced Living (EXCEL)–an Australasian Network, the New Zealand Falls Group and a Balance Group in Canada.

Work package 1: taxonomy and coordination of trials

The objectives of work package 1 are: (a) to build a network of intervention sites for fall and injury prevention studies, (b) to facilitate technology transfer between researchers, (c) to allow the creation of synergistic effects by common taxonomy and outcome measures to enable pooling of data, (d) to facilitate epidemiological studies, intervention trials and public health policy related to fall prevention in underrepresented European countries and (e) to enable prospective pre-planned meta-analysis and multi-centre trials across Europe.

Several nationally funded studies on fall prevention will start in Europe in the next few years by ProFaNE members and others outside of the Network. Given the importance of falls and related injuries there is a need to further develop and examine strategies across various healthcare systems. Research is needed into a range of interventions which meet the differing requirements of active and frail older persons, those with specific chronic conditions and in different residential settings. It is essential that persons working in the research and development of interventions across Europe maximise the potential for reducing falls and related injuries by working together to exchange ideas and technologies. Researchers will be able to address questions that cannot be easily addressed by single centre trials because of the required sample sizes, and also to pool data in prospective meta-analysis. The Network thus aims to facilitate multi-centred studies across Europe.

However, any multi-centre trial requires the development of a common language or taxonomy to describe interventions and trial outcomes, a register of on-going trials and a prospective collaboration of trials and trialists with the intention of undertaking pooled analysis

of data from different trials. Research groups with less expertise are supported in study methodology and application processes for national funding, and benefit from technology transfer (sharing of equipment and tools not available outside of research laboratories or not in the public domain yet). Experience from the Cochrane Review of Fall Prevention (Gillespie et al. 2004) has shown that the manner in which interventions are defined and described in primary research has a large effect on interpretation of pooled analyses. Agreement on a core-set of outcome measures and descriptors would make comparisons much easier. This work package provides a structured environment to undertake a consensus building exercise to develop a taxonomy and common data collection system.

Activities in the first year focussed on the consensus definitions of taxonomy. The second and third years concentrate on the coordination of intervention studies and details with core outcome measures. Papers have been prepared for publication and details appear on the ProFaNE website. The fourth year aims to inform senior organisations, health care providers and policy makers of the consensus reached on taxonomy and current evidence on what works to prevent falls in older persons.

Work package 2: clinical assessment and management

The objectives of work package 2 include: (a) to gain an understanding of the current issues surrounding falls prevention across Europe, (b) to embrace at national level, the different political and health service agendas so that recommendations can be translated into working models of practice in each country, (c) to identify key individuals, societies and organisations across Europe instrumental in falls prevention, (d) to establish a network of members across Europe to facilitate dissemination of evidence likely to influence service developments at national and local level, (e) to facilitate the exchange of national and local expertise in falls prevention, (f) to derive consensus for assessment and management of older persons at risk of falling using the existing evidence base as well as knowledge of experts in the field and (g) to promote practical and generalisable approaches to the assessment of older persons at risk of falling.

This work package focuses on development of consensus in assessment and management of falls in older persons across Europe. Fundamental to this process is the development of a clear understanding of how services across Europe are configured and the national and international drivers for change.

In year 1 the work package undertook a series of network visits, enabling members to visit other members and also key individuals in European countries to identify the potential opportunities and constraints of developing and delivering falls services in a coordinated and comprehensive fashion. It is imperative to identify effective methods of dissemination of the recommenda-

tions as methods differ from country to country. In year 2 the focus is on development of assessments which can be tailored to a variety of clinical settings, from community-based assessment to highly specialised investigation units. The work package links closely with work packages 3 and 4 to ensure consensus in recommendations. In addition to the recommendations for clinical assessment and management, work package 2 provides advice and guidance on evaluation and audit of services and links closely with work package 1. Year 3 focuses on collation of agreed assessment and evaluation methods and preparation of recommendations for dissemination. Finally, in year 4 work package members take responsibility for the dissemination of the work.

Work package 3: assessment of balance function

The objectives of work package 3 are: (a) to identify instruments and procedures that can be used for assessment of balance function in clinical settings, (b) to identify areas where further development is needed, (c) to combine expertise from different disciplines involved in studying balance and transfer knowledge between these disciplines, (d) to cooperate in research and (e) to provide an intellectual environment for interdisciplinary projects and dissemination of knowledge into disciplines working in the clinical field.

The development of effective fall prevention programmes requires the understanding of underlying causes of falls. Measurement tools are needed that predict the risk of falling and give objective assessment of balance function as required in daily life activities (Mulder et al. 2002). The ultimate goal of the activities within this work package is to combine the expertise of different disciplines for the development of balance assessment tools which can be used routinely in clinical settings. At present the knowledge needed to develop these instruments and measures is scattered over a wide range of clinical and scientific disciplines.

To accomplish the objectives of this work package existing instruments and procedures for assessment of balance function are evaluated. Based on this evaluation guidelines for balance assessment are produced, areas in need of further development identified, and studies designed that address these areas. This work package particularly focuses on the use of lightweight ambulatory equipment that allows for the measurement of human movement under real-life conditions. This novel approach to the analysis of human movement can potentially fill the need for objective field instruments (Aminian and Najafi 2004; Helbostad and Moe-Nilssen 2003, Zijlstra 2004). However, the approach needs the development of valid, reliable and easy-to-use procedures that give insight into the relationship between objective measures of balance function, the level of activity and the occurrence of falls in older persons.

Work by members of this work package includes the design of protocols which specifically address different aspects of balance function in older persons (e.g. assessment of dual-task performance, sensory dependence, and effects of mechanical manipulations), the use of body fixed sensors for an analysis of balance function, and the development of appropriate methods for signal acquisition and analysis. The work also addresses the validity and predictive value of instruments and procedures for balance assessment.

Activities within this work package encompass the organisation of workshops, the coordination of research, and dissemination of knowledge through publications, teaching and training. In year 1, members had exchange visits and convened in several meetings in order to exchange knowledge and discuss. In year 2 a workshop on balance assessment was organised. Based on this workshop and based on an evaluation of existing instruments and procedures by work package members, an interim balance assessment statement is being produced. In years 3 and 4 members coordinate their individual research efforts in such a way that different research lines support and reinforce each other. The design of studies dovetails in accordance with work in work packages 2 and 4. At the end of year 3 a workshop focussing on the use of body fixed sensors for balance assessment will be organised. Finally, in year 4 final recommendations for objective clinical balance assessment will be produced.

Work package 4: psychological aspects of falling

The objectives of work package 4 are: (a) to coordinate efforts aimed at determining the psychosocial factors which promote or reduce uptake of and adherence to a range of falling-related interventions, (b) to understand attitudes to falls/injury and to falls prevention interventions and behaviour of older persons, by the development of measures to assess attitudes towards interventions (e.g. FES-I, see below), (c) to agree reliable and valid questionnaire measures, which can be used to assess all aspects of falling-related anxieties, and evaluate the effect of interventions on falling-related anxiety, (d) to coordinate development of self-test indices used to evaluate a person's own risk of falling and provide information on how to reduce their risk and (e) to develop guidelines for the design of falling-related interventions in order to maximise acceptability, uptake and adherence in target populations, and promote positive psychosocial outcomes such as increased activity, independence and quality of life.

To accomplish this the work package brings together clinicians, working with different populations of older persons at risk of falling, and social scientists with expertise in psychology of falling, behavioural change, interview-based research and questionnaire design. The group's particular interest is in what motivates elderly people to engage in, or reject, a variety of interventions intended to reduce the risk of falls and injury. Guidelines on remedial action that an older person can do

themselves to reduce risk are an ultimate aim, particularly guidelines on presentation of information that appeals to older persons and that they can relate with (Donovan-Hall and Yardley 2003).

In the first year this work package accumulated qualitative primary and secondary data on attitudes, uptake and adherence to different interventions in different populations in order to identify common relevant motivations and concerns. There was coordination of recommendations and research concerning questionnaires which comprehensively assess all aspects of falling-related anxiety, and these are being validated in several languages to ensure they are comprehensible and comparable.

Views on existing self-tests were sought through the discussion board on the ProFaNE website. At the open meeting existing self-tests were reviewed and recommendations made for their future use and development. It was agreed that during the coming year members would individually develop and begin to validate self-tests, and take these forward for cross-cultural evaluation. The FES-I, an international version of the well known Falls Efficiency Scale (Tinetti et al. 1994) has been developed and validation in major European languages is underway.

Information technology to facilitate transfer of knowledge

The ProFaNE website (http://www.profane.eu.org) has undergone considerable change since it went online and will continue its transformation throughout the project's life to reflect the needs and outcomes of the membership and other visitors. It has been specifically designed to aid accessibility (plain English, easy layout, avoiding jargon and local terminology). The homepage takes you to information on ProFaNE, you can download a newsletter and register on the site. There is a news page covering conferences and meetings of interest to health professionals and an events page covering ProFaNE events. The website currently has both public and private areas, an interactive discussion board for members and another for public discussion on all issues of falls risk assessment and prevention. There are currently about 180 persons registered on the website, and the number is growing rapidly. There have been over 3,000 visits to the website.

ProFaNE also has its own CHAT server which allows typed real-time discussion between members who are online, conference rooms can be opened for multiple users to chat simultaneously, easy file transfer between members and messages can be left for those not online.

Conclusions

In falls prevention the evidence base is changing more rapidly than guideline developers can assess it, with the risk that any guidelines may soon become obsolescent.

The work of ProFaNE aims to advance science, to improve and standardise health care and research procedures and to introduce best practice widely across Europe. This thematic network, although not a research network per se, has already encouraged members to write collaborative research bids, both national and pan-European. ProFaNE is facilitating the exchange of knowledge, expertise and experience across Europe within falls prevention and will allow the efficient implementation of a multi-centre multi-factorial intervention randomised controlled trial to occur at the end of the thematic networks life. The strength of a thematic network is to acknowledge the human dimension of change by bringing people together and to build on the friendships and collaboration that emerge from human contact. ProFaNE encourages interdisciplinary networking across Europe, and a thematic network such as ProFaNE would be a good place to start for those wishing to submit a multi-centre pan-European bid.

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