

**PATIENT SAFETY CULTURE
REPORT**
focusing on indicators



PATIENT SAFETY CULTURE REPORT
Focusing on indicators



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Agra Y, Recio C on behalf of the partners of the WP1
Quality Agency of the Spanish NHS. SMOH

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1. SUMMARY

This study responds at the first objective of the WP1: 'Collect and exchange information regarding patient safety (PS): practices and indicators in Member States (MS) and make it accessible to stakeholders through web based systems to facilitate cross border care'.

The objectives of this study are: To identify from the different member states (MS) the indicators used to improve patient safety culture (PSC), describe the characteristics of the identified indicators, describe experiences showing how the indicators can be used to improve PSC and provide the EUNetPaS community a catalogue of indicators used by MS to improve PSC. A questionnaire, in Excel format, was designed by the WP1 partners and sent it to the national contact points, in addition to a glossary of terms, in order to collect the indicators.

The WP1 partners considered "indicators to improve PSC" those patient safety indicators (PSI) that fulfilled some specific criteria agreed for this study. 12 MS answered the questionnaire providing 411 indicators where 68 of them were not PSI. From all the indicators, 41,4% were related with healthcare associated infection (HCAI), 16% with safe surgery, and the remainder with other areas of interest in patient safety (notification system, professional perception, mortality, obstetric procedures, patient identification, etc). Most of the indicators (55%) described in this report are outcome indicators coming from administrative data. Most of indicators based in professional perception came from the Hospital Survey on Patient Safety Culture questionnaire. From all, 10 MS sent examples about how they use come indicators to improve PSC.

This study represents a catalogue of indicators used for some MS to improve PSC and a compendium of examples about the use of the indicators to improve PSC.

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The final recommendations are oriented to encourage MS in the use of valid indicators for internal PSC improvement. Further investigations are needed at European level in order to better identify useful indicators to improve PSC.

2. PREFACE

The EUNETPAS project, aims to establish an umbrella network of all 27 EU Member States and EU stakeholders to encourage and enhance collaboration in the field of Patient Safety.

One of the four topics areas to reach this objective is Promoting Patient Safety Culture included in the WP1. As an extension to the work in WP1, the member states (MS) expressed their desire to focus on the use of clinical patient safety indicators (PSI) and when they are correlated to the improvement of patient safety culture (PSC) in order to share and exchange experiences lead to a wider scope.

The Spanish Ministry of Health and Social Policy (SMoH) in collaboration with the Dutch Institute for Health Care Improvement (CBO), European Federation of Nurses (EFN), Austria and Lithuania developed a questionnaire to gather information from Member States using PSI and the potential link with PSC.

This document has the aim to describe the MS experiences in the utilisation of PSI to improve PSC.

3. FRAMEWORK

The Institute of Medicine report "To err is human" pointed out the need to develop a culture of safety in healthcare organizations focused on improving the reliability and safety of care for patients¹. This report emphasized that errors are frequently system-related instead of professional-related and consequently organizations should pursue strategies oriented to change their culture from a punitive attitude to system improvements.

Safety culture is a complex concept whose meaning needs to be considered. Although different safety culture definitions are available, in the WP1 we will consider the definition adopted in 2006 by the European Society for Quality in Health Care (ESQHC):

'An integrated pattern of individual and organisational behaviour, based upon shared beliefs and values that continuously seeks to minimise patient harm, which may result from the processes of care delivery'.

To create a culture of safety it is necessary to encourage:

- Acknowledge about risk associated to healthcare
- Acceptance of responsibility for risk reduction
- Organizational structure, process and outcomes oriented to improve patient safety
- Open communication in reporting errors in a non-punitive environment
- Learning from errors

According to the National Quality Forum², *the four key elements to reach and maintain a patient safety culture are: **structure and leadership, assessment of culture, feed-back and intervention, education and teaching for effective teamwork and proper skills and risk identification and prevention.***

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It is very important to know all the elements included in the culture of the health organizations in order to promote changes oriented to improve patient safety in all the clinical settings.

Assessment of safety culture in an organization is a key step in improve it. Safety culture is generally measured by surveys of providers. The WP1 already produced a document describing the surveys used by the MS and recommendation about their use.

Regarding the role of the indicators, several studies have noted the relationship between PSC and performance measures, showing that a positive culture is associated with the improvement of performance (hospitals with better patient safety culture assessed by survey, had lower rates of adverse events)³ or that a poor culture is a risk factor for patient safety⁴. In this sense, the information provided by performance indicators could be regarded as a consequence of the culture of the organization. Nevertheless, there is a lack of evidence on how analyzing performance, PSC can be improved.

If PSC is associated with a measure of performance that is through specific clinical indicators. These indicators have to be able to detect situations of risk associated with health care and must be associated with the culture of the organization so that its variation is due primarily to organizational behaviour and their individuals, i.e. the system, processes and practices of the organization rather than aspects of patient characteristics and their pathology. It means that performance indicators, should be relate to those aspects of care which can be altered by the professionals whose performance is being measured⁵. Therefore, the predominant enduring benefit from attempts to measure performance in healthcare is likely to use the data generated by professionals to provoke reflection, at local level, on existing practice and to plan efforts at improving healthcare.

4. OBJECTIVES

The objectives of this document are:

- To identify from the different MS the indicators used to improve PSC.
- To describe the characteristics of the identified indicators.
- To describe experiences showing how Indicators are used to improve PSC.
- To provide the EUNetPaS community a guide of PSI used by MS to improve PSC.

5. METHODOLOGY

The SMOH in collaboration with the other partners of WP1, designed a questionnaire in an Excel format, to gather the information from the MS on Patient Safety Indicators (PSI) which are used to improve Patient Safety Culture (PSC) (Annex A). The questionnaire was discussed until to reach an agreement. In order to clarify the definitions to be used, a glossary of terms was developed and included with the questionnaire (Annex A) .

The agreed questionnaire was pilot tested in a convenience sample of 3 Spanish Health Regions. The results of the pilot study was discussed with all the members of WP1 and as consequence some questions were changed and the length of the questionnaire reduced.

National Contact Points at EU members and expert, previously identified, were asked three times, via e-mail, to fill in the questionnaire and return the information to the SMOH. Three calls were necessary in order to gather the information.

Only performance and outcome indicators were collected avoiding structure indicators because of its poor correlation with patient outcomes.

For the objectives of this study, the members of the WP1 agreed to consider indicators to improve PSC those PSI (see glossary) meet all of the following criteria: Feedback their information to managers and professionals, use the information in learning processes in the team about PS and use the information to improve clinical performance related with PS. The MS were asked to provide the indicators with examples about the compliance with these criteria.

Nevertheless all the indicators received were finally included in the analysis (included not PSI) in order to give a broader picture of the information provided by MS.

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Excel programme was used in order to analyzed, in a descriptive way, the items of the questionnaire. The indicators were grouped according to areas of interest regarding patient safety .

6. RESULTS

- **Answers.** Only 12 out of 27 MS (44,4%) answered the questionnaire: AUSTRIA, Cyprus, Denmark, France, Germany, Ireland, Latvia, Lithuania, the Netherlands, Portugal, Spain and united kingdom. They reported information from 23 different organizations in their countries (table 1).

These countries a total of 411 indicators, where 343 are Patient Safety Indicators and 68 of them (17%) were related within Quality Health Care (HQCI) in general but not with PS (they are described in a separate table in Annex B). The Excel data base with all the indicators collected is provided at the EUNetPaS Web page.

From all the indicators 53% of them, were outcome indicators and 47% process indicators.

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Table 1. Number of indicators provided by Member States

COUNTRY	Organization/ Health Region	No. of indicators
Austria	AUQIP¹	48
	AKH Linz²	19
	GESPAG³	48
Cyprus	CypMoH⁴	1
Denmark	Danish Soc for PS⁵	18
Spain: SMoH, & Health Regions	SMoH⁶	27
	CAT⁷	14
	EUS⁸	7
	ING⁹	17
	MAD¹⁰	33
	MUR¹¹	8
	VAL¹²	17
France	HAS¹³	5
UK	DoH¹⁴	18
Germany	IMVR Univ. Cologne¹⁵	8
	Charité Univ. Berlin¹⁶	1
	BQS¹⁷	22
Ireland	BH¹⁸	54
	AMNCH¹⁹	32
Latvia	LatMoH²⁰	1
Lithuania	LtuMoH²¹	7
Nederlands	NIVEL²²	4
Portugal	GDH²³	2
TOTAL		411

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1. AUQIP: Austrian Coordination for international Q-Indicator System. E-mail ipg@jku.at
2. AKH Linz: Director Dr. Heinz Brock; heinz.brock@akh.linz.at
3. GESPAG: Gesundheits- und Spitals-AG, Dr. Tilman Königswieser; E-mail tilman.koenigswieser@gespag.at
4. CypMoH: Cyprus Ministry of Health. Nantia Katsouri, E-mail nantiak@cytanet.com.cy
5. Danish Society for PS: E-mail Kirstine Rask kirstine.rask@regionh.dk
6. SMOH.: Quality Agency of de the NHS Spain www.msc.es/seguridadpaciente.es. Yolanda Agra E.mail yagra@msps.es
7. CAT: Generalitat de Catalunya Health Department
<http://www.seguretatpacient.org/cms/index.html>; <http://www.gencat.cat/salut/>
8. EUS: Euskadi- Health Department <http://www.osasun.ejgv.euskadi.net/r52-2536/es/>
9. ING: <http://www.ingesa.msc.es/>
10. MAD: Comunidad de Madrid Health
http://www.madrid.org/cs/Satellite?pagename=PortalSalud/Page/PTSA_home
11. MUR: Región de Murcia <http://www.murciasalud.es/principal.php>
12. VAL: Comunitat Valenciana Health Agency <http://www.san.gva.es/>
13. HAS: Etienne Minvielle COMPAQH INSERM <http://ifr69.vjf.inserm.fr/compaqh/>
http://ifr69.vjf.inserm.fr/compaqh/?p=indicateurs_indicateurs-generalisables
14. DoH: UK Department of Health Daniel Eghan, Daniel Eghan. E.mail Daniel.Eghan@dh.gsi.gov.uk
15. IMVR Germany. Institut für Medizinsoziologie, University of Cologne www.imvr.de: Antje Hammer, E. mail antje.hammer@uk-koeln.de
16. Charité University of Berlin: Saskia Droesler, E. mail saskia.droesler@hsnr.de
17. BQS: Institut für Qualität & Patientensicherheit
18. BH: Ireland. Beaumont Hospital, Dublin. E. mail helenryan@beaumont.ie
19. AMNCH: Ireland. The Adelaide and Meath Hospital, Dublin. Health Information and Quality Authority (HIQA), patientsafety@hiqa.ie
20. LatMoH: Latvia. Ministry of Health. Laura Selakova, laura.selakova@vm.gov.lv
21. LtuMoH: Lithuania. State Health Care Accreditation Agency (VASPVT). Juozas Galdikas, E-mail: juozas.galdikas@vaspvt.gov.lt
22. NIVEL: Netherlands Institute for Health Services Research . E. mail c.wagner@nivel.nl
23. GDH : Portugal. General Directorate of Health Cristina Costa, E.mail cristinacosta@dgs.pt

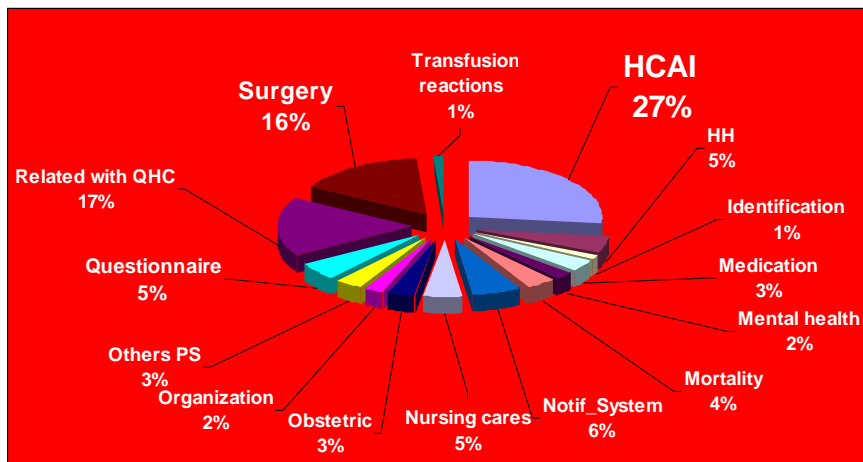
➤ **Areas of interest.**

Figure 1 shows that the most frequent indicators reported were related with healthcare associated infection (HCAI), followed by safe surgery indicators (with the exception of HCQI that sum up 17%).

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Figure 1. Frequency of indicators collected according to area of interest (n= 411)



All the indicators collected are described in tables included in Annex B, Following the areas of interest and indicators included in each area are described (HCQI are shown in table 14 of Annex A and excluded from this description):

- Indicators related with Health Care Associated Infections (HCAI)

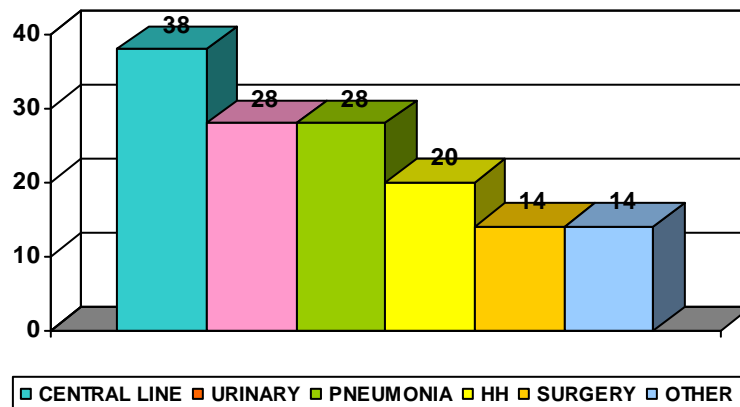
From all the 411 indicators received, 108 (27%) were related with HCAI, where 63 (58.3%) of them are outcome and 45 (41.7%) are process. The 83% of these indicators were provided by two countries (Austria and Spain). Figure 2 shows that indicators related with central line infection and urinary infection (related with catheter) were the most frequently reported.

Table 1 in Annex B describes all the indicators related with HCAI

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Figure 2. Description of indicators related with HCAI (n=108)



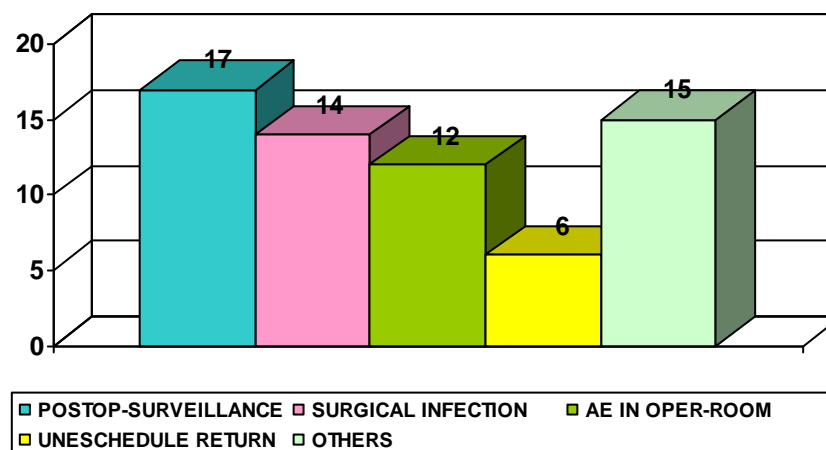
- Indicators related with safe surgery

In this area 64 (16%) indicators were reported, where 56 (87.5%) of them are outcome and 8 (12.5%) are process.

Figure 3 shows that indicators related with post-surveillance adverse events and surgical infection were the most frequently reported.

Table 2 in Annex B describes all the indicators related with safe surgery

Figure 3. Description of indicators related with surgery (n=64)



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- Indicators related with other areas.

Tables 3 to 13 in Annex B describe all the indicators related with these areas.

- *Notification system:* 24 (6%) Indicators related with notification systems were reported, where 8 (33.3%) of them are outcome and 16 (66.6%) are process, regarding protocol compliance and managements of feed-back.
- *Questionnaires:* 20 (5%) indicators were related with different types of questionnaires. The questionnaires to assess professionals perception were: The Hospital Survey on Patient Safety Culture (AHRQ) and the Safety Attitude Questionnaire (NPSA).
- *Hand hygiene:* 20 (5%) indicators were related with hand hygiene, where 9 (45%) of them were outcome and 11 (55%) process.
- *Nursing care:* 16 (5%) indicators were related with nursing care, where 9 (56.2%) of them are outcome and 10 (43.8%) are process regarding pressure ulcers and falls.
- *Management and organization regarding patient safety:* 15 (4%) indicator were related with this area, all of them were process indicators regarding action plans, management involvement and patient safety training
- *Mortality:* 15 (4%) indicators were related with mortality regarding perioperative mortality, death in low mortality, failure to recues and others
- *Obstetric procedures:* 13 (3%) indicators were related with obstetric procedures (all outcome indicators) regarding obstetric trauma (vaginal and caesarean delivery) and birth trauma
- *Safe medication use:* 13 (3%) indicators were related with safe medication use, where 5 (38.5%) of them are outcome and 8 (61.5%) are process, regarding different aspects of medication use and antimicrobial resistance
- *Safety mental healthcare:* 9 (2%) indicators were related with this area, where 8 (88.9%) of them are outcome and 1 (11.1%) process,

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regarding restraint adverse events, self injury adverse events, suicides and others.

- *Unequivocal patient identification*: 6 (1%) indicators were related with this area, where 4 (66.6%) of them are process and 2 (33.3%) are outcome, regarding compliance with protocols
- *Other*: 14 (3%) indicators were related with other areas of interest

➤ **Web page where indicators can be found.** Some countries provide information where the indicators can be found:

Austria

http://www.ipg.uni-linz.ac.at/fr_leiste_proj.htm

<http://www.internationalqip.com>

Denmark

http://www.patientoplevelser.dk/log/medie/Rapporter/Patientsikkerhed_2006.pdf

Germany

<http://www.charite.de/krankenhaushygiene/aufgaben.htm>

<http://www.bqs-qualitaetsindikatoren.de/>

[http://www.olis.oecd.org/olis/2009doc.nsf/LinkTo/NT00006F06/\\$FILE/JT03274834.PDF](http://www.olis.oecd.org/olis/2009doc.nsf/LinkTo/NT00006F06/$FILE/JT03274834.PDF)

<http://www.aquainstitut.de/de/projekte/qualitaetsindikatoren/index.html>

<http://www.qualityindicators.ahrq.gov/TechnicalSpecs41.htm#PSI41>

Spain

Bacteraemia zero project:

http://www.msc.es/organizacion/sns/planCalidadSNS/docs/ENVIN_UCI_08.pdf

http://www.seguridaddelpaciente.es/contenidos/english2/2009/Multifactorial_intervention_reducing_catheter_related_bacteriemia_intensive_care_units.pdf?phpMyAdmin=mvRY-xVABNPM34i7Fnm%2C23Wrlq5

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- Regarding the **level where the Indicators are used to improve PSC** , 291 (84,8%) of them are used to improve PSC at local level (some of them also at national and regional level).
Annex C describes by country where the indicators are used to improve PSC.

- Regarding **examples of how indicators can be used to improve PSC**, 11 countries provided examples about 132 (32%) indicators that are shown in the Excel data base included in the EUNetPaS Web page. Austria was the country that provided more examples (62 %), followed by Spain (21%) and Denmark (9%).
Some specific examples from 31 indicators are described below.

AUSTRIA

1. Indicator: Unscheduled returns to unit

How it is used: Analysis in the team for patients on risk and the kind of main complication strategies are carried out to minimize the risk for the patients

2. Indicator: Falls

How it is used: Analysis in the team to develop fall assessment sheets, protocols and strategies to minimize the risk for the patients.

3. Indicator: Observed isolated CABG perioperative mortality for patients diff. ASA P1 - P5

How it is used: for improvement of the perioperative management and risk adjustment

4. Indicator: Inpatient Mortality DRG related

How it is used: Internal comparisons with international data to analyse the processes and minimize the risk of patients.

5. Indicator: Unscheduled returns to ICU

How it is used: It is used for analysis in the team to carry out improvement strategies and further education of the staff.

6. Indicator: Antibiotic prophylaxis for hip arthroplasty.

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How it is used: It is used to check in the team if the use is appropriate and in line with local/national/international guidelines.

7. Indicator: Perioperative Mortality diff. to ASA P1 - P5

How it is used: It is used to raise the awareness and to check in the team and to develop strategies to improve the perioperative management

8. Indicators: a. Compliance for the Sepsis care bundle; b. Bloodstream infections - Central line

How it is used: It is used to raise the awareness and to check in the team the processes and to develop strategies for improvement.

9. Indicators: a. Compliance for the Sepsis care bundle; b. Indwelling urinary catheter use; c. Central line use; d. Ventilator use

How it is used: The ICU team checks if the use is appropriate and in line with guidelines

CYPRUS

1. Indicator: Accident and incident reporting form

Action taken: Patient was slipped on a wet floor. No sign was for pre caution. Recommendation to introduce signs for the wet floor

DENMARK

1. Indicator: unscheduled returns to intensive care units

How it is used: It is used for analysis in the team to carry out improvement strategies and further education of the staff.

2. Indicator: Compliance for the Acute Myocardial Infarction Bundle

How it is used: Hospital departments taking part in the Operation Life AMI Bundle

3. Indicator: a. Compliance for the Sepsis care bundle b. Compliance for the Central Venous Line bundle.

How it is used: Hospital departments taking part in the Operation Life Central Venous line Bundle

4. Indicator: Compliance for Medicine Reconciliation Bundle

How it is used: Hospital departments taking part in the Operation Life Medicine Reconciliation Bundle

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5. Indicators: a. Average number of ventilator days; b. Compliance for the Ventilator bundle

How it is used: Intensive care departments taking part in the "Operation Life Campaign"

6. Indicator: Implementation of WHO surgical safety checklist

How it is used: Surgical departments implementing the WHO Safe Surgery Checklist.

7. Indicators: a. Patients reoperation because of deep infection within 2 years; b. Patients with hip fracture receiving a structured assessment for fall propensity. c. Schizophrenia: Proportion of inpatients assessed for suicide risk at discharge; d. Schizophrenia: Proportion of patients on antipsychotic medication examined for specified side-effects; e. Acute upper gastrointestinal perforation

How it is used: The Danish National Indicator project is implemented in all relevant departments (corresponding to inclusion criteria for the diseases covered by the project. Data from each included disease area are audited and published yearly by health professionals.

8. Indicator: Hospital standardized Mortality Rate (HSMR)

How it is used: Used in "Operation Life", a campaign involving a number of departments in volunteering hospitals in the whole country. HSMR is an internationally recognized measure of mortality at hospital level. HSMR was used to follow hospital mortality change

FRANCE

1. Indicator: surgical units that perform surveillance of surgical site

How it is used: used by the ICU team to check their awareness of the problem and performance (review procedures, teaching new professionals and residents, improve communication). The teamwork observed that a higher PSC is correlated with better results.

2.Indicator: Volume in liters of PHA commissioned in the year

How it is used: The rates of ICSHA are used by the ICU team to check their awareness of the problem and performance (review procedures,

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teaching new professionals and residents, improve communication). The teamwork observed that a higher PSC is correlated with better res

GERMANY

1. Indicator: Hospital Survey of Patient safety Culture (HSOPS)

How it is used: In German Project ATräk

IRELAND

1. Indicators: a. Error reporting, management and review within Pharmacy e.g. Aseptic Unit; b. Non-punitive, incident reporting policy to promote medication safety

How it is used: Comprehensive approach to improve patient safety culture and patient safety by encouraging 100% reporting rate of errors identified during checking processes, analysis of errors to improve processes.

2. Indicator: Patient safety process improvement projects

How it is used: E.g. Insulin safety audit and process improvement cycles; gentamicin therapeutic drug monitoring audit and process improvement cycles

3. Indicator: Implementation of WHO surgical safety checklist.

How it is used: Implementation phase; audit scheduled for 2010. Detailed process improvement and audit cycles for pre-op antibiotic administration in orthopaedics (2nd phase of process improvement completed currently); audit and improvement cycle to commence in all surgery.

4. Indicator: Patient safety incident and near miss reporting with feedback and resulting system improvements

How it is used: National reporting to Clinical Indemnity Scheme, Health & Safety Authority, Blood Transfusion Safety Board etc. Local within hospital

5. Indicator: Concentrated potassium usage run chart

How it is used: Reported to bi-monthly Drugs and Therapeutics Committee and used as an indicator to monitor process improvement project to reduce concentrated potassium usage

LATVIA

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1. Indicator: Serious adverse transfusion reactions

How it is used: In the framework of national hemovigilance system the rates of serious adverse transfusion reactions are used to monitor and improve the quality and safety of blood processing and blood transfusion.

THE NETHERLANDS

1. Indicator: Incident reports: decentralized incident reporting:

How it is used: Part of a safety reporting system stimulating awareness and improvement in patient safety

PORTUGAL

1. Indicator: Compliance rate on HH.

How it is used: The General Directorate of Health advises HC Units to use both results in order to evaluate the relationship between the compliance rate on Hand Hygiene and the prevalence rate on HAI in order to evaluate performance and to benchmark.

SPAIN

1. Indicator: Blood Stream Infections at ICU and all the indicators related with "Bacteraemia-zero" (Spanish project, in collaboration with WHO)

How it is used: rates of bacteraemia are used by the ICU team to check their awareness of the problem and performance (review procedures, teaching new professionals and residents, improve communication). The teamwork observed that a higher PSC is correlated with better results.

2. Indicator: Indicators related with Hand Hygiene

How it is used: rates of compliance are use at health region level to inform and teach professionals in order to improve HH adherence.

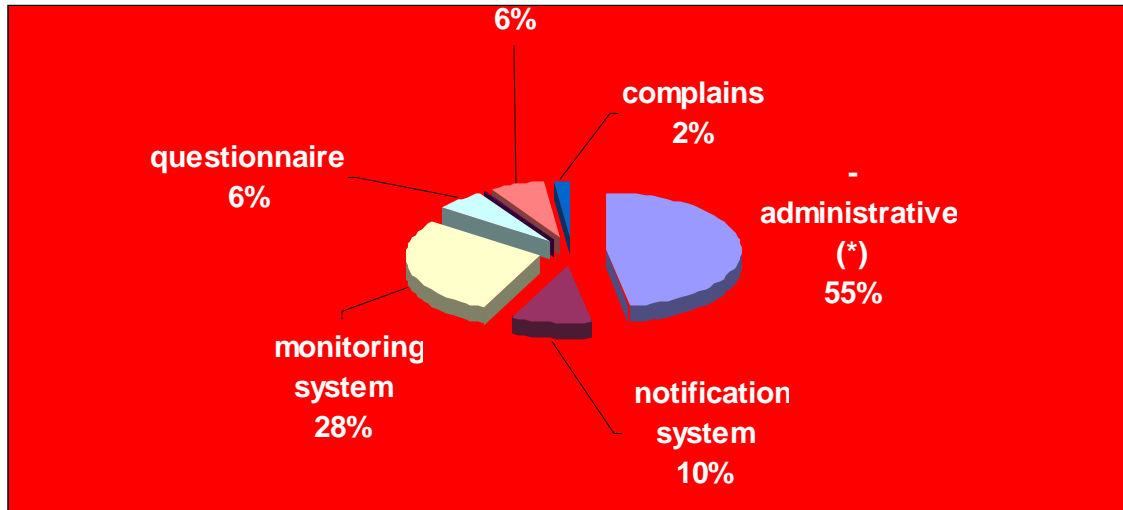
- Regarding the **source of data of the indicators**, figure 4 shows that 55% of indicators came from administrative data including discharge

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records, routine information systems and also in some few cases clinical charts.)

Figure 4. Source of data of the indicators



- When asking about **application**, MS reported availability from data base in 61% (4% on-line) of indicators and 35% from paper.
- In 73% of indicators the **responsible to provide** the data are at local level (healthcare settings), 19 % at Health Region and 8% at national level.
- **Feedback to target peoples.** Table 2 describes feedback to people involved on PS (e.g. professionals, managers, politicians, researchers, patients). Professionals and managers are informed about the data of clinical indicators while research and patients are informed about the questionnaires data indicators. Only clinical 39 clinical indicators are used to inform patients.

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Table 2. Feedback to people involved on patient safety .

Feed back per AREA	Professionals		Managers		Politicians		Researchers		Patiens	
	No	%	No	%	No	%	No	%	No	%
HCAI	94	41%	93	37%	10	19%	5	14%	4	10%
HH	5	2%	7	3%	2	4%	1	3%	1	3%
Identification	3	1%	4	2%						
Medication	6	3%	9	4%	2	4%	1	3%	2	5%
Mental health	9	4%	9	4%	2	4%			2	5%
Mortality	11	5%	12	5%	1	2%		0%	1	3%
Notif_System	16	7%	12	5%	6	11%	5	14%	4	10%
Nursing cares	13	6%	15	6%						
Obstetric	3	1%	7	3%	2	4%	2	6%		
Organization	10	4%	14	6%	2	4%	1	3%	1	3%
Others	4	2%	5	2%	1	2%			4	10%
Questionnaire	16	7%	16	6%	14	26%	14	40%	13	33%
Surgery	35	15%	46	18%	11	21%	5	14%	7	18%
Transfusion reactions	2	1%	2	1%			1	3%		
TOTAL	227	100%	251	100%	53	100%	35	100%	39	100%

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- Regarding **periodicity**, 33% of indicators are collected monthly, 32% quaterly, 23% yearly and 12% twice a year.
- **The use** of these indicators is mandatory in 36% of cases and voluntary in 64% of them.
- To the questions where **the indicators have been published**, some countries provide the following information with the reference of the publications:

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Austria

- Mechtler, R: Das Quality Indicator Project als Element des Qualitätsmanagements in: Qualitätsmanagement im Krankenhaus. Umsetzung im Allgemeinen Krankenhaus Linz. Hrsg. Heinz Brock; Trauner Verlag 2009
- Brock, H; Mechtler, R; et al: A Global Governmental Objective How Austria´s Healthcare System Deals with Accountability and Performance Improvement in: Accountability through Measurement. A Global Healthcare Imperative. Hrsg. Vahe A. Kazandjian; ASQ Quality Press Milwaukee, Wisconsin 2003. Mechtler, R: Das Quality Indicator Project als Element des Qualitätsmanagements in: Qualitätsmanagement im Krankenhaus. Umsetzung im Allgemeinen Krankenhaus Linz. Hrsg. Heinz Brock; Trauner Verlag 2009
- Ungeplante Rückkehr in den Operationssaal. K. Adamer; G. Luch; M. Salzmann; F. Pressl. Chirurgie. Das offizielle Organ der österreichischen chirurgischen Vereinigung. 2/2005. Wien.

Denmark

- Operation Life - Results and challenges. Progress Report 2009 http://www.operationlife.dk/Segment/~media/OL/pdf/statusrapport2008/OpLife_bro_ENG.ashx
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Germany

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- <http://www.bqs-outcome.de/>

Ireland

- www.hse.ie/healthstat
- Ciara Kirke and Tim Delaney awarded National Quality in Healthcare Award 2005 by the Irish Society for Quality and Safety in Healthcare for presentation entitled Drive out Fear: Closing the Loop on Medication Safety Incident Management. Can provide on request
- Alan Glass, Infusion Devices - Treating the Patient on Time, from Irish Medicines Board Medical Devices Newsletter August 2005 Volume 1 Issue 3
http://www.imb.ie/images/uploaded/documents/Newsletter_Issue13_August2005.pdf

Latvia

- SBDC Haemovigilance Annual Report

Spain

http://www.seguridaddelpaciente.es/contenidos/english2/2008/Summary_Validation_Patient_Safety_Indicators.pdf?phpMyAdmin=mvRY-xVABNPM34i7Fnm%2C23Wrlq5

7. COMMENTS REGARDING RECOMMENDATIONS

The most frequent indicators reported are HCAI (27%) mainly for the most prevalent nosocomial infections at the hospital (blood stream infection, urinary infection and pneumonia), followed by surgery indicators (surgery complications).

Taking into account the indicators regarding infection in the surgery group and those related with hand hygiene we conclude that 142 (41,4%) indicators are related with HCAI. Nevertheless, it is important to remark that 83% of the indicators related with HCAI were provided only by two countries.

A total of 132 (32%) indicators had examples about their use to improve PSC. Although most of the the examples provided were not very explanatory, they should be regarded as useful experiences at local level to motivate professional awareness on patient safety improvements.

Most of the indicators (55%) in this report were outcome indicators coming from administrative data. The limitation of outcome indicators from administrative data is that they are not directly related with performance (they depend on the quality of the information system) and consequently either with adverse events so we have to be cautious in their recommendation to improve PSC at least they were used at local level to check variation length trends.

Most of the outcome indicators described here are PSI initially endorsed by OECD⁶. Although they are easy to collect because are available from routine information systems, their use for comparisons among centres and countries is limited because different local and national approaches regarding different definitions, variation in coding practices, and coding-relate guidelines and data systems⁸. For this reason the OECD, after reviewing data limitations, is validating a methodology that could be applied internationally for data comparability among countries using only some of the PSI finally selected⁷. Far from it, process indicators have the intrinsic advantage to be more sensitive than outcome

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measures to find differences in the quality of care. A second advantage of process measures is that they are easy to interpret, although is only of value if it is assumed to have a link to outcome.

Regarding the indicators coming from questionnaires in this report, most of them came from the Hospital Survey on Patient Safety, one of the most used questionnaire by the MS as shown in the WP1 report: "Patient safety Culture Instruments used in Member States".

We would like to point out that neither of the countries, included in this study, reported indicators related with patients perception to improve PSC, probably because the questionnaire was not oriented to gather this type of information.

The data reported here are based solely on information feedback from the National Contact Points (NCP) of the Member States who answered the questionnaire. Consequently some factors limit the validation of this study:

- We don't know how exhaustive the information collection performed in the individual MS through the project's National Contact Points (NCP) has been.
- Because only 44,4 % of the MS answered the questionnaire, this report did no represent the PS indicators used by the MS. We do not know if the non responder countries are using or not indicators to improve PSC.
- Only 10 MS sent examples about the use of 132 indicators to improve PSC. Nevertheless, most of the examples provided, do not fulfil the criteria stated for this study about utility of the indicators to improve PSC. Thus, we don't know the real utility of the majority of indicators improving PSC.
- Some MS reported as indicators, questionnaires without any description about its use in spite of the required information.

According with the data here provided, this study this offers to the EUNetPaS community:

- A catalogue of indicators used for some of the MS to improve PSC.

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- A compendium of examples about the use of the indicators to improve PSC in some MS.
- Detailed information about the collection of PSI (some of them related with PSC) in the MS participating in this study.
- Excel format to be complete by the MS.

Regarding recommendation in the use of indicator to improve PSC it should be pointed out their utility when feedback the information to professionals, at local level, in order to prompted reflection in team works on how to increase the patient safety awareness and to get better in the implementation of good practices. The selected indicators to improve PSC should be: useful (important) for clinicians, easy to interpret and collect (regarding sources and resources) and with appropriate psychometric properties (validity, reliability, etc).

For further recommendation to MS on the use of indicators regarding PSC a broader research should be performed in order to have more information about their use by MS in addition to their validity and utility.

With regard to comparison purposes between MS we encourage to support the work developing by international organizations such as OECD, WHO, ECDC, etc.

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ANNEX A: QUESTIONNAIRE MANUAL AND GLOSSARY

<p>MANUAL USE OF THE PATIENT SAFETY CULTURE QUESTIONNAIRE, focusing on indicators.</p>

INTRODUCTION

The European Network for Patient Safety (EUNetPaS) is a project funded and supported by the European Commission within the 2007 Public Health Programme. One of its aims is "*Promoting a Culture of Patient Safety – National representatives and experts will play a key role in the collection and exchange of information concerning Patient Safety at the Member State level*".

The aim of this Questionnaire is to provide information on Patient Safety Indicators (PSI) which are used to improve Patient Safety Culture (PSC). National Contact Points (NCP) are asked to feed this information back to WP1 through a questionnaire in an Excel format.

Based on the results of this questionnaire, a report will be produced, describing Member State (MS) experiences using PSI related to PSC to be shared and disseminated to all MS.

This manual aims to provide the required information to fill in the questionnaire.

Please, notice that the only indicators required to be reported in the questionnaire are those used (at any healthcare level) to improve PSC.

Some considerations are stated below, in order to better fill in the questionnaire.

Considerations:

-Indicators used to improve PSC

An indicator is considered to improve PSC if meets all of the following criteria:

1. Feed-back the information to managers and professionals.

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2. The information is used in learning processes with team works.
3. The information is used to improve clinical performance related with PS.

-Indicator

An indicator is a quantitative measure used in determining the quality of health care. A healthcare indicator can be used to determine the degree of adherence to a standard or the level of performance achieved. The healthcare indicators are to be meaningful, scientifically sound, generalizable and interpretable; they need to be developed systematically and with scientific rigor. They have to meet certain quality criteria in order to provide valid information about PS Process and Outcome. This information can be used to measure differences in performance between health care providers or institutions (benchmarking) and/or measure changes over time.

-Limitations in the use of indicators

The validity of use of indicators for judging performance depends on the rigour of the available data.

The greatest error by those who use indicator data is to assume that the indicator is an objective measure of relative performance based solely upon its apparent face validity.

Most current indicators of healthcare performance should be viewed as tools that prompt additional inquiry, rather than allowing definitive judgements on quality and safety of care.

Over time, robust, credible indicators will increasingly become available to reliably

inform consumers and allow accountability to purchasers of healthcare services. Nevertheless, given the complexity of healthcare, the predominant enduring benefit from attempts to measure performance in healthcare is likely to be the use of data generated by providers of care to provoke reflection on existing practice and to plan efforts at improving care.

-Glossary

A Glossary of terms used in the Questionnaire can be found at the end of this document.

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OBJECTIVES OF THE QUESTIONNAIRE

- To identify the PSI used to improve PSC from the different MS.
- To describe the characteristics of the identified indicators.
- To describe experiences showing how PSI are used to improve PSC.

ITEMS OF THE QUESTIONNAIRE

1. Name of the Organization.
2. Country.
3. NCP Name and contact .
4. Is your organization using indicators to improve PSC?
(Please, before answering this question take into account the stated consideration about indicators used to improve PSC):
 - a. Yes (GO TO THE NEXT QUESTION)
 - b. No (GO TO QUESTION 18)
5. Name of the indicator(s) used to improve PSC
(Please answer the following questions for each of your named indicators).
6. Specify numerator and denominator.
7. Please describe the level where the indicator is used to improve PSC (MULTIPLE RESPONSE IS POSSIBLE):
 - a. At international level.
 - b. at national level.
 - c. at regional level.
 - d. at local level.

Please describe with some examples how the indicator is used to improve PSC.

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Example

In the "Bacteriemia_zero" project (Spanish project, in collaboration with WHO, to prevent Blood_Stream_Infections at ICU), the rates of bacteraemia are used by the ICU team to check their awareness of the problem and performance (review procedures, teaching new professionals and residents, improve communication). The teamwork observed that a higher PSC is correlated with better results.

-
8. Type. Specify the kind of indicator:
 - a. Process
 - b. Outcome
 9. Source of data:
 - a. Administrative data
 - b. Clinical record
 - c. Notification system
 - d. Audit or monitoring system
 - e. Questionnaire
 - f. Interview
 - g. Specific study
 - h. Complaints
 10. Application:
 - a. Paper
 - b. Web based
 - c. Data base
 11. Responsible to provide data for the indicator (MULTIPLE RESPONSE IS POSSIBLE):
 - a. Local setting
 - b. Health region
 - c. State

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12. Feed-back (MULTIPLE RESPONSE IS POSSIBLE):
 - a. Professionals at clinical settings
 - b. Managers
 - c. Politicians
 - d. Research
 - e. Patients and consumers
13. Periodicity, (e.g. continuity) of data collection and of feed-back
14. Confidentiality of patient and professional data:
 - a. Yes
 - b. No
15. Use of indicator:
 - a. Mandatory
 - b. Voluntary
16. Did you publish (either internal or public) any document regarding the relation between PSI and PSC?
 - a. Yes
 - b. No
17. If public, please include the reference or link of the document.
18. Contact for more information.

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GLOSSARY

- **Adverse event (AE)**

An incident which results in harm to a patient¹.

- **Culture of Patient Safety (CPS)**

An integrated pattern of individual and organisational behaviour, based upon shared beliefs and values that continuously seeks to minimise patient harm, which may result from the processes of care delivery².

In this questionnaire Culture of Patient Safety has the same definition as Patient Safety Culture.

- **Care quality (CQ)**

The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge³.

- **Incident (IN)**

An event or circumstance which could have led, or did lead to unintended and/or unnecessary harm to a person, and/or a complaint, loss or damage⁴.

- **Indicator (IND)**

An indicator is a quantitative measure used in determining the quality of health care. A healthcare indicator can be used to determine the degree of adherence to a standard or the level of performance achieved. The healthcare indicators are to be meaningful, scientifically sound, generalizable and interpretable; they need to be developed systematically and with scientific rigor. They have to meet certain quality criteria in order to provide valid information about PS Process and Outcome. This information can be used to measure differences in performance between health care providers or institutions (benchmarking) and/or measure changes over time.

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- **Near miss (NM)**

An incident which did not reach the patient¹.

- **Outcome indicators (OI)**

The outcome indicators in healthcare are the result obtained after activities carried out (performance). These indicators are able to measure for instance:

Clinical outcomes:

- Mortality
- Complications
- Adverse events

Intermediate outcomes:

- Glycemic control
- Knowledge and skills acquired after teaching activities
- Change of behavior

Patient reported outcomes:

- Perception and satisfaction with the provision of healthcare
- Complaints
- Quality of life related with healthcare

Professionals reported outcomes:

- Perception and satisfaction with the healthcare organization

Outcome indicators are able to assess patient safety and, followed on a regular basis, can influence safety culture. Using outcome patient safety indicators in a systemic way (discussion and analysis in the team about adverse events including measures to avoid it, etc) will lead and intensify awareness and will influence safety culture.

- **Patient Safety (PS)**

Freedom, for a patient, from unnecessary harm or potential harm associated with healthcare¹.

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- **Patient Safety Culture (PSC)**

An integrated pattern of individual and organisational behaviour, based upon shared beliefs and values that continuously seeks to minimise patient harm, which may result from the processes of care delivery².

In this questionnaire Patient Safety Culture has the same definition as Culture of Patient Safety.

- **Patient Safety Culture Instruments (PSCI)**

A Patient Safety Culture Instrument is a tool by which one can collect information on aspects of patient safety culture. The instrument can on its own or as part of a process help assess, promote and /or develop patient safety culture. It is also important to appreciate that a formal programme of action, designed to address the limitations in safety culture identified by the instrument, needs to be followed to ensure concrete results².

In this questionnaire Patient Safety Culture has the same definition as Culture of Patient Safety.

- **Patient Safety Indicators (PSI)**

A set of indicators that provide information on actual and potential adverse events⁵.

- **Process Indicator (PI)**

An indicator referring to the compliance with agreed activities such as hand hygiene, surveillance, standard operating procedures⁶.

Process indicators contribute to the assessment of PS. but will not exactly answer the questions of PS.

Example of a process indicator related with PS: The proper use of antibiotics before surgery (process indicator), contribute to prevent surgery infection (outcome indicator).

- **Structure indicator (SI)**

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An indicator referring to any resource, such as staff, an infrastructure or a committee⁶.

Example of a structure indicator related with PS: The accessibility of an alcohol-based hand rub at the point of care, contribute to improve hand hygiene and consequently to prevent healthcare related infections.

REFERENCES TO THE GLOSSARY

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ANNEX B: TABLES

Table 1. Indicators related with Health Care Associated Infections (HCAI)

Indicator-Set	No	Indicator_name	No	P	O	Country
HCAI	108		108	45	63	73AUS;21SPA; 5GBR;3DEN;2IRE; 1POR;1LIT;
Catheter-associated urinary infections	28	Compliance for the Sepsis care bundle	15		O	15 AUS
		Indwelling urinary catheter use	12	P		12 AUS
		Prevalence rate of urinary tract infection in catheterized patients.	1		O	1 SPA
Central line-associated bloodstream infections	38	Bloodstream infections - Central line	19		O	12AUS;5SPA;2GBR
		Central line use	10	P		10 AUS
		Professionals who have made Bacteriemia Zero training	1	P		1 SPA
		Professionals who have passed the Bacteriemia Zero training test	1	P		1 SPA
		Reported at least four items in recommended daily goals sheets	1	P		1 SPA
		ICU's that share a case study a month of learning from defects	1	P		1 SPA
		ICU's with consistent participation in patient safety rounds	1	P		1 SPA
		ICU with clorhexidine	1	P		1 SPA
		ICU with daily goals	1	P		1 SPA
		ICU with line chart	1	P		1 SPA
Pneumonia associated to mechanical ventilation	28	Compliance for the Central Venous Line bundle	1	P		1 DEN
		Ventilator-associated pneumonia	13		O	12AUS;1SPA
		Ventilator use	12	P		12 AUS
		Average number of ventilator days	1	P		1 DEN
		Compliance for the Ventilator bundle	1	P		1 DEN
Other nosocomial infections	7	Incidence of density respiratory infection (ICU)	1		O	1 SPA
		Selected infections due to medical care (PSI 7)	3		O	1SPA;1GER
		Nosocomial infection rate	3		O	3 SPA
Other HCAI	4	Cumulative incidence of surgical procedure in wound infection	1		O	1 SPA
		Hospital infection control	1		O	1 LIT
		Prevalence rate on HAI	1		O	1 POR
		Mortality & morbidity review involving infectious disease experts.	1		O	1 IRE
Multiresistant germs	3	HealthStat - Infection Control	1		O	1 IRE
		Incidence of clostridium difficult	1		O	1 GBR
		Incidence of MRSA bacteraemia	1		O	1 GBR
		Renal specific Methicillin-Resistant Staphylococcus Aureus (MRSA) rate	1		O	1 GBR

P= process indicators, O= outcome indicator (in all tables)

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Table 2. Indicators related safe surgery

Indicator-Set	No	Indicator_name	No	P	O	Country
Surgery	64		64	8	56	27AUS;17SPA;14GER;3IRE;2DEN;1GBR
Postoperative surveillance	17	Postoperative sepsis (PSI 13)	3		O	2GER;1SPA
		Postoperative hip fracture (PSI 8)	2		O	1GER;1SPA
		Patients reoperation because of deep infection within 2 years	1		O	1 DEN
		Postoperative pulmonary embolism or deep vein thrombosis (PSI 12)	3		O	2GER;1SPA
		Postoperative respiratory failure (PSI 11)	2		O	1GER;1SPA
		Postoperative hemorrhage or hematoma (PSI 9)	2		O	1GER;1SPA
		Postoperative physiologic and metabolic derangements (PSI 10)	2		O	1GER;1SPA
		Postoperative wound dehiscence in abdominopelvic surgical patients (PSI 14)	2		O	1GER;1SPA
Surgical site infections	14	Surgical site infections for hip arthroplasty patients diff. to Risk Index 0 - 3	3		O	3 AUS
		Rate of infection following orthopedic prostheses	1		O	1 SPA
		Surgical site infections for CABG patients diff. to NNIS Risk Index 0 - 3	3		O	3 AUS
		Surgical site infections for knee arthroplasty patients diff. to Risk Index 0 - 3	3		O	3AUS
		Prevalence rate of surgical wound infection.	1		O	1 SPA
		Surgical infection rate after elective colon surgery	1		O	1 SPA
		Surgical site infections - Orthopaedic	1		O	1 GBR
		Surgical site infections, which occurred after surgery	1		O	1 FRA
AE in the operating room	12	Acute upper gastrointestinal perforation	4		O	4 DEN
		Accidental puncture and laceration (PSI 15)	3		O	2GER;1SPA
		Foreign body left in during procedure (PSI 5)	3		O	2GER;1SPA
		Complications of anesthesia (PSI 1)	2	P		1GER;1SPA
Other nosocomial infections	6	Antibiotic prophylaxis for hip arthroplasty	6		O	6 AUS
Check list - procedure	5	Implementation of checklists	1	P		1 SPA
		Implementation of WHO surgical safety checklist	3	P		1DEN;1IRE;1SPA
		Paired organ surgery where signals the site of surgery	1		O	1 SPA
Unscheduled returns to unit	6	Unscheduled returns to intensive care units	3		O	3 AUS
		Unscheduled returns to the operating room	3		O	3 AUS
Mortality	1	Morbidity and mortality in plastic surgery	1		O	1 IRE
Others- Surgical	3	Hospital elective & Surgical wait time	1	P		1 IRE
		Participation in safe surgery initiatives.	1	P		1 SPA
		Patients with hip fracture receiving a structured assessment for fall propensity	1		O	1 DEN

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Table 3. Indicators related with Notification Systems

Indicator-Set	No	Indicator_name	No	P	O	Country
Notif System	24		24	16	8	8SPA;6GBR;4NED;3IRE;1CYP;1DEN
Protocol compliance	3	Consistent reporting of PS events reported to the RLS	1	P		1 GBR
		Rate of PS events in trusts that were submitted to the RLS	1		O	1 GBR
		Timely reporting of patient safety events reported to the RLS	1	P		1 GBR
Non punitive reporting, response	2	Non-punitive, incident reporting policy to promote medication safety	1	P		1 IRE
		Nonpunitive Response To Error	1	P		1 SPA
Perception	1	Safety Notification issues	1	P		1 SPA
Others Notification System	18	Acute trusts compliant with safety standards	2		O	2 GBR
		Accident and incident reporting form	1	P		1 CYP
		Advers Events notified	1		O	1 SPA
		Advers Events Reported with wound	1		O	1 SPA
		Alerts - acute trusts compliant with safety standards	1	P		1 GBR
		Error reporting review within Pharmacy e.g. Aseptic Unit	1	P		1 IRE
		Feedback and error notification	1	P		1SPA
		Frequency of Event Reporting	1		O	1SPA
		Global trigger Tool	1		O	1 DEN
		Incident reports: decentralized incident reporting:	1	P		1 NED
		MRSA reported	1		O	1 FRA
		No of causes:decentralized incident reporting	1	P		1 NED
		No of human causes: decentralized incident reporting	1	P		1 NED
		No of organisational causes: decentralized incident reporting	1	P		1 NED
		Organizations with a RLS for PS deployed in at least two units	1	P		1 SPA
Quantity of professionals reporting events	1	P		1 SPA		
PS incident and near miss reporting with feedback and resulting system improvements	1	P		1 IRE		

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Table 4. Indicators related with Hands Hygiene

HH	20		20	11	9	16SPA;1FRA;1IRE; 1GBR;1POR
Consumption	5	Alcohol-based handrub consumption	3		O	3 SPA
		Evaluation bioalcohols use-consumption (ml / stay)	1		O	1 SPA
		Volume in liters of PHA commissioned in the year	1		O	1 FRA
Protocol compliance	5	HealthStat - Hand higiene	1	P		1 IRE
		Compliance rate on HH	1	P		1 POR
		HH done with hidro-alcoholic solutions according procedure	1	P		1 SPA
		Hand washing with alcoholic solutions	1		O	1 SPA
		HH procedure implemented	1	P		1 SPA
HH Training	6	Hospital health workers trained in HH	1	P		1 SPA
		Hospitals providing basic HH training	1	P		1 SPA
		Hospitals providing training on "My 5 moments for HH"	1	P		1 SPA
		Primary healthcare districts providing basic HH training	1	P		1 SPA
		Training sessions HH (proffesionals trained)	1	P		1 SPA
		Primary healthcare workers trained in HH	1	P		1 SPA
Perception	2	HH perception and knowledge using WHO survey tools	1		O	1 SPA
		Monitoring health workers HH perception and knowledge using WHO survey tools	1		O	1 SPA
Other HH	2	Hospitals conducting observation on HH compliance any of the" 5 moments"	1		O	1 SPA
		Availability of hand washing facilities	1	P		1 GBR

Table 5. Indicators related with nursing care

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Indicator-Set	No	Indicator_name	No	P	O	Country
Nursing	19		19	5	14	8SPA;6AUS;4IRE;1GER
Pressure ulcer	14	Decubitus ulcer (PSI 3)	3		O	2SPA;1GER
		Rate of pressure ulcers.	4		O	2AUS;2SPA
		Pressure ulcer incidence in acute inpatient care	3		O	2 AUS;1SPA
		Use of risk assessment in pressure ulcers.	1	P		1 SPA
		Nursing pressure ulcer prevalence audit	1	P		1 IRE
		Trained nurses on chronic skin ulcers course	1	P		1 SPA
		Pressure ulcer prevention programme	1	P		1 IRE
Falls	5	Documented falls in acute care total and diff. to reasons and resulting in injuries	2		O	2 AUS
		Incidence of falls in hospitalized patients	1		O	1 SPA
		Audit of falls prevention activity on geriatric medicine	1		O	1 IRE
		At-risk patients who receive falls assessment on admission	1	P		1 IRE

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Table 6. Indicators related with Organization

Indicator-Set	No	Indicator_name	No	P	O	Country
Organization	15		15	15	0	12SPA;2IRE;1FRA
Action Plan projects, Management involvement,	10	Patient safety process improvement projects	1	P		1 IRE
		Accreditation and certification of units and services	1	P		1 SPA
		Action Plan (derived from security analysis of proactive and reactive actions) intergrades in the plan of safety management center	1	P		1 SPA
		Management involvement (Management ICU patrols)	1	P		1 SPA
		Control and maintenance of stopping trolleys and defibrillator.	1	P		1 SPA
		Organizations established improvement groups (proactive and reactive)	1	P		1 SPA
		Security good practice implemented, that affects entire organization	1	P		1 SPA
		Organizations with Clinical and Safety Plan implemented	1	P		1 SPA
		Organizations with Clinical Quality and Safety Committee	1	P		1 SPA
		Weighted rating of: Organization, tools and actions	1	P		1 FRA
Training	5	Training in PS topics, e.g. Risk Management, Haemovigilance, Hygiene, Medication Safety...	1	P		1 IRE
		Organizations on PS training program	1	P		1 SPA
		Promote institutional training program on contract goals	1	P		1 SPA
		Trained professionals in health center quality and PS	1	P		1 SPA
		Management training support to Patient Safety	1	P		1 SPA

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Table 7. Indicators related with mortality

Indicator_name	No	P	O	Country
	15	0	8	8AUS;3SPA;2GER; 1DEN;1IRE
Death in low mortality DRGs (PSI 2)	3		0	2SPA;1GER
Failure to rescue (PSI 4)	2		0	1SPA;1GER
Perioperative Mortality diff. to ASA P1 - P5	3		0	3 AUS
Inpatient Mortality DRG related	2		0	2 AUS
Observed isolated CABG perioperative mortality for patients diff. ASA P1 - P5	2		0	2 AUS
Hospital standardizer Mortality Rate (HSMR)	1		0	1 DEN
Neonatal Mortality diff. to birth weight	1		0	1 AUS
Multidisciplinary, morbidity & mortality meetings.	1		0	1 IRE

Table 8. Indicators related with Obstetric procedures

Indicator_name	No	P	O	Country
	13	0	6	6GER;5SPA;1AUS
Obstetric trauma -- vaginal delivery without instrument (PSI 19)	3		0	2GER;1SPA
Obstetric trauma -- vaginal delivery with instrument (PSI 18)	3		0	2GER;1SPA
Obstetric trauma -- cesarean delivery (PSI 20)	2		0	1GER;1SPA
Birth trauma -- injury to neonate (PSI 17)	2		0	1GER;1SPA
Neonatal Mortality diff. to birth weight	2		0	2 AUT
Low risk caesarean	1		0	1 SPA

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Table 9. Indicators related with safe medication use

Indicator_name	No	P	O	Country
	13	8	5	8SPA;1LIT;1GBR; 1DEN;1 IRE;1FRA
Improvement actions related with potassium rate at ICU	1		O	1 SPA
Adverse event with medicines	1		O	1 LIT
Compliance for Medicine Reconciliation Bundle	1	P		1 DEN
Electronic prescriptions rate	1		O	1 SPA
Improvement actions rate related to medication AE in hospital	1		O	1 SPA
Medication errors Notification	1		O	1 SPA
Medicines - acute trusts compliant with safety standards	1	P		1 GBR
New medication treatments of pathologies referenced in GFAR, which are in place with the usefulness of MPRE.	1	P		1 SPA
Problems related with medication	1	P		1 SPA
Severe notifications on RAM	1	P		1 SPA
Unknown notifications on RAM	1	P		1 SPA
Weited rating of good use of antibiotics	1	P		1 FRA
Concentrated potassium usage run chart	1	P		1 IRE

Table 10. Indicators related with mental healthcare

Indicator_name	No	P	O	Country
Mental Health	9	1	8	6 AUS;2DEN;1SPA
Adult psychiatric physical restraint events	2		O	2 AUS
Adult psychiatric self-injury events	2		O	2 AUS
Adult psychiatric suicides	2		O	2 AUS
Escape rate (Mental health medium-stay)	1		O	1 SPA
Schizophrenia: Proportion of inpatients assesed for suicide risk at discharge	1		O	1 DEN
Schizophrenia: Patients on antipsychotic medication examined for specified side-effects	1	P		1 DEN

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Table 11. Indicators related with unequivocal patient identification

Indicator-Set	No	Indicator_name	No	P	O	Country
Identification	6		6	4	2	5SPA;1IRE
Unequivocal identification of patients.	6	Unequivocal identification of patients.	3	P		3 SPA
		Compliance with patient identity verification in medication administration	1	P		1 IRE
		Identifying bracelet of mother and newborn	1		O	1 SPA
		Invasive test which uses bracelet to confirm identification	1		O	1 SPA

Table 12. Indicators related with transfusion reaction

Indicator_name	No	P	O	Country
Transusion Reaction	4	0	4	1SPA;1GER; 1LIT;1LAT
Adverse event with blood transfusions	1		O	1 LIT
Serious adverse transfusion reactions	1		O	1 LAT
Transfusion reaction (PSI 16)	2		O	1SPA;1GER

Table 13. Other indicators

Indicator_name	No	P	O	Country
Others	14	7	7	4GBR;4LIT;4SPA; 1DEN;1GER
Devices - acute trusts compliant with safety standards	2	P		2GBR
Adverse event due to radiation safety	1		O	1 LIT
Adverse event with medical device	1	P		1 LIT
Civil health insurance certificate for health care provide	1	P		1 LIT
Compliance for the Acute Myocardial Infarction Bundle	1	P		1 DEN
Guidance - acute trusts compliant with safety standards	1	P		1 GBR
Health procedures surrounding certificate	1		O	1 LIT
Hip fracture rate with intervention of more than 2 days late	1		O	1 SPA
Latrogenic pneumothorax (PSI 6)	2		O	1SPA;1GER
Medical records with legible writing in all clinical documentation	1		O	1 SPA
Readmission rate to 3 days.	1		O	1 SPA
Sickness Absence Rate	1	P		1 GBR

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Table 14. Indicators associated with Quality Health Care (all of them coming from Republic of Ireland)

Indicator_name	P	O
Related with QHC	39	28
Acute Admission waiting times	1	
Hospital Referral wait times for routine outpatient physio	1	
Hospital referral times for routine out patient diagnostics ultrasound only	1	
Consulstant to hospital referral wait times for out patient physiotherapy	1	
Consultant to hospital referral wait times for routine outpatient diagnostic ultrasound only	1	
Average waiting times for OPD consultant led clinics	1	
Daycase rate procedures	1	
Day of procedure admission rate for elective in patients	1	
Percentage of cases entered into HIPE	1	
Appropriateness of admissions and care	1	
Finance and resource usage	1	
Staff WTE variance from staff ceiling	1	
Staff hours lost due to absenteeism	1	
OPD consultant led clinics number of patients see per WTE consultant	1	
OPD consultant led clinics percentage of patients who did not attend	1	
Audit on the effectiveness and usefulness of a continuous glucose monitoring system		1
Audit on monitoring adherence to current antimicrobial policies e.g. adherence to empirical antibiotic or surgical prophylaxis guidelines, therapeutic drug monitoring of Vancomycin & Gentamycin. Monitoring changing microbial susceptibility patterns		1
Dept of Geriatric Medicine audit of the nutritional status of older adults.		1
Contribution to National Hip Fracture Database. This database gathers perioperative, surgical intervention, time to surgery, secondary fracture prevention, discharge planning and mortality and morbidity outcome data on hip fracture patients in ten		1
Trauma & Orthopaedics mortality & morbidity events three monthly.		1
Emergency Department audit of patients who did not wait.		1
Emergency Department audit of the utilisation of CT abdomen and CT thorax in the ED		1
Nursing documentation audit	1	
Post discharge telephone questionnaire surgical day ward		1
Dept of nutrition & dietetics Improving the practice of nutrition the critically ill; an international quality improvement project		1
Dept of nutrition & dietetics IBAPEN nutritional screening audit, benchmarked England, Ireland, Scotland & Wales		1
Audit looking at ICU activity	1	
ICNARC (Intensive Care National Audit and Research Centre) Audit. Benchmarked with other centres.	1	
Exit survey of patient satisfaction.		1
Audit of malaria treatment		1
Audit of Hep C diagnosis, screening & treatment		1
Causes of anaemia in patient with HIV		1
Audit of colonoscopy performance		1
Audit of surveillance endoscopy		1
Audit (s) malignant melanoma		1
Cochlear Implant Department, Monthly meetings planning care for patients and audit of		1

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any post operative problems.		
Requirement for accreditation is detailed audit programme.		1
List of over 60 ongoing audits Immunology and H&I	1	
Stroke Service. Audit of patients assessed for Stroke thrombolysis Ø Audit of patients thrombolysed for acute ischemic stroke – One year experience		1
Radiology. Audit of Locum Consultant reporting Ø Audit of Interventional Neuroradiology		1
Audit Acute and Chronic Pain Management Service annually		1
Audit of line sepsis of patient receiving TPN		1
Audit of COPD Outreach – in Thorax Audit of modification of asthma clinic – submitted to journal of Clinical Nursing Ø Audit of modification in Pulmonary Rehab # 1, Ø Audit of Outcomes of Pulmonary Rehab Ø Audit of Sleep Laboratory.		1
Audit taking place to measure compliance with National Quality Assurance Standards for Symptomatic Breast Disease (HIQA)	1	
Health Service. Code of Practise for Integrated Discharge Planning.	1	
National Hospital Office. Code of Practice for Healthcare Records Management.	1	
National Hospitals Office. Code of Practice for Decontamination of Reusable Medical Devices	1	
HIQA National Standards for the Prevention and Control of Healthcare Associated Infections	1	
HealthStat- Incident reviews (HealthStat Performance Monitoring Performance Indicators reported to the Health Service Executive HSE - some of these indicators relate to patient safety)	1	
Patient advocacy and complaints management		1
Medical equipment incident reporting, follow up, circulation of Irish Medicines Board notices, Vigilance Committee		1
Health and Safety: See Implementation Level column	1	
Six Sigma Process Improvement Projects and Training (Many projects related to patient safety)	1	
HealthStat -Waiting List Numbers	1	
HealthStat - Waiting Times	1	
HealthStat - Occupancy Rate	1	
HealthStat - Hygiene	1	
HealthStat - Number of beds closed due to norovirus		1
Cardiology audit programme		1
Comprehensive quality management programme in laboratory medicine with external accreditation and validation and annual management review setting quality objectives	1	
Triage waiting times in Children's Emergency Department	1	
Percentage of registered nurses who have attended mandatory nursing documentation education	1	
Patients with a tracheostomy who have a specific and appropriate care plan completed	1	
Nurse prescribers whose prescribing practice is being audited on a six monthly basis	1	
Nursing policies that are being reviewed within the specified timeframe	1	
Supernumerary undergraduate nursing student supervision	1	
Comprehensive clinical audit and process improvement programmes in Intensive Care Unit	1	
Various measurements and indicators in use in the various healthcare professions and specialties	1	

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ANNEX C: LEVEL WHERE THE INDICATORS ARE USED

- **Austria** has sent a total of 115 PS indicators:
 - 85 are shared at international and local level (45 HCAI, 18 Surgery, 8 Mortality, 6 Nursing cares, 6 Mental Health, 2 Obstetric.
 - 40 HCAI indicators are shared at International, National and Local level.

- **Cyprus** has sent 1 Notification System as PS indicator shared at National and Local level.

- **Denmark** has sent a total of 18 PS Indicators:
 - 8 are used at national level (4 Surgery, 2 Mental health and 2 Nursing cares)
 - 9 are used at local level (4 HCAI, 1 Medications, 1 Mortality, 1 Notification system)
 - 1 Questionnaire used at regional level for indicators of PSC.

- **France** has sent 5 PSC Indicators at National, Regional and Local level (3 Surgery, Notification system and 1 Hands Hygiene)

- **Ireland** has sent 86 Indicators, where 68 are related with Quality Health Care and for this reason not included in any described group. And 18 indicators are PS Indicators:
 - 5 are shared internationally (1 Surgery and 4 related with QHC)
 - 35 are shared at National level (1 HCAI, 1 Surgery 1 HH and 32 related with QHC)
 - 72 are used at local level (4 Nursing cares, 2 Surgery, 2 Notification system, 2 Organization, 1 HCAI, 1 Mortality, 1 Identification, 1 Medication and 56 related with QHC)

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- **Latvia** has sent 1 Transfusion reaction indicator shared at National level.

- **Lithuania** has sent 7 PS indicators shared at National level (1 HCAI, 1 Medication, 1 Transfusion reactions and 4 Others)

- **The Netherlands** has sent 4 Notification System indicators shared at National level and 3 of them are used at local level also.

- **Portugal** has sent 2 indicators shared at National level (1 HH and 1 HCIA)

- **Germany** has sent a total of 31 PS indicators:

- 8 are shared at international and national level (7 OECD, 1 Questionnaire). The 7 OECD indicators are 4 Surgery, 2 Obstetric , 1, HCAI.
- 21 are used at local level (10 Surgery, 4 Obstetric, 1 Nursing cares, 1 Mortality, 1 HCAI, 1 Questionnaire, 1 Transfusion, 1 Others)

- **Spain** has sent a total of 123 PS indicators:

- 27 are shared at National, Regional and Local level (11 AHR Questionnaire, 9 HH, 6 HCAI)
- 17 shared at National level (6 HCAI, 3 Identification, 4 Surgery, 2 Nursing cares, 1 HH, 1 Others)
- 38 are used at Regional level (8 HCAI, 7 Organization, 4 Surgery, 5 Medication, 3 Nursing cares, 2 Hands Hygiene, 1 Identification, 1 Notification System, 1 Culture Questionnaire, 1 Teaching, 1 Mental Health
1 Mortality, 1 Obstetric, 2 Others)

- **UK** has sent a total of 18 indicators:

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- 17 are used at National level (6 Notification System, 4 HCAI, 1 Surgery, 1 Hands Hygiene)
- 1 Questionnaire NPSA Perception used at local level.