

Development of a European implementation score for measuring implementation of research into health-care practice: The European implementation score collaboration



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quality improvement programme including guidelines and audit.

ABSTRACT

We propose a European methodology by which to measure the implementation of research evidence into practice in different health-care settings at different levels of the health-care system. A European Implementation Score (EIS) will be developed using a novel conceptual framework to identify what methods are currently successful in implementing research into practice in Europe. We will use stroke care as an example and will assess the transferability of the findings to other vascular disease conditions, such as coronary heart disease.

Background

Effective interventions in stroke care

The evidence base for effective interventions in stroke care and stroke prevention has improved over the last decade. This is particularly evident in the acute and sub-acute

phases of stroke where a number of highly effective interventions are available, such as stroke unit care and thrombolytic treatment in ischemic stroke patients. (National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group, 1995; Hacke et al., 2004; Langhorne and Dennis, 2004). In addition,

guidance for stroke care and secondary stroke prevention is now available in many countries in Europe. In some countries, such as France, existing European or American guidelines are adapted, but in others, including England, Germany, Scotland and Italy, national stroke-specific guidelines are developed and updated regularly. (European Stroke Organisation (ESO) Executive Committee and ESO Writing Committee, 2008; Adams et al., 2007, May; Scottish Intercollegiate Guidelines Network, 1997; Intercollegiate Working Party for Stroke, 2004).

In Europe, the quality of stroke care is audited regularly in some countries, including Sweden, England, Scotland, and Germany. (Heuschmann and Berger, 2006, December; Rudd et al., 2001, October). There are also a number of European countries, such as France and Italy, in which national audit activities are currently not implemented on a national level. There is some evidence to show that initiatives to improve quality of acute stroke care have some benefits in terms of acute and preventive care measures (LaBresh, Reeves, Frankel et al., 2008, February), although the exact benefit of quality initiatives in acute stroke care on improving transfer from clinical research into clinical practice is not well understood.

Translation of evidence into practice

Despite the strong evidence base for stroke care, the availability of guidelines for stroke, and the existence of national data on the quality of care, there is also evidence that organization of stroke care and use of effective interventions in routine clinical care varies considerably across European countries. For example, the data from the European Registries of Stroke (EROS) Collaboration demonstrated substantial inequalities in effective stroke care in six populations across Europe. Within this collaboration, the proportion of stroke patients admitted to a stroke unit varied between the centers from less than 10% to more than 90%. There are also data available on inequalities in priorities given to stroke management across Europe. For example, the results from the EC

BIOMED I and II Stroke Project (1992-2000) show significant differences in resource use, cost and outcome for stroke patients between 12 European countries. On average, higher resource use was associated with improved outcomes in stroke patients, but substantial variations were found across the centers (Grieve et al., 2001, July; Wolfe, Tilling, Rudd, et al., 2004, December). In addition, inequalities in stroke care and stroke prevention were present at the local population level. For example, in the South London Stroke Register, a decrease in most major prior-to-stroke risk factors was observed in white stroke patients between 1995 and 2004 (Heuschmann, Grieve, Toschke, Rudd, Wolfe, 2008, August). However, this advance in risk factor reduction in white patients failed to be transferred to the black patients. Variations in prevention strategies or in access to health-care utilization might account for the observed differences.

Given the variation in the uptake of stroke knowledge, there is a need to identify which methods are successful in improving implementation of research into practice at different levels of the health-care system and in the spectrum of health-care settings.

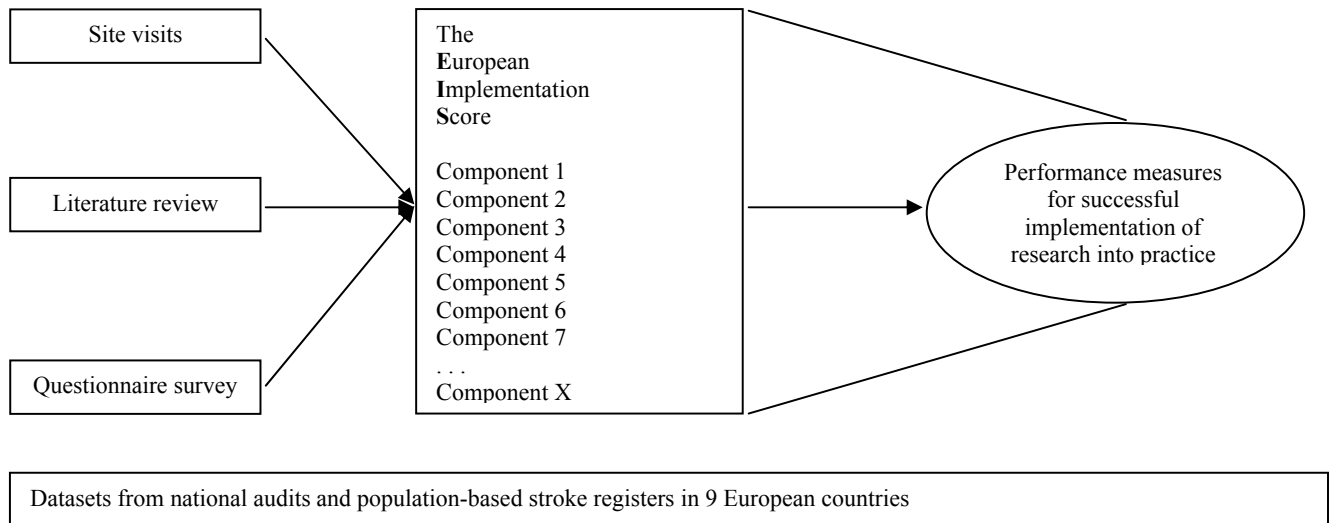
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To address these questions, we will develop a European Implementation Score (EIS) for measuring implementation of research into health-care practice using vascular disease as an example. We propose to develop a new conceptual framework to assess both the barriers to, and incentives for, implementing new knowledge at three levels of the health-care system: micro or patient level, meso or organizational level, and macro or policy level, and in different health-care settings, for example, primary, hospital, and specialized care in different European countries. The overall approach for identifying successful implementation methods includes the following steps:

- Determining currently used methods of implementing research evidence into practice in different European settings in the field of stroke care.
- Developing the EIS based on this information for estimating the degree of implementation of research evidence into practice in different European countries. The EIS will reflect implementation methods currently used in Europe and its development will be based on standardized qualitative and quantitative methodologies, such as case studies, literature reviews, questionnaire-based surveys and site visits.
- Defining performance measures to determine successful implementation of research evidence into practice in key areas of stroke care based on standardized methods, including the constitution of a consensus group, the definition of standards for performance measures and an independent review of the process.
- Identifying implementation methods that determine the successful implementation of research evidence into practice by assessing the association between the different components of the EIS and the defined performance measures using stroke datasets in Europe from national/regional audits and population-based registers.
- Modeling cost effectiveness of different methods of implementing evidence into practice and identifying the costs of introducing optimal implementation strategies at different levels of the health care system.
- Validating the transferability of the methodology developed in the area of stroke in another vascular disease condition by assessing predictive abilities of the EIS in coronary heart diseases.
- Assessing the role of users and patient organizations in the process of implementing evidence into practice in the different European countries and proposing a model for user involvement in stroke research in Europe, using quantitative and qualitative study designs, such as surveys, site visits and case studies.
- Developing recommendations for closing the research-practice gap by identifying successful implementation strategies at different levels of the health-care system and for use in countries that are at different stages of the implementation process.

A brief overview about the overall concept of the EIS project is given below in Figure 1.

Figure 1. Overall concept of the EIS project



The novel approach of this project includes the utilization of stroke datasets from national audits and population-based registers. Currently, seven national audits and seven population-based stroke registers from nine European countries, including the U.K., Sweden and Germany, have agreed to share data for this project. Some of the national audits have good population coverage. However, only limited data are available on patients' characteristics, such as socioeconomics, case mix, clinical parameters and individual outcome; outcome data after discharge from hospital are particularly lacking. Some of the population-based registers have very detailed information on patient characteristics and individual long-term outcome data. The data from these registers might not be nationally representative, however, and the number of patients is obviously limited. Thus, we will use both datasets for developing and testing the predictive abilities of the EIS. Appropriate statistical models will be used for assessing the association between defined performance measures and different implementation methods, including the identification of explanatory variables on individuals as well as aggregated levels using multi-level modeling. Another novel approach is that the EIS will consider implementation activities at different levels of the health-care system (micro-, meso- and macro-level) and in different health-care settings (primary care, hospital, and specialized care).

The aim of the EIS project is to use the unique opportunities currently afforded in the area of health services research in Europe. We plan to utilize emerging research evidence in the area of stroke guideline production across Europe, national audit activities in the field of stroke

care, and governmental policy development for stroke, as well as the experience already gained in the field of coronary heart disease to develop tools for measuring the implementation of evidence into European practice.

The project will reveal much about the current status of the implementation of research into practice, identify future priority areas for service delivery, and suggest strategies for successfully improving knowledge transfer. We expect a high acceptance of the developed recommendations, particularly among the health decision-makers in different European countries, because of the multi-disciplinary setting, the new conceptual framework, the data-driven approach, and the integration of established audit and register activities in the project.

The success of this ambitious project will therefore depend on a truly multi-disciplinary approach to develop the necessary concepts and research methods, involving representatives from the participating registers and national organizations as well as users of care and leading international experts. Within the project consortium, experts from many sectors are represented, including governmental and guideline organizations, health policy, social sciences, patient safety, quality management, epidemiology, public health, health services research, clinical medicine, WHO groups, the Cochrane Collaboration and patient and user groups.

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