

# Day Surgery Data Project

Co-funded by the European Commission under the Programme of Community Action in the field of Public Health 2008–2013 Grant Agreement n° 2008 13 05

## Abstract

Day surgery (DS) development represents a priority being an important opportunity for health systems reorganization. Strong evidence suggests that DS is the best option for 80% of elective surgical operations providing a safe, high quality and cost-effective approach. There is great potential for further expansion of DS in Europe.

Available DS data and indicators present important constraints hindering DS growth and development. The general objective of the project is to validate and define a set of DS standard indicators and, more generally, to develop the information systems on DS in Europe. It will also identify and test potential indicators.

Main methods and means will include the review of existing DS indicators at international level and the assessment of DS data and indicators in participating member states (MSs). Most promising candidate indicators will be empirically tested through a pilot study in a selected group of participating MSs. Comparability of data will also be ensured through recoding of DS procedures. A minimum and ideal list

of indicators will be constructed on the basis of a literature review and results of the pilot study. The project will also devise guidelines for the presentation, interpretation and utilization of indicators.

The project will work in strict collaboration with European Community Health Indicators and other relevant European initiatives in the area of health information systems. The project's strategies and results will be fully applicable to the European context and congruent with the European Union (EU) effort in developing information and knowledge systems.

The expected outcome is a streamlined and standardized DS information system integrated into the EU indicators framework, used by health care policy-makers, DS managers and providers to expand DS and continuously improve its quality, efficiency and equity. A streamlined DS information system represents one of the most important preconditions for improving whole DS systems and their components, such as a network of DS clinics.

**Key words:** Health information system, health indicators, day surgery, ambulatory surgery.

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**Collaborating Partners:** International Association for Ambulatory Surgery

## Project's Rationale

European healthcare systems confront several important challenges, in particular an aging population, the adoption of costly technology, an increasing expenditure above inflation together with shrinking resources and unequal access and quality of services. Some systems experience even tougher choices given a sluggish economy and a health system infrastructure mainly based on large hospitals.

In response to such a context, policy-makers must take strategic decisions capable not only of controlling health-related costs, but above all gaining efficiency, both allocative and operational. Policies also must ensure a good and continually improving quality of health services in all its dimensions, i.e. effectiveness, safety, access and citizens' satisfaction. In addition, policy-makers must guarantee that different population groups have equitable access to services of similar quality and contribute their fair share to its financing. Another challenge originates from the implementation of policies, making sure they do not remain just good intentions or, worse, produce unintended consequences, and are transformed instead into

programs and practices. Increasingly in the future EU health systems will face an ethical dilemma regarding how to assure sustainable and equitable access to effective and safe procedures. The design and implementation of DS systems based on valid and reliable evidence will contribute to the solution to the above mentioned issues.

In most developed countries DS is now considered the best option for 80% of elective surgical operations providing a safe and effective approach. DS rather than inpatient surgery, is increasingly being considered the norm for all patients undergoing elective surgery (NHS Modernisation Agency 2004), rather than simply an alternative form of treatment for a few. The rationale for DS is that it is as safe, if not safer, and of the same quality as those procedures done as inpatient surgery (Policy Brief "Day Surgery Making it Happen", European Observatory on Health Systems and Policies with the collaboration of IAAS, 2007).

Although there are very few clinical trials comparing traditional inpatient and DS, those that have been undertaken show no significant difference in outcomes (Castells et al. 2001; Corvera et al. 1996;

Dirksen et al. 2001; Fedorowicz et al. 2005; Hollington et al. 1999). These, along with a number of non-randomized studies, demonstrate that DS is a safe approach when all the recommended guidelines and organizational principles of a DS programme are followed. Mortality and major morbidity directly associated with DS is extremely low (<1%) (Lemos and Regalado 2006; Shnaider and Chung 2006). Unplanned return visits to hospital and re-admissions within 30 days directly related to day surgery procedures range from 0.28% to 1.5% (Coley et al. 2002; Mezei and Chung 1999; Twersky et al. 1997). Unplanned admissions following surgery can be decreased through the use of appropriate clinical pathways, with one study finding that pathway implementation was associated with an increase in same-day discharges from 21% to 72% and a steady reduction in unplanned postoperative admissions as experience with the pathway increased (Calland et al. 2001).

The peer-reviewed and grey literature show that in most EU contexts DS is not used to its full potential, as shown, for example, by the results of a recent survey conducted by the International Association for Ambulatory Surgery in 19 countries. Another study shows that the percentage of hernia repairs performed as day cases by MSs health services varies between 6 and 73%. The same investigation reveals that the percentage in the USA is almost 90%. Similar variability is apparent for other common procedures like cataract removals. Again the EU is lagging behind the USA and, in this case, Canada too.

Wide inconsistencies concern not only output measures but also policies, strategies, practices and, presumably, outcomes within the same nation and among countries. The incompleteness and unreliability of available data concerning DS in Europe makes the problem more complex. For example, there is ambiguity about data definition (e.g. ambulatory surgery vs DS vs outpatient surgery), discrepancies in databases content and disagreement on the basket of procedures to be monitored. Very little is known about the gender and ethnic perspectives applied to DS services. The evidence regarding this strategic issue for the health sector in Europe is thin and this limits evidence based decisions.

Reliable, accurate, timely and relevant information represents the basis on which knowledge can be generated and sound decisions made at all levels, i.e. strategic, managerial and operational. This project intends to analyse and then streamline and standardize existing data and health indicators on DS. More broadly, the project will strive to make sense of the knowledge produced and share the lessons learned among all MSs and beyond. The project's strategies and results will be fully applicable to the European context and congruent with the EU effort in the development of information systems.

DS represents an innovative tool for health sector reform in Europe contributing to several common objectives such as improving quality of care, controlling cost, enhancing efficiency and possibly equity. Up to now efforts to promote DS in MSs and Europe have been rather patchy, lacking a strategic perspective. One of the reasons behind such a situation is the paucity of indicators and knowledge concerning critical aspects of DS organization and performance, e.g. systems of incentives for providers, outcomes for different procedures and gender issues. A state of the art DS information system will also improve the accountability of clinicians, managers and policy-makers. This aspect fully matches current dominant values and concerns regarding transparency about policy effects, managers capability and providers competence.

## Aim and General Objectives

This project aims at closing the gaps in data, information and knowledge concerning DS in Europe. Such knowledge will be

invaluable for an evidence-based design of DS systems of care. The project will recommend a coherent set of strategic and operational options which will help the design of a streamlined and standardized DS information system in Europe.

This initiative will also explicitly suggest how to bring DS indicators together under an overall framework and address specific actors playing various roles at international, national, regional and services delivery level. The new knowledge will help the formulation and implementation of technically effective, managerially sound, economically sustainable, socially acceptable and equitable DS systems of care in Europe. The indicators will also allow the monitoring and evaluation of current and future strategies and programs and the comparison within the same nation, its regions, and among different MSs. All this will make DS continuous improvement possible. More generally, analyses and recommendations resulting from this project will be relevant to day hospital systems in Europe.

The general objectives of the project are to identify and validate a set of DS indicators and to develop the Health Information Systems on DS in Europe. The recommended set of indicators will comply with the following criteria: reliability, validity, standardization, comprehensiveness, relevance to different users and innovativeness. The standardization of a DS information system will make comparisons among DS managed by different MSs credible. The DS information system will allow the measurement of the effects of policies, i.e. broad aims, strategies, i.e. means to achieve those aims, and programs, i.e. set of resources and activities contributing to the aims, on DS quality, productivity, efficiency and equity. Equity refers to the similarity in the allocation of healthcare resources, access to services and effects on health status among different socio-economic groups.

The project proposes to review the DS indicators available within EU health information projects and other international organizations. It also intends to conduct a thorough analysis of participating MSs DS data and indicators. The enquiry on DS data and information will allow the detection of gaps, opportunities and discrepancies among international organizations and MSs. In addition this initiative intends to test new potential DS indicators especially in the area of effectiveness.

Furthermore the project will contribute standard definitions of key data, practical steps making databases more homogeneous and linkable, standard description, sources and procedures to compute indicators, and reach consensus on a minimum and an ideal set of DS indicators to be recommended for use at EU, MSs and regional levels. The project intends to integrate the standardized DS indicators in the European Community Health Indicators (ECHI). Close coordination with current and completed projects with similar goals will prevent potential overlaps and waste.

In order to assure its integration in the growing European information and knowledge system, the project will work in strict collaboration with ECHI and other relevant European initiatives from its earliest phase.

## Strategic Relevance

There is great potential for further expansion of DS in Europe and its development represents an important opportunity for health systems' reorganization. A recent survey showed wide discrepancies in the adoption of DS among different countries: the percentage of appropriate interventions carried out by DS services showed variation ranging from less than 10% to around 50%. In advanced countries DS is now deemed the best option for about 80% of elective surgical operations.

As a result a DS System represents a crucial opportunity for the reorganization of health services. Such a system can contribute to several key goals pursued by the health sector in Europe: cost control, greater productivity and efficiency, enhanced quality and possibly improved equity. More specifically, DS allows cost cutting, for example through beds and staff reduction, and increases productivity through better scheduling and faster throughput of patients. DS fosters allocative efficiency so that resources are apportioned in a way that maximizes the net benefit attained through their use. DS also enhances operational efficiency, i.e. the proper combination of people, process, and technology coming together to enhance the productivity of surgical services. Without compromising effectiveness, DS can improve safety, e.g. reducing hospital infections, expand access, e.g. shortening waiting lists, and enhance patient satisfaction, e.g. avoiding stress derived from overnight hospitalization. Therefore DS can have a positive impact both on citizens' health status and their satisfaction with service delivery. DS development can also convert into more equitable services both in terms of safety and access.

This Project intends to offer a contribution towards the attainment of the objectives of the Second Health Programme, i.e. first and foremost to generate and disseminate health information and knowledge and, secondly, to promote health, including the reduction of health inequalities.

Participating MSs comprise distinct religious and cultural traditions, face dissimilar economic maturity and have diverse levels of prosperity and equity in the distribution of wealth. Participating nations have disparate populations and size, are located in every major area of Europe: north (e.g. Sweden), south (Italy), centre (France), east (Hungary) and west (Portugal). Furthermore, their institutional integration in the EU varies because some have recently joined the EU and some others are funding MSs. The Project will also investigate DS services through the gender perspective, looking, for example, at possible differences in DS services utilization by gender. The wide representation of countries participating in the Project will make the diffusion of its recommendations among all MSs easier. At the same time, the relatively limited number of involved MSs will facilitate a smooth management of the project.

## Methods

The review of existing DS indicators at international level and the assessment of DS data and indicators in participating MSs will be carried out on the basis of research protocols designed by representatives of the national associations for ambulatory surgery who are also members of the Executive Committee of the International Association for Ambulatory Surgery (IAAS). The IAAS is made up of 23 national ambulatory surgery associations and is the only organization specifically dedicated to the development of high quality ambulatory surgery across the world. These professionals comprise the best expertise in the field. The research protocol will adapt objectives and methods used by Caisse Nationale d'Assurance Maladie des Travailleurs Salaries in a study on ambulatory surgery in France. The EU health indicators framework will provide another important background.

The evidence regarding existing gaps in DS indicators at international and MSs level accompanied by a review of the literature will identify potential indicators. Those deemed most promising candidates will be empirically tested through a pilot study in a selected group of participating MSs. From a scientific viewpoint, such investigation will represent the most challenging phase of the project because it involves linkages among databases, analysis of reliability and validity and building probabilistic models, specifically multiple logistic

regressions.

Standardization of DS data and indicators at MS level represents a prerequisite for comparing the outputs and effects of different policies and programs. A list of basic definitions of DS will be drawn in accordance with the "IAAS Suggested International Terminology and Definitions", the definitional framework used in the International Compendium of Health Indicators (ICHI) and in the OECD System of Health Accounts (SHA). Comparability of data will also be ensured through a recoding of DS procedures. The minimum and ideal lists of indicators will be constructed on the basis of a literature review, in particular the set of indicators recommended by the IAAS, the French and Australian clinical indicators and the EU health indicators framework and the results of the pilot study.

The project will devise a strategy to ensure coordination with European Community Health Indicators Phase 2 and an integration of the recommended lists of DS indicators into the EU framework indicators and MSs health information systems.

Most of the methods, analyses and results of this project will be easily reproduced by international, national and local health administrations not involved in the initiative. Rather complex methods, such as the creation of mathematical probabilistic models, e.g. multivariate logistic regressions, may be developed by national agencies or with the help of local universities. The analysis and interpretation of the inverse association between volume and outcome, equity of access and of outcome and size of catchment areas are straightforwardly reproducible to fit different geographical areas.

The project will be led by a Scientific Committee (SC) consisting of one representative for each associated partner and five representatives from the Collaborating Partners. The technical activities will be carried out by Working Groups consisting of experts in Day Surgery, biostatistics, epidemiology and public health. For the evaluation of the project, the SC will be assisted by an Assessment Group. The SC will be assisted by an Expert Team consisting of one international expert in epidemiology/public health and one international expert in biostatistics.

## Expected outcome

The expected outcome is a streamlined and standardized DS information system integrated into the EU indicators framework, used by healthcare policy makers, DS managers and providers to expand DS and continuously improve its quality, efficiency and equity. A streamlined DS information system represents one of the most important preconditions for improving whole DS systems and their components, such as a network of DS clinics.

## Dissemination

The dissemination plan foresees

- the implementation of the official project web-site offering relevant information about the project and its development, as well as the main outputs;
- presentation of intermediate and final results of the project on the IAAS ([www.iaas-med.com](http://www.iaas-med.com)) as well as on the partners' websites.

The dissemination will be co-ordinated by the main partner, who is in charge of the implementation and updating of the website. The associated and collaborating partners will co-operate in the dissemination among the national institutions. Finally, all the partners will promote the project and its results among the stakeholders in their own country and provide information to any institution or individual requesting it.