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Tecnología y Salud

WITH THE SUPPORT OF
fenin spanish federation of HEALTHCARE TECHNOLOGY companies

PROPOSED ACTION PLAN
to combat Healthcare-Associated Infections

EXECUTIVE SUMMARY

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Proposed Action Plan to combat Healthcare-Associated Infections

This report has been an initiative by:

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With the participation of: DRÄGER MEDICAL

In collaboration with:

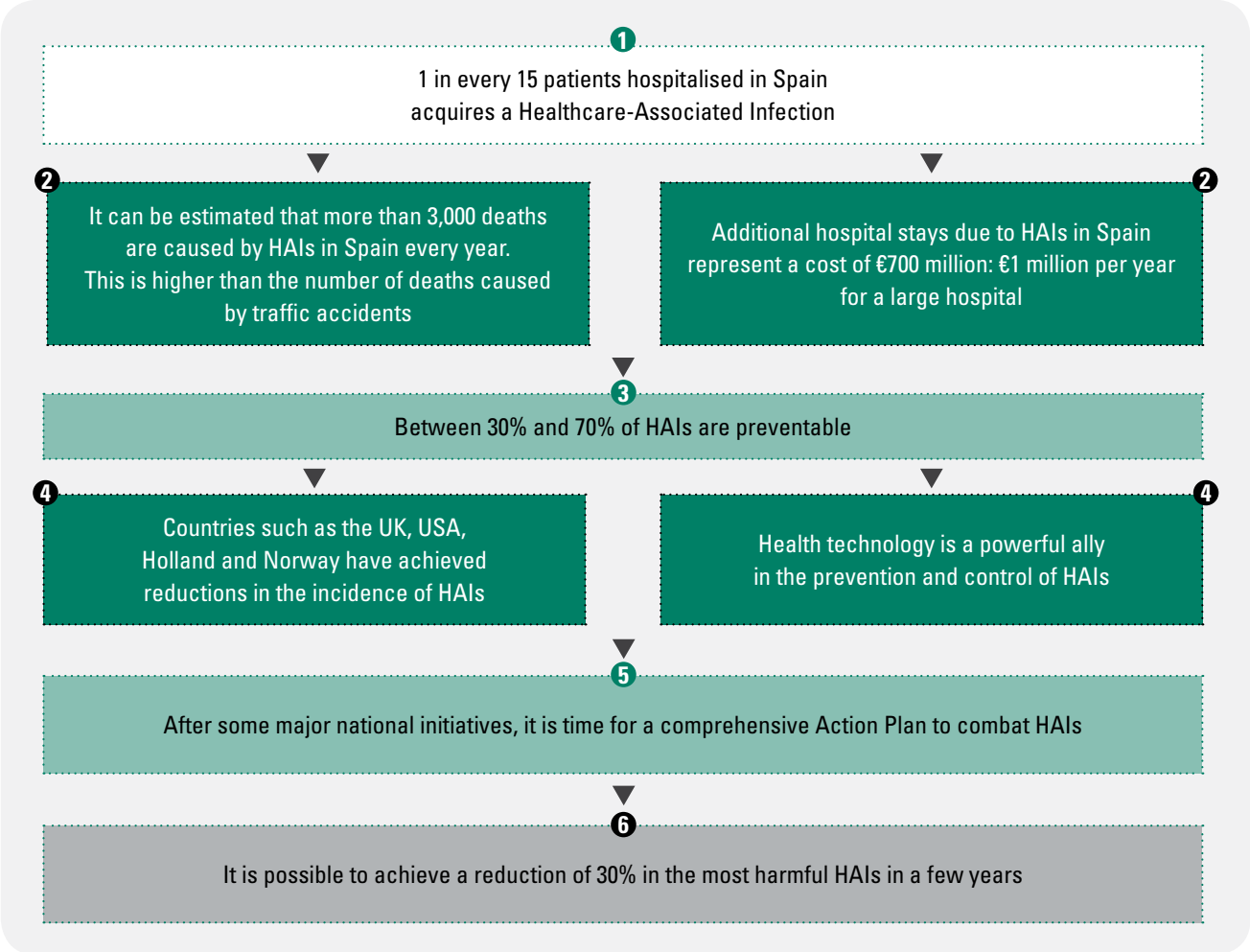
ANTARES consulting

Executive Summary

The companies promoting this study are showing their willingness to accept the responsibility of raising awareness of the scale of the problem posed by Healthcare-Associated Infections (HAIs), but above all to provide guidelines and tools that can help to minimise their incidence and impact, increasing the quality of care and the well-being of citizens in Spain.

The document is meant to be distributed widely and to serve as a clarion call regarding a situation which is both worrying and costly in health and financial terms. It is aimed at all the players connected with the prevention, control and management of these infections, as well as the patients affected by them and all citizens as a whole.

This is not intended to be a document only for health professionals or health system managers, nor is it a guide for patients. This proposed Plan has a global focus and will be accessible to any reader who is interested in this issue from any perspective.



Healthcare-Associated Infections: a major public health problem

These terms refer to infections that patients and professionals acquire in the course of receiving medical treatment for other health problems. Throughout the paper we will refer to them interchangeably, also using the acronyms HAIs (Healthcare-Associated Infections) and NI (Nosocomial Infection).

These infections affect between 5% and 15% of patients in developed countries such as Spain. In this sense, it is a nuclear problem in patient safety and its influence in leading to higher morbidity and mortality rates and higher costs within the health system means that taking it on must be essential for any professional or manager within the healthcare system.

The data regarding the incidence, effects and cost are tremendously powerful in themselves and eliminate the basis for any debate over the accuracy of the data or the need for more proof when implementing effective measures in this area.

1 in every 15 patients hospitalised in Spain acquires a Healthcare-Associated Infection

1. Between 5% and 15% of patients admitted to hospital end up with a nosocomial infection related to the care that they have been given.
2. 30% of patients admitted to an ICU acquire an NI.
3. The World Health Organisation reminds us that in Europe, 4.5 million HAIs occur every year, leading to 37,000 deaths and 16 million additional hospital stays.
   In Spain, the latest EPINE (Study on the Prevalence of Nosocomial Infections in Spain) shows a prevalence of 5.61%. Although this figure has improved from previous years, according to data from the EPINE-EPPS 2012 study, the prevalence is more than 2 points above the European average.
4. NI and medication-related problems are the two most common adverse events in hospitals.

We have the advantage of knowing with high accuracy where HAIs occur, thereby facilitating the fight against their occurrence and associated effects. The NI is closely linked to the most complex and critical invasive procedures and surgical services. The complexity of the procedures and the highly specialised and technically equipped environments where HAIs occur suggest that addressing the problem needs to be approached from a multidisciplinary perspective in which technical advances and technology are a key element.

Their social impact is very high from any perspective that is analysed, mainly because their effects are multidimensional, affecting the health of patients, the conditions in which the professionals do their work, the family members of both groups, global healthcare costs, the inefficient use of health resources, limited investment capacity and limited improvement in medical centres, the impossibility of an optimal allocation of public and private health budgets, and finally, because they have a more or less direct economic impact on all citizens. Furthermore, the burden of disease and suffering resulting from NI is substantial both in terms of frequency and severity, as well as due to the fact that they are derived from the medical intervention.

A patient having HAI multiplies the risk of death between 5 and 10 times, although estimates are conditioned by the difficulties arising from the influence of the previous state of the patient before being infected. Furthermore, there are intangible costs such as the suffering of patients, pain, disability and a reduced quality of life, not to mention the psychological damage caused to the patient, which also has an impact on family members and people who are close to the patient, as well as indirectly affecting society as a whole. Some estimates place the number of deaths attributable to HAIs in Spain each year at 3,200, a higher figure, for example, than deaths from traffic accidents, which amount to 2,500 per year.

The number of deaths caused by HAIs in Spain every year can be estimated at over

3,000

annual deaths caused by HAIs in Spain.

Traffic accidents claim the lives of

2,500

victims every year.

In any case, additional consequences are derived including liability and, at different levels, the following: the individual liability of health professionals, of the institution which contains the healthcare professionals and managers, and the liability of health institutions whose mission is to care for and improve the health of the population.

How much do Healthcare-Associated Infections cost?

The costs are so remarkable and significant in any developed country that the most conservative assumptions reveal an economic impact of such magnitude that it demands urgent intervention. In Spain, where most care is provided through public funding and with the main economic indicators at their current levels (unemployment rate and negative or nominal economic growth), it is considered that the prevention of HAIs is an unavoidable responsibility.

Each year, the direct cost of HAIs in Spain is estimated at over €700 million and in every large hospital it is €1 million. It is understood that there are no managers or supervisors from any healthcare system, whether public or private, who are developing and adopting the measures and investments needed to address this situation from this starting point.

Additional hospital stays due to HAIs in Spain represent a cost of €700 million. €1 million per year for a large hospital

A large proportion of these infections can be prevented through a set of prevention and control measures

Between 30 and 70% of HAIs are preventable

Between 30% and 70% of the various nosocomial infections are shown to be avoidable through the rigorous application of prevention and control measures, according to several studies.

These results have been corroborated by multiple local experiences of combating HAIs in our environment. Since the SENIC (Study of the Efficacy of Nosocomial Infection Control) in 1985, there has been a long tradition of local schemes in specific hospitals, regional initiatives such as VINCAT (Surveillance of Nosocomial Infections in hospitals in Catalonia) in Catalonia and INOZ (Surveillance of Nosocomial Infections in the Basque Country), as well as national initiatives such as the Bacteraemia Zero and Pneumonia Zero projects that have shown there is ample room for improvement of this worrying situation.

In addition to local experiences, there are international experiences of implementing HAI control programmes that have managed to extend these initiatives widely and achieve overall results well above initial expectations.

Along with others, the experiences from national programmes in the UK, USA, Netherlands, Norway and other countries have demonstrated the possibility of extending the achievement of good results.

Health technology in the prevention and control of HAIs

In general, in line with its characteristics of intrinsic complexity, the health system concentrates a high intensity of technology use and constant innovation. Health technology offers a very broad field of cooperation in the fight against nosocomial infection, with contributions being especially significant in:

Health technology is a powerful ally in the prevention and control of HAIs

- Screening of carriers and rapid diagnosis of the infection: through quick techniques for the early detection of MRSA and other resistant organisms.
- Increased protection during procedures through devices which are safer due to their degree of simplicity and availability of barrier mechanisms, as well as other effective innovations such as closed integrated systems.
- Protection of insertion points for central catheters using chlorhexidine-impregnated dressings.
- Non-woven surgical drapes and surgical attire.
- Reduction of contamination in critical care by protecting equipment against infection.
- Monitoring of disinfection and sterilisation processes.
- Monitoring of cleaning in the hospital through the use of innovative technologies such as adenosine triphosphate (ATP).

Special attention must be paid to the management of technological aspects in practice because it is a broad area which is complex and constantly evolving, with a distribution which is sometimes insufficient and often involves specific training needs for professionals.

A technology management model is being promoted based on cost-benefit criteria

It is presented as a crucial challenge for organisations to optimise investment policies based on the added value of the technology which, in the case of HAIs, is decisive.

In the management of medical equipment, preference should be given to technology that incorporates specific features in its strategic designs, such as flat surfaces and lack of bends, the incorporation of bacteriostatic materials, and factors that generally minimise the cleaning and disinfection requirements.

The information systems also provide important contributions such as management and geolocation software programs, which integrate algorithms that allow you to cross-reference information from different monitoring systems, the automation of processes, etc.

With regards to hospital facilities, it is highly recommended to incorporate protection criteria in terms of HAIs from the first moment of developing the functional plan and the architectural drawing.

All of these examples and many others that could be indicated show the need for a management model for technology and hospital facilities in hospitals that favour innovation in their response to evidence-based and cost-benefit criteria in the prevention and control of HAIs.

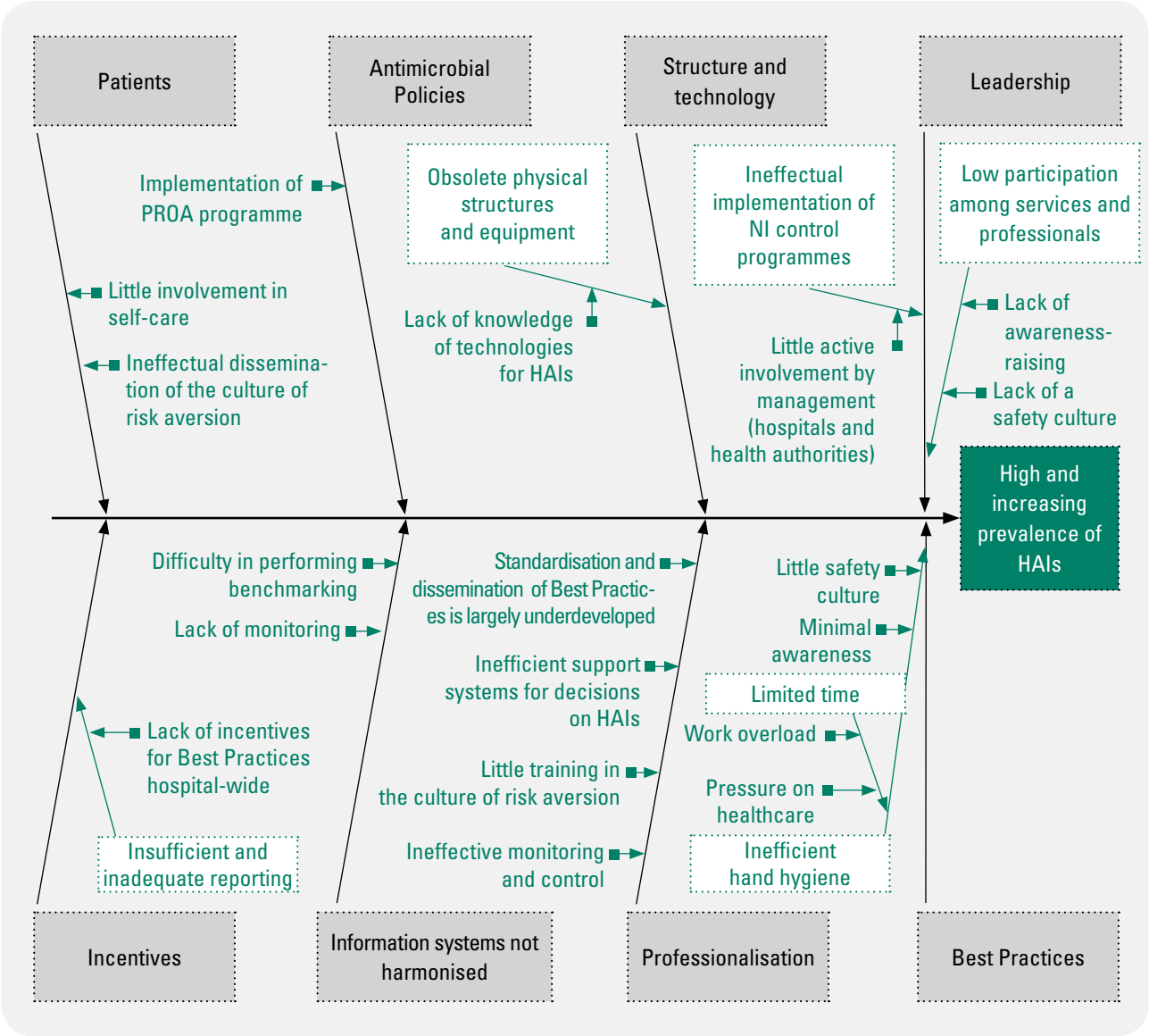
Proposal of a Plan for the Control of Healthcare-Associated Infections

The impact of the problem and the conviction that it is possible to reverse the situation led the Health Technology Sector to propose that it was necessary to develop an Action Plan to combat HAIs.

After some major national initiatives, it is time for a comprehensive Action Plan to combat HAIs

This Plan is being implemented at a beneficial moment when it seems that the major successes in specific hospitals are starting to spark a national downward trend in HAIs, as observed in recent prevalence studies.

It is necessary to start with the known difficulties for implementing an effective model for the prevention and control of HAIs. Presenting the main causes of the existence of the NI in a diagram therefore means implicitly recognising the complexity and multifactorial nature of the issue, and as such, the obstacles and difficulties in fighting against these infections.


Patients
Antimicrobial Policies
Structure and technology
Leadership
Implementation of PROA programme
Little involvement in self-care
Ineffectual dissemination of the culture of risk aversion
Obsolete physical structures and equipment
Lack of knowledge of technologies for HAIs
Ineffectual implementation of NI control programmes
Little active involvement by management (hospitals and health authorities)
Low participation among services and professionals
Lack of awareness-raising
Lack of a safety culture
High and increasing prevalence of HAIs
Difficulty in performing benchmarking
Lack of monitoring
Lack of incentives for Best Practices hospital-wide
Insufficient and inadequate reporting
Standardisation and dissemination of Best Practices is largely underdeveloped
Inefficient support systems for decisions on HAIs
Little training in the culture of risk aversion
Ineffective monitoring and control
Little safety culture
Minimal awareness
Limited time
Work overload
Pressure on healthcare
Inefficient hand hygiene
Incentives
Information systems not harmonised
Professionalisation
Best Practices

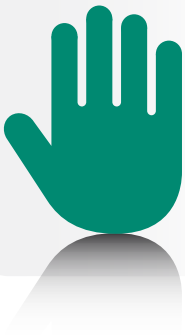
This framework of causes shows that it is an issue that requires a holistic and long-term approach. This approach and time horizon requires a structured plan, the key elements of which are underlined below:

Vision

By 2020 the Spanish healthcare system will have proactively implemented a set of strategies for prevention and control of Healthcare-Associated Infections that will achieve a 30% reduction in the incidence of the main infections.

The decrease in the occurrence of the infection will result in an associated reduction in costs of an estimated 30%, thus achieving a notable decrease in spending and an improved efficiency in the use of resources.

It is possible to achieve a reduction of 30% in the most harmful HAIs in a few years



Implications

- The Plan will have been implemented as a health policy at each level of responsibility of the administration and the private sector.
- Each area of responsibility and service will have identified specific goals.
- A system will have been created for monitoring and control.

It is likely that we will find ourselves in a scenario in which cost reduction will also be around 30%, much like the reduction in the incidence outlined in the vision, by reducing the need for beds or the cost of drugs and other medical devices used in treating HAIs. This will play an important role in cost containment, as well as in health improvement.

What is required for a successful start-up

The success of this approach involves a commitment to the vision of a variety of players in the system:

- Major institutional leadership by health authorities and the management of medical centres with the participation of professional companies.
- Efforts in awareness-raising, training, motivation and monitoring of professionals and patients.
- Continuous monitoring of the results achieved.
- The practice of comparison (benchmarking), including in some cases creating specific incentives for professionals and/or medical centres and preparing tables, with or without these being published.

Strategy for HAIs

The design of the strategy and action plan on HAIs should consider all the main players and the specific role played by each of them: patients, financiers and system managers. Health professionals have been explicitly excluded, as we prioritise considering them as executors of the Plan and the most highly relevant actors.

A four-pillar approach to the Plan has been addressed. These pillars are: the measurement of HAIs; the definition of clear, achievable and effective goals; the alignment of the whole health system around these objectives and the development of strategy while taking into account the necessary support elements.

In relation to our Plan, which is global and promotes policies and measures, we will be focusing on the objectives of the process and on the future prospects/development that could occur in any of the settings where action is taken to reduce nosocomial infections and which are generally valid.

The 7 core strategies of the Plan

The Plan elaborates on each of the core strategies and objectives of these two perspectives, proposing specific actions in each area and highlighting best practices to incorporate from different settings, as well as examples of indicators for their monitoring and control.

Finally, a proposal is outlined regarding assuming responsibilities in the implementation of the Plan and its monitoring at the three main levels of capacity and responsibility for the implementation of effective policies and measures, such as the following: the central and regional health administrations and, in particular, the directors and managers of health centres.

The direct manager at each hospital or health centre is the one who will have the opportunity to provide specific value solutions and also to check the benefits and social and economic profitability of doing so in a more direct way.

Each strategic line is broken down into two strategic objectives, representing a total of 14 goals and 43 initiatives. For illustrative purposes, each strategic objective includes the following, as a contribution to the future implementation of the Plan: a basic monitoring indicator, a responsible competence level (ministerial, regional or management) and benchmark best practices to be used as a guide.

Classification of core strategies and objectives of the Balanced Scorecard

Internal and Process-Related Perspective

A Monitor HAIs	B Incentivise the fight against HAIs	C Apply Best Practices	D Encourage the participation of patients
1 Monitor HAIs in hospitals and territories	3 Incentivise best practices and results among hospitals	5 Maintenance of a strict practice of hand hygiene	7 Develop national awareness-raising campaigns
2 Produce comparative information between hospitals	4 Enter HAI objectives in MBO	6 Implement HAI Control Programmes	8 Standardise training of patients and carers

Perspective of Learning and Future Development

E Implement a safety culture	F Standardise HAI practices	G Selective incorporation of support technology
9 Systematically raise awareness among professionals	11 Include manuals of best practices in the professional routine	13 Spread awareness about the contribution of technology to HAIs
10 On-the-job training for professionals	12 Incorporate HAIs into decision-making support systems	14 Standardise the assessment and expedite the implementation of technologies, equipment and devices with clear evidence of their value in reducing HAIs

A ▶ MONITOR HAIS

Objective A1	Initiatives	Code of Best Practices
Monitor NIs in hospitals and territories ▶	■ Decision-making at the national level on mandatory rules regarding monitoring ■ Technical preparation of measurement and classification tools ■ Standardisation of national indicators ■ Quality audits ■ Introduction of support mechanisms in clinical information systems	■ UK / NHS / HAI Reporting System ■ USA / Information Systems in the Action Plan ■ Spain / University Hospital of Ourense / InNoCBR ■ Catalonia - VINCat ■ Madrid / Ramón y Cajal Hospital / Surgical Site Infection Indicators ■ Spain / EPINE Study / SEMPSPH ■ Spain / Basque Country / INOZ Plan
In charge		
Governmental / Regional		
Core Indicator		
% medical centres reporting current data		

Objective A2	Initiatives	Code of Best Practices
Produce comparative information between hospitals ▶	■ Definition of common indicators ■ Implementation of mandatory reporting ■ Information to hospitals on their relative position ■ Use of comparative information for management	■ France / Benchmarking of Hospitals ■ USA / The Leapfrog Group
In charge		
Regional		
Core Indicator		
% medical centres with up-to-date benchmarking		

B ▶ INCENTIVISE THE FIGHT AGAINST HAIS

Objective B3	Initiatives	Code of Best Practices
Encourage best practices and results among hospitals ▶	■ Selection of monitoring indicators ■ Design of the system of goal-setting and evaluation of the degree of compliance ■ Development of a financial incentive fund ■ Definition and implementation of non-financial incentive systems	■ USA / Medicare and Medicaid / Financial penalties for CMS for HAIs
In charge		
Regional		
Core Indicator		
% hospital budget linked to incentives		

Objective B4	Initiatives	Code of Best Practices
Enter NI objectives into the MBO ▶	■ Development of a system of financial incentives to reward professionals ■ Introduction to MBO systems of HAI indicators ■ Definition of the amounts and distribution systems ■ Standardisation of the use of the measurement system for performance evaluation	■ UK / Nosocomial infection control policy
In charge		
Regional		
Core Indicator		
% professionals with financial incentives		

C ▶ APPLY BEST PRACTICES

Objective C5	Initiatives	Code of Best Practices
Maintenance of strict practice of hand hygiene ▶	■ Strengthening of existing hand hygiene policies ■ Standardisation of direct observation of hand hygiene ■ Location of dispensers at the point of patient care	■ Spain / MSSSI (Ministry of Health, Social Services and Equality) / Save lives: clean your hands
In charge		
Managers		
Core Indicator		
% compliance in hand hygiene		

Objective C6	Initiatives	Code of Best Practices
Implement NI Control Programmes ▶	■ Deploy multidisciplinary infection prevention and control teams (IPCT) ■ Maintenance of existing Bacteraemia Zero and Pneumonia Zero programmes in ICU ■ Implement PROA programmes for the rational use of antibiotics ■ Extend to programmes regarding surgical site infection, urinary tract infection, zero resistance, rational antimicrobial use, screening of patients with MRSA, etc	■ Spain / MSSSI / Bacteraemia Zero ■ Holland / Health Council of The Netherlands / Search and Destroy
In charge		
Regional		
Core Indicator		
% programmes with annual evaluation		

D ▶ ENABLE THE PARTICIPATION OF PATIENTS

Objective D7	Initiatives	Code of Best Practices
Develop national awareness-raising campaigns ▶	■ Design and implementation of a communication strategy aimed at the patient ■ Regular scheduling of information campaigns	■ USA / Partnership for Patients
In charge		
Governmental		
Core Indicator		
Number of campaigns conducted		

Objective D8	Initiatives	Code of Best Practices
Standardise training of patients and carers ▶	■ Review the patient information and training practices ■ Updating of audiovisual material for training of patients ■ Standardisation of training of patients at hospitals	■ Spain / Meixoeiro Hospital / Educating patients about surgical wounds
In charge		
Regional		
Core Indicator		
No. of patients trained compared to those expected		

E ▶ IMPLEMENT A SAFETY CULTURE

Objective E9	Initiatives	Code of Best Practices
Systematically raise awareness among professionals ▶	■ Development of a communication plan for communicating, training and monitoring health professionals on issues of HAIs. ■ Combination of communication and training activities for all groups and units	■ Spain / Marqués de Valdecillas Hospital / Zero Tolerance
In charge		
Managers		
Core Indicator		
No. of communication interventions		

Objective E10	Initiatives	Code of Best Practices
On-the-job training of professionals in risk areas ▶	■ Definition of detailed training objectives ■ Get spaces for on-the-job training ■ Promote a training-oriented attitude among managers and leaders ■ Ensure initial training for new service professionals ■ Assess the degree of impact achieved in the training of professionals	■ Spain / Meixoeiro Hospital / Initial training for residents
In charge		
Managers		
Core Indicator		
% of target professionals who have completed the training		

F ▶ STANDARDISE PRACTICES REGARDING HAIS

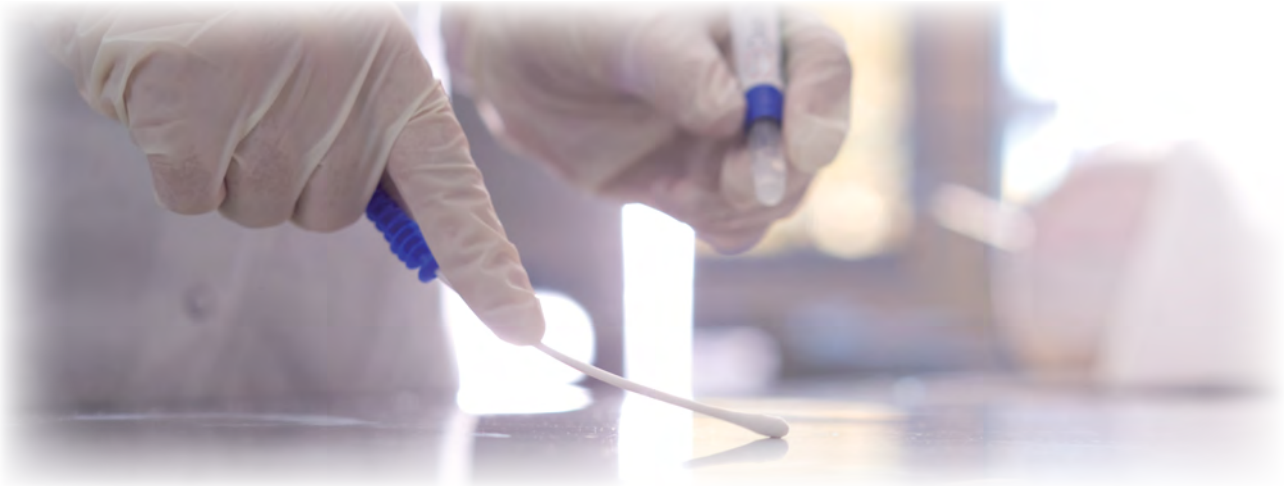
Objective F11	Initiatives	Code of Best Practices
Include manuals of best practices in the professional routine ▶	■ Selection and adaptation of manuals and guidelines ■ Make available documentation of clinical practice ■ Introduce best practices into decision-making support systems	■ MSSSI (Ministry of Health, Social Services and Equality) / Save lives: clean your hands ■ Spain / MSSSI / Bacteraemia Zero ■ Spain / MSSSI / Pneumonia Zero
In charge		
Managers		
Core Indicator		
% of professionals who know about the standardised documentation		

Objective F12	Initiatives	Code of Best Practices
Incorporate NI into systems to support decision-making ▶	■ Learn the best practices and tools in this field ■ Identify activities for processes with room for improvement to support decision-making ■ Implement efficient systems to support decision-making in clinical IS	■ Spain / Ourense Hospital Complex / InfoCRB
In charge		
Regional		
Core Indicator		
Number of processes with useful information and built-in aid		

G ▶ SELECTIVE INCORPORATION OF SUPPORT TECHNOLOGY

Objective G13	Initiatives	Code of Best Practices
Promote awareness about the contribution of technology to NI ▶	■ Proactive dissemination by health authorities of knowledge about the evidence of the role of technology in the prevention and control of HAIs ■ Keep knowledge up-to-date in hospitals and incorporate it into the decision-making process, as well as its integration with technology procurement policies	■ Spain / Basque Country / INOZ Plan / Recommendations to minimise microbiological risks
In charge		
Governmental		
Core Indicator		
Number of public access documents on evidence incorporated online		

Objective G14	Initiatives
Standardise the assessment of technologies, equipment and devices ▶	■ Equipment of the Spanish Network of Agencies for Technology Assessment with a unit that has specific responsibility for technological analysis and assessment of the contribution to HAIs ■ Generation of technological analysis and assessment of new devices and equipment with potential contribution
In charge	
Governmental	
Core Indicator	
Number of revisions performed	



Final considerations

Having drafted this paper, all that remains for us to do is to promote and disseminate its contents. We want to confirm the existence of the problem and highlight its importance and impact so that it can be rectified.

Therefore, through these strategies, at every level of responsibility, we request that you assess the impact that HAIs have in your specific area and the role that you could play in controlling and minimising them, and that you assess the implementation of all of the measures that fall within your area of responsibility and capabilities.

It is up to everyone to take advantage of this wake-up call and proposed action, to develop an individual plan, draw a road map for each organisation and every individual over the next six years and establish a firm commitment to ensure that Spain reduces the incidence of nosocomial infections by at least 30% in the next reported figures.

We are aware of the problem and its magnitude, the undesired impact and the associated costs. We also have examples of best practices that have worked and the measures that are to be implemented. There is a path which has already been mapped out, which we can help our administrations, hospitals and directors to take.

To do this, Fenin and Fundación Tecnología y Salud (Technology and Health Foundation) hope to continue being strategic partners whose objective is to guarantee the maximum safety of patients and health professionals alike. ■

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