



The IPSE Consensus on Standards and Indicators

Version: 18th May, 2008



**Project commissioned by the EC / DG SANCO
Project N° 790903 – Grant Agreement N° 2004216**

Contents

	Page
Cover sheet	1
Contents	2
Acronyms	3
Introduction	4-5
Notes for Guidance	6
Part One: Standards, indicators and recommended practices for monitoring the control of HAI & AR	7
1.0 Standards	8-13
2.0 Indicators	14
2.1 Indicators concerning national organisation	15-19
2.2 Indicators for internal hospital monitoring	20-25
3.0 Recommended practices	26-36
Part Two: The Top Twenty Indicators	37
#1 - #10 Indicators concerning national organisation	38
#11- #20 Indicators concerning the extension of HAI & AMR control policy in hospitals	39
Part Three: Glossary	40-42

Acronyms

AB	Antibiotic
ABR/AR	Antibiotic resistance
AMR	Antimicrobial Resistance
ARPAC	Antibiotic Resistance Prevention and Control: a DG R&D Project
ARMed	Antibiotic resistance in the South-Eastern Mediterranean
DG R&D	Director General Research and Development;
DG SANCO	Directorate General for Health and Consumer Affairs
ECDC	European Centre for Disease Prevention and Control
EU	European Union
GRE	Glycopeptide-resistant enterococci
HCAI/HAI	Healthcare associated infection
INCO-MED	International Research Cooperation with Mediterranean Partner Countries
HELICS	Hospital in Europe Link for Infection Control through surveillance
IC	Infection Control
ICC	Infection Control Committee
IFIC	International Federation of Infection Control
IPSE	Improving Patient Safety in Europe
MS	Member States
ORION	Outbreak Reports and Intervention studies of Nosocomial infection
MRSA	Meticillin (formerly methicillin) resistant <i>Staphylococcus aureus</i>
PVL	Panton-Valentine Leukocidin
SPI	Standards and Performance Indicator
WHO	World Health Organization
WP	Work Package

Introduction

The development of ‘Guidance on Infection Control in Healthcare Settings in Europe’ was commissioned within the project ‘Improving Patient Safety in Europe (IPSE)’ (EC DG SANCO Grant Agreement 2004216). Standards, indicators and recommended practices for the measurement of occurrence and control capabilities of HCAI and AMR in IC programmes of European countries were developed with the aim of harmonising standards by helping countries to measure the occurrence and control capabilities in this area. They have been grouped into five categories each of which aims to achieve a level of accomplishment considered appropriate for national EU programmes;

Category	Title	Target Accomplishment
1	Organisation of the control of healthcare-associated infections and antimicrobial resistance.	National and local health organisations implement strategies for controlling HCAI and AMR in all healthcare settings.
2	Prevention and control policies.	Continuous quality improvement of healthcare care leads to the reduction of HCAI and AMR.
3	Surveillance policies.	Surveillance of HCAI and AMR is implemented in each healthcare organisation to support prevention and control activities.
4	Education and Training.	The principles of HCAI prevention and control and antibiotic stewardship are integrated in the professional activities of every healthcare worker.
5	Resources for the control of HCAI and AMR.	Hospitals and other healthcare facilities have appropriate resources to operate HCAI control and antibiotic stewardship programmes.

The proposal was developed to respond to the needs of EU countries and also with the possibility in mind of extension to countries in the wider WHO Europe region. It is not exhaustive: the proposal describes actions/achievements considered to be the most significant. Depending on local practice, other dimensions could be added to cover the subject in a more detailed way.

The proposal was developed via a consensus process involving the IPSE network. The IPSE Work Package 2 Expert Group developed the guidance and IPSE National Contact Points were asked for their opinion about these proposals. Nominated members of IC Professional Societies and other appropriate bodies in each country were also consulted. The result of the consensus process* will be presented for ratification at the IPSE Network Meeting to be held on 22nd May, 2008.

*See the consensual development report ‘Guidance on Infection Control in Healthcare Settings in Europe: Standards, Indicators and Recommended Practices for monitoring the occurrence and control capabilities of HCAI and AR’, available at;

http://ipse.univ-lyon1.fr/Documents/IPSE_WP2_draft_Deliverable_D2.1_pre_network_meeting.pdf

The purpose of this document (**Part One**) is to present the resulting standards, indicators and recommended practices for the measurement of occurrence and control capabilities of HCAI and AMR in IC programmes of European countries.

The IPSE network was also asked to select 20 of the indicators, which could serve as a starting point in a subsequent first implementation of the scheme in European countries. The selection of indicators chosen by the IPSE WP2 Expert Group involved in this work is presented here (**Part Two**). The choice of this 'Top Twenty' will also be considered during the IPSE Network Meeting on 22nd May, 2008.

Notes for Guidance

Part One: Standards, indicators and recommended practices for monitoring the control of HAI & AR

Standards for the occurrence and control capabilities of HCAI and AMR in IC programmes of European countries have been grouped into five categories as follows;

Category	Title	No. of standards	References
1	Organisation of the control of healthcare-associated infections and antimicrobial resistance.	10	1.1a/b, 1.2a/b, 1.3a/b, 1.4a/b/c, 1.5
2	Prevention and control policies.	18	2.1 thru' 2.18
3	Surveillance policies.	11	3.1 thru' 3.11
4	Education and Training.	5	4.2 thru' 4.5
5	Resources for the control of HCAI and AMR.	9	5.1 thru' 5.9

Indicators measure the occurrence and control capabilities at national and/or hospital level.

Recommended Practices give guidance on features which could be considered appropriate to IC programmes, based on existing experience in Europe, but which may need to be adapted to suit local and national circumstances.

Indicators and recommended practices correspond to a given standard, via the reference.

Part Two: The Top Twenty Indicators

#1 - #10 Indicators concerning the organisation of HAI & AMR control at national level.

#11- #20 Indicators concerning the extension of the HAI & AMR control policy in hospitals.

Part One

Standards, indicators and recommended practices for monitoring the control of HAI & AR

Monitoring the control of healthcare-associated infection and antibiotic resistance

1.0 Standards

Category	Title	Page
1	Organisation of the control of HAI & AR	9
2	Prevention and control policies	10
3	Surveillance policies	11
4	Education and Training	12
5	Resources for the control of HCAI and AMR	13

Note: The first instance of terms contained in the Glossary (Part Three) is shown in *italics and bold* and the meaning is applied to all instances of the term throughout the document.

1.0 Standards

Category #1 – Organisation for control

Reference	Standard
1.1a	There is a nationally funded <i>programme</i> , which implements a <i>national strategy</i> to reduce the burden of HCAI.
1.1b	There is a nationally funded programme, which implements a national strategy to reduce the threat of AMR.
1.2a	Hospitals have programmes for the control of HCAI (Infection Control: IC), the practice of which is subject to <i>audit</i> .
1.2b	Hospitals have programmes to control AMR, the practice of which is subject to audit.
1.3a	A national progress report is provided annually by the national programme and presented to the <i>National Health Authority</i> .
1.3b	An annual progress report is provided by each hospital and presented to hospital chief executives.
1.4a	National multi-disciplinary strategic committee(s) is/are responsible for assessing implementation of the programmes aimed at reducing the burden of HCAI and reducing AMR.
1.4b	A multidisciplinary infection control committee (ICC) is responsible for implementing HCAI control programmes in each hospital.
1.4c	A committee is responsible for overseeing implementation of antibiotic prescribing control programmes in hospitals.
1.5	Hospital chief executives (or other legal entities as appropriate) are <i>accountable</i> for patient safety and particularly HCAI control and <i>antibiotic stewardship</i> .

1.0 Standards

Category #2 – Prevention and control policies

Reference	Standard
2.1	National programmes to reduce the burden of HCAI and the threat of AMR have a long-term and sustained strategic priority of pursuing the continuous improvement of the quality of healthcare, as part of a total quality management system.
2.2	Hospitals have access to nationally recognised <i>good practice policies</i> produced on evidence-based guidelines.
2.3	Good practice policies are available to healthcare workers for the major activities contributing to HCAI and AMR control.
2.4	Good practice policies available locally to healthcare workers include the following, the process of maintenance and provision of which is subject to audit: <ul style="list-style-type: none"> • Standard precautions
2.5	<ul style="list-style-type: none"> • Special precautions (isolation)
2.6	<ul style="list-style-type: none"> • Sharps injuries and blood contact
2.7	<ul style="list-style-type: none"> • Screening for AMR organism carriage
2.8	<ul style="list-style-type: none"> • Sterilisation and disinfection
2.9	<ul style="list-style-type: none"> • Waste disposal
2.10	<ul style="list-style-type: none"> • AB prophylaxis
2.11	<ul style="list-style-type: none"> • AB therapy
2.12	<ul style="list-style-type: none"> • Urinary care
2.13	<ul style="list-style-type: none"> • Venous catheter care
2.14	Hospitals have programmes for the promotion of hand hygiene and hand disinfection.
2.15	The use of hand disinfectant solution (alcohol-based) is monitored by each hospital.
2.16	The compliance of recommended practice of hand hygiene and disinfection is monitored periodically.
2.17	An antibiotic <i>formulary</i> is formally established in each hospital.
2.18	Achievement of the major activities contributing to HCAI and AMR control is monitored through nationally and/or locally organised audits (or any other kinds of evaluation) with feedback to management and healthcare workers.

1.0 Standards

Category #3 – Surveillance policies

Reference	Standard
3.1	There is a national (mandatory or recommended) system for the surveillance of HCAI that addresses national priorities and produces data which is fed back to those who can take appropriate actions.
3.2	There is a national (mandatory or recommended) system for the surveillance of antibiotic resistance that addresses national priorities and produces data which is fed back to those who can take appropriate actions..
3.3	Hospitals participate in a surveillance system for HCAI, particularly for surgical and intensive care patients.
3.4	Hospitals participate in a continuous surveillance system for the main antibiotic resistance patterns.
3.5	Hospitals organise an alert and response system for new or threatening nosocomial events e.g. equipment malfunctions, alert organisms lists.
3.6	A national reference dataset complies with common European surveillance protocols for definitions, collection and reporting systems.
3.7	National surveillance results are published annually.
3.8	Results of nationally organised surveillance of HCAI and/or AMR are fed-back to participating institutions allowing benchmarking of performance where this has been established at a national level.
3.9	Hospital surveillance systems for HCAI and AMR surveillance regularly report data to clinical units and health professionals.
3.10	Hospitals have a continuous surveillance system for monitoring level and trends in antibiotic consumption.
3.11	Hospitals have a <i>suitable system</i> for rapid detection of outbreaks and their investigation, the operation of which is subject to audit.

1.0 Standards

Category #4 – Education

Reference	Standard
4.1	The prevention, control and treatment of infection and antibiotic stewardship are part of the <i>duty of care</i> of all medical and nursing specialists and any other healthcare professionals (e.g. pharmacists) involved in the management of infection in hospitals.
4.2	<i>Officially recognised</i> and mandatory educational programmes in HCAI and AMR control are provided to students in medicine, nursing and other health professions.
4.3	Officially recognised educational programmes are organised for infection control practitioners (both doctors and nurses).
4.4	Continuing professional education in HCAI prevention and control (including hand hygiene) and antibiotic stewardship exists for all relevant healthcare workers, the provision of which is subject to audit.
4.5	Hospitals give HCAI prevention and control and antibiotic stewardship policies to all relevant staff at induction, the provision of which is subject to audit.

1.0 Standards
Category #5 – Resources

Reference	Standard
5.1	National standards describe the human resource requirements for HCAI and AMR control in healthcare establishments (including the roles and responsibilities of infection control practitioners) according to their capacity and needs.
5.2	Hospitals receive the support of a multidisciplinary infection control team (with sufficient trained infection control doctors and nurses).
5.3	The majority of hospital wards have an IC “link” doctor or nurse liaising with the IC team.
5.4	Hospitals and other healthcare facilities have appropriate structural resources to operate HCAI prevention and control and antibiotic stewardship programmes.
5.5	The number and equipment of the single patient rooms or other adequate patient isolation facilities corresponds to the needs of the hospitals.
5.6	Hand hygiene facilities are available at the point of patient care in hospitals, the availability of which is subject to audit.
5.7	Hospitals have access to accredited microbiology laboratory services.
5.8	Hospital laboratories have access to microbial typing facilities sufficient for their needs.
5.9	The National Health Authority ensures that resources are available for a research programme.

Monitoring the control of healthcare-associated infection and antibiotic resistance

2.0 Indicators

2.1 Indicators concerning national organisation

Category	Title	Page
1	Organisation of the control of HAI & AR	15
2	Prevention and control policies	16
3	Surveillance policies	17
4	Education and Training	18
5	Resources for the control of HCAI and AMR	19

Note: The first instance of terms contained in the Glossary (Part Three) is shown in *italics and bold* and the meaning is applied to all instances of the term throughout the document.

2.1 Indicators concerning national organisation

Category #1 – Organisation for control

Reference	Indicator	Response
1.1a	Is a nationally funded programme to reduce the burden of HCAI in place?	yes/no
1.1b	Is a nationally funded programme to reduce the burden of AMR in place?	yes/no
1.2a	What is the proportion of hospitals having an IC programme in place?	%
1.2b	What is the proportion of hospitals having an antibiotic prescribing control programme in place?	%
1.3a	Annual reports are produced and presented to the national health authority.	yes/no
1.4a	Is/are responsible strategic national committee(s) in place for HCAI and AMR control?	yes/no
1.4b	What is the proportion of hospitals having an ICC in place?	%
1.4c	What is the proportion of hospitals having AB stewardship committees in place?	%
1.5a	Is there an official statement on the legal accountability of hospital chief executives (or other appropriate legal entities) for HCAI control and antibiotic stewardship?	yes/no
1.5b	Is there a law which regulates the practice of HCAI control in healthcare organisations?	yes/no

2.1 Indicators concerning national organisation

Category #2 – Prevention and control policies

Reference	Indicator	Responses
2.1	Is the pursuit of continuous improvement of the quality of healthcare is included in the national health strategy?	yes/no
2.2a	Are nationally recommended evidence-based guidelines for the control of HCAI available?	yes/no
2.2b	Are nationally recommended evidence-based guidelines for the control of AMR are available?	yes/no
2.3	What is the proportion of hospitals having good practice policies locally available to healthcare workers?	%
2.4	What is the proportion of hospitals having good practice policies locally available to healthcare workers? <ul style="list-style-type: none"> • Standard precautions? 	%
2.5	<ul style="list-style-type: none"> • Special precautions (isolation)? 	%
2.6	<ul style="list-style-type: none"> • Sharps injuries and blood contact? 	%
2.7	<ul style="list-style-type: none"> • Screening for AMR organism carriage? 	%
2.8	<ul style="list-style-type: none"> • Sterilisation and disinfection? 	%
2.9	<ul style="list-style-type: none"> • Waste disposal? 	%
2.10	<ul style="list-style-type: none"> • Antibiotic prophylaxis? 	%
2.11	<ul style="list-style-type: none"> • Antibiotic therapy? 	%
2.12	<ul style="list-style-type: none"> • Urinary care? 	%
2.13	<ul style="list-style-type: none"> • Venous catheter care? 	%
2.14	What proportion of hospitals have an on-going programme for the promotion of hand hygiene in place?	%
2.15	What is the average amount of hand alcohol consumption in hospitals?	Litres per 1,000 patient days
2.16	What proportion of hospitals monitor compliance with recommended hand hygiene practice?	%
2.17	What percentage of hospitals have antibiotic formularies?	%
2.18a	What proportion of hospitals organised an audit (or equivalent) in the field of HCAI or AMR control during the last year and fed this back to management and healthcare workers?	%
2.18b	Was a national audit (or equivalent) in the field of HCAI or AMR control organised in your country during the last year and fed back to management and healthcare workers?	yes/no

2.1 Indicators concerning national organisation

Category #3 – Surveillance policies

Reference	Indicator	Response
3.1	Is there a national system for HCAI surveillance covering surgical and intensive care units patients?	yes(both)/ yes(one)/ no
3.2	Is there a national system for AMR surveillance?	yes/no
3.3	What proportion of hospitals has a surveillance system for HCAI in patients attending intensive care and/or surgery?	%
3.4	What is the proportion of hospitals having a surveillance system for the main antibiotic resistance patterns?	%
3.5	Is there a national alert system to identify new or threatening nosocomial events or <i>alert organisms</i> ?	yes/no
3.6	Are national data included in common European surveillance databases?	yes/no
3.7	Is an annual report produced describing surveillance results?	yes/no
3.8	Are results of nationally organised surveillance of HCAI and/or AMR annually fed-back to participating institutions?	yes/no
3.9	What proportion of hospitals regularly disseminate report(s) describing surveillance results in the hospital?	%
3.10	What proportion of hospitals record and analyse annually the consumption of antibiotics in the hospital?	%
3.11	What proportion of hospitals have a suitable outbreak detection and investigation system?	%

2.1 Indicators concerning national organisation

Category #4 – Education

Reference	Standard	Response
4.1	The prevention, control and treatment of infection and antibiotic stewardship are recognised as part of the duty of care of all medical and nursing specialists and any other healthcare professionals (e.g. pharmacists) involved in the management of patients in hospitals?	yes/no
4.2	Is an educational programme in HCAI and AMR control strictly required in all medical and nursing training programmes?	yes/no
4.3	Are officially recognised educational programmes organised for IC practitioners (doctors and nurses)?	yes(both)/ yes(one)/no
4.4	What proportion of hospitals have continuing professional education in HCAI prevention and control (including hand hygiene) and antibiotic stewardship for all relevant healthcare workers?	%
4.5	What proportion of hospitals provide training in HCAI prevention and control to all staff at induction?	%

2.1 Indicators concerning national organisation

Category #5 – Resources

Reference	Standard	Response
5.1	Do national standards exist for human resource requirements for IC practitioners (doctors and nurses) for HCAI and AMR control in hospitals?	yes/no
5.2a	What is the number of IC nurses (<i>established positions</i> only) in hospitals?	FTE per 100 acute care beds
5.2b	What is the number of IC doctors (established positions only) in hospital?	FTE per 100 acute care beds
5.3	What proportion of hospitals have an IC “link” doctor or nurse liaising with the IC team in the majority of wards?	%
5.4	What proportion of hospitals have appropriate structural resources to operate HCAI prevention and control and antibiotic stewardship programmes?	%
5.5	What is the percentage of beds that are single bedded side rooms?	%
5.6	What proportion of hospitals have hand hygiene facilities available at the point of patient care?	%
5.7	What percentage of hospitals have access to accredited microbiology laboratory services?	%
5.8	What proportion of hospitals have access to laboratory typing facilities (in-house or out-of-house) sufficient for their needs?	%
5.9	Does a funded HCAI and AMR research programme exist which is of a size commensurate with the economic resources of the country?	yes/no

Monitoring the control of healthcare-associated infection and antibiotic resistance

2.0 Indicators

2.2 Indicators for internal hospital monitoring

Category	Title	Page
1	Organisation of the control of HAI & AR	21
2	Prevention and control policies	22
3	Surveillance policies	23
4	Education and Training	24
5	Resources for the control of HCAI and AMR	25

Note: The first instance of terms contained in the Glossary (Part Three) is shown in ***italics and bold*** and the meaning is applied to all instances of the term throughout the document.

2.2 Indicators concerning internal hospital monitoring

Category #1 – Organisation for control

Reference	Indicators	Response
1.2a	Do you have an IC programme in your hospital?	yes/no
1.2b	Do you have an antibiotic prescribing control strategy in your hospital?	yes/no
1.3b	Is there an annual progress report issued on the control of HCAI and AMR?	yes/no
1.4b	Do you have a multidisciplinary ICC in your hospital?	yes/no
1.4c	Do you have an AB stewardship committee in your hospital?	yes/no

2.2 Indicators concerning internal hospital monitoring

Category #2 – Prevention and control policies

Reference	Indicator	Responses
2.4	Are good practice policies locally available to healthcare workers for: <ul style="list-style-type: none"> • Standard precautions? 	yes/no
2.5	<ul style="list-style-type: none"> • Special precautions (isolation)? 	yes/no
2.6	<ul style="list-style-type: none"> • Sharps injuries and blood contact? 	yes/no
2.7	<ul style="list-style-type: none"> • Screening for AMR organism carriage? 	yes/no
2.8	<ul style="list-style-type: none"> • Sterilisation and disinfection? 	yes/no
2.9	<ul style="list-style-type: none"> • Waste disposal? 	yes/no
2.10	<ul style="list-style-type: none"> • Antibiotic prophylaxis? 	yes/no
2.11	<ul style="list-style-type: none"> • Antibiotic therapy? 	yes/no
2.12	<ul style="list-style-type: none"> • Urinary care? 	yes/no
2.13	<ul style="list-style-type: none"> • Venous catheter care? 	yes/no
2.14	Do you have an on-going programme for the promotion of hand hygiene and hand disinfection in your hospital?	yes/no
2.15	What is the average amount of hand alcohol consumption in your hospital?	Litres per 1,000 patient days
2.16	Do you monitor the compliance of the recommended practice of hand hygiene in your hospital?	%
2.17	Do you have an antibiotic formulary in your hospital?	yes/no
2.18a	Did your hospital organise an audit (or equivalent) in the field of HCAI or AMR control during the last year and feed this back to management and healthcare workers?	yes/no

2.2 Indicators concerning internal hospital monitoring

Category #3 – Surveillance policies

Reference	Indicator	Response
3.1	Does your hospital participate in the national system for the surveillance of HCAI ?	yes/no
3.3	Does your hospital have a local HCAI surveillance system for patients attending intensive care and/or surgery?	yes/no
3.4	Do you have a local HCAI surveillance system?	yes/no
3.5	Does your hospital organise an alert system to identify new or threatening nosocomial events or alert organisms?	yes/no
3.6	Does your hospital send data complying with common European surveillance protocols for inclusion in a national reference dataset?	yes/no
3.9	Is/are report(s) regularly disseminated describing surveillance results in your hospital?	yes/no
3.10	Do you record and analyse annually the consumption of antibiotics in your hospital?	yes/no
3.11	Do you have a suitable outbreak detection and investigation system in your hospital?	yes/no

2.2 Indicators concerning internal hospital monitoring

Category #4 – Education

Reference	Standard	Response
4.1	Does your hospital have clinical governance systems in place to ensure that the prevention, control and treatment of infection and antibiotic stewardship are recognised as part of the duty of care of all medical and nursing specialists and any other healthcare professionals (e.g. pharmacists) involved in the management of infection?	yes/no
4.4	Does continuing professional education in HCAI prevention and control (including hand hygiene) and antibiotic stewardship exist for all relevant healthcare workers in your hospital?	yes/no
4.5	Does your hospital provide training in HCAI prevention and control to all staff at induction?	yes/no

2.2 Indicators concerning internal hospital monitoring

Category #5 – Resources

Reference	Standard	Response
5.2a	What is the number of IC nurses (established positions only) in your hospital?	FTE per 100 acute care beds
5.2b	What is the number of IC doctors (established positions only) in your hospital?	FTE per 100 acute care beds
5.3	In most of your hospital wards do you have link nurses working who liaise with the IC team?	yes/no
5.4	Does your hospital have appropriate <i>structural resources</i> to operate HCAI prevention and control and antibiotic stewardship programmes?	yes/no
5.5	Do you have enough single patient rooms or separate wards to adequately isolate patients in your hospital (yes/no)?	yes/no
5.6	Do you have hand hygiene facilities available at the point of patient care?	yes/no
5.7	Does your hospital have access to accredited microbiology laboratory services?	yes/no
5.8	Does your hospital have access to laboratory typing facilities (in-house or out-of-house) sufficient for its needs?	yes/no

Monitoring the control of healthcare-associated infection and antibiotic resistance

3.0 Recommended Practices

Category	Title	Page
1	Organisation of the control of HAI & AR	27-28
2	Prevention and control policies	29-30
3	Surveillance policies	31-33
4	Education and Training	34-35
5	Resources for the control of HCAI and AMR	36

Note: The first instance of terms contained in the Glossary (Part Three) is shown in *italics and bold* and the meaning is applied to all instances of the term throughout the document.

3.0 Recommended Practices

Category #1 – Organisation for control

Reference	Recommended Practice
1.1a/b.1	HCAI prevention and control objectives and antibiotic stewardship recommendations for policy progression are produced and reviewed annually.
1.1a/b.2	There is a period of consultation for the proposed strategy with national professional groups and the general public.
1.1a/b.3	Minutes of meetings, annual reports and reviews are made available publicly via the internet and/or other appropriate mechanisms.
1.1a/b.4	There is national advocacy, informed by data from standards and indicators, involving politicians and the media, to foster a culture of awareness of adverse events and prevention strategies and to ensure that HCAI and antibiotic stewardship are governmental priorities.
1.1a/b.5	The strategy is reviewed annually to include HCAI prevention and control and antibiotic stewardship in all relevant health-related legal or managerial activities such as: quality standards for building (including the definition and provision of isolation facilities), equipment and products, drug and food safety regulations, staff curriculum, education and training requirements, a clinical governance framework, performance management, certification and accreditation processes, communication of data and public information.
1.1a/b.6	New strategies, including those from other European countries, are considered Examples include: <ul style="list-style-type: none"> • a director of Infection Prevention and Control (or equivalent) reporting directly to the hospital board. • linking of hospital insurance premiums to the levels of prevention activity. • legislation. • public reporting of HCAI rates. • antibiotic prescribing reimbursement rules.
1.1a/b.7	Programme practices, standards and indicators are audited to ensure compliance with those herewith described.
1.1a/b.8	Programmes participate in collaborative EU and international initiatives aimed at reflecting upon experiences and harmonising IC and prevention policies and antibiotic stewardship activities.
1.2a.1	Hospital IC programmes; <ul style="list-style-type: none"> • have defined objectives.
1.2a.2	<ul style="list-style-type: none"> • review the objectives at least annually.
1.2a.3	<ul style="list-style-type: none"> • provide an annual progress report.
1.2a.4	<ul style="list-style-type: none"> • formally publish the annual report to the hospital senior management.
1.2a.5	<ul style="list-style-type: none"> • ensure there is interaction of surveillance and policy, process, audit, review cycles.
1.2b.1	Hospital programmes to control antibiotic resistance have an antibiotic prescribing document.

3.0 Recommended Practices

Category #1 – Organisation for control (cont.)

Reference	Recommended Practice
1.2b.2	Hospital programmes to control antibiotic resistance have a multidisciplinary drugs and therapeutic committee which meets at least twice per year.
1.4a.1	National strategic committee(s) <ul style="list-style-type: none"> • have a government mandate.
1.4a.2	<ul style="list-style-type: none"> • are supported financially by the government.
1.4a.3	<ul style="list-style-type: none"> • meets regularly (at least twice per year).
1.4a.4	<ul style="list-style-type: none"> • is multi-disciplinary and includes, for example, representatives of healthcare workers, healthcare providers, infection control specialists, clinical microbiology specialists, antibiotic specialists, pharmacists, Public Health physicians, relevant government departments and patient advocates.
1.4a.5	<ul style="list-style-type: none"> • Experts in social anthropology (behavioural and organisational change), patient safety and regulation among relevant others are available to the committee(s) for consultation, or are members of convened sub-committees.
1.4a.6	Committee members declare any commercial interests annually and as and when conflicts of interest arise (see http://www.vpc.gov.uk/ (accessed 8.3.08) or an example of good practice).
1.4a.7	The Committee members are appointed for fixed terms and there is a transparent system to ensure that all professions are provided with the opportunity to chair it (rotating systems might be considered).
1.4b.1	Hospital ICCs; <ul style="list-style-type: none"> • are multidisciplinary.
1.4b.2	<ul style="list-style-type: none"> • meet regularly (at least twice per year).
1.4b.3	<ul style="list-style-type: none"> • have a representative of hospital management.
1.4c.1	Hospital antibiotic committees are; <ul style="list-style-type: none"> • multidisciplinary (e.g. management and infection control, doctors, nurses, other relevant healthcare workers, pharmacists and others ad hoc)
1.4c.2	<ul style="list-style-type: none"> • meet regularly (at least twice per year).
1.4c.3	<ul style="list-style-type: none"> • have a representative of hospital management.

3.0 Recommended Practices

Category #2 – Prevention and control policies

Reference	Recommended Practice
2.1.1	National specifications outline the important components of hospital management procedures governing the pursuit of continuous improvement of healthcare quality, including accountability and interactions with quality of patient care, audit and risk management committees.
2.1.2	National specifications outlining the important components of hospital management procedures governing the pursuit of continuous improvement of healthcare quality are reviewed annually to demonstrate fitness for purpose.
2.1.3	National guidelines include recommendations on the following; <ul style="list-style-type: none"> • the movement of patients between wards, departments, such as Accident and Emergency, radiology, and other clinical areas.
2.1.4	<ul style="list-style-type: none"> • assessment of the clinical need for and risk of patient transfer.
2.1.5	<ul style="list-style-type: none"> • audit and review systems to ensure effective communication between bed managers.
2.1.6	<ul style="list-style-type: none"> • quality assurance methods to ensure that patient care procedures include embedded IC precautions (e.g. care bundles).
2.1.7	<ul style="list-style-type: none"> • response to HCAI and antimicrobial resistance threats (e.g. the threat of pandemic or epidemic influenza or SARS, emergence of virulent or resistant organisms such as PVL MRSA or highly resistant Gram negative rods, vanA MRSA).
2.1.8	<ul style="list-style-type: none"> • investigation of outbreaks.
2.1.9	<ul style="list-style-type: none"> • production of local policies, including audit and regular review strategy of practices, consideration by local multi disciplinary groups of healthcare workers with the relevant competencies, learning from best practice in other hospitals (e.g. via an external audit or accreditation system).
2.1.10	National guidelines are developed with the Cochrane AGREE (http://www.agreecollaboration.org/) or similar approach, which includes a period of consultation.
2.1.11	National guidelines are regularly evaluated and updated, publicly accessible and accountable.
2.1.12	All hierarchical levels and functions of national health services are involved in the pursuit of continuous improvement of healthcare quality to achieve results-oriented behavioural changes.
2.1.13	Progress in the pursuit of continuous improvement of healthcare quality is reviewed regularly to assess the national situation, (e.g. three to five years, depending on progress).
2.1.14	The pursuit of continuous improvement of healthcare quality includes; <ul style="list-style-type: none"> • a national accreditation system for hospitals.
2.1.15	<ul style="list-style-type: none"> • a national accreditation system for microbiological laboratories, including a requirement for regular external quality assurance samples.

3.0 Recommended Practices

Category #2 – Prevention and control policies (cont.)

Reference	Recommended Practice
2.2.1	Policies are written and agreed by a multi-disciplinary group including healthcare workers.
2.2.2	Policies are audited regularly and audit results are feedback to management and staff in order to ensure policies are reviewed accordingly.
2.14.1	Programmes; <ul style="list-style-type: none">• ensure hand hygiene rubs are available at every patient area.
2.14.2	<ul style="list-style-type: none">• monitor the amount of hand hygiene consumables (e.g. rubs, soap, towels) used.
2.14.3	<ul style="list-style-type: none">• ensure there is a policy governing when to use gloves.
2.14.4	<ul style="list-style-type: none">• recommend washing or disinfecting hands after usage of gloves.
2.14.5	<ul style="list-style-type: none">• audit the compliance of healthcare workers concerning hand hygiene.
2.14.6	<ul style="list-style-type: none">• feedback audit data to management and healthcare workers.

3.0 Recommended Practices

Category #3 – Surveillance policies

Reference	Recommended Practices
3.1.1	National systems for HCAI surveillance include; <ul style="list-style-type: none"> • a set of official EU recognised definitions.
3.1.2	<ul style="list-style-type: none"> • agreed rules for the reporting (including post-discharge surveillance).
3.1.3	<ul style="list-style-type: none"> • quality control, analysis, feedback and dissemination of results.
3.1.4	<ul style="list-style-type: none"> • evaluation of the need for mandatory surveillance.
3.1.5	<ul style="list-style-type: none"> • comparison between institutions and benchmarking based on the data collected.
3.1.6	<ul style="list-style-type: none"> • assessment of the risk factors of healthcare-associated infections.
3.1.7	<ul style="list-style-type: none"> • examination of the relationship between HCAI rates and process indicators.
3.1.8	<ul style="list-style-type: none"> • feedback of results to track the epidemiology of HCAI at the national level.
3.1.9	<ul style="list-style-type: none"> • agreed rules for the reporting of serious incidents or outbreaks to Public Health authorities.
3.1.10	<ul style="list-style-type: none"> • investigation of the occurrence of HCAI epidemics and the microorganisms involved at the national level.
3.1.11	<ul style="list-style-type: none"> • regulation of data access, which is clear and sustainable.
3.1.12	<ul style="list-style-type: none"> • compliance with data protection regulations, which guarantees the confidentiality and security of data.
3.1.13	<ul style="list-style-type: none"> • electronic data collection from available databases (e.g. clinical, laboratory, pharmacy, administrative, occupational health).
3.1.14	<ul style="list-style-type: none"> • funded external data validation studies at the level of the healthcare institution assessing the sensitivity and specificity of surveillance data and using internationally recommended comparable methods.
3.1.15	<ul style="list-style-type: none"> • regular reviews of the programme utility including stakeholder assessments (government, healthcare establishments, patient advocates and the media).
3.1.16	<ul style="list-style-type: none"> • regular reviews of the resources required for the programme and the balance between the need for national datasets to provide Public Health information and the local needs of surveillance.
3.2.1	National systems for AMR surveillance include; <ul style="list-style-type: none"> • a set of officially-recognised definitions, agreed rules for reporting
3.2.2	<ul style="list-style-type: none"> • production of indicators and agreed criteria for referral of isolates to reference laboratories, which are audited annually and reviewed.
3.2.3	<ul style="list-style-type: none"> • quality control, analysis, feedback and dissemination of results.
3.2.4	<ul style="list-style-type: none"> • evaluation of the need for mandatory surveillance.
3.2.5	<ul style="list-style-type: none"> • comparison between institutions and benchmarking based on the data collected.

3.0 Recommended Practices

Category #3 – Surveillance policies (cont.)

Reference	Recommended Practices
3.2.6	National systems for AMR surveillance include (cont.); <ul style="list-style-type: none"> • agreed rules for the reporting of serious incidents or outbreaks to Public Health authorities.
3.2.7	<ul style="list-style-type: none"> • regulation of data access, which is clear and sustainable.
3.2.8	<ul style="list-style-type: none"> • compliance with data protection regulations, which guarantees the confidentiality and security of data.
3.2.9	<ul style="list-style-type: none"> • electronic data collection from available databases (e.g. clinical, laboratory, pharmacy, administrative, occupational health).
3.2.10	<ul style="list-style-type: none"> • funded external data validation studies at the level of the healthcare institution assessing the sensitivity and specificity of surveillance data and using internationally recommended comparable methods.
3.2.11	<ul style="list-style-type: none"> • regular reviews of the programme utility including stakeholder assessments (government, healthcare establishments, patient advocates and the media).
3.2.12	<ul style="list-style-type: none"> • regular reviews of the resources required for the programme and the balance between the need for national datasets to provide Public Health information and the local needs of surveillance.
3.3.1	Hospital surveillance systems for HCAI; <ul style="list-style-type: none"> • have annually reviewed objectives.
3.3.2	<ul style="list-style-type: none"> • produce relevant indicators (such as incidence and/or prevalence rates or proportions of resistant organisms).
3.3.3	<ul style="list-style-type: none"> • are based on the needs for national and locally driven objectives.
3.3.4	<ul style="list-style-type: none"> • comply with national mandatory surveillance requirements, which are re-considered periodically.
3.3.5	<ul style="list-style-type: none"> • produce analyses of data, which are fed back to the infection control committee and relevant healthcare workers to inform prevention and control strategies, including policy and process audit review cycles, so ensuring improved patient safety.
3.3.6	<ul style="list-style-type: none"> • compare risk-adjusted local rates with those in other institutions as a measure of the hospital’s performance (through participation in a national/regional surveillance network).
3.3.7	<ul style="list-style-type: none"> • produce local analyses of the risk factors of HCAI infections, as well as the relationships between rates and process indicators.
3.4.1	Hospital surveillance systems for AMR; <ul style="list-style-type: none"> • have annually reviewed objectives.
3.4.2	<ul style="list-style-type: none"> • produce relevant indicators.
3.4.3	<ul style="list-style-type: none"> • are based on the needs for national and locally driven objectives.
3.4.4	<ul style="list-style-type: none"> • comply with national mandatory surveillance requirements, which are re-considered periodically.

3.0 Recommended Practices

Category #3 – Surveillance policies (cont.)

Reference	Recommended Practices
3.4.5	Hospital surveillance systems for AMR(cont.); <ul style="list-style-type: none"> • produce analyses of data, which are fed back to the infection control committee and relevant healthcare workers to inform prevention and control strategies, including policy and process audit review cycles, so ensuring improved patient safety.
3.4.6	<ul style="list-style-type: none"> • compare risk-adjusted local rates with those in other institutions as a measure of the hospital’s performance (through participation in a national/regional surveillance network).
3.4.7	<ul style="list-style-type: none"> • produce local analyses of the risk factors of AMR, as well as the relationships between rates and process indicators.
3.4.8	<ul style="list-style-type: none"> • include alert organism and alert condition surveillance systems
3.4.9	<ul style="list-style-type: none"> • include systems to detect existing, new, emerging or re-emerging resistant pathogens, e.g. GRSA, MRSA, GRE, extended spectrum beta lactamase producers.
3.4.10	<ul style="list-style-type: none"> • include a strategy for the screening of risk patients for relevant alert organisms e.g. MRSA, GRE. (where feasible and cost effective)
3.4.11	<ul style="list-style-type: none"> • include the production of local trends in antibiotic resistance, which are monitored appropriately, stratified by organism, speciality, ward and site of infection.
3.4.12	<ul style="list-style-type: none"> • include an agreed annual antibiotic usage review strategy (where, when and how this is performed)
3.4.13	<ul style="list-style-type: none"> • specify that areas of antibiotic usage be reviewed.
3.4.14	<ul style="list-style-type: none"> • feedback data to prescribers and the drugs and therapeutic committee.
3.9.1	Reports of hospital surveillance for HCAI and AMR are; <ul style="list-style-type: none"> • produced at least annually.
3.9.2	<ul style="list-style-type: none"> • be provided to the hospital chief executives and infection control committee.
3.9.3	<ul style="list-style-type: none"> • be provided to relevant clinical staff.
3.9.4	<ul style="list-style-type: none"> • record the whole hospital antibiotic usage.
3.9.5	<ul style="list-style-type: none"> • investigate high/low levels and changes of consumption.
3.10.1	Analysis is carried out, for example, by classes of antibiotics, type of prescription and wards/units.
3.11.1	Alert organism and condition surveillance systems are in place and results made available rapidly to the infection control team.

3.0 Recommended Practices

Category #4 – Education

Reference	Recommended Practice
4.2.1	Programmes are approved and supported at national level.
4.2.2	Programmes include certification of competence.
4.2.3	Programmes include education practice audits and regular feedback monitoring to ensure their effectiveness.
4.3.1	Programmes are organised at national level.
4.3.2	Programmes include certification of competence.
4.3.3	Programmes include education practice audits and regular feedback monitoring to ensure their effectiveness.
4.3.4	Core Curricula are harmonised at national level.
4.4.1	Continuing professional education in IC encompassing HCAI prevention and control and including hand hygiene and disinfection is organised at induction and annually.
4.4.2	Continuing professional education in IC encompassing HCAI prevention and control and hand hygiene and disinfection is given to staff in a dedicated time.
4.4.3	Attendance is recorded in training sessions of continuing professional education in IC encompassing HCAI prevention and control and hand hygiene and disinfection, and those not in attendance are contacted.
4.4.4	Continuing professional education in IC encompassing HCAI prevention and control includes training in surveillance.
4.4.5	Training sessions in surveillance of continuing professional education in IC use local surveillance and audit data in a timely fashion so that they are relevant to those receiving the training.
4.4.6	Training sessions of continuing professional education in IC encompassing HCAI prevention and control and hand hygiene and disinfection, make use of modern techniques and methodology of training and education in order to meet different staff needs, availability and learning styles (e.g. workshops, internet, e-learning, practical training, case analysis).
4.4.7	Continuing professional education in IC encompassing HCAI prevention and control and hand hygiene and disinfection include education practice audits and regular feedback monitoring to ensure their effectiveness.
4.5.1	Continuing professional education in IC encompassing AMR control and antibiotic stewardship is organised annually.
4.5.2	Continuing professional education in IC encompassing AMR control and antibiotic stewardship is given to staff in a dedicated time.
4.5.3	Attendance is recorded in training sessions of continuing professional education in IC encompassing AMR control and antibiotic stewardship, and those not in attendance are contacted.

3.0 Recommended Practices

Category #4 – Education (cont.)

Reference	Recommended Practice
4.5.4	Training sessions of continuing professional education in IC encompassing AMR control and antibiotic stewardship make use of modern techniques and methodology of training and education in order to meet different staff needs, availability and learning styles (e.g. workshops, internet, e-learning, practical training, case analysis).
4.5.5	Continuing professional education in IC encompassing AMR control and antibiotic stewardship, include education practice audits and regular feedback monitoring to ensure their effectiveness.

3.0 Recommended Practices

Category #5 – Resources

Reference	Recommended Practice
5.4.1	Structural arrangements of healthcare institutions (including technical and architectural aspects) comply with national infection control, health and safety and other relevant specifications.
5.4.2	Education and information exchange in healthcare institutions are resourced and an integral part of overall healthcare cost according to regulations at national level.
5.4.3	Information technology tools are made available for data mining from healthcare information systems, including antimicrobial usage data.
5.5.1	Patient isolation rooms include an attached bathroom and a dedicated ventilation system.
5.9.1	Realistic funding is available.
5.9.2	Applications into new or existing patient safety and healthcare research programmes at national, regional and local levels, as appropriate.
5.9.3	Multi-disciplinary groups are convened to explore and prioritise the major research questions to improve the understanding of the epidemiology of HCAI and its interplay with antibiotic resistance.
5.9.4	Surveillance methodological aspects are compliant with, or aim to improve or complement, HELICS/ECDC protocols.
5.9.5	Applications are assessed for scientific rigour using agreed processes such as the ORION statement http://www.bsac.org.uk//content_display.cfm?cit_id=451

Part Two

The Top Twenty Indicators

20 National indicators of policy for HAI & AMR control

Top Twenty Reference	Title	Page
#1 - #10	Indicators concerning national organisation	38
#11- #20	Indicators concerning the extension of the HAI & AMR control policy in hospitals	39

The Top Twenty Indicators

#1 - #10: Indicators concerning national organisation

Category	#	Ref.	Indicator	Response
Organisation for control	#1	1.1a	Is a nationally funded programme to reduce the burden of HCAI in place?	yes/no
	#2	1.1b	Is a nationally funded programme to reduce the burden of AMR in place?	yes/no
	#3	1.5b	Is there a law which regulates the practice of HCAI control in healthcare organisations?	yes/no
Prevention & control policies	#4	2.2a	Are nationally recommended evidence-based guidelines for the control of HCAI available?	yes/no
	#5	2.2b	Are nationally recommended evidence-based guidelines for the control of AMR available?	yes/no
Surveillance policies	#6	3.1	Is there a national system for HCAI surveillance covering surgical and intensive care units patients?	yes(both)/ yes(one)/ no
	#7	3.2	Is there a national system for AMR surveillance?	yes/no
	#8	3.5	Is there a national alert system to identify new or threatening nosocomial events or alert organisms?	yes/no
Education & training	#9	4.3	Are officially recognised educational programmes organised for IC practitioners (doctors and nurses)?	yes(both)/ yes(one)/ no
Resources	#10	5.1	Do national standards exist for human resource requirements for IC practitioners (doctors and nurses) for HCAI and AMR control in hospitals?	yes/no

The Top Twenty Indicators

#11 - #20: Indicators concerning the extension of the HAI & AMR control policy in hospitals

Category	#	Ref.	Indicator	Response
Organisation for control	#11	1.4.b	What is the proportion of hospitals having an ICC in place?	%
	#12	1.4.c	What is the proportion of hospitals having AB stewardship committees in place?	%
Prevention & control policies	#13	2.4	What proportion of hospitals has good practice policies locally available to healthcare workers for standard precautions?	%
	#14	2.10	What proportion of hospitals has good practice policies locally available to healthcare workers for AB prophylaxis?	%
	#15	2.15	What is the average amount of hand alcohol consumption in hospitals?	Litres per 1,000 patient days
	#16	2.18 a	What proportion of hospitals organised an audit (or equivalent) in the field of HCAI or AMR control during the last year and fed this back to management and healthcare workers?	%
Surveillance policies	#17	3.3	What proportion of hospitals has a surveillance system for HCAI in patients attending intensive care and/or surgery?	%
Education & training	#18	4.5	What proportion of hospitals provide training in HCAI prevention and control to all staff at induction?	%
Resources	#19	5.2a	What is the number of IC nurses (established positions only) in hospitals?	FTE per 100 acute care beds
	#20	5.2b	What is the number of IC doctors (established positions only) in hospitals?	FTE per 100 acute care beds

Part Three

Glossary

Accountable:	Answerable to. It implies that there is a person to whom the subject is held to account.
Alert organisms:	This is a daily list of organisms produced by the microbiology laboratory from specimens received that need to be drawn to the attention of the infection control team e.g. virulent organisms (<i>Streptococcus pyogenes</i>), antimicrobial resistant organisms e.g. MRSA.
Alert conditions:	Is the same listing important infections e.g. cellulitis.
Antibiotic Stewardship:	Comprises antibiotic policy, prescribing interventions and educational activities.
Appropriate:	Suitable; fitting the hospital/healthcare organisation.
Audit:	Is a cyclical process where practice is compared with policy, the results are reflected upon and the policies altered where this is appropriate or informed by newer evidence or interventions are initiated to ensure that subjects of the audit comply with policy for example by re-training or removing opportunities to deviate from practice e.g. restricting antibiotics.
Clinical governance:	A framework through which NHS organisations are accountable for continuously improving the quality of their services and safeguarding high standards of patient care, by creating an environment in which excellence in clinical care will flourish. Reference: Onion, C,W.R. Principles of Clinical Governance, Journal of Evaluation in Clinical Practice. 2000:6;4,; 405-412.
Duty of care:	Is defined as an obligation that a sensible person would use in the circumstances when acting towards others and the public. If the actions of a person are not made with watchfulness, attention, caution, and prudence, their actions are considered negligent. Consequently, the resulting damages may be claimed as negligence in a lawsuit. Reference: http://www.legal-explanations.com/definitions/duty-of-care.htm
Equivalent system:	Is one that is comparable and would produce the same results.

Part Three

Glossary (cont.)

- Established position: A position for whose funding is provided for in the hospital budget and a specified amount of time is allocated in the role to carry out the necessary functions.
- Formulary: A list of preferred, commonly prescribed prescription drugs. These drugs are chosen by a team of doctors and pharmacists because of their clinical superiority, safety, ease of use and cost. Reference: <http://www.emonetwork.org/terms.asp#formulary>
- General public: As opposed to the media, current patients and healthcare workers. This will be contextual as these may be previous patients or healthcare workers.
- Good/Best practice policies: The adoption of safe working to control existing healthcare associated infections and to prevent the acquisition of infections within the healthcare setting. The Health and Safety Executive (HSE) defines it as those standards for controlling risk which have been judged and recognised by the HSE as satisfying the law when applied to a particular relevant case in an appropriate manner. The term is often used in EU documents in our field. e.g. “EU-wide **exchange of best practice** of all relevant issues should be promoted. Examples of good practice concerning antimicrobial resistance, vaccination campaigns and hygiene/infection control should be discussed and exchanged between Member States.
Reference:
http://ec.europa.eu/health/ph_threats/com/mic_res/com684_en.pdf “
- National: Refers to the whole of a nation.
- National audit: (see audit above) Refers to a review which is generally carried out by nominated organisations and is fed back to the national body for scrutiny. They in turn may release into the public domain annual reports showing hospital performance against specific targets.
- National Health Authority: Is a term used to describe a health service that is distributed across an entire nation which is responsible for matters of health and which has administrative powers in that field.

Part Three

Glossary (cont.)

- Officially recognised: Programmes (in this context) that are established or sanctioned by a government (national or regional) body who hold public position and authority.
- Programme: A broad framework of goals to be achieved, serving as a basis to define and plan specific projects. A specific example could be an agreed statement of objectives between chief executive/manager of the healthcare organisation, the infection control programme director, and the senior management group, for example clinicians to whom the programme director reports.
- Strategy: A long term plan of action designed to achieve a particular goal.
- Structural resource/measure: Refer to any physical construction e.g. adequate staff/policies to reduce or avoid possible impacts of hazards such as healthcare associated infections. Reference: <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm>
- Suitable system: One that fits the purpose of the hospital and which is recognised by a representative body of clinicians.