Improving the continuity of patient care through identification and implementation of novel patient handover processes in Europe

HANDOVER – 2008 - 223409

Project Deliverable Report

Deliverable nr D12 – Dissemination of the HANDOVER Project—Final Report

| Work Package | 7 |
| Task         | HANDOVER final report |
| Date of delivery | Contractual: 01-10-2011     Actual: 14-10-2011 |
| Code name    | Version: 1.0 Draft Final |
| Type of deliverable | Report |
| Security (distribution level) | Public |
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When a patient’s transition from the hospital to home is less than optimal, the repercussions can be far-reaching – hospital readmission, adverse medical events, and even mortality (www.handover.eu). This discontinuity of care (i.e., the responsibility for the patient is handed over from one caregiver to another) can lead, if not acted upon properly, to severe adverse events to the patient and enhanced costs to the system. Deliverable 12 is the final report of workpackage 7 and the last deliverable of the European FP7 project.

The deliverable provides a summary of the development of the HANDOVER Toolbox (Chapter 2), the HANDOVER website (Chapter 3) and the Expert Meetings (Chapter 4). Chapter 5 provides information on the final Expert meeting in Florence (Sept. 23rd, 2011). The deliverable ends with recommendations for policy makers at all levels of the European Union to improve and oversee handover policy.

Handover, recommendation about handover, patient safety, barriers, facilitators, primary care/ hospital interface, intervention mapping, systematic review, effectiveness, European Union.
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RECOMMENDATIONS

Recommendation 1: We recommend to promote a convergence of clinical handover practices across Europe in light of the Directive on Patient Rights in Cross Border Healthcare through the use of different strategies and policies at national levels.

We further recommend to do this by:

- Including multi-professional education and training in handover at all levels of health professional education curricula
- Including the assessment of handover competencies in the assessment of health professionals
- Supporting EU citizens and patients involvement in handover practice
- Recognize the active role of patients, carers and family members in the handover process
- Strengthen interprofessional and patient collaboration in relation to handovers;
- Widely support the dissemination, pilot testing and roll out of the HANDOVER Toolbox
- Invest in research, knowledge transfer, sharing of good practices and shared IT systems at the primary care-hospital interface.
- Acknowledge the significance of the social sciences and sociological components in EU health service and improvement grant applications.

Recommendation 2: Encourage EU Member States should consider using the examples of Handover evidence – based good practices of other member states in developing their handover strategies.

We further recommend to do this by:

- Including handover in health professionals education and training at all levels;
- Involving healthcare policy leaders in management in handover practices at the national and regional levels;
- Redesigning the handover processes involving the regular economic incentives, inbuilt into care reimbursement systems;
- Providing handover improvement infrastructures including dedicated and adequate resources, IT systems and staffing, e.g. transfer nurses; investing in electronic platform for integrated database of healthcare systems (European, national, local); Internet Patients Account (IPA), ePrescription, teleHealth and eHealth services;
- Agreeing on a uniform referral and discharge format, medication checklists, and handover content;
- Stimulating multi-professional training and collaboration in improved teamwork and communication skills; and,
- Increasing the cooperation with social care services and patients organizations.

Recommendation 3: Involved EU citizens and patient organizations in all aspects of improving patient handovers.

We recommend to do this by:
- Involving patients and explore opportunities to participate actively in the handover process;
- Create co-productive education programs for citizens/patients and families regarding the safe handover, admission, discharge and follow up care;
- Identify effective roles for patients and carers while being cognisant of (i) the many pressures on patient at a time when they are at their most vulnerable and least assertive (ii) the need for patient/carer education.
- Encouraging patients and patient/citizen organizations to share with health care providers their views and experience on handovers in order to facilitate improvement; and,
- Exploring and promoting the need for a patient-held record which would stimulate questions, increase compliance and vigilance relating to changing circumstances and foster partnership.

Recommendation 4: Hospital and primary care organizations can accelerate the improvement of handover practices by supporting:
- Joint, multidisciplinary education activities about improving handover;
- Learning collaboratives between primary care and hospital organizations work to develop better handover practices with emphasis on the development of uniform referral and discharge forms, handover content, medication checklists; and,
- Shared (hospital and primary care) IT systems developed and in place.

Recommendation 5: We encourage professional organizations and medical societies by:
Assuming the leadership role in promoting the involvement and support of professionals in implementing quality handovers and generating change;
- Introducing education and training in handover in the curricula and in clinical competence development initiatives for healthcare professionals at all levels in
order to develop strong, engaged and informed professional engagement in the handover practice;

- Develop and support standardized handover guidance, e.g. checklists for the transitions of patient care;
- Provide support to health care organizations in implementing EU wide handover practice (linking with universities and professional organizations).

Recommendation 6: The European Union should increase and support further funding for research by:

- Allocating funding support for research on implementing best handover practices;
- Applying the lessons learnt from the HANDOIWER research program; and,
- Secure and fund a repository of knowledge on handover practices and research.
CHAPTER 1. OBJECTIVES

1.1 Introduction

The decrease in hospitalization period, the change in work-hours of health-care providers and the increasing number of transitions of patients between institutions and care services, put strains on the healthcare systems and puts patients at risk. Handover risks are especially acute for vulnerable groups (i.e. elderly and very young) and high-risk patients with multiple co-morbidities (Halasyamani et al, 2006; Barach et al, 2009).

Continuity of care, either for a patient referral to a hospital or at patient discharge from the hospital (further referred to as ‘handover’), is a critical aspect of safe and high quality patient care. This requires close cooperation between healthcare professionals across organizational boundaries, thereby forming an interdisciplinary network (Cohen and Bailey, 1997) or clinical micro system (Barach and Johnson, 2006; Mohr et al, 2004). “The primary objective of a ‘handover’ is to provide accurate information about a patient’s care, treatment and services, current condition and any recent or anticipated changes.” (JCAHO1, 2005).

Interest in clinical handovers has grown steadily over the past decade as researchers, hospital administrators, educators and policy makers have learned that poor handovers, caused by poor reporting, incomplete information and communication errors, often increase the chance of adverse events for patients that may ultimately lead to life threatening situations, avoidable treatment, unplanned re-hospitalizations (Cheah et al, 2005; Simpson, 2005) and a considerable amount of extra costs to the system (Bates et al, 1997; Classen et al, 1997).

The assumption is that health care professionals generally feel a sense of responsibility for the care they provide their patients and for the outcomes of that care. Errors are rarely due to personal failure, inadequacies and carelessness, but often result from defects in the design and conditions of the work and the work environment (Leape, 2000).

A 2003 report from the U.S. based Agency for Healthcare Research and Quality (AHRQ) to the Senate Appropriations Committee identified the eight most common root causes of medical errors (Rockville, 2003). The causes are: (1) communication problems; (2) inadequate information flow; (3) human (or performance) problems; (4) patient-related issues; (5) organizational transfer of knowledge; (6) staffing patterns/work flow; (7) technical failures (8) inadequate policies and procedures.

1.2 Objectives

The overall objective of the EU HANDOVER Research Collaborative is to optimize the continuum of clinical care at the primary care hospital interface. The project examines how to reduce unnecessary and avoidable treatment, medical errors and loss of life, by identifying and studying best practices and creating standardized approaches to handover communication at the primary care hospital interface. It will endeavour to measure the effectiveness of these practices in terms of costs and impact on patients.

The aims of Workpackage 7 are to:

1. Develop consensus among experts on tools to improve handovers in clinical care (and translate these into recommendations);

2. Foster adoption of safe and effective handover practices based on findings of participating units by stakeholders and the general public.

The main deliverables of WP 7 have focused on dissemination of the results of the project. Deliverable 12 is the final deliverable of the Handover project and presents how the project research is translated into practice by means of recommendations and products. The recommendations are aimed at the European Union, EU Member States, hospitals and hospital organizations, primary care organizations, professional organizations and medical societies, patients and patient organizations, educators and researchers. The products include the Handover website, Handover Toolbox, the 12 reports and the peer review published papers.

The Handover Toolbox [www.handover.ou.nl](http://www.handover.ou.nl) is an interactive platform and the compendium of knowledge about education and training in handovers as well as the library of practices, tools and techniques related to patient handovers. The interactivity of the handover network facilitates the sharing of experiences and practices in handovers. The added value of the toolbox is to emphasize the importance of handovers in the process of care and the significance of education in the field. The HANDOVER website [www.handover.eu](http://www.handover.eu) was developed, administered and hosted by the beneficiary from Poland, National Center for Quality Assessment in Healthcare (NCQA) in Krakow, with the support and involvement of the whole HANDOVER project team. The site presents the functionalities that were requested by and expected of the group and provides a compendium of information on handover, both in Europe and globally. Information is available in English but also in the native languages of
project partners: The Netherlands, Italy, Poland, Sweden, Spain, and the United Kingdom (see also Chapter 3).

Deliverable 12 also includes guidelines regarding content, design and practicality of tools and practices based on trials with training experts from 5 countries: Poland, Italy, The Netherlands, Spain and Sweden. See Chapter 2 and Deliverable 9 for more information.
1.3 Description

Workpackage 7 contains recommendations based on results of the HANDOVER research (workpackages 2, 3, 4, 5 and 6) that were be provided to the European Commission and other groups and levels of the healthcare system, i.e. the EU Member States, hospitals and hospital organizations, primary care organizations, professional organizations and medical societies, patients and patient organizations, educators and researchers. The results of the workpackages were also submitted for publication in peer-reviewed journals and produced 2 PhD Research Theses.

Workpackage 7 further comprises the following elements:

• Trial of Handover Toolbox in partnering countries/institutes: the developed tools and training packages were tested in five of the partners’ institutes (i.e. Sweden, Poland, Spain, Italy and The Netherlands). The handover toolbox was also evaluated by the experts during two expert meetings. Deliverables of the EUNetPas project have been reviewed with a promising perspective to relate the research on HANDOVER to the work planned within the EU Joint Action on Patient Safety and Quality of Care.

• Development of an interactive, comprehensive, user friendly website that supports and brings together the knowledge around handovers with a specific focus on the reservoir of good, existing handover practices. Also co-development of the Handover Toolbox – a library comprising educational methods, techniques and practices.

• Co-organizing of the two Expert Meetings to provide an evaluation of the Handover research, trials and the results of WP2, WP3, WP4, WP5 and WP6 by experts of the field. The participants of these meetings included the project partners, representatives of the European Commission, national governments and relevant stakeholders from both primary and hospital care levels (e.g. WONCA Europe, the European Society for General Practitioners) as well as experts from the relevant US authorities and representatives from pan-European and national patient organizations (e.g. European Patient Forum; ESQH Padova Office on Patient Centeredness).

• Report from the expert meetings. Deliverable 12 is based on the findings and recommendations from the diverse group of experts participating at the 2 expert meetings. The final project recommendations were provided to the European Community, addressing the stakeholders of different groups and levels.
Co-organizing the final conference on handovers at the primary care / hospital interface in Florence 2011 in cooperation with the project team from Italy and with input from all the project partners. The conference presented the overall results of HANDOVER research to an international audience from the EU, USA and Australia, focusing on the challenges of practical implementation of the HANDOVER recommendations.
CHAPTER 2. EVALUATION OF THE HANDOVER TOOLBOX

During the course of Workpackage 4, it was decided to reframe the initial idea of designing a blueprint for handover training into the idea of designing a handover toolbox from which training could be composed. The first reason for this shift was that training experts in the medical domain across Europe indicated that they face a range of different handover issues. They work in different European contexts with various professional groups in different kinds of settings. A blueprint for handover training would not meet their local needs and conditions.

The second reason was that investigation of the handover practices in different European countries indicated a range of handover challenges that were partly country-specific and differed across settings. This led to the conclusion that it was not recommendable to develop a single model or solution for improving handover practices. The absence of a practical model made it impossible to create training content or a blueprint for a handover training that could address all handover problems.

In order to address the various handover situations and training needs, a toolbox was designed that offers various kinds of support (e.g. access to a set of preferred and/or evidence based tools to improve handover practices). The toolbox also features a social network environment that allows members to contribute their own information, comment on the contributions of others, or start discussions on a range of different topics. The main advantage of the Handover toolbox lies in its potential to become a leading online network for those interested in improving handover practices. Members can continue to contribute to the toolbox, which will result in a viable and ever-evolving network that stays up-to-date, as opposed to websites that become outdated after the project ends.

A staged approach has been applied to the Handover toolbox in which design activities and evaluation activities were closely connected. First, a paper-based version of the toolbox was composed, followed by a first and second prototype resulting in a final version of the toolbox. Table 1 presents the set up and main findings of the evaluation activities during the design process. Data was gathered from different groups, such as Handover project team members, external experts and potential users of the toolbox.

The evaluations contributed to improvements, further development and customization of the toolbox to its intended end-users: training experts, doctors, nurses, (medical) students and stakeholders such as patients and patient safety organizations. The Handover toolbox offers easy access to information that presents findings of the Handover project and sufficient
opportunities for active participation and contributions of its users. Deliverable 9 provides a detailed description of the design and evaluation of the Handover toolbox.

Figure 1: Functionalities offered by the Handover toolbox
<table>
<thead>
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<th>Version</th>
<th>Content</th>
<th>Set up of the evaluation</th>
<th>Main findings/suggestions</th>
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<tbody>
<tr>
<td>Paper-based version</td>
<td>Set of PowerPoint slides that provide insights into backgrounds, requirements and look and feel of the toolbox. Aiming at creating commitment within the project.</td>
<td>Utrecht, June 25&lt;sup&gt;th&lt;/sup&gt; 2010. Presentation of the PowerPoint slides followed by a discussion with representatives from Workpackages 1, 3 and 5.</td>
<td>Do not focus exclusively on training experts as target group. Balance between traditional website and the social network functionalities for active contributions to the toolbox Pay sufficient attention to user-friendliness of toolbox.</td>
</tr>
<tr>
<td>First prototype</td>
<td>Working toolbox in Elgg platform, including all functionalities and content provided in ‘groups’ related to different themes (e.g. training methods, needs assessment). All information in groups is provided in a similar structure.</td>
<td>Brussels, 15&lt;sup&gt;th&lt;/sup&gt; October 2010. Presentation of the toolbox, followed by discussion, One presentation of the toolbox for 22 project team members and one presentation of the toolbox for 40 external experts from various countries. The Plus-Minus-Interesting method was applied to generate comments during the presentations and discussions.</td>
<td>The idea of the toolbox is welcomed More attention should be paid to explaining its purpose and intended audience Findings of all Workpackages should be included in toolbox. Pay sufficient attention to increase the usability of the toolbox.</td>
</tr>
<tr>
<td>Second prototype</td>
<td>Working toolbox in Elgg platform including all functionalities. Both a dynamic part organized around a specific subtheme (i.e., the groups) and a static part that presents the main project findings, including references to the most evidence-based tools.</td>
<td>Spain, Sweden and The Netherlands. Hands-on sessions with 13 users. Amsterdam, April 8&lt;sup&gt;th&lt;/sup&gt; Presentation Handover toolbox for 17 experts from various countries aiming at generation comments and discussion.</td>
<td>Toolbox has potential but more emphasis needs to be placed on clarifying purpose and target groups, and improving its usability. Potential users will presumably only have limited experience with manoeuvring in social network environments. Strategic issues beyond closing Handover project (e.g. financial resources for hosting, reaching out to non-English speaking audience). Suggestions for adding content to particular groups within toolbox.</td>
</tr>
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CHAPTER 3. DEVELOPMENT OF HANDOVER WEBSITE

3.1 Aim and overall description

The main activities of WP 7 are focused on dissemination of the results of the project. This was accomplished at an early project stage with an active HANDOVER project website developed and administered by Krakow, the beneficiary from Poland, National Center for Quality Assessment in Healthcare (NCQA), with the support and involvement of the whole HANDOVER project team. The website is hosted by the NCQA server and the domain and address www.handover.eu were agreed on by the project Consortium.

The site presents the functionalities that were requested and expected by the group and provides a compendium of information on handover, both in Europe and globally. The aim was to create a detailed website that will help support and bring together the knowledge community around handovers, with specific focus on the reservoir of good, existing handover practices and a toolbox for educational methods and techniques. According to the partners and expert opinion this has been achieved. The information is available in English and partly also in the native languages of the project partners: Dutch, Italian, Polish, Spanish and Swedish.

3.2 Concept

The site composition is based on MS Office package, Firefox web browser and several advanced user-friendly internet sites. The goal was to develop a website that allows simple and intuitive navigation and is flexible with regard to adjusting the content according to project needs. The site has an aesthetically pleasing graphic design aimed at attracting users and involving them in the website’s content. The color scheme (green, dark and light blue) corresponds to the project logo and along with type, size of font, icons used, etc. (anchored in standard usability literature) allow for “non tiring” and “non irritating” browsing.

The site is managed by the general CMS, serviced by the site administrator from NCQA.
3.3 Functionality

The site has been designed for a PC with 1024x768 px resolution, although the content automatically adapts to the requirement of higher picture definition. The site correlates well with all popular web browsers, i.e.: Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, Netscape, AOL and Opera.

The site code ensures appropriate display of text in different languages of the project partners. Attachments are allowed in the formats of MS Office 2000/XP/2003/2007, rtf, odt, text files, pdf files, jpg, gif, png, swf, mpg, mp3, avi, wmv, zip, rar, and with icons; allowing group file saving on the server. There is a possibility of publishing graphic files and animation in the general accessible formats (JPG, gif, png, swf, mpg, avi, wmv).

"What’s New" takes us to the tab "Events" where the article opens either by clicking on the title link or by clicking on the photo of the article, which provides additional site functionality allowing quicker and simpler access to information.

The site allows for automatic creation of service maps and online reproduction of the audio/video files with the visible steering panel (pause, stop, play, volume).

“Recommend this site” and “print” mechanisms are used. Additionally, the site is accessible for users with impaired eyesight: after pressing the "loudspeaker" button the text is read out loud.

Site functionality is not limited to technical solutions: for partner use, the Sharepoint area has been developed that allows sharing and exchanging files, creating interest groups and picture galleries, leading discussions, etc.

There is a public and a restricted area on the site: access to the latter is for project partners and requires registration and acceptance by site administrator.

3.4 Security

The built-in security mechanisms protect the site from unauthorized access attempts. The administrative panel, accessible via http protocol, allows administrator access from any location worldwide.

The new user registration and “Contact Me” areas involve the CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) security mechanism protecting against spamming devices. The hierarchy access mode has been employed: individuals with authorized access have their own login and password. The site administrator can access the data and files of all site users.
### 3.5 Public area - structure and content

**Home page structure**

The site consists of three major parts:

1) The header (top part)
2) Main content (middle part)
3) Footer (bottom part)

The **Header** includes (see below):

- The swift home page return button "HOME".
- Buttons „Sign up” (registration of the new user) and „Log In” (logging in of registered user).

  The use of „Sign up” button leads to the registration area (for partners and file exchange platform). Registration requires provision of one's name, surname, mail address, phone number and organization name. This information is verified by the admin who accepts or rejects the registration.

  The use of „Log in” button guides the registered users to the file exchange area.

- The search box allows users to search for content with one or two keywords, is always visible and provides the search results grouped according to phrase’s site position and the date of placement (most recent first).

- The big HANDOVER project logo positioned above the menu.

- The header menu is pasted into the site graphics and allows for an instant relocation among the different site parts.
Main content (middle part)

This part consists of dynamic elements that can change when the different tabs are visited (see below). The home page consists of several panels: the central one is a flash animation window, made up with photos provided by the project partners, showing symbolic patient information transfer at different levels of the healthcare system.

There are also national flags of the project countries, which are active and -when clicked- lead to the HANDOVER Project description in the respective language (6 countries: Spain, The Netherlands, Poland, United Kingdom, Sweden and Italy). The “national language” description is activated by clicking the „Read more” button.
The panel on the left (“What’s new?”) provides an update on project development with the most recent information placed on the home page (see below). Clicking the “What’s new” button displays the whole list of news, together with photos and the blurbs attached. The “Read more” button directs users to the full information/article content. Previous news is stored in “Events”.

![Image of news section]

The panel on the right is an area designed for patients: “Share your handover story” where they can post their experience related to handovers in healthcare.

The patient’s story is automatically placed on the site. Admin supervises the lexical content and decides whether or not the post is appropriate.

![Image of patient story section]
The Footer
At the bottom of the site, just above the footer, the term “Handover” and its synonyms in different project partner languages are presented within site animation design, pointing to the main focus of the project.

The footer further consists of the site map, latest site update, swift navigation buttons and site positioning according to frequency of site visits.

Tab structure
The website consists of several tabs presented below.
- Project info
- Partners
- Workpackages
- Library
- Events
- PhD corner
- Contact info

The HANDOVER site is simple, clear, user friendly and allows for intuitive navigation. The header (logo, menu) forms the coherent entity of the website, along with graphic elements and are visible for all tabs. The user can therefore identify site location quite easily. For each tab the header remains the same, but functionality for each tab depends on the content and can contain a combination of / or all three of these functionalities: “Recommend to a friend”; “Print”; and “Loudspeaker”.

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**Project info tab**

This tab contains all project information in which the content of the project is explained. Not only in English, but in all native languages of the project partners (Dutch, Italian, Polish, Spanish and Swedish). Furthermore, deadlines & content of the deliverables are shown and described (title, authors, abstracts, keywords) and finished deliverables can be downloaded. The EU Health Care context, research objectives and milestones are also found here.

**Partners tab**

This tab contains information on the project partners (where all organizations introduce themselves), with logo, contact details, description of institution, etc. and qualifications of all members of the research team.

There is a description of the 8 partners and their respective organizations: University Medical Centre Utrecht (UMCU), The Netherlands; Avedis Donabedian University Institute, Autonomous University of Barcelona (FAD), Spain; University of Birmingham (BHAM), United Kingdom; National Center For Quality Assessment In Healthcare (CMJ/NCQA), Kraków, Poland; Azienda Sanitaria Firenze (ASL), Italy; Scientific Institute for Quality of Healthcare (IQ healthcare), Radboud University Nijmegen Medical Centre, The Netherlands; Karolinska University Hospital, Huddinge, Sweden; Centre for Learning Sciences and Technologies (CELSTEC) of the Open University of the Netherlands (OUNL).

A picture of the HANDOVER project team is presented here and on the Google map all partner institutions are marked, including photos and contact details.
Description of the institution

The Avedis Donabedian Institute (ADI) is a nonprofit organization that supports quality efforts in health and social care in Japan, the United States, and in other countries around the world. ADI is named after Sir Avedis Donabedian, MD, a pioneer in healthcare quality assessment. ADI focuses on research and training in healthcare quality assessment methods and their application in healthcare organizations. The institute is dedicated to advancing healthcare quality improvement through education, research, and collaboration.

Partner information

The Avedis Donabedian Institute (ADI) is supported by various universities and organizations around the world. These partners contribute to the institute's mission by providing resources, expertise, and collaboration opportunities. The list of partners includes universities, research institutions, and other organizations that share ADI's commitment to improving healthcare quality.

Research team and qualifications

Key team members at ADI include qualified researchers and advisors with extensive experience in healthcare quality improvement and research. The team's qualifications and expertise are critical to the institute's ability to conduct high-quality research and provide valuable insights to healthcare organizations seeking to improve their services.
Workpackages tab
This section provides the description of all workpackages: their leader profiles, objectives, description of work, role of participants and deliverables.

There are 7 workpackages and they comprise the following:

- WP1 - Consortium management and assessment of progress and results
- WP2 - Assessment of handovers between different microsystems at the primary care / hospital interface;
- WP 3 - Identify basic elements for effective communication;
- WP 4 - Development of intervention training packages;
- WP 5 - Assessing the Safety Climate/Culture;
- WP 6 - Assessment of effectiveness of the intervention;
- WP 7 - Inventory of best practices throughout Europe; choosing priorities, taking into account cultural differences between European regions; and dissemination of results to stakeholders.

Library tab
The Library is where the presentations, project reports to the EU, articles, publications by the project team and its network, patient and clinician narratives and multimedia are placed. All library documents have summaries and can be downloaded. Furthermore, anyone can add narratives to the website on good or poor handover experiences. There are also videos
on handovers and related issues. The library section serves as a reservoir of knowledge and good, identified handover practices.

**Events tab**

The Events tab presents events, narratives and photos of HANDOVER partner meetings in several European countries and also serves as a place for announcing project news.
PhD corner tab

The PhD Corner tab where the two HANDOVER project PhD students introduce themselves and their PhD project related work (including the articles they are going to submit/have submitted on research findings).
Contact info tab

The contact info tab is where people can find the names and contact details of the Project Leader and Project Manager in order to obtain more information on the HANDOVER project.
3.6 Authorized user area – structure and content

Access to the platform is restricted to partners and the project consortium and for registered users only. The platform allows for the exchange of files, news, adding commentaries, forming the focus groups and projects. The platform is reviewed by the administrator and functions based on available solutions from Google Docs, Teamspace, Basecamp, etc.

Authorities – hierarchy of access to website content and functions:

Administrator
- ability to review platform content
- adding/deleting project content
- adding/deleting files
- adding/editing/deleting notes in calendar
- adding/editing/deleting gallery content
- accepting and ascribing user authorities (Leader, Editor)
- creating teams and workgroups

Leader
- ability to review platform content
- adding/deleting project content
- adding/deleting files
- adding/deleting notes in calendar
- adding/deleting gallery content
- creating teams and workgroups

Editor
- ability to review platform content
- adding/deleting files

Registration

Registration (signup.jpg) is via the registration form and verified by the administrator, who provides the users with adequate authorities. After filling out the application form, the
system generates two emails to the user and to the admin. These are automatically saved in the user database.

The mail message sent to users is as follows:

“This is an automatically generated e-mail from the Handover project website regarding your registration.

Please be informed that your personal details (given during registration) are now being checked. After successful verification, you will get full access to the user area of the Handover website. Activation message will be sent in separate e-mail (to address provided during registration)”.

With admin acceptance of the user, the user account becomes activated. From that moment the user may log in and use the site content. The confirmation note reads as follows:

“This is an automatically generated e-mail from the Handover project website regarding your registration.

Your registration to the Handover website was successful. From this moment you have access to the user area of the Handover project website.

Please find below your login and password:

Login: ......Password:......

Welcome to Handover!”

In case the admin does not accept the user, the user gets the following note:

“This is an automatically generated e-mail from the Handover project website regarding your registration.

Registration failed. We could not verify your personal details. Please be informed that access to the user area of the Handover website is possible for project members only. See member list (here a link to the „Partners” tab at HANDOVER homepage).”

Logging in is achieved by typing one’s login and password, provided by the automatically generated message.

The “Forgot your password” mechanism appears at the login tab.

My account (after logging in) can be found below the functionalities and is available for all registered users and project partners.
CHAPTER 4. EXPERT MEETINGS

4.1 Overview

In some countries, the only empowerment, participation and accountability a patient has is the responsibility of transferring the information about their own care and health findings from hospital to primary care healthcare providers and vice versa. To address this challenge the HANDOVER network has undertaken many initiatives. These include establishing a core of handover knowledge and expertise by identifying experts in the field at a European and national level and organizing two expert meetings. The two meetings significantly contributed, not only to generating innovative dimensions of handover research within the project, but also to projecting future developments regarding optimizing the continuum of care.

On October 15th 2010 the first meeting of the European Union Handover Collaborative Expert Meeting was held in Brussels, with the aim to review the FP7 European Handover Project. The following perspectives were addressed: Handover Project grant and its six deliverables, the barriers and facilitators to patients’ discharge, and the cultural drivers and roles of patients and providers to improve handovers. The Collaborative Expert Meeting aimed to get feedback from experienced professionals from different countries and institutions across the European Union and from other countries in the cost effectiveness phase of the studies and developing the educational toolbox.

On April 7th 2011 the 2nd Expert Meeting was held in Amsterdam, during the International Forum of Quality and safety in Health Care. At this meeting the entire project was presented and the HANDOVER toolbox was evaluated.

The third and final meeting was held on Sept 23 in Florence Italy and will be described in detail below.

4.2 Experts

Participants at the Brussel, Amsterdam and Florence meetings included experts from Austria, Australia, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Ireland, Italy, Malta, Norway, Poland, Portugal, Spain, Sweden, Switzerland, The Netherlands, United Kingdom, and United States of America and also the EU FP-7 partners’ representatives from Italy, Poland, Spain, Sweden, The Netherlands and United Kingdom. The experts consisted of representatives from the European Commission, European Society for Quality in Healthcare, Haute Autorité de Santé, World Health Organization, Nurses Associations, Physician associations, Patient associations, Patient Safety organizations,
Universities and Public Authorities, and other relevant stakeholders. In total 70 people participated at the Brussels meeting, 40 people at the Amsterdam meeting and over 110 at the Florence meeting.

4.3 Expert feedback & research

A special working and exchange area was designed as a shared platform for experts on the HANDOVER project website. The experts were asked to contribute to the issues listed, which were significant to further development and advancement of the handover project. Seven questions were addressed to the invited specialists. The HANDOVER project reports were circulated to optimize the expert comments and feedback during the meeting sessions. The opinions have been synthesized and are presented below.

**Question 1** Which measures are most suited to assess the impact of system interventions aimed at improving patient handovers in the primary-secondary care interface? (i.e. organizational, educational, regulatory, financial, etc). Please prioritize where you believe the most impact will be experienced by the various types of interventions.

Participants emphasized the importance of using different measurement approaches and indicators that should be carefully selected so as to be able to reflect the interventions planned and implemented. Some good examples were triangulation of different methods, clinical audits and tracking care pathways.

The measures best suited to assess the impact of interventions are: standardized procedures, (organizational factors) and the number of providers who have competencies to handover patients safely. Reports on adverse events, readmissions to hospitals, missing information (patient name or address, clinical information, adverse event report, etc), professional and patient opinions/satisfaction, protocols and routines available are examples of outcome measurements.

**Question 2** What are feasible study designs to study and improve patient handovers? What is your estimate of the plausible impact of these interventions under ideal circumstances?

Both quantitative studies (descriptive, cohort and randomized controlled trial) using large sample sizes and qualitative studies are important tools to better understand handovers and the different processes involved. The focus of handover studies should include: organizational
aspects, provider and patient characteristics, regulations and financial perspectives. Short time evaluations are helpful for constant improvement and mentality change.

**Question 3** Improving patient handovers will depend on multiple factors, only some of which can be influenced by training: what do you think is the proportion of handover processes that fail with or without patient harm that can be decreased by training?

First, it’s essential to identify what are the causes related to handover failure. For example, if the failure is related to the health professionals’ knowledge and skills or more related to a lack of communication skills. Then, continuous evaluation needs to be in place as well as training to address not only technical knowledge, new procedures and protocols but also behavioral changes and communication skill improvement. In-service training should be tailored to real work settings and needs. Handover should be included in the mandatory national curriculum and can also help to influence a positive handover culture. Incentives can help create positive outcomes and are a useful tool in modeling behavior.

**Question 4** How can we make care professionals in practice and in training more aware of the importance of the handover process?

The main goal is to engage professionals and this can be addressed in different ways. Professionals from primary care and hospitals should be involved from the beginning; participating in case-analysis, identifying barriers in context related situations and defining measurements at the local level. Also, the results must be shared with clinicians aiming to improve responsibility sharing and accountability. Furthermore, benchmarks for international and national settings should be identified, as well as sharing the available evidence of effective interventions. In addition to outcome and process measurements, patient’s experiences and opinions are also important to be shared with health care providers involved in handover processes.

**Question 5** The literature on improving patient handovers has grown significantly over the last 3 years. What is your main interpretation of this research?

There is increasing international awareness that failure in handover remains a vulnerable gap in health care systems. It has been found that clinical practice and clinical evidence can be contradictory. Because of that, different efforts are needed to increase the use of evidence
based clinical interventions. The IOM 2001 Report has shown that medical practice is quite behind high reliable organizations in terms of practices and procedures. On the other hand, some criticism exists around the reliability and limitations concerning the transfer-ability of quality improvement concepts and strategies from the industrial setting to the health care sector. Specificities and funding sources of each health system, multiple professionals having to provide care for multiple patients with different needs and different probabilities to experience harm, need to be considered. Although much information is available in the literature focusing on the pre-hospital and in-hospital settings, other areas seem to be under-researched and lack the evidence that allows for a better understanding of human factors and suggests possible ways to adapt the system to human constraints.

**Question 6** How can we create more awareness to the importance of patient handover in the primary-secondary care interface among policymakers and/or among the public?

Raising awareness among policymakers and the public is a challenging task. Experts agree that the first step is to have better information available in terms of patient harm. Patient experiences and costs related to different perspectives are essential to collect. Reports show the impact of the problem in a broader dimension and provide direction that can help policy makers make better decisions at a national and European Union level. Although information is a useful tool to get attention, information alone doesn’t create awareness. Government involvement is better evidenced when the need for handover improvement becomes part of the national agenda followed by the implementation of different strategies and a well-designed evaluation follow-up. The results of increased awareness appear when patients and society are actively participating in the strategies. Special attention should be given to education and working with different media to ensure the message is available and heard.

**Question 7** Which policy interventions from the field of finance, law, regulatory or organizational interventions would stimulate changes in the quality of the patient handover process?

Effective handover practices are related to a large number of policy decisions and directives that often affect their quality. The majority of respondents acknowledge that policy interventions are crucial to improve handover processes. Some of the suggested interventions include:

interventions highlight the importance of a systems approach to stimulate quality of patient handovers. In addition, there is a need to define communication channels between primary and secondary levels of care, regulate and standardize the format of handover processes, monitor its implementation, management and evaluation. Many regulations, both in primary and hospital care contribute to unsafe handovers that might result in harm, for example, financial incentives resulting in practices affecting handover safety. These should be carefully identified and redefined, following the formula of “making the right easy”. It’s crucial to aim for and develop the directives and requirements that enhance quality handovers, finding creative ways to address the problem. To achieve that, adequate education and training in handover practices for different groups of healthcare professionals is regarded as indispensable and needs to be embedded in the regulatory and legislative procedures. Furthermore, the emphasis on a bottom up approach and of proper leadership can help shape handover as part of the organizational culture.

4.4 Expert feedback & the HANDOVER Toolbox

Discussion about the cultural barriers and facilitators to handover care and the plans of the HANDOVER team for the development of an educational handover toolbox resulted in further guidance. Expert feedback was obtained before inviting the group to also participate in the cost effectiveness exercise.

• The barriers identified by the Project included: lack of awareness of the handover process versus the importance of administrational duties and bureaucracy; low respect both towards patients and peers; lack of knowledge about consequences of poor handover; lack of feedback about care; limited to no organizational support; lack of knowledge about the clinical microsystems; lack of time; overwork; the prevailing current culture; lack of effective computer technology support and patient information; poor awareness of the potential harm; lack of shared information; derogative stereotypes about professionals at other levels of care; inadequate staffing; poor links to other support services.

• The facilitators identified for effective handovers included: communication, awareness and need to communicate; patient centeredness; information technology systems shared between levels of care; shared patient electronic medical records;
meetings between primary care and hospital professionals; specialists providing care at primary care level and finances shared between hospitals and other levels of care.

**Toolbox**

- During the Amsterdam, Brussels and Florence meetings the HANDOVER toolbox was evaluated thoroughly, not only by the HANDOVER team itself, but also by the invited experts. The toolbox was evaluated as an interesting and useful box with growing potential. To improve implementation, a division between a static part and dynamic part was suggested: the static part with basic (evidence-based) knowledge and the dynamic part to interact between members of the toolbox and to work together between and within countries.

- The presentation of the Handover Toolbox to support the training of trainers facing the task of designing and delivering training on handover issues resulted in a number of explicit suggestions that could directly be implemented to improve the toolbox. It was obvious that more content must be included in the toolbox, which applies not only for ‘what’ (content), but also ‘how’ (training design and methods) to discuss the handover issues. Measures need to be taken to make the toolbox easier to understand and more user friendly to navigate. The work needs to include the development of a toolbox manual and an effective help system.

- An important issue raised concerns the role of the tools: whether the Toolkit is designed only for training or can it be used on a larger intervention scale. Experts emphasized the real challenge of how to make people use the tool and encourage them to adopt the tool beyond the project. The crucial question was how likely it would be for training experts to use the toolbox in their everyday practice. Tackling this problem seems a challenge and we might not be in control of factors that affect adoption of the toolbox. The lay-out could be improved with special attention to keep it simple and accessible.

- An instruction page and evaluation form could be included, as well as a short printable instruction.

- The suggested tools should be prioritized by the HANDOVER team or by the users themselves. Wherever possible, names of authors or sources must be added and authorship acknowledged.
• A plan for maintenance of the toolbox after the project is finished should be made. Discussions are underway with the European Society of Quality and Safety to maintain the website and Handover Toolkit.

Cost effectiveness Evaluation (see Deliverable 11)

• The cost-effectiveness exercise resulted in rich input rooted in the fact that good practice is preached but not implemented. The experts stressed the value of the contextual information regarding interventions, the perfect often becoming the enemy of the good. If something was easy to adopt and implement, it often resulted in a high uptake which was often more effectual than the harder to implement, 'perfect' answer with a lower uptake.

• The role of patients has been voiced as they are the ones experiencing the value of a good handover (e.g. practical example is the Kaiser study on maternity hospitals). Handover underscores the importance of medication safety, as patients often do not understand/know what medication they are required to take/how to take it, which can then lead to unnecessary readmission.

4.5 Expert feedback & final recommendations

• It’s fundamental to make handover procedures simple and avoid overload of information in protocols and training. To achieve this, it’s important to understand the contextual information: experience suggests that it may be better to adopt and implement issues and concepts that are easier to implement, because they are more effectual and can result in a higher uptake. “The perfect often becomes the enemy of the good”.

• The costs of new interventions and training always need to be considered. If the intervention is cheaper and the effect size is small, this may be more acceptable than an expensive intervention with a similar effect size.

• One strategy applicable in many countries is connecting financial consequences with outcomes. For example, charging a hospital for patient readmissions within 30 days or
hospitals not getting paid because of the agreed unacceptable value of the adverse event, such as when a retained object is left in a patient after a surgical procedure.

- Tools such as checklists or pegboard lists can help providers remember and complete the required procedures. It also can provide essential information for improving links between providers during handovers.

- It is important to establish standardization of procedures and proper supervision regarding procedures for developing handover protocols and follow-ups. Both regulation and training can improve the sharing of responsibilities and increase accountability among providers. Provider education has to include direct feedback on consequences during patient handovers to optimize the required change of behavior.

- Patients want to be empowered and need to be more involved in their handover. They are, after all, the ones experiencing the true essence and quality of the “handover” and are able to offer real feedback and guidance in improving handover practices. It’s still very common that a number of patients do not know the medications they are taking and how to take them and that this may lead to harm and readmissions. Educating patients encourages empowerment.

- Engagement is a better approach than mandating behavior change. The amount of auditing continues to increase and sustainability of that was questioned. More efforts are needed to obtain more effective involvement of providers, enforcing cooperation among them. Handovers should be multi-disciplinary and thus involve a team of doctors, nurses and other health care professionals.

- Communication is an important way to raise social awareness with campaigns about proper communication strategies, focusing on lives saved instead of costs accrued.
5.1 Overview

The Florence expert meeting was a spectacular success with over 120 participants. The project was presented in its entirety and received rave reviews. The main feedback remarks were written on the posters and discussed afterwards and can be grouped into four themes.

The first theme entails the remarks that were made regarding the quality assurance of the information that is stored in the toolbox. It is suggested to increase the usefulness of solutions by providing more information about how to assess and demonstrate what has been shown to effectively improve patient outcomes. The information stored in the certified part of the toolbox needs regular updates to assure it continuous to reflect the state-of-the art.

Another related issue concerns the outcomes of ongoing discussions in the groups, which could be summarised by the group leaders, resulting in a more comprehensive and better structured overview of the various ongoing discussions. This will help visitors, especially new ones, to better grasp the essence of discussions.

The second theme deals with the future of the toolbox. The HANDOVER project started off with a commitment to improve clinical patient handovers by developing training for health professionals. The focus has been broadened to other stakeholders during the project to include doctors, nurses, allied health and patients. This development to include other professional groups as well can be recognised in a considerable number of wishes and suggestions that are outside the focus of the present project but that can be a theme or even a leading thread in a new project.

Remarks and wishes in this vein include:

1) The experts' discussion during the Florence meeting pointed to the necessity to address more prominently patient empowerment in the Handover toolbox. The involvement of patients should be more visible.
2) The increasing numbers of possible target groups requires ongoing attention to issues like the toolbox's adaptability; the need to implement a roadmap that fits the context of the user; different levels of access, tailored to the different audiences; and helping users to match the training tools to the state of affairs.
3) From the perspective of what are the patient’s needs the challenge to improve the country-specific nature of the Handover toolbox requires further attention. Examples are information available in different languages, information about handover practices, policies and rules and
legislation in each country.

4) The challenge is how to pitch the toolbox to the different audiences.

The third theme that appeared during the discussion was that there could be more fun associated with working with the toolbox, or as others stated, built-in incentives. The question is of course who has to provide incentives, for what, but this deserves definitely attention during future development work on the toolbox.

Finally, the fourth theme related to experts appreciation of the toolbox. It is valued as a very worthwhile and credible repository, built on important cooperation with experts. Its existence will help create a sense of urgency among stakeholders and can be used for agenda-setting. It will convince, especially hospital managers, to consider handover as an integrated part of patient safety policy and spur them to take action.

Several of the experts' remarks and suggestions are associated with the unintended but not counterproductive ways of using the toolbox in the future. The fact that the Handover toolbox is seen as an environment for multiple audiences that includes patients can be valued as a good starting point for future projects. Especially the strong emphasis on the patient as a user of the toolbox (instead of being a beneficiary of the improved procedures) might be a prelude to imminent and needed changes in healthcare practices.
### 5.2 Agenda

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<tr>
<th>Time</th>
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<tr>
<td>08.00-09.00</td>
<td>Registration and Coffee</td>
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<tr>
<td>09.00-09.05</td>
<td>Welcome by host Italy Dr. Francesco Venneri</td>
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<tr>
<td>09.05-09.45</td>
<td>Welcome and introduction to HANDOVER Research Collaborative and FP-7 Grant, Paul Barach</td>
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<td>09.45-10.30</td>
<td>Presentations of Key findings:</td>
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<td></td>
<td>- Hub Wollersheim and Gijs Hesselink: HANDOVER and the Culture</td>
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<td>- Gunnar Ohlen and Maria Flink: HANDOVER and the Patient</td>
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<td>- Richard Lilford and Nico Novielli: HANDOVER and the Costs</td>
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<td>10.30-11.00</td>
<td>Discussion</td>
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<td>11.00-11.30</td>
<td>Morning Tea and Coffee</td>
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<td>11.30-12.00</td>
<td>Showcasing the Toolbox: Wendy Kicken &amp; Hendrik Drachsler</td>
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<td>12.00-13.00</td>
<td>Buffet Lunch</td>
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<td>13.00-14.00</td>
<td>Toolbox Break-out Sessions</td>
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<td>14.00-15.00</td>
<td>Evaluating the Handover Toolbox and other Deliverables, plenary session</td>
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<td>15.00-15.30</td>
<td>Afternoon Tea and Coffee</td>
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<td>15.30-16.30</td>
<td>Role of Patients and patient based design of handover safe solutions</td>
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<td>Discussion led by Margaret Murphy, WHO Patient Safety Lead and</td>
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<td>HANDOVER Patient Advisory Council</td>
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<td>16.30-16.45</td>
<td>Designing and promoting Handover in the Tuscan Health Care system</td>
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<td>Giulio Toccafondi, Sara Albolino, Riccardo Tartaglia</td>
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<td>16.45-17.30</td>
<td>Dissemination of Handover tools and results through Europe and beyond Basia Kutryba, Agnieszka Daval-Cichon, Paul Barach</td>
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<tr>
<td>17.30-18.30</td>
<td>Closing Wine Reception</td>
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</table>
5.3 Recommendations (see page 2-6)

The HANDOVER project provided an important amount of information. The results of the project as well as the resulting recommendations could be useful for the stakeholders involved in policy and management, provision of care and research in the healthcare sector, healthcare educators, as well as to patients and patient organizations.

In order to increase the usefulness of this information recommendations have been specified for the different stakeholders:

- European Union
- EU Member States
- Hospitals and hospitals organizations
- Primary Care organizations
- Professional organizations and medical societies
- Patients and patient organizations
- Researchers
REFERENCES

AHRQ to the Senate Appropriations Committee identified the eight most common root causes of medical errors (Rockville, 2003).


**Appendix: List of participants at the Florence European Handover Research Consortium**  
(in addition to the 30 members of the Handover team)

**LIST OF PARTICIPANTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title/Role</th>
<th>Organization/Location</th>
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<tbody>
<tr>
<td>Aase, Karina</td>
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<td>Agra, Yolanda</td>
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<td>Burgess, Robin</td>
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<td>Daval-Cichon, Agnieszka</td>
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<td>Eriksson, Birgitta</td>
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<td>Galbraith, Margaret</td>
<td>Project Manager</td>
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<td>Haskell, Helen</td>
<td>Founder and President</td>
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<td>Hofer, Timothy</td>
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<tr>
<td>Keijser, Wouter A.</td>
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<td>Murphy, Margaret</td>
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<tr>
<td>Name</td>
<td>Title and Affiliation</td>
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