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COMMISSION STAFF WORKING DOCUMENT

Detailed analysis of countries' reports on the implementation of the Council Recommendation (2009/C 151/01) on patient safety, including the prevention and control of healthcare associated infections

Accompanying the document

REPORT FROM THE COMMISSION TO THE COUNCIL ON THE BASIS OF THE MEMBER STATES' REPORTS ON THE IMPLEMENTATION OF THE COUNCIL RECOMMENDATION (2009/C 151/01) ON PATIENT SAFETY, INCLUDING THE PREVENTION AND CONTROL OF HEALTHCARE ASSOCIATED INFECTIONS.

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INTRODUCTION

Following a proposal from the Commission, the Council adopted in June 2009 the Council Recommendation on patient safety, including the prevention and control of healthcare associated infections (2009/C 151/01)¹, hereinafter referred to as the Recommendation. This Recommendation is composed of a chapter on general patient safety issues and a chapter on the prevention and control of healthcare associated infections (HAI).

In the chapter on patient safety, Member States are asked to put in place a series of measures with a view to minimizing harm to patients receiving healthcare. Such measures should include supporting development of national policies and programmes on patient safety, empowering and informing patients, establishing or strengthening blame-free reporting and learning systems on adverse events, promoting education and training of healthcare workers, and developing research.

In addition, the Recommendation invites the Member States to work together and with the Commission on classifying and codifying patient safety at EU level as well as on sharing knowledge, experience and best practice.

In the chapter on the prevention and control of healthcare associated infections, Member States are asked to adopt and implement a strategy at the appropriate level for the prevention and control of HAI and to consider setting up an inter-sectoral mechanism or equivalent system for the coordinated implementation of such strategy. It is recommended that the strategy pursues the following objectives: infection prevention and control measures at national/regional level, enhance infection prevention and control at the level of healthcare institutions, establish or strengthen surveillance systems, foster education and training of healthcare workers, improve the information to patients by healthcare institutions, and support research.

Three years after its adoption, the Commission has summarized the main actions taken at Member State and European Union level in a Report to the Council, on the basis of the information provided by the Member States on the implementation of the Recommendation.

¹ OJ C 151, 3.7.2009, p. 1–6.

The Report is accompanied by this Commission Staff Working Document providing a more detailed technical analysis of the replies received both at the national and regional level.

METHODS

The European Commission elaborated a questionnaire for Member States based on the text of the Recommendation. The questionnaire was composed of two parts, referring to two Chapters of the Recommendation: Part I referred to Chapter I on general patient safety and Part II referred to Chapter II on the prevention and control of healthcare associated infections. Part I was discussed with the Commission-led expert group – Working Group on Patient Safety and Quality of Care and the amendments proposed by the Group were integrated in the final version. Part II was reviewed by a small number of Member State experts. As far as possible, the questionnaire was developed in a format conducive to producing a concise and comparable report to improve data collation and analyses.

The European Commission sent the questionnaire to Member States in April 2011. Member States were encouraged to distribute the questionnaire to regional level as appropriate. The preliminary findings of Part I were presented for review and comments at the Patient Safety Working Group meeting in Brussels in November 2011. The preliminary findings of Part II were presented at the Joint Annual Meeting of the Antimicrobial Resistance and Healthcare-Associated Infections Networks in Warsaw in November 2011. Detailed analyses of data took place between November 2011 and February 2012.

In view of the planned adoption in November 2012 instead of June 2012 the Commission asked Member States to update, if relevant the information on general patient safety part in July 2012. Update of analysis took place in September 2012.

PARTICIPANTS

For Part I (general patient safety issues) of the questionnaire, the Commission received 33 responses, from:

- 27 Member States and Norway;
- five Spanish regions (Andalusia, Basque Country, Catalonia, Community of Madrid and Extremadura);
- 14 Member States (AT, BE, CY, CZ, DE, DK, HU, IE, IT, LV, MT, PL, SE, SI) and 4 Spanish regions (Basque Country, Catalonia, Community of Madrid and Extremadura) sent updated information.

For Part II (the prevention and control of healthcare associated infections) of the questionnaire, the Commission received 42 responses, from:

- 26 Member States and Norway at national level;
- one Member State (UK) at regional level only, from two regions: England (for the NUTS 1 level statistical regions of England (East Midlands, East of England, Greater London, North East England, North West England, South East England, South West England, West Midlands, Yorkshire and the Humber)) and Scotland (NUTS 1 level);
- five Spanish regions at NUTS 2 level (Andalusia, Basque Country, Catalonia, Ceuta and Melilla, Community of Madrid)
- eight Italian regions at NUTS 2 level (Aosta Valley, Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Lombardy, Piedmont).

In the present document the term ‘Member States’ is used when the reference is made to EU Member States. Every time Norway is included, the term ‘countries’ is used.

When a question was answered in similar way by the national and regional level of a Member State, the response was counted as a country response. Similar responses from the UK regions on Part II were counted as a country response.

RESULTS

1. GENERAL PATIENT SAFETY

1.1. Establishment and development of national policies and strategies on patient safety

Twenty four countries (BE, BG, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, MT, NL, NO, PT, SE, SI, SK, UK) and four regions (Basque Country, Catalonia Community of Madrid and Extremadura) reported to have developed national and/or regional strategies and programmes on patient safety, either specific ones or as part of other public health policies. In two countries (AT, RO) and one region (Andalusia) such a strategy was under preparation. Two Member States (CY, PL) did not have a patient safety strategy nor were they in the process of preparing one.

Three Member States (FR, NL, SK) reported to have a cross-border patient safety strategy, in addition to the national one.

Twenty one Member States (BE, CZ, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, LU, LV, MT, NL, PT, SE, SI, SK, UK) and three regions (Basque Country, Catalonia and Extremadura) developed or are developing indicators or mechanisms to assess to what extent different elements of patient safety strategy or programme are implemented. Most of them target hospital care and only a few of them focus on both inpatient and outpatient care.

The reported indicators/mechanisms include:

- number of reporting and learning systems in hospitals;
- number of hospitals applying patient safety standards;
- number of hospitals measuring patient safety culture
- number of evaluation of the citizens complaints and suggestions
- number of hospitals having in place registers of after surgery complications and adverse reactions of drugs
- monthly performance reports from administrator of the public health system
- regular inspections against standards by a quality authority

Several Member States also reported about indicators in use at healthcare provider level. These include: healthcare associated infections rate, alcohol-based product consumption, screening of nutritional disorders, implementation of surgical checklist, single sheet of therapy and presence of a risk manager in the facilities.

The Recommendation asks Member States to include the following elements as part of patient safety policies and programmes:

- (a) Designating the competent authority or authorities or any other competent body or bodies responsible for patient safety

Twenty one countries have reported having such an authority in place as part of the strategy on patient safety: 16 countries (CZ, DE, EE, ES, FI, HU, IE, LT, LU, MT, NL, NO, PT, SE, SI, UK) at national level only; four at both national and regional level (DK, FR, IT, SK) and one (EL) only at regional level. A competent authority was also identified in all reporting regions. Moreover, four Member States (AT, BE, BG, PL) identified a competent authority but not as a part of general patient safety strategy.

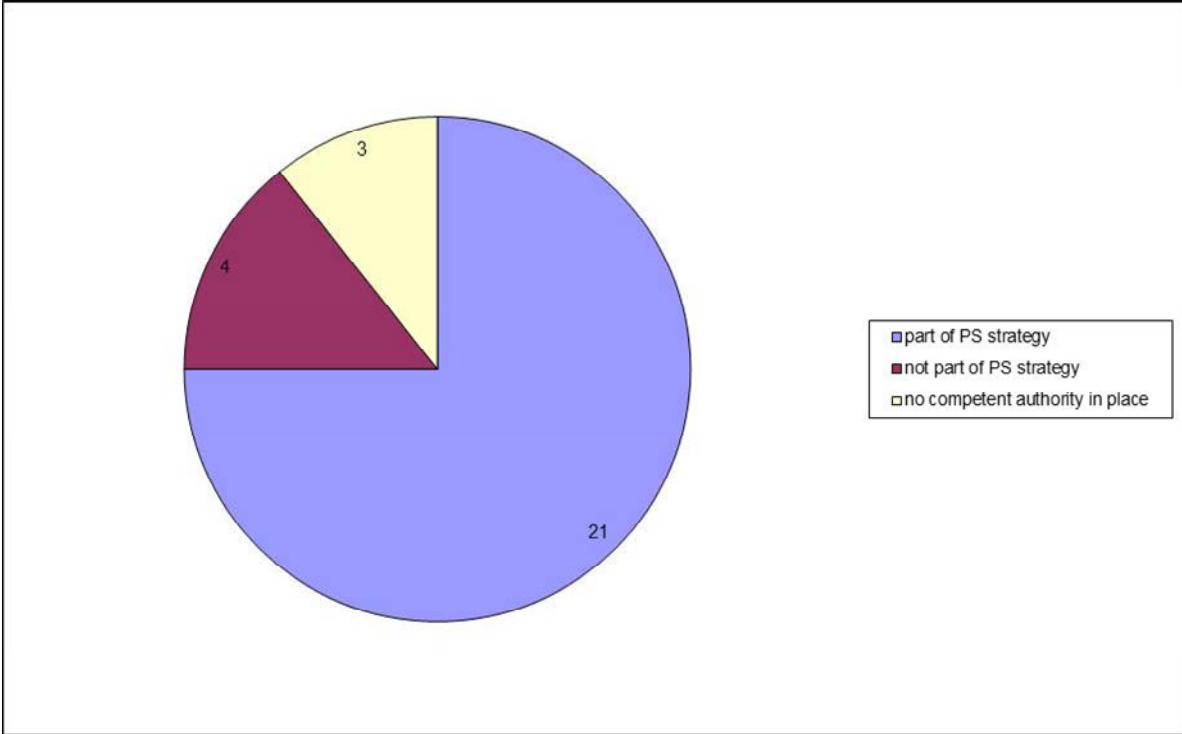


Figure 1: Competent authorities/bodies identified by countries

In 19 countries (AT, BG, CZ, DE, DK, EL, ES, FI, FR, HU, IE, IT, LT, NL, NO, PL, PT, SK, UK) and four regions (Andalusia, Catalonia, Community of Madrid and Extremadura) the authority was officially created by a legal act.

The main functions of competent authorities are: identification and dissemination of best practices, collecting information about patient safety programmes, development of guidelines on patient safety and promotion of safe practices (Table 1). The following functions are the least covered: information for patients and their relatives, research on patient safety and development of patient safety systems.

Table 1: Functions covered by the competent authorities

Functions	Countries	Regions
	(total = 28)	(total = 5)
Collecting information about patient safety programmes in place	24	5
Collecting and analysing information about patient safety outcomes	21	5
Education and training of healthcare workers	21	5

Development of patient safety standards or other safety measures	23	5
Identification and dissemination of best practices	25	5
Development of guidelines on patient safety	24	4
Information for healthcare decision makers	23	4
Information for healthcare workers	23	5
Information for patients and their relatives	20	4
Development of patient safety systems	18	4
Promotion of safe practices	24	5
Research on patient safety	19	5
Other	10	1

In 23 countries (AT, BE, CZ, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, LU, MT, NL, NO, PL, PT, SE, SI, SK, UK) and in three regions (Andalusia, Catalonia and Extremadura) competent authorities collaborate with the European Commission and/or with other EU Member States.

(b) Embedding patient safety as a priority issue in health policies and programmes

All the countries and regions reported patient safety was a priority issue embedded in public health policies.

In eight countries (BG, EE, FI, HU, IE, IT, NO, UK) and three regions (Andalusia, Basque Country and Extremadura), patient safety is part of a national health strategy or programme; in nine others (AT, CZ, DE, ES, FR, PT, RO, SI, SK) and in one region (Community of Madrid) it is embedded in strategies of healthcare quality improvement, including accreditation programmes. Other policies covering patient safety include: haemovigilance (BE and MT), pharmacovigilance (DE, PL and Catalonia), medication policy (FR and Catalonia), health insurance (FR), health strategy on medical professions (DE), patient rights (LT), patient empowerment and increasing health literacy (NL).

(c) Supporting the development of safer and user-friendly systems, processes and tools, including the use of information and communication technology

Twenty two countries (BE, BG, CZ, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, LU, MT, NL, NO, PT, SE, SI, SK, UK) and one region (Extremadura) reported that such tools were developed in the framework of the overall strategy on patient safety. Among those, three Member States (FR, DE, NL) developed tools also for cross-border use.

(d) Regularly reviewing and updating safety standards and/or best practices applicable to healthcare provided on their territory

Fifteen Member States (AT, CZ, DE, DK, EE, ES, FR, HU, IE, IT, LT, PT, PL, SE, UK) reported having in place regularly updated patient safety standards. Patient safety standards were also in place in all reporting regions.

In 11 out of the 15 Member States (AT, CZ, DE, DK, EE, FR, IE, IT, LT, PT, UK) and in four regions (Andalusia, Catalonia, Community of Madrid and Extremadura) standards are mandatory at national/regional and/or healthcare provider level. In four remaining Member States (ES, HU, PL, SE) and in one region (Basque Country) patient safety standards are recommended, but not mandatory.

Near two thirds of reported standards were updated less than one year ago, for others an update has been done between two and five years ago.

Eighteen Member States (AT, BE, BG, CY, CZ, DE, DK, ES, FI, FR, IE, LT, NL, PT, RO, SE, SI, UK) and three regions (Basque Country, Catalonia and Community of Madrid) reported having in place and regularly updating patient safety measures other than standards, for example: identification of best practice, setting patient safety targets for healthcare facilities, hand hygiene campaign, programme to prevent confusion of patient and confusion of surgical procedure, evidence based clinical guidelines, national patient safety recommendation, patient charter, accreditation procedure with elements of patient safety and measurement of patient safety culture in hospitals.

Five countries (EL, LU, LV, NO, SK) did not report about any patient safety standards or other measures in place and one Member State (MT) reported about recent implementation of standards specific for blood transfusion.

In 18 Member States (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, IE, LT, MT, NL, PL, PT, SE, UK) and in four regions (Andalusia, Catalonia, Community of Madrid and Extremadura) patients are informed about safety measures (standards or other). As presented at Figure 2, information is the most frequently provided by health professionals, followed by public websites and information on request from management of healthcare setting. Other reported ways of informing patients include: flyers, dedicated boards in hospitals or articles in specialized journals. Patient organisations and citizens' networks also contribute to dissemination of information about patient safety measures.

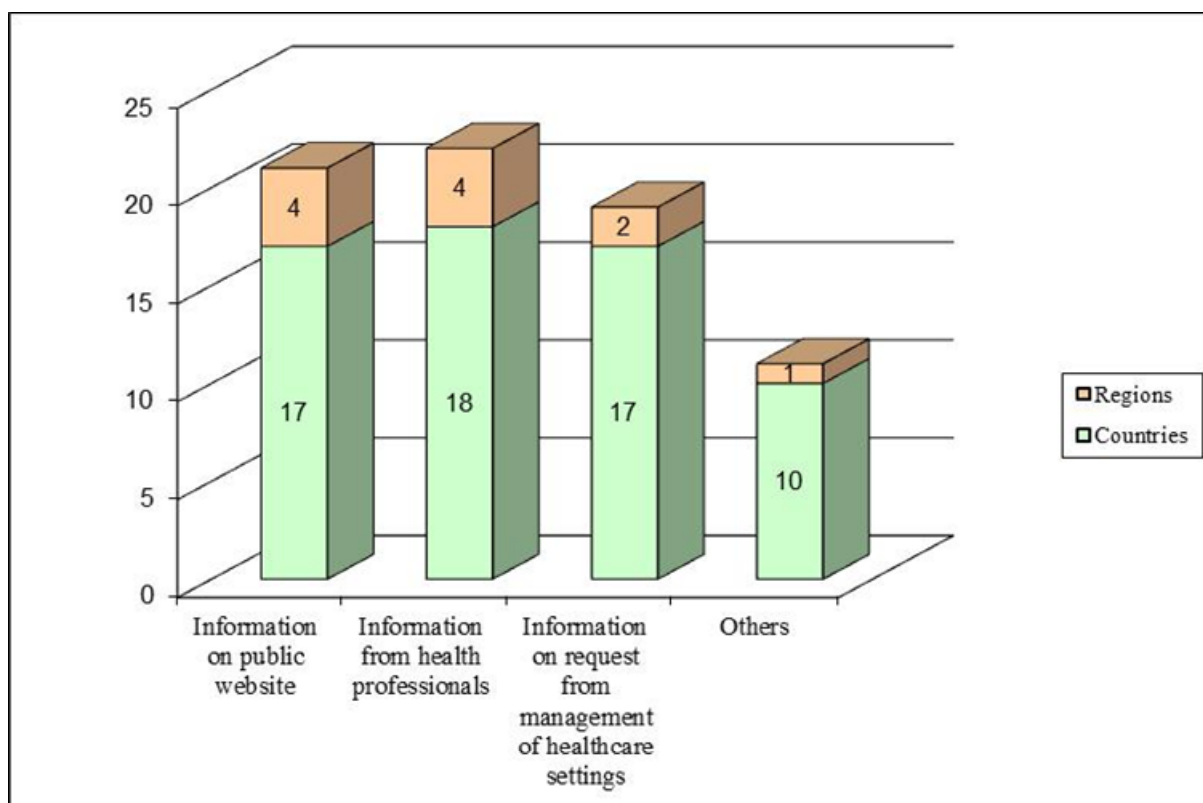


Figure 2: The ways of providing information to patients

Member States were asked if they would find useful guidelines on how to build and introduce patient safety standards. The large majority (24) of countries and all the regions agreed such guidelines would be useful. Only FR, HU, LV and NL did not confirm their interest in guidelines.

(e) Encouraging health professional organisations to have an active role in patient safety

Twenty two countries (BE, BG, CZ, DE, DK, EE, EL, ES, FI, FR, IE, IT, LT, LU, MT, NL, NO, PT, SE, SI, SK, UK) and all regions reported having in place mechanisms to encourage an active role of health professional organisations in patient safety, at national and /or regional level.

(f) Including a specific approach to promote safe practices to prevent the most commonly occurring adverse events such as medication-related events, healthcare associated infections and complications during or after surgical intervention

Table 2 shows in which fields countries and regions took actions to prevent complications and adverse events.

Table 2: Areas of actions to prevent complications and adverse events

Type of action	Countries (total = 28)	Regions (total = 5)

Medication related events	24	5
Complications during or after surgical interventions	24	5
Complication and adverse events during and after blood/blood components transfusion	23	3
Complication and adverse events during and after tissue transplantation	21	2
Complication and adverse event during and after organ transplantation	21	2
Complication and adverse event during and after organ living donation	20	2

Twenty countries (AT, BE, BG, CY, CZ, DE, DK, EE, ES, FI, FR, IE, IT, LU, MT, NL, NO, PL, SK, UK) and all regions developed specific actions in two areas required by the Recommendation, i.e. medication related events and complications during and after surgical intervention.

Fifteen countries (AT, BG, CZ, DE, DK, ES, FI, FR, IE, IT, LU, NO, PL, SK, UK) and two regions (Catalonia and Community of Madrid) have put in place specific actions in all above areas and five Member States (EL, HU, LV, PT, SI) have put in place actions only in one of six areas.

Additional comments:

In addition to elements required by the Council Recommendation, 18 of existing national strategies and policies on patient safety (BE, CZ, DE, DK, EE, ES, FI, FR, HU, IE, IT, LT, NL, NO, PT, SE, SI, UK) and four regions (Andalusia, Catalonia, Community of Madrid and Extremadura) cover the issues related to patient involvement in patient safety.

Countries and regions were asked to add further comments on this part of the questionnaire. The comments confirmed that development of patient safety strategies or programmes is interpreted and carried out by countries in a heterogeneous way: from very focused patient safety strategies to inclusion of patient safety in policies on healthcare quality or patient rights. Some countries do not develop national policies but leave to hospitals introducing patient safety measures. Finally, in some Member States national strategy takes the form of legislation, while in other the main focus is on less formal networks and platforms.

As reported in Table 3, the main obstacles to full implementation of patient safety strategies or programmes were the financial constraints, other pressing issues on political agenda and the insufficient time between the adoption of the Recommendation and the time of reporting. Other obstacles included: insufficient awareness among professionals about the need of patient safety culture or lack of continuity of public health priorities due to government change.

Table 3: The most reported obstacles to a full implementation

Obstacles	Countries (total = 28)	Regions (total = 5)
Insufficient time between the adoption of the Recommendation and the reporting	14	3
Financial constraints	15	3
Other pressing issues on the political agenda (e.g. financial crisis)	15	2
Other	8	2

1.2. Empower and inform citizens and patients

- (g) Involving patient organisations and representatives in the development of policies and programmes on patient safety at all appropriate levels

Twenty countries (AT, BE, BG, CZ, DE, DK, EE, ES, FI, FR, IE, IT, LT, LV, NL, NO, PL, SE, SK, UK) and four regions (except Basque Country) reported they involve patient organisations in development of patient safety policies. In 14 of these countries (AT, DE, DK, EE, ES, FI, FR, IE, IT, LT, NO, SE, SK, UK) involving patient organisations is required by legislation or administrative decisions. Patient organisations are mostly involved at national and/or regional level and less at healthcare facility level. Two Member States (AT, FR) involve them in developing patient safety policies at all levels: transnational, national, regional, local and healthcare facility level.

In 19 countries (AT, BG, CZ, DE, DK, EE, ES, FI, FR, IE, IT, LT, LV, NL, NO, PL, SE, SK, UK) and in four regions (except Basque Country) patient organisations are encouraged to give feedback about their involvement, in most cases anytime they feel it is needed. Figure 3 shows the most common ways to collect feedback.

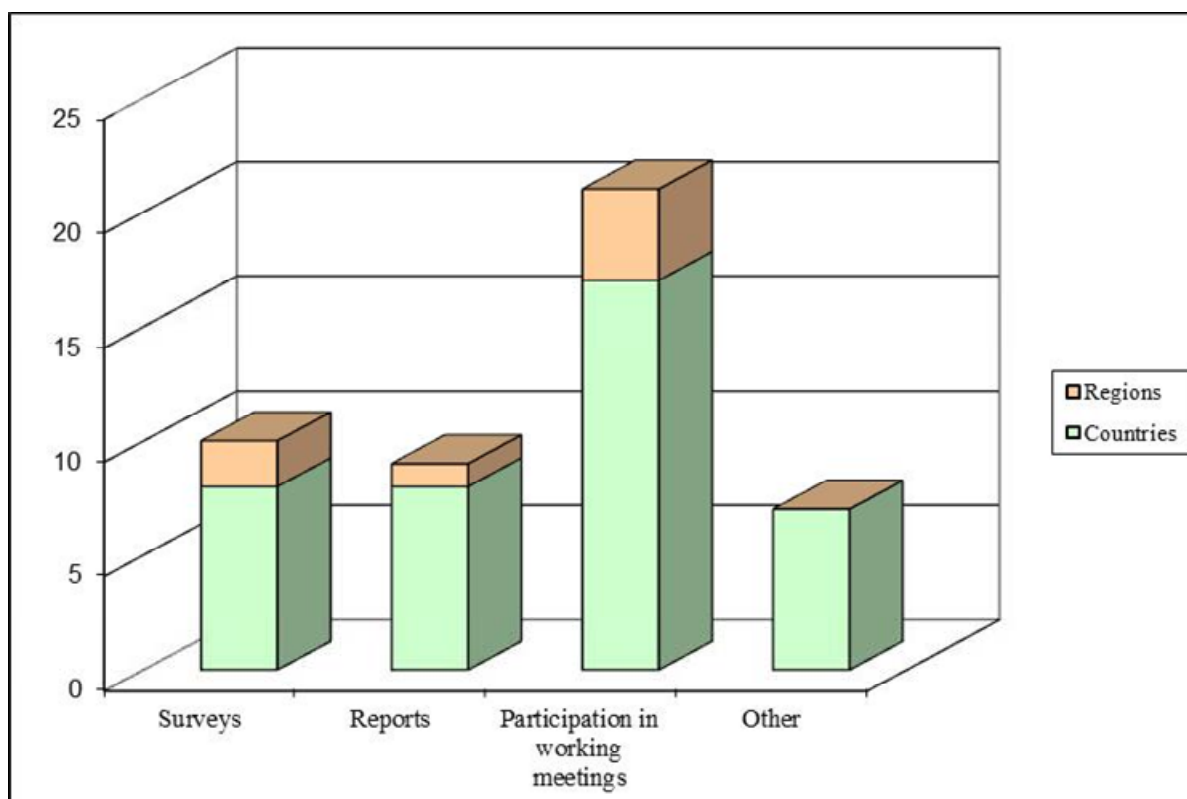


Figure 3: The ways of capturing feedback from patient organisations

Eight Member States (CY, EL, HU, LU, MT, PT, RO, SI) and Basque Country did not report any provisions involving patient organisations in developing policies on patient safety.

(h) Dissemination of information to patients on patient safety issues

Member States were recommended to disseminate information to patients on patient safety standards in place, safety measures in place to reduce or prevent errors, right to informed consent to treatment, complaint procedures, and available remedies and redress.

In all reporting countries at least one of above elements is communicated to patients, but only in five Member States (CZ, DE, ES, NL and UK) and in two regions (Catalonia and Community of Madrid) patients are provided with all of them.

The most disseminated information is right to informed consent (in all 28 countries, and in all the regions), followed by complaint procedures (in 27 countries except HU, and in all the regions).

Information about patient safety standards is communicated to patients only in seven Member States (CZ, DE, ES, LT, NL, PT, UK) and three regions (Catalonia, Community of Madrid and Extremadura).

Additionally, 16 countries (AT, CZ, DK, EE, FR, IT, LT, LU, LV, MT, NO, PL, PT, RO, SI, UK) and three regions (Catalonia, Community of Madrid and Extremadura) make the list of accredited healthcare institutions available to patients.

Figure 4 presents an overview of categories of information provided to patients by all 33 respondents (both the countries and the regions).

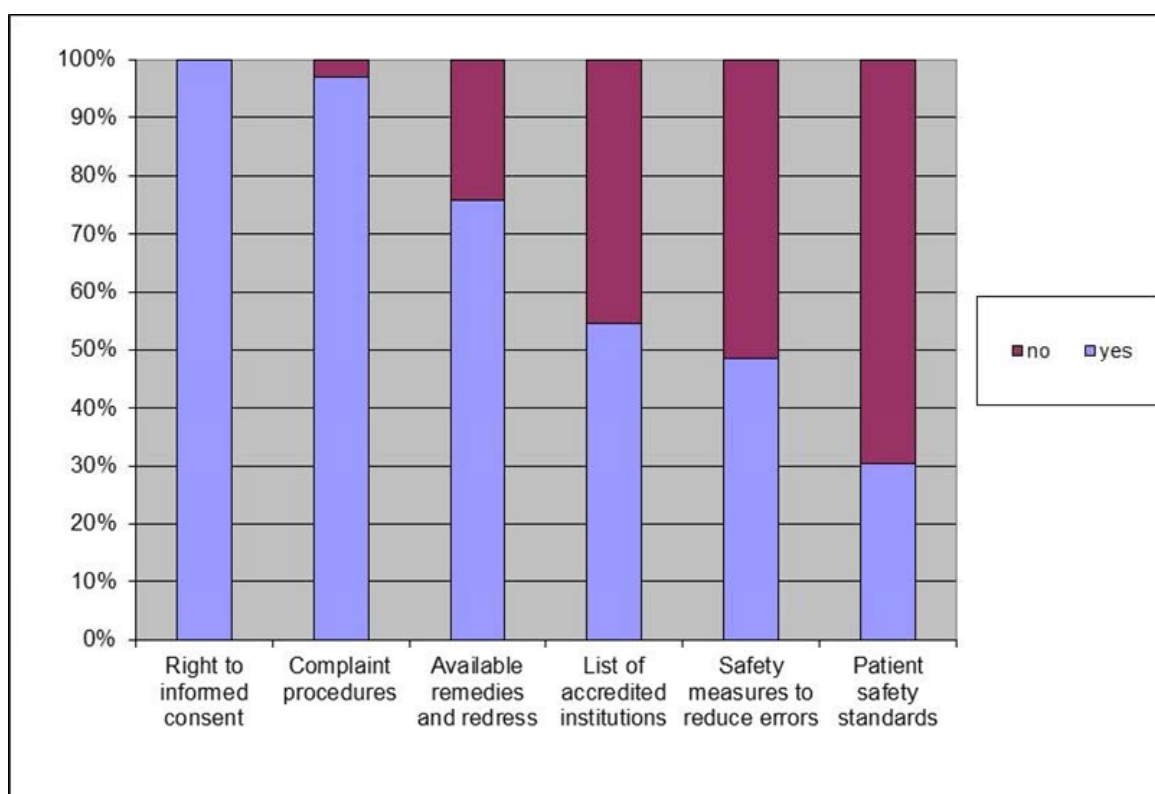


Figure 4: Categories of information provided to patients

Sixteen countries (BE, BG, CY, CZ, DE, DK, ES, FR, IE, LV, MT, NL, NO, PT, RO, SK) and all the regions reported that they have in place specific procedures to inform non-resident patients about patient safety standards or other measures. However, no further details were given on these procedures except two examples of translation services available on a case-by-case basis.

Twenty three countries (except CY, EL, HU, IT, PL) and two regions (Catalonia and Community of Madrid) reported to have in place mechanisms to capture patients' feedback on the availability and the accuracy of information provided. They can be divided into two categories: feedback captured at discharge from hospital (e.g. written or on-line questionnaire) and feedback captured periodically at national level (e.g. annual patient experience survey).

In five Member States (FI, IE, LV, NO, UK) patients have possibility to give their feedback in proactive and continuous manner (e.g. posting the comments on a dedicated website or meeting patient ombudsman or complaint officer present in each healthcare setting).

- (i) Considering the possibilities of development of core competencies in patient safety for patients

Twelve Member States (CZ, DE, DK, ES, FI, FR, IE, IT, LT, NL, SE, SK) and three regions (Catalonia, Community of Madrid and Extremadura) reported having developed core competencies for patients. The core competencies have been disseminated to patients mostly using publicity, ICT tools or paper documents.

The following examples were reported as part of core competencies: dedicated websites for both health professionals and citizens to compare hospitals (DK); guidelines to a patient for safe care in hospital, explaining to a patient how to follow and monitor the process of his/her treatment (FI); information about prevention of healthcare associated infections and about WHO actions: Safe Surgery Checklist, Clean Your Hands (IE); check-lists or guides for patient safety for a patient and his/her relatives (FI, IT, NL); programmes of therapeutic patient education for patients with chronic diseases (FR); translation of national guidelines into an easy comprehensible language for patients (DE); information to patients about patients' rights (SE, IE); developing recommendations to patients on patient safety (Community of Madrid); education of patients and information about patient safety and quality of healthcare (DE); training patients on safe practices in patient care: safe medication use, infection prevention and communication skills (ES).

In most cases (9 out of 11 Member States and three regions) the core competencies on patient safety are embedded in programmes and policies on patient rights, quality of healthcare or patient empowerment. However, two Member States (ES and FI) have in place specific core competencies for patients on patient safety.

Eight Member States (BE, BG, CY, FI, MT, PT, SI, UK) and three regions (Basque Country, Catalonia and Extremadura) have plans to implement actions and mechanisms regarding empowering citizens and patients within the next years.

Eight Member States (BE, BG, CZ, FI, HU, PT, RO, SI) and two region (Catalonia and Extremadura) reported difficulties in implementing the provisions related to empowering of patients. Besides insufficient time since the adoption and financial constraints, they include: insufficient time of health professionals and insufficient experience of decision-makers in involving patients; difficulties to find umbrella patient organisations to work with or insufficient interest from patient organisations to get involved in patient safety issues. However, two Member States (BE and SI) reported that patient empowerment was an important objective of health strategies to come shortly.

1.3. Establish or strengthen blame-free reporting and learning systems on adverse events

Twenty two Member States (AT, BE, CY, CZ, DE, DK, EE, ES, FI, FR, HU, IE, IT, LU, LV, NL, NO, PL, PT, SE, SK, UK) and two regions (Andalusia and Catalonia) have in place reporting and learning systems (RLS) and four countries (BG, LT, MT, SI) and three regions (Basque Country, Community of Madrid and Extremadura) are in process of establishing them (Figure 5). They operate at all levels; national level (17 RLS), healthcare provider level (13 RLS), local level (10 RLS) and regional level (8 RLS). Two Member States (DK and FR) have in place cross-border systems.

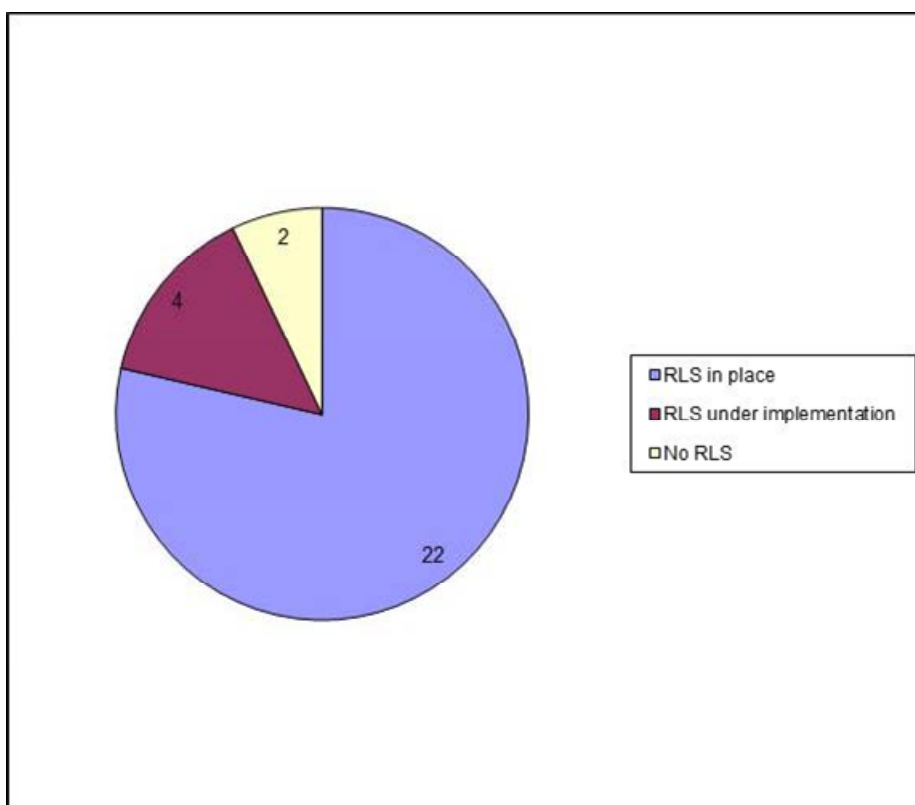


Figure 5: Reporting and learning systems in place as reported by 33 respondents

Among Member States having in place multiple reporting and learning systems (13 Member States), only six (CZ, DE, IT, SE, SK, UK) have these systems interoperable.

- (j) Provide information on the extent, types and causes of errors, adverse events and near misses

The existing systems mostly provide information about causes of adverse events (24 RLS), number of adverse events by type (23 RLS) and globally (19 RLS). Other collected information include: patient outcome (BE, Andalusia); organisational outcome (BE); number of events by their severity (CZ, ES); setting of origin, description and prevention of adverse events incidents (CZ); number of patients complaints and cases of malpractice (EE); age and sex of the harmed person; medical field; place and context of the adverse event; result of event; frequency of the event; factors contributing to the adverse event; who reported about the event (DE, Andalusia); information on good practice to avoid adverse events (Andalusia); improvement actions for future (DE, Andalusia, Community of Madrid).

The type of information most or least frequently collected and provided by the reporting and learning systems is shown in Figure 6. In 14 Member States (BE, CY, CZ, DE, DK, EE, ES, FR, IE, LU, NL, PT, SK, UK) and in all regions reporting and learning systems provide three or more types of information.

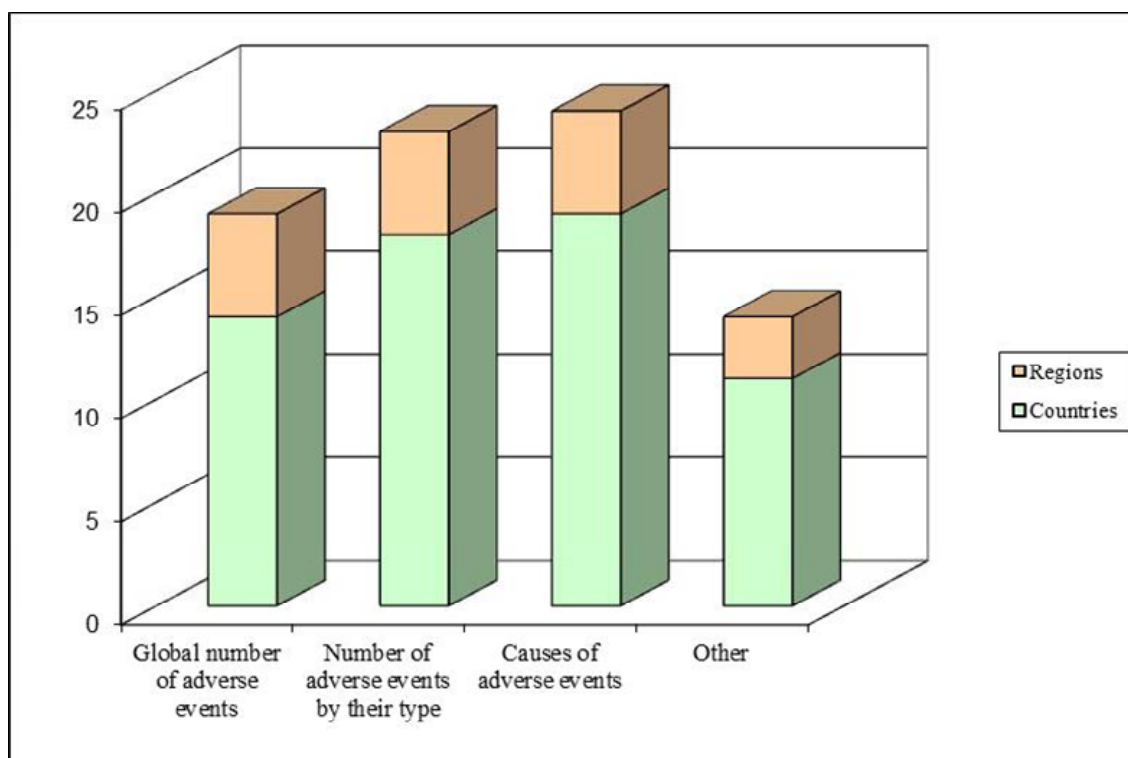


Figure 6: Types of information provided by RLS

- (k) Encourage healthcare workers to actively report through the establishment of a reporting environment which is open, fair and non-punitive

In 18 out of 26 countries (AT, BE, CZ, DE, DK, ES, FI, FR, HU, IE, IT, LU, NL, NO, PL, SE, SI, UK) and in three regions (Andalusia, Basque Country and Community of Madrid) the reporting and learning systems are differentiated from disciplinary systems and procedures for healthcare workers in order to ensure non-punitive context of reporting. Near all countries (except BG) and all regions having reporting systems in place took actions to increase reporting on adverse events by health workers.

Actions can be divided into four categories:

- (1) information to health workers (e.g. a brochure-guide for healthcare providers on how to implement reporting and learning systems, workshops on reporting and analysing incidents, clear explanation of the purpose of the systems to health professionals);
- (2) technical help in implementing and using reporting and learning systems (e.g. nominated patient safety expert for procedures and training at hospital level, dedicated organisation offering technical help for creating systems at national level);
- (3) creating of blame free culture (e.g. anonymous reporting, discussions of patient safety incidence among professionals);
- (4) binding measures (e.g. mandatory reporting, reporting as quality criterion in certification procedure).

Reporting of adverse events by health professionals increased over the last two years in two thirds of Member States having systems in place and in three regions. In six Member States (BG, FR, MT, NO, PL, PT) and in Extremadura region this information is not available.

- (l) Provide opportunities for patients, their relatives and other informal caregivers to report their experience

In 13 out of 25 Member States (BE, BG, CZ, DE, DK, EE, FI, LU, MT, SE, SK, NL, UK) and in two regions (Andalusia and Catalonia) reporting and learning systems provide opportunity for patients and their families to report on adverse events.

Moreover, only 11 Member States (CY, CZ, DE, EE, FI, IE, IT, NL, SE, SK, UK) and three regions (Andalusia, Catalonia and Extremadura) collect information about the reporting by patients. In six Member States (DE, EE, ES, IE, FI, NL) and in Andalusia such reporting increased over the last two years. CZ reported that though a possibility for patients to report exists, it is not used due to lack of patients' awareness of such an option.

- (m) Complement other safety reporting systems whilst avoiding multiple reporting where possible

Where the reporting and learning systems are in place, most are differentiated from other reporting systems, such as pharmacovigilance, haemovigilance (notification of serious adverse events and reactions during and after blood transfusion) and medical devices failure. They are also differentiated, though in fewer Member States (19 out of 24), from reporting systems on human tissues, cells and organs.

Figure 7 provides an overview of reporting and learning systems in 28 reporting countries and five reporting regions.

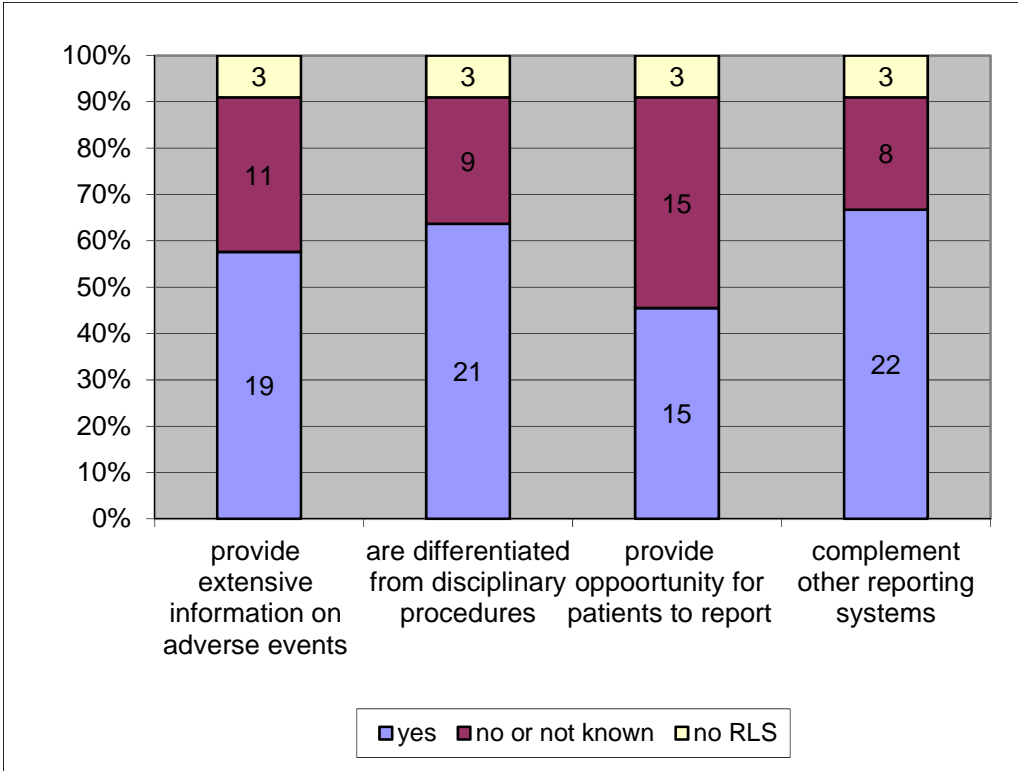


Figure 7: Overview of reporting and learning systems in reporting countries and regions

In 15 (BE, CZ, DE, DK, ES, FR, IE, IT, LU, NL, PL, PT, SE, SK, UK) Member States the RLS respond to at least three out of the four requirements of the Recommendation, i.e. 1) provide information on the extent, types and causes of adverse events; 2) are differentiated from Member States' disciplinary systems and procedures for healthcare workers; 3) provide opportunities for patients and their families to report; and 4) complement other safety reporting systems.

Twelve Member States (BE, BG, EL, ES, FI, HU, IE, LT, MT, RO, SI, SK) reported difficulties in implementing the blame free reporting and learning systems. These can be of different nature: legal, e.g. the establishment of a blame free reporting system requires complex modifications to the regulatory framework; cultural, e.g. the existence of strong blame culture which makes health professionals reluctant of displaying the errors due to fear of punishment; systemic, e.g. insufficient leadership and commitment of the hospital management to introduce reporting and learning systems or public/private healthcare mix. Several Member States highlighted lack of financial resources as the main obstacle to the implementation.

In the comments to this part of the questionnaire Member States recognised the urgent need of efficient reporting and learning systems on adverse events.

1.4. Promote education and training of healthcare workers on patient safety

Member States were asked whether they have promoted education and training of healthcare workers on patient safety over the last two years at national and/or regional level.

All reporting countries (except LU) and all reporting regions reported having promoted such a training which was mostly addressed to medical doctors and nurses (in 26 countries except LU, SE and in all the regions), to pharmacists (in 24 countries except LU, RO, SE, SI, and in all the regions) and to healthcare managers (in 24 countries except LU, LV, NO, SE and in all the regions) – Figure 8.

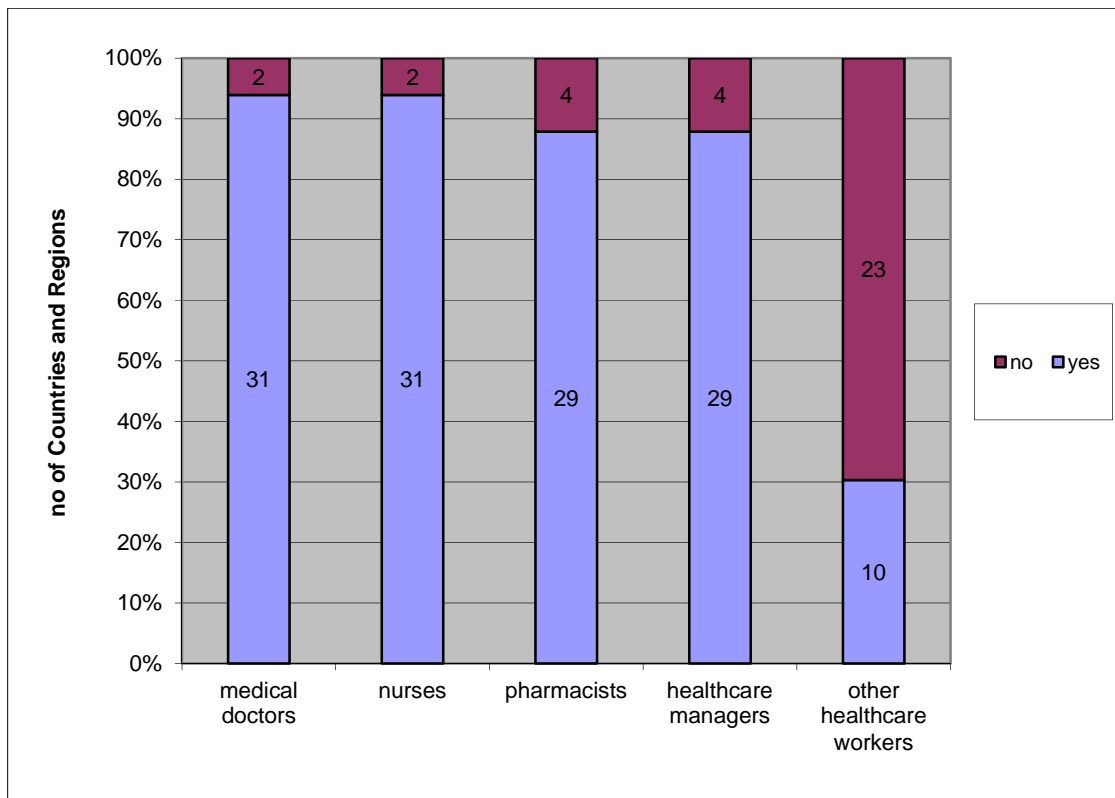


Figure 8: Professional groups to which education and training on patient safety have been promoted at national/regional between June 2009 and June 2011

Only nine countries (AT, BE, DE, ES, FR, IE, NO, PT, UK) and three regions (Andalusia, Community of Madrid, Extremadura) promoted training for other healthcare workers, for example to radiology technicians, radiotherapists, risk managers, laboratory technicians porters, cleaners and healthcare assistants. In two cases (BE and HU) training was promoted to teaching schools for nurses, to universities and to pharmaceutical companies. PL reported using the European Cohesion Fund and the European Social Fund to promote and organise training.

Six Member States (BE, EE, ES, FR, IE, PT) and three regions (Andalusia, Community of Madrid and Extremadura) targeted all above groups.

- (n) Encouraging multidisciplinary patient safety education and training of health workers in healthcare settings

At healthcare setting level, 24 countries (except CY, EE, EL, HU) and all the regions launched initiatives encouraging patient safety training. They include campaigns and training offered by competent authorities for medical training, by universities, by professional organisations or by human resources departments in hospitals. They may take form of lectures, seminars (also web seminars), conferences and teaching modules, including e-learning modules.

- (o) Embedding patient safety in undergraduate and postgraduate education, on-the-job training and the continuing professional education of health professionals

Over half of the reporting countries (15 – AT, BG, CY, DK, EE, FI, FR, IE, IT, LV, MT, NO, PT, SK, UK) and four regions except Catalonia stated having in place formal requirements to

include patient safety modules in one or more types of education. Patient safety modules are mostly offered for nurses and medical doctors as part of the postgraduate education, on-the-job training and the continuing professional education.

The groups the least targeted are healthcare managers with only between five and nine countries or regions offering patient safety modules for this category of professionals.

In general terms, if patient safety education is embedded in education and training (i.e. in 15 countries), this is mostly in the framework of continuing professional development and the least in undergraduate education (Figure 9).

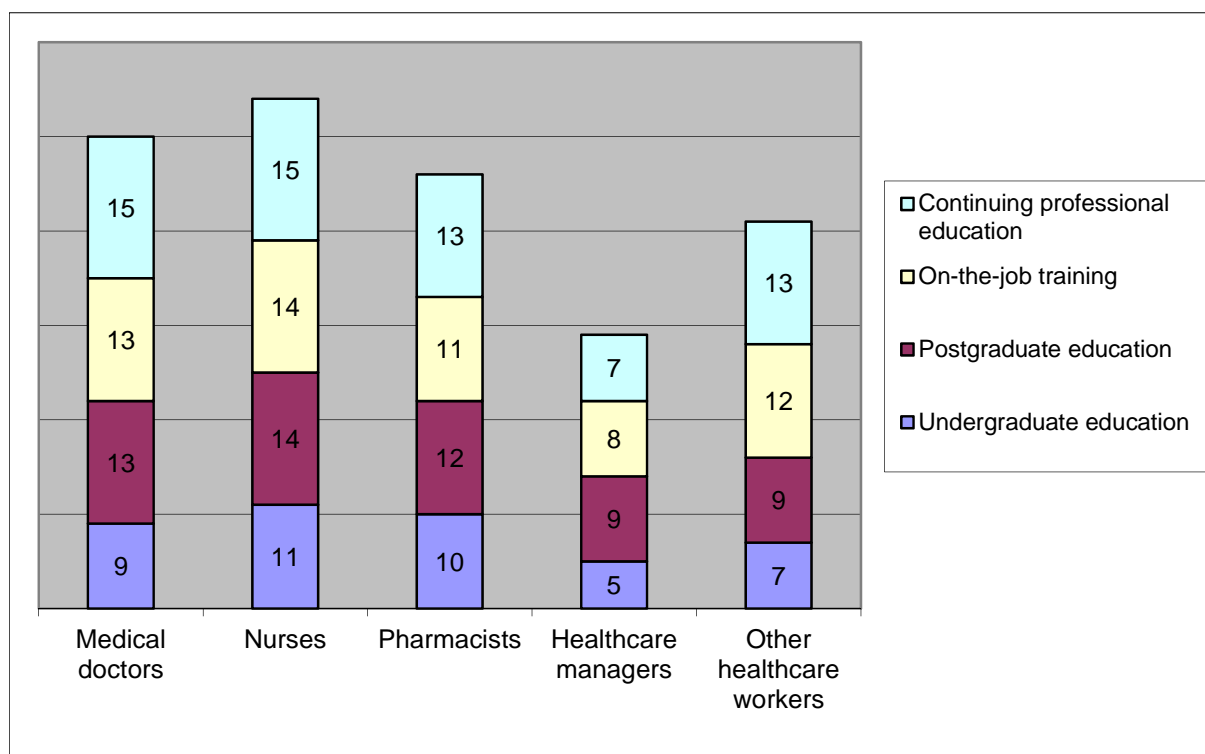


Figure 9: Formal requirements to include patient safety in the education and training of health professionals and other health workers

Health workers have possibility to give their feedback on education and training in 14 out of 15 countries. This can include feedback on the training offer or evaluation of individual training sessions.

- (p) Considering the development of core competencies in patient safety, namely the core knowledge, attitudes and skills required to achieve safer care, for dissemination to all healthcare workers and relevant management and administrative staff

Member States were asked what kind of information related to patient safety was available for healthcare workers.

All responding countries except one (SE) provide at least one of the three following types of information: patient safety standards, risk and safety measures in place to reduce errors, best practices in patient safety. In 11 Member States (AT, CY, CZ, DE, EE, ES, FR, LU, PT, NL, UK) and four regions (except Andalusia) healthcare workers have access to all above information, and in six Member States (EL, LV, PL, RO, SI, SK) only to one of three types.

ICT systems are used to support patient safety education and training of healthcare workers in 17 countries (BE, BG, CZ, DE, DK, ES, FI, FR, HU, IE, IT, LU, LV, NO, PT, NL, UK) and in all the regions. They vary from simple use of a slide presentation at a training session to dedicated ICT training platforms or e-learning interactive modules.

In 10 Member States (BE, BG, EL, FR, FI, HU, IT, PL, SI, SK) and Extremadura region initiatives regarding education and training of healthcare workers on patient safety are under implementation and are to be accomplished within the next years.

Specific obstacles to full implementation of the provisions regarding education and training in patient safety include: insufficient domestic expertise in the field and difficulties to access such expertise at EU or international level; difficulties to modify university programmes, either because of lack of collaboration between health and education sector and no interest from education institutions, or because of slow processes; need of legislative changes.

Having commented this part of the questionnaire, respondents highlighted difficulties to assess the impact of training on behaviour and attitudes of health professionals.

1.5. Classify and measure patient safety at Community level, by working with each other and with the Commission

- (q) To develop common definitions and terminology taking into account international standardisation activities

The European Commission facilitated exchange of information on related initiatives in the Working Group on Patient Safety and Quality of Care. The Group is composed of all EU Member States, representatives of EFTA countries, International Organisations (WHO, OECD and the Council of Europe) and EU umbrella organisations representing patients, health professionals, healthcare managers and quality of care experts.

This Group had a chance to discuss the work of the WHO on the International Classification for Patient Safety, as well as several examples of national activities on patient safety. Sixteen countries are involved in the WHO work on the international classification (BE, CZ, DE, DK, ES, FI, FR, IE, IT, LV, NL, NO, PT, SE, SK, UK) and two (BE and SI) translated the classification in their national languages.

However, to date no classification on patient safety has been proposed at EU level.

- (r) To develop a set of reliable indicators

The European Commission has continued to co-finance the project on healthcare quality indicators, led by the OECD. In 2011, the project published for the first time six indicators on patient safety: two related to obstetric trauma and four related to procedural and postoperative complications². Twenty countries (AT, BE, CZ, DK, ES, FI, FR, HU, IE, IT, LV, MT, NL, NO, PL, PT, SE, SI, SK, UK) reported they were involved in the project and 13 Member States (BE, DE, DK, ES, FI, FR, IE, IT, NL, PT, SE, SI, UK) are collecting comparable indicators on patient safety.

² OECD (2011) Health at a Glance 2011: OECD Indicators, OECD Publishing. <http://www.oecd.org/dataoecd/6/28/49105858.pdf>

- (s) To gather and share comparable data and information on patient safety outcomes in terms of type and number to facilitate mutual learning and inform priority setting

The European Commission proposed to Member States three-year collaboration, in the form of a joint action. One part of the joint action consists of selecting best practices on patient safety at healthcare provider level and testing their implementation in other Member States. The joint action is partly built on a previous EU co-funded project – EU Network on Patient Safety (EUNetPaS).

All 27 Member States and Norway are involved in the overall joint action, including 22 (except BE, CY, CZ, EE, LU, PT, SI) financially participating in the project.

Table 4: countries' involvement in EU and international initiatives and projects on patient safety

Initiative	Countries (total = 28)
The Commission's Working Group on Patient Safety and Quality of Care	28
The European Network on Patient Safety (EUNetPaS)	25
Joint Action on Patient Safety and Quality of Care	28
OECD Health Care Quality Indicators Project	20
WHO work on International Classification	16
None of them	0
Other	8

Member States were asked to report obstacles regarding their participation in the various projects and working groups on patient safety. They declared that the lack of knowledge, beyond the financial constraints, is the issue of a partial participation of their experts to the projects. Moreover, Member States highlighted usefulness of participating in the above listed projects which gives opportunity to exchange best practices among them.

1.6. Share knowledge, experience and best practice by working with each other and with the European Commission and relevant European and international bodies

At EU level, several above-mentioned fora and mechanisms have been facilitating knowledge sharing on patient safety among Member States, namely:

- The European Commission Working Group on Patient Safety and Quality of Care - since 2005;
- The EU Network on Patient Safety (EUNetPaS) - project co-financed under the Health Programme in the years 2007-2010;

- The Joint Action on Patient Safety and Quality of Care – a 3-year collaboration between EC and Member States co-financed under the Health Programme (started in 2012)

All above mechanisms aim at helping Member States to share knowledge and best practice on:

- The establishment of efficient and transparent patient safety programmes with a view to addressing adverse events in healthcare
- The effectiveness of patient safety interventions and solutions at the healthcare setting level and the evaluation of the transferability of these
- Major patient safety alerts in a timely manner

Member States were asked to report in which areas identified by the Recommendation they collaborate with other countries. The most frequent areas of collaboration are: the development of patient safety strategies and programmes, followed by developing blame-free reporting and learning systems and development and review of patient safety standards. The areas the least covered are: disseminating information to patients about patient safety, developing core competencies on patient safety for patients and developing patient safety elements in national accreditation programmes. Table 5 shows which areas are subject of collaboration.

Table 5: Collaboration areas among Member States

Areas of patient safety as identified by the Recommendation	Collaborating countries	Collaborating regions	Examples of collaborating partners
1. Development of patient safety strategies and programmes	20	3	UK-FR-DK; BG-PL-LT-SI-NL-DK; CZ-SI-SK; FI-SE; DE-AT; PT-ES-Andalusia; IE-all countries as appropriate Community of Madrid - other ES regions;
2. Development and review of patient safety standards	15	1	UK-FR-DK; DE-AT; PL-DK-NL-UK

			PT-ES-Andalusia; SK-CZ; IE-all countries Community of Madrid - other ES regions;
3. Developing blame-free reporting and learning systems	15	2	UK-FR-DK; IE-UK-DK CZ-SI-SK; DE-AT-FR-UK-NL; SK-CZ; SE-NO-DK-FI; Andalusia-PT; Community of Madrid – Andalusia;
4. Patient safety information and campaigns	14	3	SK-CZ; Andalusia-PT; IE-all countries
5. Involving patient organisations in patient safety policies	11	2	UK-FR-DK; LT-LV; PT-ES-Andalusia; SE-DK;
6. Encouraging reporting on adverse events by both healthcare workers and patients	11	2	BE-DK; UK-FR-DK; CZ-SI-SK-AT; DE-AT; PT-ES-Andalusia;
7. Developing educational modules on patient safety for health professionals	11	2	BE-DK; UK-FR-DK-DE-SK;

			PT-ES-Andalusia;
8. Disseminating information to patients about patient safety	9	2	UK-FR-DE; CZ-SI-SK; PT-ES-Andalusia;
9. Developing core competencies on patient safety for patients	9	2	UK-FR-DE; PT-ES-Andalusia; Community of Madrid – Andalusia;
10. Developing patient safety elements in national accreditation programmes	9	2	CZ-SI-SK; PL-NL-CZ; PT-ES-Andalusia;
<i>In addition:</i>			
<i>FR reported collaboration with all countries and all regions in all areas;</i>			
<i>NL reported collaboration with various countries in all areas;</i>			
<i>Catalonia reported collaboration with Spanish regions in all areas.</i>			

Five Member States (CY, EL, HU, LU, MT) and Basque Country did not report collaboration in any of listed areas. However, HU announced collaboration with PL in near future on development and review of patient safety standards.

In addition, 15 countries (AT, BG, DK, ES, FI, FR, HU, IE, NL, NO, PL, SE, SI, SK, UK) and Andalusia collaborate on patient safety with non-EU countries: Albania, Argentina, Australia, Bosnia and Herzegovina, Brazil, Canada, Colombia, Costa Rica, Croatia, Egypt, Ethiopia, Georgia, Macedonia, Malawi, Mexico, Moldova, New Zealand, Peru, Switzerland, Turkey, Uganda, Ukraine and the USA. Cooperation with non-EU countries cover: reporting and learning systems, outcome indicators, accreditation and certification of healthcare providers, performance measurement, education in patient safety, specific patient safety campaigns (e.g. Clean Your Hands campaign) and antimicrobial resistance.

Among the obstacles reported, Member States highlighted that collaboration with other countries is often carried out at expert level, without being officially endorsed. They also mentioned that differences between healthcare systems and language barriers hamper effective cooperation.

1.7. Develop and promote research on patient safety

Within the Seventh Research Framework Programme, the EU co-financed the following research projects related with patient safety:

ORCAB: Improving quality and safety in the hospital: the link between organisational culture, burnout, and quality of care. The aim of the present project is to benchmark the organisational and individual factors that impact on quality of care and patient safety, and design bottom-up interventions that both increase quality of care and physician well being. . On-going project: 1 November 2009 – 30 April 2014. EU co-funding: EUR 1 910 480. <http://orcab.web.auth.gr/orcab/Index.html>

QUASER: Quality and safety in European Union hospitals: a research-based guide for implementing best practice and a framework for assessing performance. The project aims to design and disseminate an evidence based guide for hospitals to implement quality and safety improvement programmes, and an evidence based framework for payers to assess and monitor the quality and safety of hospitals across the EU. On-going project: 1 April 2010 – 31 March 2013. EU co-funding: EUR 2 999 842. <http://www.kingspssq.org.uk/programmes/quality-and-safety-in-european-union-hospitals>

DUQUE: Deepening our understanding of quality improvement in Europe. The objective is to study the effectiveness of quality improvement systems in European hospitals. Ongoing project: 1 November 2009 – 30 April 2013. EU co-funding: EUR 2 996 189. <http://www.duque.eu/>

LINNEAUS EURO – PC: Learning from international networks about errors and understanding safety in primary care. On-going project: 1 March 2009 – 28 February 2013. EU co-funding: EUR 2 461 250. <http://www.linneaus-pc.eu/#>

HANDOVER: Improving the continuity of patient care through identification and implementation of Novel patient handoff processes in Europe. The overall objective was to optimize the continuum of clinical care at the primary care hospital interface by reducing unnecessary and avoidable treatment - medical errors and loss of life, by identifying and studying best practices and creating standardized approaches to handoff communication at the primary care hospital interface and measuring the effectiveness of these practices in terms of costs and impact. Completed project: 1 October 2008 – 30 September 2011. EU co-funding: EUR 2 623 200. <http://www.handover.eu/index.html>

ECHO: European Collaboration for Healthcare Optimization. It aims at describing the actual performance of six different Healthcare Systems at hospital, healthcare area, regional and country level. To tackle performance measurement in this project, two different methodological approaches will be used: [a] a population geographical-based, responding the question: Is the access to a diagnostic or surgical procedure dependant on the place where a person lives? And, [b] a provider-specific, answering the question: Is the risk for a patient to access high quality care -and have better health outcomes- different regarding the provider in which he or she is admitted? On-going project: 1 March 2012 – 31 August 2013. EU co-funding: EUR 2 737 998. <http://www.echo-health.eu/>

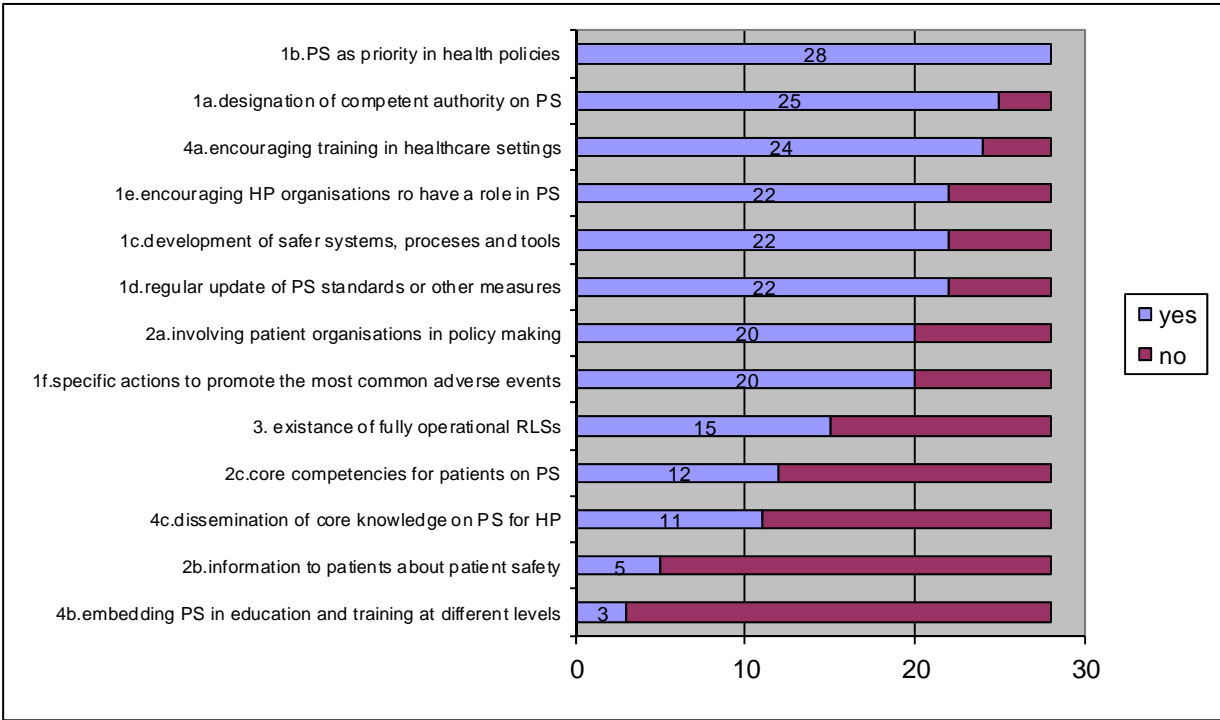
Only 10 Member States (BE, DE, ES, FR, HU, IE, IT, NL, SE, UK) and one Region (Extremadura) reported they had national research programme on patient safety. Existing research covers patient safety culture, reducing the risk of medication errors, improvement of patients competence in medication safety, healthcare associated infections, prevention of falls in elderly population, impact of the absenteeism of healthcare workers on patient satisfaction, impact of teleradiology on vital emergencies, instruments to measure adverse events, frequency of adverse events at hospitalized patients.

Regarding the obstacles, Member States reported that due to the financial constraints and to allocation of national budgets, their research projects are sometimes not supported by the governments.

1.8. Summary of implementation progress

Among 13 actions envisaged by the Recommendation and analysed in this report, the following three were implemented by the highest number of countries: embedding patient safety as a priority issue in public health policies (all countries); designating a competent authority responsible for patient safety (25 countries); and encouraging training on patient safety in healthcare settings (24 countries). The actions implemented by the lowest number of countries are: embedding patient safety in undergraduate and postgraduate education, on-the-job training and the continuing professional education of health professionals (three countries); information to patients about patient safety (five countries); dissemination of core knowledge on patient safety to health professionals (11 countries) and developing core competencies in patient safety for patients (12 countries). Figure 10 shows the levels of implementation of particular actions as reported by countries.

Figure 10: Summary of actions implemented by countries



Regarding number of actions implemented by countries, the following groups can be distinguished:

Table 6: Number of actions implemented by countries

Countries having implemented all 13 actions	0 countries
Countries having implemented between 10 and 12 actions	9 countries: CZ, DE, DK, ES, FR, IE, IT, NL, UK
Countries having implemented between 7 and 9 actions	14 countries: AT, BE, BG, EE,

	FI, LT, LU, MT, NO, PL, PT, SE, SI, SK
Countries having implemented between 4 and 6 actions	3 countries: CY, HU, LV
Countries having implemented between 1 and 3 actions	2 countries: EL, RO

2. PREVENTION AND CONTROL OF HEALTHCARE ASSOCIATED INFECTIONS

2.1. Strategies, action plans, indicators and inter-sectoral mechanisms

Discussion on main findings

About 2/3 of the countries had defined a national strategy and/or an action plan for the prevention and control of HAI in 2011.

More than 80% of national action plans included the implementation in hospitals of: an infection prevention and control programme; appropriate organisational governance arrangements and qualified infection control staff; surveillance of targeted HAI; surveillance of particular events for timely detection of alert microorganisms or HAI; and high quality microbiological documentation and patient records. Fourteen countries out of seventeen with an action plan at the national level had set up mechanisms to encourage its implementation, often through the mandatory reporting of indicators.

Fifteen countries had considered **nursing homes and healthcare institutions other than acute care hospitals** when designing their action plans.

There is still room to improve information to patients and their involvement in HAI prevention: providing information to the patient was among the least frequent objectives of action plans. In addition, patients' representatives were part of the inter-sectoral mechanism in about 30% countries or regions only.

In 2011, not all countries had set up a system of indicators to **assess the implementation of the strategy/action plan**, although the need for monitoring trends to adapt activities is largely admitted. As underlined by one respondent, the IPSE consensus on standards and indicators³ and current European projects to develop a suitable system to collect and report indicators, should help countries and regions to increase their ability to assess their situation and to compare with other countries when relevant. In addition, some indicators may be similar to those promoted through the reinforcement of strategies for the prudent use of antimicrobial agents in human medicine and for patient safety. The fact that more than half of responding countries reported that the strategy on HAI was linked to the strategy for prudent use of antimicrobial agents in human medicine and/or to the strategy for patient safety contributes to enhance consistency in the implementation and the assessment of public health policies.

Public reporting of indicators on HAI prevention and control at the hospital level was in place in six countries.

2.1.1. *Strategies for the prevention and control of HAI*

The appropriate level for developing and enacting a **strategy for the prevention and control of healthcare associated infections (HAI)** (see Article 8 of Council Recommendation 2009/C 151/01) was the national/federal level in 18 Member States. Nine countries reported that both the national and regional levels were appropriate. The appropriate level for the UK is the regional level.

³ Improving patient safety in Europe (IPSE). The IPSE consensus on standards and indicators. May 2008.

Eighteen countries (AT, BE, BG, DE, DK, EL, ES, FR, HU, IE, IT, LT, LU, NL, NO, PT, SE, SK) had a national strategy. England and Scotland had a regional strategy.

A strategy had not yet been issued in nine Member States:

- Six had a national strategy under preparation (CY, CZ, EE, FI, PL, SI);
- Three had no national strategy (LV, MT, RO).

All nine countries where both levels were appropriate to develop a strategy, also had regional strategies (AT, DE, DK, EL, ES, FR, IT, NO, SE). Regional strategies could differ substantially from the national strategy in ES (in two out of five responding regions) and in IT (in two out of eight responding regions).

Overall, 32 strategies had been defined in the 42 responding countries and regions.

Seventeen countries and six regions provided a web link to access the strategy on the internet.

The median year of first issue (17 countries provided data) and the median year of last update (14 countries) of the strategy were 2002 and 2009, respectively (Figure 11).

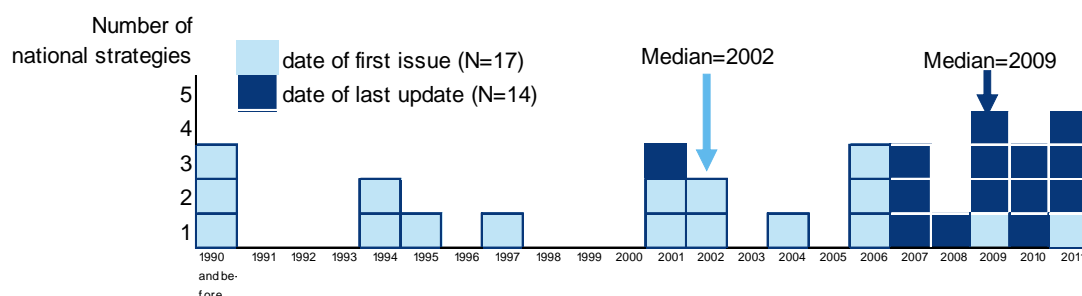


Figure 11: Dates of first issue and last update of the strategy

In 17 Member States (89%), and in 10 Spanish or Italian regions (77%), strategies were linked to another public health strategy:

- in 14 Member States (BE, BG, DE, DK, EL, FR, HU, IE, IT, LU, NL, PT, SE, UK⁴) and four regions (Community of Madrid; Autonomous Province of Trento, Emilia-Romagna, Liguria) with the strategy for prudent use of antimicrobial agents in human medicine;
- in 11 Member States (BG, DE, DK, EL, ES, FR, HU, IT, LU, NL, PT) and 10 regions (Basque Country, Catalonia, Ceuta and Melilla, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; Scotland) with the strategy for patient safety;
- in five Member States (DE, DK, IT, LT, SK) and three regions (Ceuta and Melilla; Autonomous Province of Trento; Scotland) with other public health strategies: food

⁴ Responded at regional level only.

safety and veterinarian public health, immunisation programme, prevention of communicable diseases, methicillin-resistant *Staphylococcus aureus* (MRSA) prevention, biological risk in healthcare workers, industrial health and safety, health service quality strategy, strategies about chronic diseases.

2.1.2. Action plans

The action plan should describe what actions are needed at the national/regional level and which institution(s) should lead them to achieve the objectives listed. Action plans were available in 18 countries (AT, BE, BG, CZ (with strategy under preparation), DE, DK, EL, ES, FR, HU, IE, IT, LT, NL, NO, PT, SK, UK) and in 11 regions (Andalusia, Basque Country, Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Lombardy, Piedmont).

In addition, five Member States had an action plan under preparation: two Member States with a national strategy (LU, SE) and three Member States with a national strategy also under preparation (EE, PL, SI).

(t) Scope of the action plan

In all 18 countries, action plans addressed acute care hospitals. In all but PT, other hospitals were also addressed. In all but three Member States (AT, HU, PT), some objectives of the action plan also encompassed nursing homes.

When information was available, the median year of first issue of the action plan was 2001 for acute care (nine countries provided data) and other hospitals (seven countries provided data) and 2006 for nursing homes (two countries provided data). The median year of last update was 2009 for acute care hospitals (eight countries provided data), 2010 for other hospitals (six countries provided data) and 2011 for nursing homes (two countries provided data).

(u) Objectives of the action plan

The objectives of the action plan, at the national/regional level and at the level of healthcare institution, in reference to the Recommendation, were described (Table 7). For each objective, it was specified whether acute care hospitals, other hospitals and/or nursing homes were addressed. Information on the action plan was available from 17 countries (AT, BE, BG, CZ, DE, DK, EL, ES, FR, HU, IE, IT, LT, NL, NO, PT, SK) and 13 regions (Andalusia, Basque Country, Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Lombardy, Piedmont; England, Scotland).

At the national level, the two most widespread objectives, for the three types of healthcare institutions were the implementation of standard infection prevention and control measures and the provision of guidelines.

In national action plans, the third most common objective for acute care hospitals was the surveillance of incidence of targeted types of infections of HAI to establish national reference data. The third and fourth most common objective for other hospitals was the timely detection and reporting of alert healthcare associated organisms or clusters of HAI to the relevant body, and education on the prevention and control of HAI for healthcare workers (other than infection control staff). For nursing homes the third and fourth most common objectives were the implementation of risk-based infection prevention and control measures and the performance of prevalence surveys of HAI at regular intervals.

At the regional level, the most widespread objectives were: the provision of guidelines, the implementation of standard and risk-based infection prevention and control measures, the definition and implementation of specialised infection control training and/or education programmes for infection control staff, and the education on the prevention and control of HAI for healthcare workers other than infection control staff.

Among the least common objectives were:

- in national and regional action plans, the promotion of adherence to prevention and control measures by using the results of accreditation or certification processes in place and the surveillance of process and structure indicators to evaluate the strategy;
- in national action plans:
 - in acute care hospitals, the promotion of consistency in, and communication of, infection prevention and control measures between healthcare providers treating or caring for a particular patient, e.g. actions at the national/regional level to promote the development of shared patient files or liaison documents to ensure that appropriate infection control measures are applied to the patient when transferred to another healthcare institution or when discharged;
 - in other hospitals and nursing homes, the use of structure and process indicators to promote adherence to prevention and control measures.

In ES, the objectives at the level of the healthcare institutions were addressed only in the regional action plans and not in the national action plan.

At the level of healthcare institutions, in national and regional action plans, the most frequent objectives for all types of healthcare institutions were to have in place:

- surveillance of particular infection types and/or particular strains of healthcare-associated pathogens for the timely detection of alert healthcare-associated organisms or clusters of HAI;
- an infection prevention and control programme addressing organisational and structural arrangements, diagnostic and therapeutic procedures (for example antimicrobial stewardship), resource requirements, surveillance objectives, training of healthcare personnel;
- appropriate organisational governance arrangements for the elaboration and the monitoring of the IC programme
- appropriate organisational arrangements and qualified personnel with the task of implementing the infection prevention and control programme.

The least common objectives dealt with general information to the patient: making available objective and understandable information about the risk of HAI, about the measures implemented by the healthcare institution to prevent them and on how patients can help to prevent those infections; the infection prevention and control programme rarely included provision of information to patients on HAI.

In addition, consistent with the scarcity of action plans including this objective at the national/regional level, only two regional action plans for nursing homes aimed at having in place process and structure indicators to evaluate the implementation of infection control measures (Apulia and Emilia-Romagna).

Table 7: Objectives and scope of the action plan in 17 countries and 13 regions with action plan

Objectives	Countries (N= 17)			Regions (N=13) ⁵		
	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
National or regional level⁶						
Provision of guidelines and recommendations	16	13	10	13	7	6
Implementation of standard prevention and control measures in healthcare settings	17	14	10	11	9	4
Implementation of risk-based infection prevention and control measures in all healthcare settings	13	11	7	12	9	4
Promotion of consistency in, and communication of, infection prevention and control measures between healthcare providers treating or caring for a particular patient ⁷	11	9	5	4	3	3
Promotion of adherence to prevention and control measures by using structure and process indicators	14	8	3	9	3	2
Promotion of adherence to prevention and control measures by using the results of accreditation or certification processes in place	10	8	2	7	3	3
Prevalence surveys of HAI at regular intervals	12	7	7	8	4	3
Surveillance of incidence of targeted types of HAI to establish national/regional reference data	15	8	3	10	3	2
Process and structure indicators to evaluate the strategy	13	8	0	6	4	3

⁵ Including England and Scotland.

⁶ The action plan should describe what actions are needed at the national/regional level and which institution(s) should lead them to achieve the objectives listed.

⁷ E.g. actions at the national/regional level to promote the development of shared patient files or liaison documents to ensure that appropriate infection control measures are applied to the patient when transferred to another healthcare institution or when discharged.

	Countries (N= 17)			Regions (N=13) ⁵		
Objectives	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
Timely detection and reporting of alert healthcare associated organisms or clusters of HAI to the relevant body	13	12	6	10	6	3
Definition and implementation of specialised infection control training and/or education programmes for infection control staff	14	11	4	12	6	4
Education on the prevention and control of HAI for healthcare workers other than infection control staff	13	12	6	11	6	3
Reporting of clusters and infection types of relevance for the Community or international level	13			6		
Support of research in fields such as epidemiology of HAI, new preventive and therapeutic technologies and interventions, cost-effectiveness of infection prevention and control	9			6		
Level of healthcare institutions⁸						
Having in place an infection prevention and control programme addressing organisational and structural arrangements, diagnostic and therapeutic procedures (for example antimicrobial stewardship), resource requirements, surveillance objectives, training of healthcare personnel	15	11	5	11	7	2
Having in place an infection prevention and control programme addressing information to patients on HAI	6	4	2	7	4	1
Having in place appropriate organisational governance arrangements for the elaboration and the monitoring of the infection prevention and control programme ⁹	14	11	6	9	5	1

⁸ The action plan should describe what actions are needed at the healthcare institution level and, when relevant, who should lead them to achieve the objectives listed.

⁹ E.g. infection prevention and control committee or equivalent multidisciplinary system.

Objectives	Countries (N= 17)			Regions (N=13) ⁵		
	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
Having in place appropriate organisational arrangements and qualified personnel with the task of implementing the infection prevention and control programme	14	12	4	11	7	2
Encouraging high quality microbiological documentation ¹⁰ and patient records ¹¹	14	11	4	8	5	2
Performing prevalence surveys at regular intervals	10	5	5	6	3	1
Surveillance of the incidence of targeted infection types	14	8	3	10	3	1
Surveillance of particular infection types and/or particular strains of healthcare-associated pathogens for the timely detection of alert healthcare-associated organisms or clusters of HAI	15	13	5	10	6	1
Process and structure indicators to evaluate the implementation of infection control measures	10	7	0	8	5	2
Provision of regular training for all healthcare personnel, on basic principles of hygiene and infection prevention and control	13	11	4	9	5	2
Provision of regular advanced training for personnel having particular tasks related to the prevention and control of HAI	12	9	3	9	5	1
Information to the patients: making available objective and understandable information about the risk of HAI	7	5	1	5	2	2
Information to the patients: making available objective and understandable information about the measures implemented by the healthcare institution to prevent them and on how patients can help to prevent those infections	6	4	0	6	3	1

¹⁰ E.g. encouraging to have timely access to microbiological analysis, including antimicrobial susceptibility testing, external quality control.

¹¹ E.g. computerised medical records.

	Countries (N= 17)			Regions (N=13) ⁵		
Objectives	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
Information to the patients: providing specific information, for example on prevention and control measures, to patients colonised or infected with healthcare-associated pathogen	9	8	3	7	4	2

(v) Mechanisms to encourage the implementation of actions

Mechanisms to encourage the implementation of actions for prevention and control of HAI were reported by 14 out of 17 countries (82%) with an action plan (BE, BG, DE, DK, EL, ES, FR, HU, IE, LT, NL, NO, PT, SK). In IT, there was no mechanism at the national level, but some were reported at the regional level. In addition, it was planned to develop such mechanisms in five countries of which three had a national action plan. Among 13 regions with action plan, nine (70%) had such mechanism (Andalusia, Basque Country, Catalonia, Community of Madrid; Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; Scotland). These mechanisms to encourage the implementation of actions were:

- mandatory reporting of indicators (structure, process, outcomes) in eight countries (BE, BG, DK, EL, FR, IE, NO, SK) and eight regions (Andalusia, Basque Country, Catalonia, Community of Madrid; Autonomous Province of Trento, Friuli-Venezia Giulia, Piedmont; Scotland);
- inclusion in certification or accreditation process in seven Member States (BG, DE, DK, FR, LT, NL, PT) and four regions (Andalusia; Autonomous Province of Trento, Emilia-Romagna, Piedmont);
- binding regulation in nine countries (BE, BG, DE, DK, FR, HU, LT, NO, SK) and Community of Madrid
- financial sanctions in five Member States (BG, DE, FR, LT, SK) and two regions (Emilia-Romagna, Friuli-Venezia Giulia);
- financial incentives in two Member States (BE, PT) and three regions (Andalusia, Catalonia, Community of Madrid);
- others (inspection by health authorities, by independent bodies, self-assessment, budget for regions) in two Member States (DE, ES) and two regions (Basque Country; Scotland).

(w) Financial resources

Dedicated budgets for implementation of the action plan were identified in nine countries and three regions. A budget was allocated by the Government annually in seven countries (BE, EL, ES, FR, IT, LU, NO), and occasionally in two Member States (DE, HU). In addition, regional annual budgets existed in ES and NO, in Emilia-Romagna and in Scotland. Regional occasional budget could be dedicated in DE. In addition to the annual budget, the Government could assign occasional budget in BE, FR, and LU.

Examples of activities funded in 2009-2010 were reported by 13 respondents from nine countries. The most commonly funded activities related to campaigns and actions to improve hand hygiene: 10 out of 13 respondents in six Member States (BE, EL, ES, FR, HU, PT) and four regions (Andalusia; Autonomous Province of Trento, Piedmont; Scotland). Other funded projects dealt with surveillance projects, prevention activities, reinforcement of human resources, education and evaluation:

- development of information technology support for surveillance (4);
- development of surveillance of bacteraemia, point prevalence surveys in acute care hospitals and nursing homes (3);
- elaboration and dissemination of guidelines for the prevention of HAI, for instance infections associated to surgery (2), blood stream infections (2), ventilator-associated pneumonia, catheter related urinary tract infections, device-related infections, isolation measures (one each);
- implementation/reinforcement of infection control or antimicrobial staff (3): infection control teams, infection control managers, antimicrobial pharmacists;
- education and training courses (2), management of networks of professionals (2);
- evaluation (visits of hospitals by an expert advisory team to assess prevention and management of HAI outbreaks, assessment of a national network surveillance);
- experimental study (methods for the control of *Legionella* in hot water supply system).

2.1.3. Indicators

(x) Indicators to assess the implementation of the strategy or action plan

Seventeen countries (AT, BE, BG, DK, EL, ES, FR, IE, IT, MT, LT, LU, NL, NO, PT, SK, UK) and nine regions (Andalusia, Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Piedmont) stated they had indicators to assess the implementation of the strategy or the action plan. In addition, six Member States (CZ, DE, HU, PL, SE, SI) and Basque Country reported being in the process of developing indicators of which SI had a strategy and an action plan under preparation. MT had indicators despite having neither strategy nor action plan.

The most frequently used indicator in all types of healthcare institutions, in 14 out of 16 countries, and 9 out of 11 regions was a process indicator referring to the organisation of campaigns to improve hand hygiene (Table 8). Another process indicator was often used in

other hospitals and nursing homes: volume of alcohol hand rub products for hand hygiene. Outcome indicators were mainly used in acute care hospitals: results from surveillance of surgical site infections, infections in ICU, prevalence surveys. Most common outcome indicators in other hospitals and nursing homes were: results of point-prevalence surveys and MRSA incidence.

Among indicators listed in the questionnaire, the number of single rooms was monitored in five countries (BG, DK, EL, NO, ES).

Table 8: Number of countries and of regions using indicators to assess the implementation of the strategy or action plan in place according to the type of healthcare institution

Name of indicator	Number of countries (N=16)			Number of regions (N=11)		
	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
Structure indicators						
Human resources: number of full time equivalent (FTE) infection control staff per 1000 beds or per hospital (denominator used in MT and SK)	12	10	1	2	1	0
Number of single rooms (unit: per ward, specified by BG)	5	3	0	0	0	0
Annual report on implementation of infection control programme	10	6	1	7	3	2
Process indicators						
Volume of alcohol hand rub products used per year. Measurement unit: ml or litres / patient-days (or occupied bed days or days of hospitalisation)	12	7	3	5	2	1
Campaign to improve hand hygiene	14	11	8	9	4	2
Outcome indicators						
Incidence of meticillin-resistant <i>Staphylococcus aureus</i> (MRSA)	11	6	2	7	2	2
Incidence of extended-spectrum beta-lactamase (ESBL)-producing <i>Enterobacteriaceae</i>	8	4	1	4	2	2

Name of indicator	Number of countries (N=16)			Number of regions (N=11)		
	Acute care hospitals	Other hospitals	Nursing homes	Acute care hospitals	Other hospitals	Nursing homes
Incidence of other multidrug-resistant microorganisms (MDR) ¹²	9	5	2	3	2	2
Incidence of surgical site infections (at least some procedures)	13	4	-	8	1	
Incidence of some or all infections in intensive care units	13	3	-	6		
Results of point prevalence surveys (PPS)		5	3	7	3	1

Responding countries/regions could monitor indicators other than those listed in the questionnaire:

- **Structure indicators:** proportion of beds with alcohol hand rub products at the point of care; proportion of beds with alcohol hand rub products in the room; proportion of hospitals with information system for the laboratory; composite indicator on HAI organisation, activities and resources;
- **Process indicators:**
 - related to hand hygiene (hand hygiene compliance, compliance to WHO hand hygiene recommendations, proportion of hospitals (or primary care areas) receiving basic training in hand hygiene, proportion of hospitals receiving training in the WHO Five Moments for Hand Hygiene¹³, proportion of hospitals using WHO observational tools, proportion of hospitals reporting self-evaluation with WHO tools);
 - related to surveillance process (proportion of hospitals assessing HAI prevalence, HAI incidence, participation in surveillance activities, participation in national patient safety programme, proportion of hospitals having an alert system for selected microorganisms);
 - isolation procedures and measures;
 - antibiotic prescribing, antibiotic stewardship, antibiotic consumption surveillance, composite indicator assessing antibiotic stewardship;
 - environmental cleaning; endoscope reprocessing.

¹² all MDR, carbapenem-resistant *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Acinetobacter* spp, *Klebsiella* spp, *Pseudomonas* spp; vancomycin-resistant *Enterococci* (VRE); resistance in *Enterobacter cloacae*, *Citrobacter* spp., *Serratia marcescens* resistant to carbapenems, ciprofloxacin and amikacin; *P. aeruginosa* and *A. baumannii* resistant to ciprofloxacin, amikacin, ceftazidim, piperacillin/tazobactam; *Stenotrophomonas maltophilia*.

¹³ http://www.who.int/gpsc/tools/Five_moments/en/

- **Outcome indicators:** MRSA prevalence in ICU, *Staphylococcus aureus* bacteraemia, MRSA in blood culture, *Clostridium difficile* infection, blood and body fluids exposures, immunisation coverage of healthcare workers against Hepatitis B virus (HBV), chickenpox (varicella-zoster virus, VZV), flu; quantitative reduction in antibiotic consumption.

(y) Public indicators at hospital level

Six countries and two regions reported that indicators were publicly available at the hospital level:

- In DK, information on surgical site infections are publicly available (<http://www.sundhedskvalitet.dk/noegletal.aspx>);
- FR reported six indicators: ICALIN (aggregated healthcare infections activities dashboard); ICSHA (alcohol hand rub consumption indicator); SURVISO (surgical site infection surveillance indicator); ICATB (antibiotic stewardship indicator); MRSA incidence (<http://www.icalin.sante.gouv.fr>) and an aggregated indicator (“score agrégé”) combining the first four;
- In IE, three indicators were available at hospital level: alcohol hand rub consumption, *Staphylococcus aureus* bacteraemia (EARS-Net) and hospital antibiotic consumption;
- LU reported the number of full time equivalent infection control staff;
- In MT, public indicators (for the main hospital) were: alcohol hand rub consumption, hand hygiene compliance, hand hygiene campaign, MRSA and Enterobacteriaceae producing extended-spectrum betalactamase (ESBL), blood and body fluids exposures, immunisation of healthcare workers;
- In NO, outcomes results were publicly available: prevalence of urinary tract infections, lower respiratory tract infections, surgical site infections and septicaemia (<http://www.frittsykehusvalg.no/Kvalitet/Forklaring-kvalitetsindikatorer/Fysisk-helse/Sykehusshyinfeksjoner/>);
- In Scotland, all indicators are displayed at hospital level: *Clostridium difficile* infection, methicillin-sensitive *Staphylococcus aureus* (MSSA) bacteraemia cases and MRSA bacteraemia cases, hand hygiene compliance, cleaning compliance;
- In Piedmont, structure indicators and some process indicators (without specification) were reported to be publicly disclosed.

(z) Indicators linked with financial incentives

In one country and four regions, indicators could be linked with financial incentives:

- In LU, financial incentives were in place for hospitals with intensive care units monitoring HAI in these units and for hospitals performing surveillance of incidence of selected multidrug resistant microorganisms;

- In the Community of Madrid, the campaign for hand hygiene was linked with financial incentives;
- In Italian regions, financial incentives were reported for annual reports on HAI prevention and control in Friuli-Venezia Giulia and for structure and process indicators in Emilia-Romagna;
- In England, the National Health Service (NHS) standard contracts for acute hospital, mental health, community and ambulance services set financial penalties if the number of *Clostridium difficile* infections is higher than expected according to the terms of the contract.

2.1.4. *Inter-sectoral mechanisms or equivalent systems*

(aa) Scope of the inter-sectoral mechanisms or equivalent systems

For the coordinated implementation of the national/regional strategy, 11 countries (BE, BG, CZ, DE, ES, HU, IT, LU, NL, NO, SK) and six regions (Andalusia, Catalonia; Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia; England) had an inter-sectoral mechanism and five Member States (AT, DK, EL, LT, PL) and five regions (Community of Madrid; Apulia, Liguria, Piedmont; Scotland) had an equivalent system, consisting of a committee or a unit/department in the ministry or a public health institution.

Seven Member States (CY, EE, FI, FR, IE, MT, SE) and one region (Ceuta and Melilla) were in the process of setting up an inter-sectoral mechanism and gave information on the scheduled date of its implementation and/or on its organisation. Four Member States (LV, PT, RO, SI), and two regions (Basque Country; Aosta Valley) had no inter-sectoral mechanism.

Among 16 national and 11 regional (27) inter-sectoral mechanisms or equivalent mechanisms, 12 national (AT, BE, BG, CZ, DE, EL, ES, HU, IT, LU, NO, PL) and nine regional (Andalusia, Catalonia; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria; England, Scotland) were also in charge of coordinating the strategy for prudent use of antimicrobial agents in human medicine.

The 16 national and 11 regional inter-sectoral mechanisms or equivalent mechanisms always covered acute care hospitals. In all countries and in all but four regions (Andalusia; Apulia, Friuli-Venezia Giulia, Lombardy), the inter-sectoral mechanism addressed other hospitals. Nursing homes were also included in the scope of the inter-sectoral mechanism in 11 Member States (BE, BG, CZ, DE, DK, ES, FR, IT, NL, PL, SE) and seven regions (Catalonia; Apulia, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; England, Scotland). The scope of six inter-sectoral mechanisms in four Member States and two regions also included other institutions than hospitals and nursing homes:

- primary/ambulatory care, including general practice, general dental practice, domiciliary care (FR, DE, PL, ES, Friuli-Venezia Giulia, Scotland);
- childbearing (DE).

(bb) Legal basis of the inter-sectoral mechanisms or equivalent systems

Inter-sectoral mechanisms or equivalent systems had been established by regulation in 12 out of 16 countries (BE, BG, CZ, DE, EL, ES, HU, IT, LT, NO, PL, SK) and 6 out of 11 regions

(Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; Scotland); three (DE, SK and Scotland) had other official documents in addition. Non-regulatory official documents constituted the legal basis of the inter-sectoral mechanisms in two Member States (official mandate in DK, ministerial decision in LU) and one region (patient safety project for Catalonia). In two Member States (AT, NL) and three regions (Community of Madrid; Liguria; England), inter-sectoral mechanisms or equivalent systems had no official basis. Among eight inter-sectoral mechanisms under preparation, one was in the process of being established by regulation (FR, updated regulation issued mid-June 2011).

The date of the regulation was specified by 10 countries (BG, CZ, EL, ES, FR, HU, IT, LT, NO, PL) having such legal basis in place or under preparation: the median date was 2009 (first in 1992, last in 2010). This date may be, in some countries, the date when the inter-sectoral mechanism was updated (for instance, in FR), and not the date of first establishment.

(cc) Governance of the inter-sectoral mechanisms or equivalent systems

The 16 countries (AT, BE, BG, CZ, DE, DK, EL, ES, HU, IT, LT, LU, NL, NO, PL, SK) and 10 regions out of 11 (Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Piedmont; England, Scotland) with an inter-sectoral mechanism or equivalent system in place, and one Member State where the inter-sectoral mechanism was under preparation (FR (updated inter-sectoral mechanism was established mid-June 2011)) described the composition of their inter-sectoral mechanism (see Figure 12). The Ministry of Health was represented in inter-sectoral mechanisms in all countries. Patients groups participated in the inter-sectoral mechanism in five Member States (BE, CZ, FR, NL, SK) and in three regions (Catalonia; England, Scotland). The nursing homes sector was involved in three Member States (CZ, DK, FR) and five regions (Catalonia; Apulia, Emilia-Romagna, Friuli-Venezia Giulia; Scotland).

The frequency of the meetings of the inter-sectoral mechanism was available for 10 Member States (AT, BG, CZ, DK, EL, ES, FR, HU, IT, PL) and nine regions (Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Piedmont; England, Scotland): the median number of meeting was four a year for national inter-sectoral mechanisms (maximum: 12 in EL and ES, minimum: 1 to 2 per year in AT, DK and PL) and four a year for regional inter-sectoral mechanisms. In LT, the inter-sectoral mechanism had held no meeting in 2010. There were minutes of each meeting of the inter-sectoral mechanism in 14 countries (AT, BE, BG, CZ, DE, DK, EL, ES, HU, IT, LU, NO, PL, UK) and in 5 regions (Community of Madrid; Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont). A periodic report was publicly available in six Member States (DE, DK, EL, ES, FR, UK) and two regions (Apulia, Liguria), and had been last issued between 2009 and 2011 (web link provided by three Member States (FR, DE and EL) and by England).

In six Member States (BE, CZ, EL, ES, HU, IT), the inter-sectoral mechanism had the mandate to cooperate with the Commission and the other Member States.

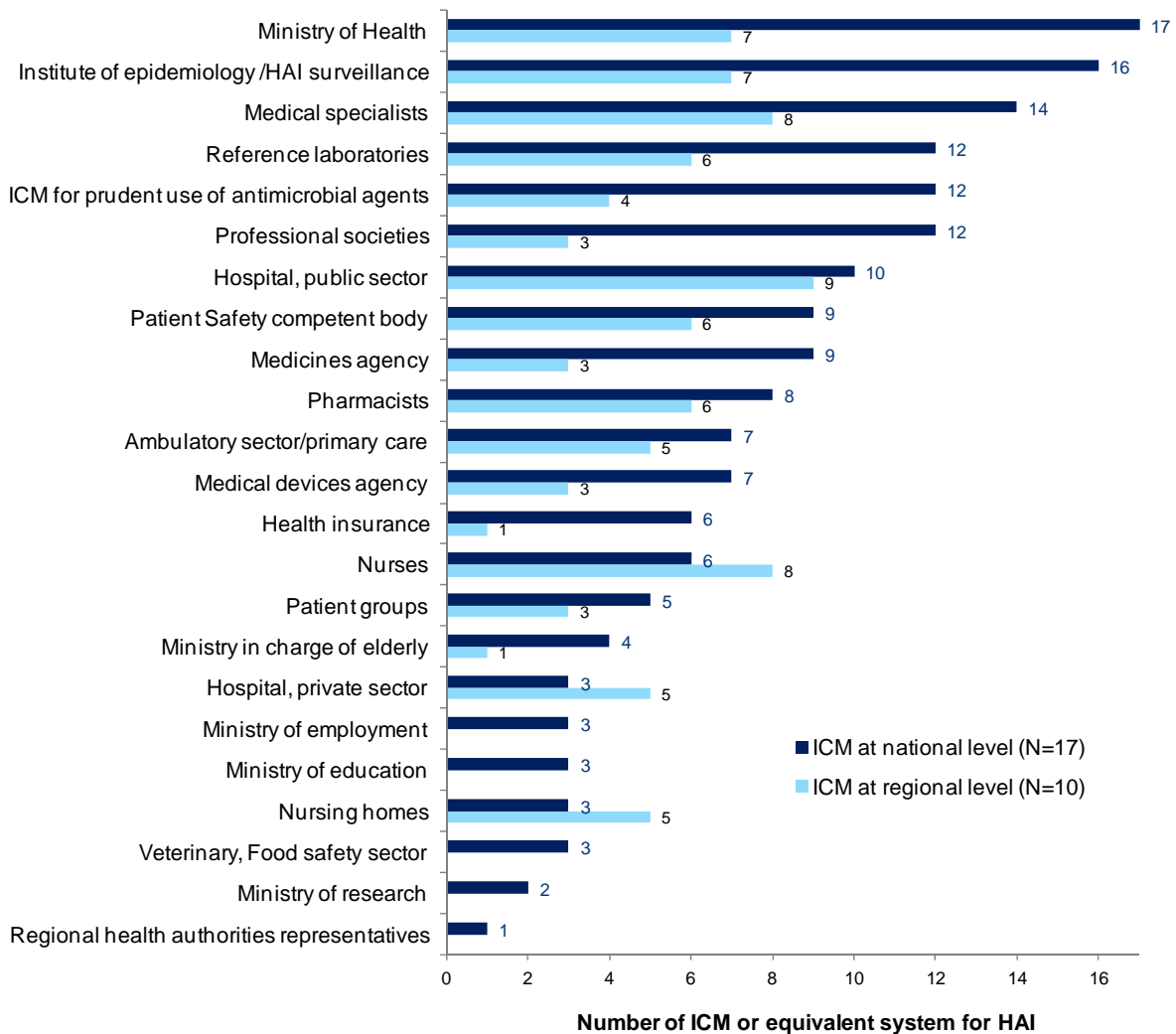


Figure 12: Composition of inter-sectoral mechanism at the national level (N=17 countries) and at the regional level (N= 10 regions)

2.2. Prevention and control measures at national or regional level to support the containment of healthcare associated infections

Discussion on main findings

The most widespread guidelines and activities reported by countries and regions in 2011 were related to hand hygiene. This is not surprising, since hand hygiene is generally recognised as the most efficient way to prevent HAI. In addition, the World Alliance for Patient Safety, led by WHO, and the launch of an annual campaign for hand hygiene in 2008 (5 May) may also have helped countries to implement a wide range of activities in this area, as suggested by the high level of use of WHO tools. Campaigns and actions to improve hand hygiene were the most frequent examples of activities funded in 2009-2010 (spontaneously reported by 10/13 respondents in 6 countries). Guidelines addressing prevention of HAI in general and prevention of main HAI (surgical site infections and catheter-related bloodstream infections prevention in hospitals and MRSA and catheter-related urinary tract infections in nursing homes) were issued in most countries. Compared to 2008, more countries reported having guidelines for prevention of HAI and MDRB in general in hospitals (20 for HAI and 13 for MDRB in 2011, compared to 17 and 10 respectively in 2008) and in nursing homes (13 and 7

versus 9 and 4 respectively) and for prevention and control of MRSA and *C. difficile* infections in nursing homes (16 for MRSA and 14 for *C. difficile*, compared to 11 and 6 respectively in 2008)¹⁴.

Nineteen countries had considered nursing homes and institutions other than acute care hospitals when disseminating guidelines. Even if some respondents stated that guidelines designed for hospitals may apply, to a certain extent, to other healthcare institutions, it seems useful to tailor their practical implementation to resources and needs of institutions like nursing homes and long-term care, namely regarding acute gastro-enteritis and respiratory tract infections. Results from the HALT survey¹⁵ and other European projects may help professionals to design such guidelines.

Countries without guidelines could benefit from experience of other countries, for instance through the network of national focal points for HAI set up under the auspices of ECDC.

Guidelines for *hand hygiene* were available in 22 countries (BE, BG, CY, CZ, DE, DK, EL, ES, FI, FR, HU, IE, IT, LT, LU, MT, NL, NO, PT, SE, SI, UK) and all but three (IE, FI, SE) referred to WHO guidelines. In addition, three Member States had guidelines under preparation (AT, PL, SK) and LV had regulatory requirements about hand hygiene. EE and RO had no guidelines for hand hygiene. Guidelines were available in all regions except Liguria and referred to WHO guidelines.

Healthcare workers compliance to the guidelines for hand hygiene had been assessed in 18 countries (AT, BE, BG, CY, DE, DK, EL, ES, FR, HU, IT, LU, MT, NO, PL, PT, SE, UK), of which 15 made use of WHO tools. In addition, five Member States were in the process of assessing compliance: CZ, EE (although no guidelines were available), IE, NL, SK. Among the 13 Spanish and Italian regions, 10 had assessed compliance to the guidelines making use of WHO tools.

Hand hygiene campaigns had been carried out in 18 countries and were under preparation in four (AT, EE, PL, SI). WHO tools had been used in all but three: DK, NO, SE. Among the 13 Spanish and Italian regions, 12 had carried out campaigns and 11 had used WHO tools.

At the national level, the last campaign for hand hygiene had been conducted in 2004 in NO, in 2008 in IT, in 2009 in DK, in 2010 in the UK and EL and in 2011 in the remaining 12. The campaign was aimed at professionals in all cases except in DK, at patients and at the general public in 12 and 11 cases respectively at the national level (at the regional level in the Spanish and Italian responding regions, in 5 out of 12 and 4 out of 12 respectively).

On topics other than hand hygiene, national guidelines for prevention and control of HAI in hospitals were available in 23 out of 28 (all but CZ, EE, LV, PL, RO) countries¹⁶ (82%). Guidelines were under preparation in three (CZ, EE, PL). LV and RO had no agreed guidelines. Two Spanish regions and two Italian regions reported no regional guidelines but some were available at the national level.

¹⁴ Commission Staff Working Document, accompanying document to the second report from the Commission to the Council on the basis of Member States' reports on the implementation of the Council Recommendation (2002/77/EC) on the prudent use of antimicrobial agents in human medicine. Available from: http://ec.europa.eu/health/antimicrobial_resistance/docs/cswd_technicalannex_en.pdf

¹⁵ <http://halt.wiv-isp.be>

¹⁶ Including the UK which responded at the regional level only.

At the national level, most frequent topics addressed in guidelines (in more than 80% of 22 countries with guidelines) were: prevention of catheter-related bloodstream infections; prevention of HAI in general, prevention of surgical site infections and perioperative prophylaxis; prevention of ventilator-associated pneumonia, and prevention of MRSA (Figure 13).

At the regional level, most frequent topics addressed in guidelines (in more than 2/3 of 13 regions with guidelines) were: prevention of surgical site infections and perioperative prophylaxis and prevention of HAI in general (Figure 14).

Guidelines regarding HAI prevention and control in nursing homes had been developed in 20 out of 28 countries (71%): those with guidelines for hospitals except for CY, MT and PT. At the national level, most frequent topics addressed in guidelines for nursing homes (in more than 2/3 of countries with national guidelines) were prevention of MRSA, of *C. difficile* infections, of acute gastroenteritis (Figure 13).

At the regional level, among the eight regions that reported guidelines for nursing homes (Catalonia, Ceuta and Melilla; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia; England, Scotland), prevention of HAI in general and prevention of catheter-related urinary tract infections were the most frequent, in more than 2/3 (Figure 14).

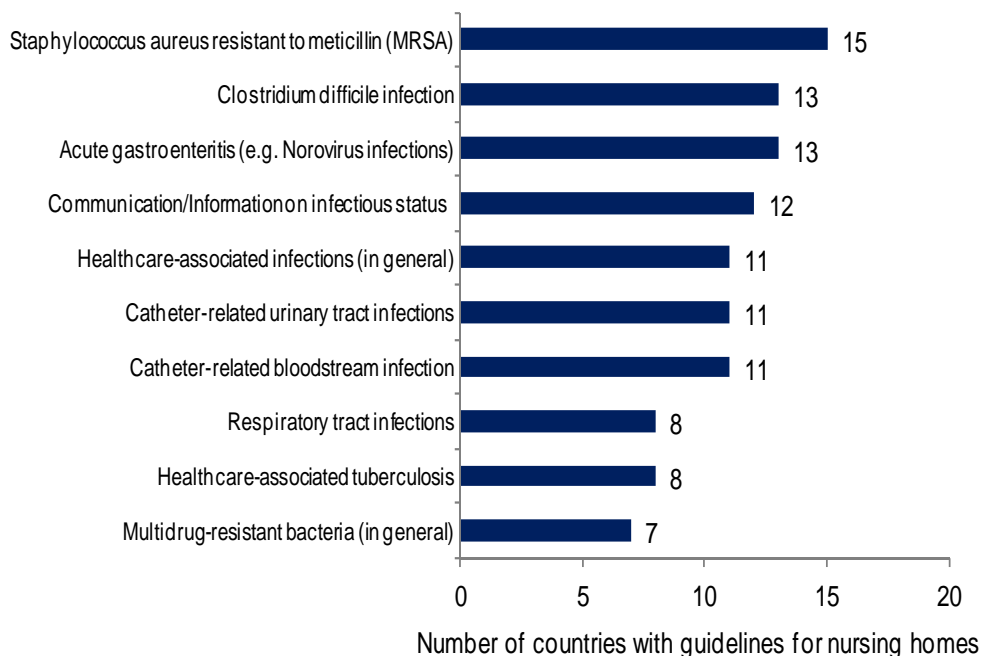
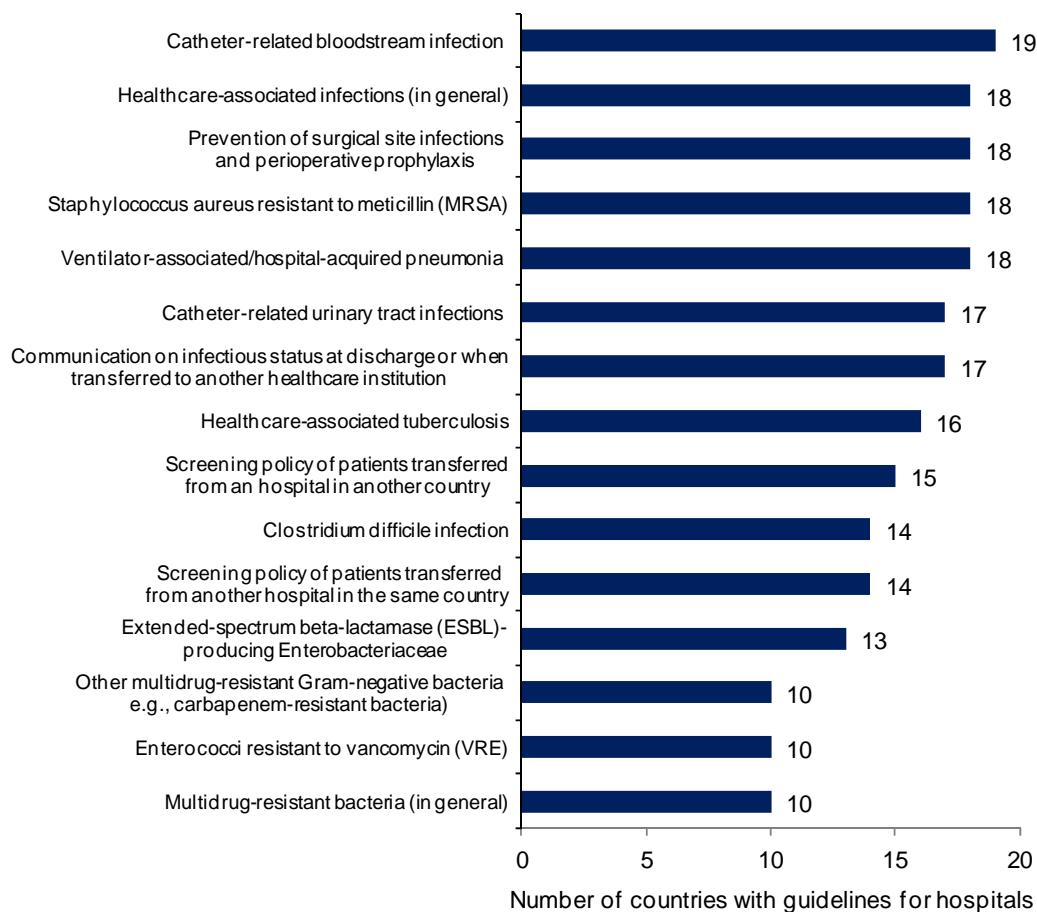


Figure 13: Topics addressed by national guidelines for prevention and control of HAI in hospitals (in 22 countries) and in nursing homes (in 19 countries)

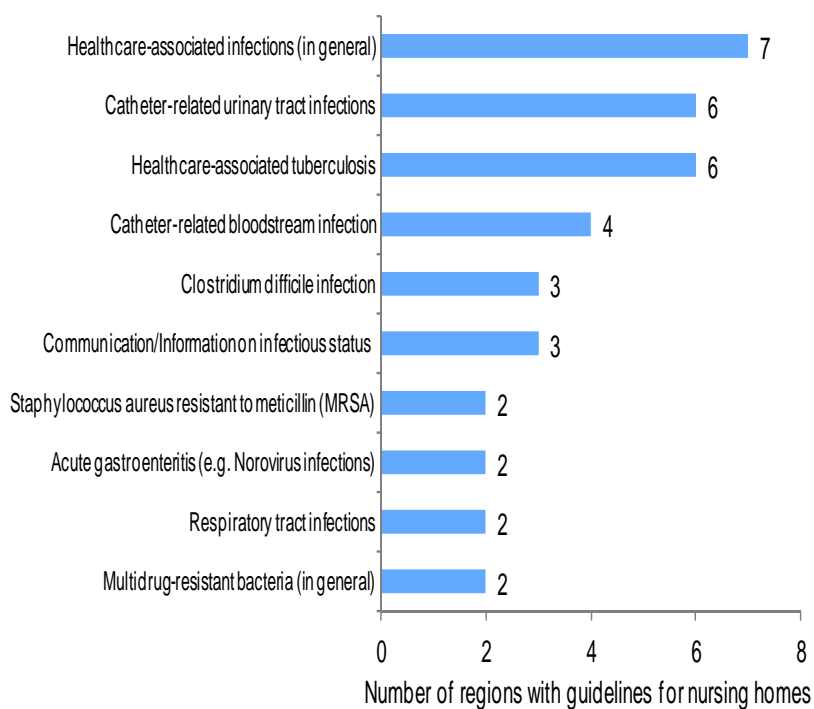
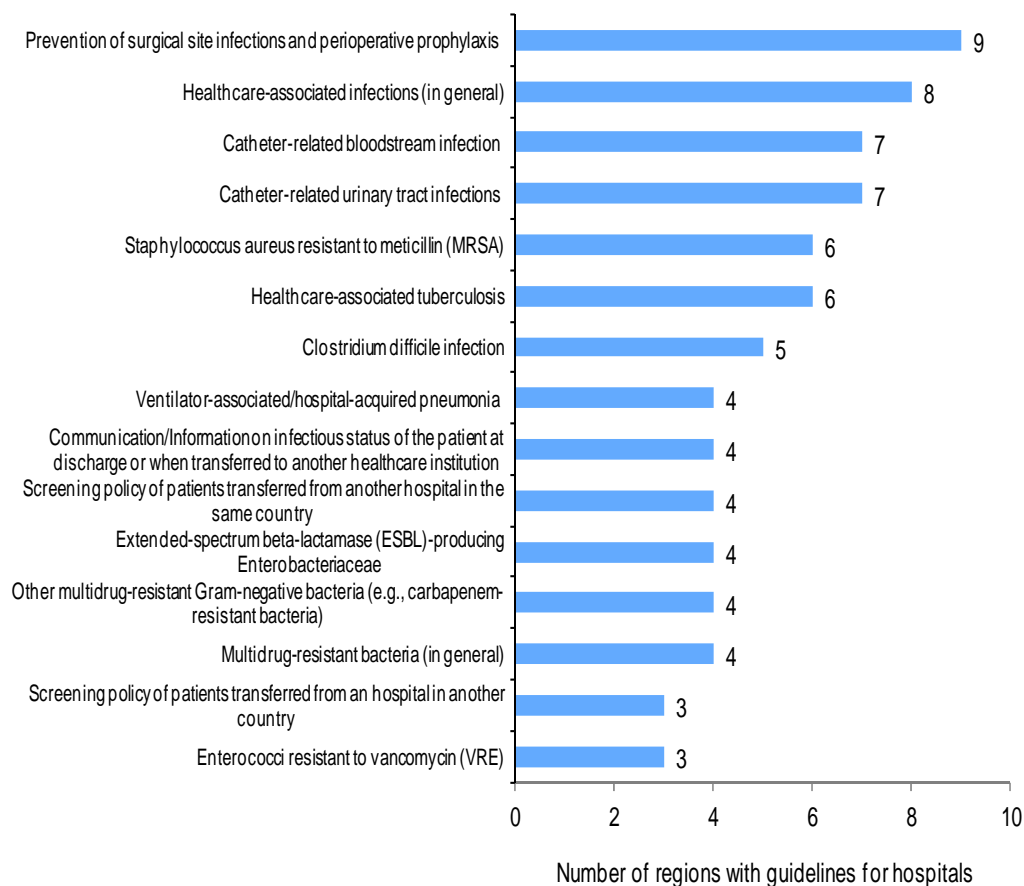


Figure 14: Topics addressed by regional guidelines for prevention and control of HAI in hospitals (in 11 regions) and in nursing homes (in 8 regions)

Sixteen countries (BE, BG, CZ, DE, DK, EL, FR, LT, LU, MT, NL, NO, PL, PT, SE, SI) and nine regions (Basque country, Catalonia, Ceuta and Melilla, Community of Madrid; Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; England, Scotland) reported having incentives for the implementation of some or all of the guidelines. These incentives were health inspections in 13 countries and two regions, certification/accreditation processes in 11 countries and five regions, and other encouragements in three countries and three regions (for instance, impact on reimbursement in Ceuta and Melilla).

2.3. Infection prevention and control at the level of healthcare institutions

Discussion on main findings

Most countries had legal requirements or professional guidelines for governance arrangements in hospitals. Such requirements or guidelines for an appropriate organisation for prevention and control of HAI in nursing homes were reported in less than half of the countries.

As found in a previous survey¹⁷, the number of required infection control staff in hospital may vary widely from one country to another and even inside one country, from one region to another. There is still a debate on how to define a target as the workload will depend on the duties of infection control staff, on the type of clinical activities performed and on the hospital's organisation (inpatient and outpatient activities namely). For instance, England advocated that giving prescriptive guidance on staffing levels could be detrimental given the wide variety of organisations, the fact that the number of beds – often used to define a ratio - does not take into account patient turnover or the risk arising from specialised clinical activities. Some countries defined a ratio considering the number of beds allocated to “high risk” activities. In other countries, epidemiologists or consultant medical microbiologists may be responsible for managing infection control in hospitals as part of their job on the top of other daily activities.

Global evolution in healthcare organisation may also impact the workload: decrease in inpatient beds, increase of complex procedures performed in outpatients or in inpatients with reduced length of stay. Progress could be made by determining the duty of infection control staff taking into account the type of care provided and its organisation, and by improving education of infection control staff.

The issue of setting up an appropriate organisation to tackle the problem of HAI and of having qualified personnel is also crucial in nursing homes.

Conclusions from ongoing European projects in this area could help in defining a minimum core of suitable competencies for hospitals and nursing homes.

2.3.1. Governance arrangements for hospitals

There were legal requirements or professional guidelines for an *infection control committee* in hospitals in all but six countries (CZ, EE, LV, LT, RO, SE).

¹⁷ Weist K, Suetens C, Struelens M. Inventory of Antibiotic Stewardship and Healthcare-Associated Infection Quality Indicators in EU Member States. BAPCOC/ECDC EU expert meeting – Workshop 2. November 2010, Brussels.

At the national level, nine Member States (BG, DE, EL, FR, HU, IT, PL, PT, SI) had both legal requirements and professional guidelines, six countries (AT, BE, ES, LU, NO, SK) had legal requirements; six Member States had professional guidelines (CY, DK, FI, IE, MT, NL). When requirements or professional guidelines were in place, they included involvement of the management in the infection control committee.

At the regional level, 12 regions (Andalusia, Basque Country, Catalonia, Ceuta and Melilla, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; England, Scotland) had legal requirements or professional guidelines for an infection control committee in hospitals. They included involvement of the management in 11 regions (Andalusia, Basque Country, Catalonia, Ceuta and Melilla, Community of Madrid; Apulia, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont; England, Scotland).

Regarding *infection control teams*, all but four Member States (CZ, EE, LU, SK (had legal requirement for epidemiologist)) had legal requirements or professional guidelines.

At the national level, 10 Member States (BG, DE, EL, FR, HU, IT, PL, PT, SE, SI) had both legal requirements and professional guidelines, seven countries (AT, BE, ES, LT, LV, NO, RO) had legal requirements, and six Member States (CY, DK, FI, IE, MT, NL) had professional guidelines.

At the regional level, 13 regions (Basque Country, Catalonia, Ceuta and Melilla, Community of Madrid; Aosta Valley, Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia, Liguria, Piedmont; England, Scotland) had legal requirements or guidelines for infection control teams.

There were legal requirements for a *dedicated budget* at the hospital level in five Member States (AT, BE, BG (also with professional requirements), FR, SE). There were professional guidelines on this issue in NL and in Scotland. Two regions had legal requirements for a dedicated budget for infection prevention and control (Catalonia; England).

Overall, only CZ and EE had no requirements for governance arrangements in hospitals.

2.3.2. Governance arrangements for nursing homes

Twelve countries (BG, DE, DK, FI, FR, IT, LU, NO, PT, RO, SE, UK) reported encouraging nursing homes to have in place appropriate organisational governance arrangements for the elaboration and monitoring of a programme for infection prevention and control. In addition, five Member States (AT, BE, CZ, IE, HU) reported being in the process of developing such encouragements.

Regarding infection control structures, two countries had legal requirements (NO, RO), three had professional guidelines (DK, FR, SE) and four had both (BG, DE, IT, PT).

Trained contact points were required by legal requirements in NO, by professional guidelines in three Member States (DK, FR, SE), or by both in four Member States (BG, FI, IT, PT). Outbreak contact points were also required by legal requirements in NO, by professional guidelines in five Member States (DE, DK, FI, FR, SE), or by both in two Member States (BG, IT).

Five regions (Ceuta and Melilla; Emilia-Romagna, Friuli-Venezia Giulia; England, Scotland) reported encouraging nursing homes to have in place appropriate organisational governance arrangements for the elaboration and monitoring of a programme for infection prevention and control. These arrangements covered infection control structure in all regions, suitably trained contact person for coordination in all regions but Scotland and trained contact points for outbreaks in all regions but Friuli-Venezia Giulia. In addition, two Spanish regions reported being in the process of developing such encouragements.

2.3.3. *Qualified personnel*

The ratio for the number of *infection control nurses* (full time equivalent) according to healthcare institution activity had been agreed in 17 countries: 11 had legal requirements (AT, BE, BG, EE, FR, HU, LT, LU, PL, PT, RO), five had professional guidelines (CY, EL, ES, NL, NO) and one had both (DE). At the regional level, 3 out of 5 Spanish regions (in addition to the national ratio) and 4 out of 8 Italian regions reported an agreed ratio (professional guidelines in the Spanish regions and one Italian region, legal requirements in three Italian regions). The value of the ratio had been provided by all 17 countries and four regions (Table 9).

Only four Member States (AT, NL, PL, PT) and one Spanish region (Ceuta and Melilla) had agreed such ratio for nursing homes. Two had legal requirements: PT (same ratio than for hospitals) and PL (in nursing homes managed by hospitals, therefore submitted to the same ratio). Two Member States had professional guidelines: NL (the number of hours needed was estimated as 513 per 100 beds, or 154 per 10 000 care-days per year for infection control staff in general), and AT (ratio not specified). Ceuta and Melilla reported the same ratio than for hospitals.

The ratio for the number of *infection control doctors* (full time equivalent) according to healthcare institution activity had been agreed in 15 countries: 10 by legal requirements (BE, BG, EE, EL, FR, HU, LT, PL, RO, SK) and five by professional guidelines (AT, DE, ES, NL, NO). In addition to the nationally agreed ratio, three Spanish regions (professional guidelines) and four Italian regions (legal requirements for three and no information for one) reported a regionally agreed ratio. The ratio had been specified by all 15 countries and four regions (Table 9).

Only one country and one Spanish region had agreed such ratio for nursing homes, by means of professional guidelines: NL (the number of hours needed was estimated as 513 per 100 beds, or 154 per 10 000 care days per year for infection control staff in general) and Ceuta and Melilla (same ratio than hospitals).

LT reported having a ratio for outpatient healthcare facilities (one infection control doctor or infection control specialist's assistant for 100 000 visits per year and one infection control nurse for 50 000 – 100 000 visits per year).

Table 9: Ratio for infection control staff in hospitals

Ratio for infection control nurses (ICN)	Ratio < 1 ICN/beds	Ratio = 1 ICN/beds	Ratio > 1 ICN/beds	Ratio using denominator other than the number of beds
Countries	ES (P)	BG (L)	BE (L)	LU (L): 0.25 full time equivalent (FTE) ICN per 100

	AT (L) CY (P) EL (P) FR (L)	EE (L) NO (P)	LT (L) PL (L) PT (L) DE (L,P)	FTE employees NL (P): 1 FTE per 5 000 admission RO (L): 2 ICN per secondary hospital HU (L): 2 ICN per secondary hospital, 3 ICN per tertiary hospital
Regions		Community of Madrid (P) Basque country (P) Friuli-Venezia Giulia (L)	Ceuta and Melilla (P)	
Ratio for infection control doctors (ICD)	Less than 1 ICD/ 500 beds	Ratio = 1 ICD/ 500 beds	More than 1 ICD/ 500 beds¹	Ratio using denominator other than the number of beds
Countries	FR (L)	BG (L) NO (P)	BE (L) EE (L) LT (L) AT (L)	NL (P): 1 medical microbiologist or epidemiologist per 25 000 admissions ES, SK (P): 1 ICD (or epidemiologist) per hospital RO (L): 1 ICD per secondary hospital HU (L): Part-time doctor per secondary hospital At least one FTE in tertiary hospital EL (L): Involvement of the clinical microbiologist and of the infectious disease specialist PL (L): Involvement of the clinical microbiologist DE (P): 1 ICD per hospital > 400 beds
Regions		Ceuta and Melilla (P)	Basque Country (P)	Friuli-Venezia Giulia (P): 1 ICD (or epidemiologist) per hospital

		Community of Madrid (P)		
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P: professional guidelines; L: legal requirements

2.4. Surveillance systems

Discussion on main findings

Surveillance of HAI was performed in all countries, although not always through dedicated networks for surveillance. European projects on HAI (HELICS, IPSE, EARSS, now EARS-Net) have played a role in promoting the development of sustainable surveillance networks as already underscored in 2008¹⁸. Increasing the coverage of those surveillance networks and implementing external quality assessment for antimicrobial susceptibility testing may still be an objective in some countries. Systems involving health authorities and reference laboratories to help healthcare institutions to respond to alerts are in place in most countries.

Systems for timely detection and reporting of selected events are in place in more than half of countries, namely for emerging threats such as carbapenemase-producing Enterobacteriaceae upon which a strong emphasis had been put in 2010 and 2011¹⁹. Implementation of such systems in all countries would reinforce the ability to halt the spread of these emerging bacteria and prevent their introduction into healthcare settings as a result of cross-border transfers of patients.

2.4.1. National or regional networks for surveillance

All but two countries (EE, MT) had at least one surveillance network dedicated to HAI in place. In EE and MT, surveillance was performed at the hospital level and not through a national or regional network. The median number of networks was 5 per country.

The most widespread surveillance networks targeted multi-drug resistant bacteria (MDRB), surgical site infections (SSI), infections in adult intensive care units (ICU) and bloodstream infections (Figure 15).

¹⁸ Second report from the Commission to the Council on the basis of member states' reports on the implementation of the Council recommendation (2002/77/ec) on the prudent use of antimicrobial agents in human medicine (COM(2010) 141 final). Available from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0141:FIN:EN:PDF>.

European centre for disease prevention and control. Annual epidemiological report 2011. Reporting on 2009 surveillance data and 2010 epidemic intelligence data. Available from: http://www.ecdc.europa.eu/en/publications/Publications/1111_SUR_Annual_Epidemiological_Report_on_Communicable_Diseases_in_Europe.pdf.

¹⁹ European centre for disease prevention and control. Risk assessment on the spread of carbapenemase-producing Enterobacteriaceae (CPE) through patient transfer between healthcare facilities, with special emphasis on cross-border transfer. 2011. Available from: http://ecdc.europa.eu/en/publications/Publications/110913_Risk_assessment_resistant_CPE.pdf.

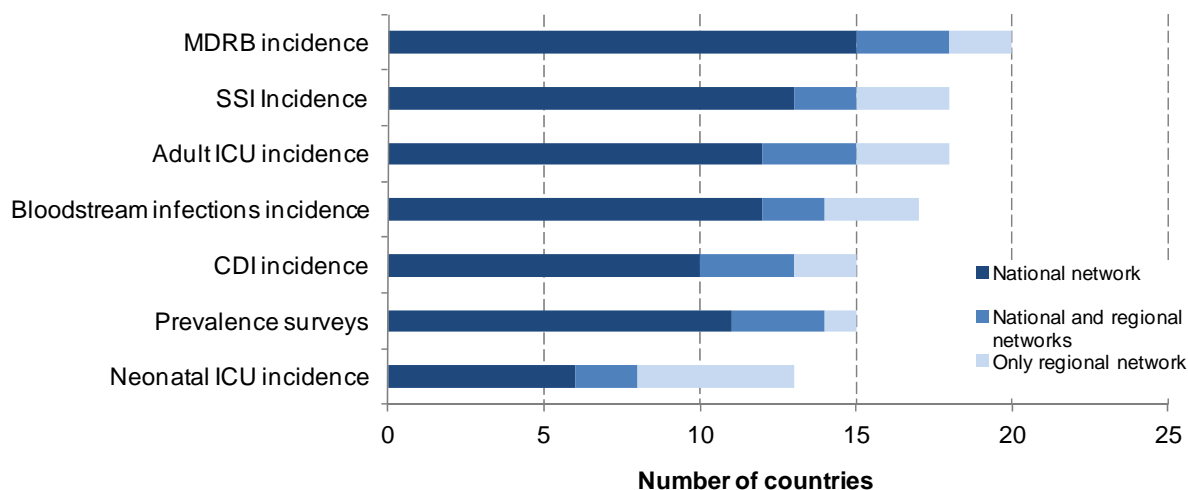


Figure 15: Number of countries with national and/or regional networks for surveillance of healthcare associated infections (N=26)

Prevalence surveys had been performed in the previous 20 years in 19 countries (BE, BG, CY, CZ, DE, DK, ES, EL, FI, FR, IE, LT, NL, NO, PT, SE, SI, SK, UK): median year of performance: 2006, min: 1987 in SK, max: 2011. At the regional level, four Spanish and three Italian regions had performed such surveys.

2.4.2. Alert and reporting systems

All but three countries (CY, LT, LU) had systems organising the timely detection and reporting of alert healthcare associated events to the relevant body (alert meaning “new and threatening”). In ES and IT some systems could be voluntary at the national level and mandatory in some regions.

The system covered clusters of HAI (some or all) in 22 countries (88%) and pathogen-specific targets in 22 countries (Figure 16). Timely detection and reporting of carbapenemase-producing Enterobacteriaceae was in place in 20 countries (AT, BE, BG, CZ, DE, DK, EL, ES, FI, FR, HU, NO, IE, IT, MT, PT, SE, SI, SK, UK) and of all cases of MRSA in 18 countries. BG, HU and Scotland also mentioned other target alert organisms in addition to those specified in the questionnaire, e.g. carbapenem-resistant *P. aeruginosa* and *Acinetobacter baumannii*, vancomycin-resistant *Enterococcus*, multidrug-resistant *Pseudomonas*, multidrug-resistant *Stenotrophomonas*.

Fifteen countries (BE, EL, ES, DE, DK, FI, FR, HU, IE, IT, NO, PT, SE, SK, UK) and three regions (Catalonia, Ceuta and Melilla; Emilia-Romagna) responded that data from these systems were available in reports or websites.

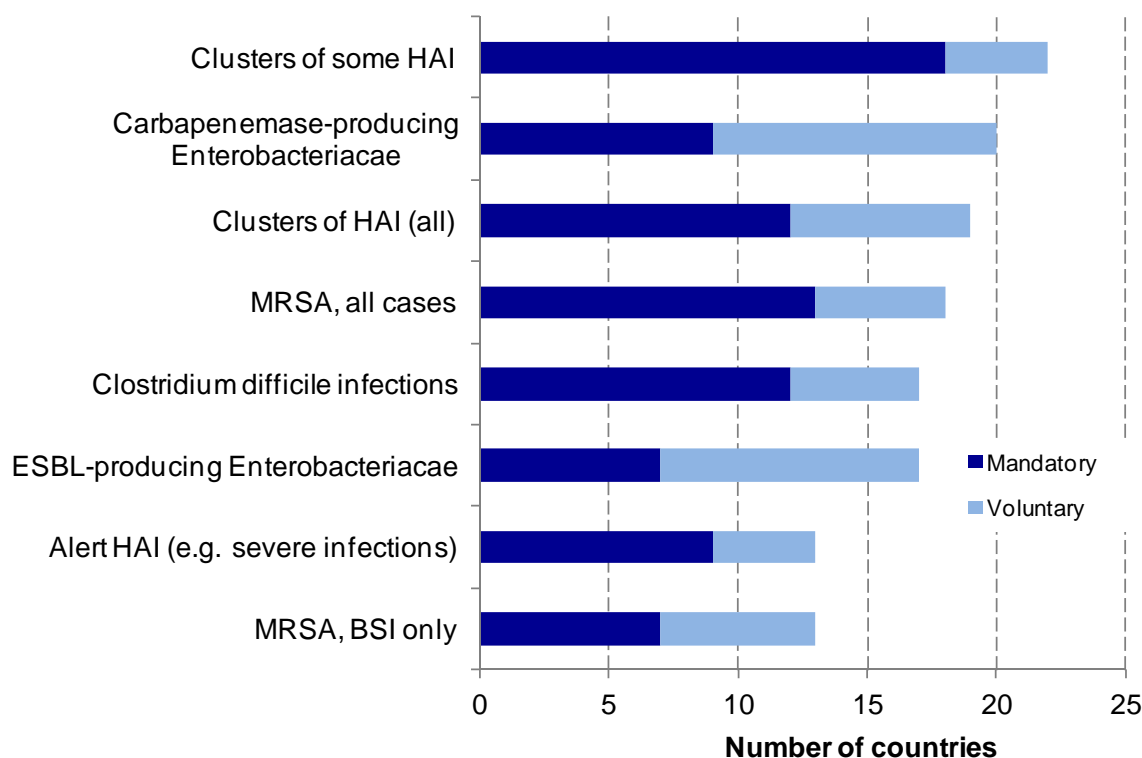


Figure 16: Number of countries with a system for timely detection and reporting of selected events (N=24)

National or regional institutions with the mission of helping to respond to alerts, support outbreak investigations, and define measures for prevention and control were in place in all countries but LV and CZ. These institutions were located at the national level (Ministry of Health, national public health institute in charge of surveillance/epidemiology, health protection agencies, specialised national institutions such as hygiene institute, reference centres for infectious diseases, antibiotic resistance, nosocomial infections), and/or at the regional level: regional health authorities, regional dedicated centres (for instance, in FR: inter-regional and regional nosocomial infection control coordinating centres; in NL: municipal health services for regional outbreaks).

Reference laboratories in charge of characterisation of antimicrobial resistance mechanisms were in place in 20 countries (AT, BE, BG, CZ, DE, DK, EL, ES, FI, FR, HU, IT, LT, LU, NO, PL, PT, RO, SE, UK) and under preparation in NL and SK. Reference laboratories in charge of providing support in outbreak investigations were in place in 19 countries (AT, BE, BG, DE, DK, EL, ES, FI, FR, HU, IT, LT, MT, NL, NO, PL, PT, SE, UK) and under preparation in LU and SK (SK underscored difficulties resulting from limited human and financial resources).

A system for external quality assessment of antimicrobial susceptibility testing was in place in 19 countries (AT, BE, BG, CZ, DE, ES, DK, FI, FR, HU, IT, LT, LU, NL, NO, PL, PT, SE, UK) and under preparation in three (EE, EL, SK). No system had been set up in six Member States (CY, IE, LV, RO, SI, MT). In IT and ES, there could be regional systems in addition.

2.5. Education and training of healthcare workers

Discussion on main findings

There is still room for progress regarding the training of healthcare workers.

Many countries reported that various trainings exist for infection control staff either as continuing education programmes or in the form of occasional educative actions. However, the required qualification to work as infection control staff is not uniform. Conclusions from ongoing European projects in this area could help in defining a minimum core of suitable competencies for hospitals and nursing homes.

In addition to pre-graduate education, continuing education is crucial on topics such as infection control. However, such mechanisms are mandatory in only about half of the countries. The issue of strengthening continuing education had already been pointed out in the Second report from the Commission to the Council on the basis of Member States' reports on the implementation of the Council recommendation (2002/77/EC) on the prudent use of antimicrobial agents in human medicine (COM(2010) 141 final)²⁰.

2.5.1. Education and training of infection control staff

Thirteen countries (AT, BE, BG, DE, DK, ES, FI, HU, IT, LT, NL, NO, PT) and Scotland reported having a nationally agreed common core of competencies (curriculum) for specialised training on infection prevention and control for the infection control staff. Three Member States were developing such curriculum (PL, SI, SK).

Non-sponsored continuing specialised training was mandatory for infection control doctors in nine Member States (AT, BE, BG, FR, HU, NL, PL, PT, SK) and three regions (Catalonia, Community of Madrid; Scotland), and, for infection control nurses, in 11 countries (AT, BE, BG, CZ, FR, HU, LT, NL, NO, PL, PT) and three regions (Catalonia, Community of Madrid; Scotland).

2.5.2. Education and training of healthcare workers

There was a nationally agreed common core of competencies for education of healthcare workers on basic principles of hygiene and infection prevention and control in 13 countries (AT, BG, DE, ES, FR, IT, LU, LV, NO, PT, RO, SK, UK) and one (SI) was in the process of developing such curriculum.

A system to provide training at induction for all healthcare workers was mandatory in healthcare institutions in 12 countries (BG, CZ, DK, FR, IE, LV, NO, PT, RO, SE, SK, UK) and five regions (Andalusia, Basque Country, Community of Madrid; Emilia-Romagna, Friuli-Venezia Giulia). A system to provide regular training for all healthcare workers was mandatory (binding regulation) in healthcare institutions in 14 countries (BG, CY, CZ, FR, HU, IE, LV, NO, PT, RO, SE, SI, SK, UK) and eight regions (Andalusia, Basque Country, Ceuta and Melilla, Community of Madrid; Apulia, Emilia-Romagna, Friuli-Venezia Giulia, Piedmont); these systems included training to managers in CZ, SK, UK, Andalusia and Friuli-Venezia Giulia.

2.6. Information to patients by healthcare institutions

Discussion on main findings

²⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0141:FIN:EN:PDF>.

In line with the principles of the Recommendation, enhanced involvement of patients in the process of care relies on the provision of appropriate information, in particular regarding adverse effects such as HAI and regarding measures to prevent them (for instance, acute gastroenteritis and respiratory tract infections in long-term care and nursing homes).

National/regional templates for patient information are not widely spread, but countries reported actions to encourage provision of information to patients on HAI. However, respondents claimed that other ways of informing patients were used: involvement in regional/national institutions; information for public disclosed by regional health authorities/public health services through websites; public campaigns dealing with general preventive measures (namely during the European Antibiotic Awareness Day, the hand hygiene day, and campaign addressing flu prevention). Nevertheless, efforts are needed in this area to contribute to patients' empowerment and improve their safety. For example, involvement of infected or colonised patients in the compliance with control measures and in ensuring consistency in their observation throughout the process of care is crucial, along with improved communication between healthcare professionals.

As mentioned above in relation to objectives set in national or regional action plans regarding patient information and their participation in the inter-sectoral mechanism, improvements are needed in this area.

There was a template for information to be delivered to patients during their stay in a healthcare institution including information on HAI in three Member States (DK, FR, SK) and in five regions (Andalusia, Catalonia, Community of Madrid; Piedmont; Scotland). These templates included information on the measures implemented by the healthcare institution to prevent HAI except in DK, and information on the risk of HAI except for SK. In addition, information on how patients can help to prevent infections was provided in four templates (FR, Scotland, Andalusia, Community of Madrid) and specific information for patients colonised or infected with healthcare associated microorganisms in four templates (DK, FR, Andalusia, Scotland).

Eleven Member States (BG, DK, ES, FR, IE, LT, LU, NL, PL, SK, UK) and four regions (Community of Madrid; Emilia-Romagna, Friuli-Venezia Giulia, Piedmont) reported having in place mechanisms to encourage healthcare institutions to deliver information to the patient. These mechanisms consisted of a binding regulation in six Member States (DK, ES, FR, LU, PL, SK), professional guidelines in six Member States (BG, FR, IE, NL, PL, SK) and Scotland, accreditation or certification systems in four Member States (DK, FR, PL, SK) and England. Other reported mechanisms were guidelines from the regional health service and independent inspection.

2.7. Research initiatives

Discussion on main findings

As highlighted before for antimicrobial resistance, there is a need to clearly identify priorities for research. In less than half of the countries, the Ministry of Health or Research and/or inter-sectoral mechanism played a role in promoting research. Involvement of national/regional competent authorities, in coordination with European projects, could be enhanced.

In six Member States (BE, DE, ES, FR, NL, SK) and four regions (Andalusia, Catalonia; Emilia-Romagna; England), calls for tender on HAI (epidemiology, new preventive and

therapeutic technologies and interventions, cost-effectiveness of infection prevention and control) could be launched under the auspices of the Ministry of Health or of Research. The inter-sectoral mechanism was involved in the definition of priorities for research in the field of infection prevention and control in ten Member States (BE, DE, DK, EL, ES, FR, HU, LU, NL and UK), Andalusia and Emilia-Romagna.

2.8. Impact of the Recommendation

Discussion on main findings

Activities had been initiated long before the adoption of the Recommendation in most countries. In fact, due to the public consultation launched end 2005 on the project, professionals and health authorities were already aware of its content. In addition, the Council Recommendation of 15 November 2001 on the prudent use of antimicrobial agents in human medicine (2002/77/EC)²¹ already included criteria on infection control to halt the spread of infections due to bacteria resistant or not to antibiotics. In a previous report from the Commission²², it had been found that 22 out of 28 participating countries had implemented a national programme and had developed guidelines to tackle HAI.

Nevertheless, 13 Member States and five regions reported that the adoption of the Recommendation had triggered initiatives. Remarkably, even in countries where activities and organisational arrangements to prevent and control HAI could date back from long before 2009, the adoption of the Recommendation has acted as a trigger or a reminder, thus leading to update or reinforce the strategy or action plan, as suggested by the median date of update of action plans. One participant explained that Council Recommendations were of great importance to keep focus on HAI and antimicrobial resistance at a high level in the EU.

Less than half of the countries in 2011 used indicators enabling them to monitor trends in HAI. However, the situation could change in the near future due to current European projects in this area.

2.8.1. Reported impact

Thirteen Member States (BG, CY, CZ, DE, EL, FI, FR, HU, IT, LV, PL, RO, SK) and five regions (Andalusia, Catalonia, Community of Madrid, Ceuta and Melilla; Autonomous Province of Trento) reported that the adoption of the Recommendation had triggered initiatives. In 15 countries (AT, BE, DK, EE, ES, IE, MT, LT, LU, NL, NO, PT, SE, SI, UK) and five regions (Basque Country, Emilia-Romagna, Friuli-Venezia Giulia, Lombardy, Piedmont), activities were already underway and the Recommendation had no acknowledged effect.

²¹ OJ L 34, 5.2.2002, p. 13–16

²² Second report from the Commission to the Council on the basis of member states' reports on the implementation of the Council recommendation (2002/77/ec) on the prudent use of antimicrobial agents in human medicine (COM(2010) 141 final). Available from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0141:FIN:EN:PDF>.

Commission staff working document - Accompanying document to the second Report from the Commission to the Council on the basis of member states' reports on the implementation of the Council Recommendation (2002/77/EC) on the prudent use of antimicrobial agents in human medicine - Detailed analysis of countries' reports on the implementation of the Council Recommendation (2002/77/EC) on the prudent use of antimicrobial agents in human medicine (SEC(2010) 399 final). Available from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2010:0399:FIN:EN:PDF>

Initiatives triggered, even in Member States with established strategies or action plans, were:

- implementation of an inter-sectoral mechanism or equivalent system in nine Member States (BG, CZ, EL, FI, FR, HU, IT, PL, SK) and four regions (Catalonia, Ceuta and Melilla, Community of Madrid; Autonomous Province of Trento);
- elaboration or revision of the national/regional strategy in nine Member States (BG, CZ, DE, EL, FI, FR, HU, IT, PL) and Catalonia;
- launch of campaigns for information of healthcare workers in eight Member States (BG, CY, DE, EL, FI, IT, LV, SK) and four regions (Andalusia, Catalonia, Ceuta and Melilla; Autonomous Province of Trento);
- implementation of indicators in six Member States (BG, CZ, DE, FI, IT, SK) and five regions (Andalusia, Catalonia, Ceuta and Melilla, Community of Madrid; Autonomous Province of Trento);
- promotion of infection control and hospital hygiene in other healthcare institutions than hospitals in five Member States (BG, CY, CZ, FI, FR) and three Spanish regions (Andalusia, Catalonia, Ceuta and Melilla);
- launch of campaigns for information of patients in four Member States (BG, CY, FI, LV) and three Spanish regions (Andalusia, Catalonia, Ceuta and Melilla);
- other initiatives in four Member States (DE, FR, RO, SK) such as: reinforcement of the national programme for surveillance (1); increase of awareness (2); reinforcement in the involvement of patients in prevention at the local level (1).

2.8.2. *Indicators that could be used to assess the impact of the Recommendation on prevention and control of HAI activities and outcomes in hospitals*

Countries were asked to report values for indicators that could be used to assess the impact of the Recommendation on prevention and control of HAI activities (control and preventive measures, resources, surveillance) and outcomes in hospitals.

Thirteen countries (AT, DE, ES, EL, FI, FR, HU, IE, LT, LU, NL, NO, PT) and eight regions (Basque Country, Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia; England, Scotland) reported using the indicators listed in the questionnaire.

The situation regarding the ***amount of alcohol hand rub product*** used in hospitals was monitored in four Member States (ES, FI, FR, LT) and three regions (Catalonia, Community of Madrid; Autonomous Province of Trento). In addition, DE, DK, HU and IE reported having a system in place (since 2007 in IE, 2011 in HU). Measurement unit was litres per patient-days in three Member States (ES, FI, LT) and two regions (Catalonia; Autonomous Province of Trento), litres for FR (then expressed per 1000 patient-days or hospitalisation days), and litres per stay in the Community of Madrid.

The situation regarding the achievement of national requirements for the ***number of full time equivalent infection control nurses*** in hospitals was monitored in five countries (FR, EL, LU, NO, PT) and two regions (Basque Country; Apulia – although not having specified the requirement for this indicators). All but PT gave values for before and after the adoption of

the Recommendation. PT, NO, Basque Country and Apulia (in public hospitals) reported that all hospitals met the requirements before the implementation of the Recommendation. EL reported that each hospital had at least one infection control nurse but did not give more details on the achievement of a national ratio. In FR, around 98% hospitals met the national requirements in 2008 and in 2009.

The proportion of hospitals performing *surveillance of surgical site infections* was monitored in nine countries (AT, ES, FI, FR, HU, LT, NL, NO, PT) and eight regions (Basque Country, Catalonia, Community of Madrid; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia; England). Seven countries (AT, FR, HU, NO, NL, PT, LT) and six regions (Basque Country, Catalonia; Apulia, Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia) provided values for before and after 2009. Data showed an increase in the coverage in most countries and regions (AT, FR, HU, NL, PT, LT, Autonomous Province of Trento). In NL, the increasing participation was attributed to the development of the programme to improve patient safety. The coverage showed a slight decrease or remained stable in one country and in regions where coverage was already high such as NO, Basque Country, Catalonia, Apulia, Emilia-Romagna and Friuli-Venezia Giulia.

Seven Member States (EL, ES, FR, HU, LT, LU, PT) and four regions (Autonomous Province of Trento, Emilia-Romagna, Friuli-Venezia Giulia; Scotland) reported using other indicators than the three listed in the questionnaire:

- PT monitored hand hygiene compliance of (number of actions/ number of opportunities for hand hygiene).
- FR, EL, Autonomous Province of Trento and Friuli-Venezia Giulia collected data on the number of hospitals performing hand hygiene campaigns or involved in hand hygiene programmes. This number (or proportion) had increased where data were provided for before and after the adoption of the Recommendation.
- FR, LU, LT and Emilia-Romagna surveyed the number or the proportion of hospitals with ICUs, or the number of ICUs, performing surveillance of infections in ICUs.
- Some Member States/regions monitored the number or the proportion of hospitals performing other surveillance: device-associated infections in HU; point prevalence surveys in ES and LT; ventilator associated pneumonia surveillance in Friuli-Venezia Giulia; surveys on MDRB in EL and FR; on blood and body fluid exposures in FR.

CONCLUSIONS

Despite the short timeframe to respond, most countries returned their questionnaires on time. Some of the questions left room for different interpretations, which can hamper the comparability of answers. This questionnaire was a self-assessment exercise rather than an external evaluation, hence natural variations between countries regarding the practical implementation of recommendations and the effectiveness of measures implemented could not be addressed. In countries where regional authorities play a major role in public health policies implementation, the participation of less than half of the regions can have an impact on the results (as it can be assumed that the most involved regions may have replied). Lastly, countries that have regulatory framework with requirements for hospitals but not a real strategy or action plan on HAI did not answer all questions. Nevertheless, these results give a relatively clear picture of the state of implementation of the Council Recommendation and the areas in which greater focus and further measures are needed.

As some countries are still developing their policies, they could benefit from the experience of other countries regarding the implementation measures and the effectiveness of existing systems. Active participation in the Commission Patient Safety and Quality of Care Working Group, in the joint action on patient safety and quality of care, in the ECDC Antimicrobial Resistance and Healthcare-Associated Infections Networks, and in various research projects could further facilitate mutual learning. The Commission services intend to continue following up progress made in the implementation of the Recommendation and will support research projects and dissemination of their findings.

Future work should contribute to the implementation of the provisions relating to safety and quality of healthcare of the cross-border healthcare Directive²³, and take account of the close links between work developed under the areas of patient safety, healthcare associated infections and antimicrobial resistance.

Future work should also take account of the 5-year 'Action plan against the rising threats from antimicrobial resistance'²⁴ issued by the Commission in November 2011, which aims at putting in place effective ways to prevent microbial infections and their spread. Strengthening infection prevention and control in healthcare settings (action n°4 of the action plan) contributes to achieving this objective.

In a context of financial crisis, it is even more important to ensure the efficacy and the sustainability of policies on patient safety, including the prevention and control of HAI. Finally, it is crucial that decision makers are committed to adapt their policies to the continuously evolving organisation of healthcare and to emerging threats.

²³ Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare

²⁴ Communication from the Commission to the European Parliament and the Council. Action plan against the rising threats from antimicrobial resistance (COM(2011) 748 final). Available from: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0748:FIN:EN:PDF>