

NOSO Strategy – in brief

National Strategy for the Monitoring, Prevention and Control of Healthcare-Associated Infections



Schweizerische Eidgenossenschaft
Confédération suisse
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Federal Council

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Importance for health policy

What is the NOSO Strategy consisting of?

Switzerland has one of the most efficient healthcare systems in the world. This should not, however, detract from the fact that there is also a risk here in Switzerland of becoming infected with pathogens while in hospital or in a nursing home. Every year, some 70 000 patients fall ill in Swiss hospitals due to a health-care-associated infection (HAI), and approximately 2 000 of them die as a result. In particular, surgical site infections and catheter-associated bacteraemias (blood poisoning) are frequent and are associated with serious consequences. Lungs and urinary tracts are also at risk or are susceptible to infections during and after medical interventions. Studies show that, depending on the type of infection, between 20 % and 50 % of these infections can be avoided through targeted monitoring and prevention measures.

Need to act in Switzerland

There are numerous initiatives as well as concrete measures in Switzerland to reduce these infections. They do, however, vary greatly in terms of scope and quality depending on the establishment and region. To date, there is no national system for monitoring of the epidemiological situation, nor are there any generally valid, evidence-based minimal requirements or standards for preventing and combating HAIs. In addition, healthcare facilities need targeted support in introducing and adequately implementing measures to ensure that the topic receives a higher priority in their everyday work.

Political mandate

The Federal Council has declared the reduction of HAIs as one of the primary measures in its comprehensive health policy strategy "Health2020". With the national Strategy for the monitoring, prevention and control of healthcare-associated infections (NOSO Strategy), the Confederation, cantons and implementing stakeholders are providing the necessary foundations for a targeted and nationally coordinated action. The acronym NOSO refers to the specialist term "nosocomial infection" from Greek *nósos* "disease" and *μ komein* "to take care of".

Participatory development The NOSO Strategy originated in close cooperation with the Swiss Conference of the Cantonal Ministers of Public Health (CMPH), H+ (the Hospitals of Switzerland), CURAVIVA (the association for Swiss nursing homes and institutions), the Swissnoso expert panel as well as medical professional societies, associations, insurers and other relevant stakeholders.

Premises The NOSO Strategy is based on best practices in Switzerland and abroad and closes existing gaps. It sets out the responsibilities for achieving objectives and implementing measures. The suggested key measures take account of healthcare establishments' different needs and possibilities and their operational requirements. The NOSO Strategy is also coordinated with federal measures such as the Strategy on Antibiotic Resistance (StAR) and pilot programmes that are part of the quality strategy, so as to ensure a common approach without any duplication.

Scope The NOSO Strategy includes both occurrence and outbreaks of HAIs in inpatient care facilities (hospitals and nursing homes) in Switzerland. The Confederation intends to extend the NOSO Strategy to the outpatient domain in a second step.

What is a healthcare-associated infection (HAI)? The NOSO Strategy defines any infections as HAIs that occur while staying in a hospital or nursing home in connection with a diagnostic, therapeutic or nursing measure, or that are simply due to the circumstances of the stay, possibly as a result of pathogens in the air or on surfaces.

Global objective and long-term effect The Strategy's objectives include the reduction of HAIs and the prevention of the spread of potentially dangerous pathogens in hospitals and nursing homes, in order to
 (1) increase the safety of patients, residents and staff,
 (2) improve protection of population health,
 (3) contribute to the prevention and control of antibiotic resistance in Switzerland, and
 (4) reduce follow-up costs.

Strategy structure To reduce the number of infections and associated loss of quality of life, as well as long-term effects and deaths, the national NOSO Strategy defines four priorities (action areas): governance, monitoring, prevention and control as well as education and research. For each action area a strategic objective is defined. The strategic objectives will be achieved by a set of 14 key measures.

Implementation As part of their respective responsibilities, the Confederation and the cantons ensure that the national NOSO Strategy is implemented and work closely with the different stakeholders in this area. The strategy objective, namely to ensure a significant and lasting reduction in HAIs, can only be achieved if implementation occurs on a wide scale and all stakeholders do their bit.

From the Confederation's point of view, the following measures should have priority:

- Perform baseline study – starting 2016
- Expand structures (coordinating body EpG, Swissnoso+) and define responsibilities – starting 2016
- Win over decision-makers at cantonal, hospital and nursing home's levels as prominent proponents for implementing the NOSO Strategy – starting 2016
- Expand existing surveillance of surgical site infections (Swissnoso/ANQ) in modules to include further HAIs – starting 2016 and following years
- Develop national guidelines on HAI prevention and control – starting 2016 and following years
- Provide suitable staff training for surveillance – starting 2017 and following years
- Promote awareness among stakeholders and the public – starting 2017 and following years

Surveillance is considered a priority area by the Confederation and should be expanded as soon as possible. The aim is to expand existing surveillance of surgical site infections in modules and provide national surveillance of the most common types of infection. These include the following:

- Catheter-associated bacteraemias (blood poisoning)
- Ventilation-associated pneumonias
- Catheter-associated urinary tract infections



NOSO Strategy model



The 14 key measures of the NOSO Strategy

Governance (G)	G-1 Standards and guidelines	G-2 Responsibilities and structures	G-3 Implementation support	G-4 Knowledge management
Monitoring (M)	M-1 National monitoring system	M-2 Targeted data utilisation	M-3 Early detection	
Prevention and control (PC)	PC-1 Optimisation and further development	PC-2 Awareness-raising and involvement	PC-3 Learning and dialogue culture	PC-4 Promotion of preventive vaccination
Education and research (ER)	ER-1 Infection prevention in education	ER-2 Research promotion	ER-3 New technologies, quality assurance	

Governance action area

Strategic thrust

The Confederation coordinates the procedure of HAI monitoring, prevention and control. Evidence-based standards and guidelines, defined responsibilities, optimised structures and processes, incentives and a functioning knowledge management all contribute towards achieving the global objective. The different stakeholders assume an active role in accomplishing their respective tasks. They support the achievement of objectives by means of their own control instruments, through suitable information and communication measures and by complying with requirements.

Strategic objective

National uniform standards and guidelines on HAI monitoring, prevention and control for hospitals and nursing homes have been developed and are regularly updated. The stakeholders know their responsibilities and roles and coordinate their activities. Hospitals and nursing homes have structures and processes in place for reducing HAIs. Strategy implementation is supported with suitable tools and positive incentives. Best practice knowledge is shared at regional, national and international levels.

Key measures

G-1 Standards and guidelines

Develop evidence-based and best practice-oriented standards and guidelines

The extended national Swissnoso+ expert panel is charged by the Confederation with developing recommendations for guidelines and standards for HAI monitoring, prevention and control. These are based on scientific evidence (where available), and attention is paid to their feasibility. For the authorities, they serve as a basis for adopting national uniform recommendations and supplementary regulations at a regional or local level which take account of the particular epidemiological and institutional characteristics and any special considerations.

Important sub-areas of this key measure include:

- Define minimum requirements in terms of specialist staff
- Determine data requirements, methods and standards for monitoring
- Develop recommendations for data processing
- Define task-specific competences and learning objectives

G-2 Responsibilities and structures

Establish tasks and responsibilities, optimise structures

On the basis of currently applicable responsibilities and stakeholders' existing competences and experiences, ways are indicated as a result of this measure in which to optimise the current division of responsibilities. Existing structures are used, consolidated and adapted in terms of scope and resourcing to the forthcoming implementation of the NOSO Strategy.

Important sub-areas of this key measure include:

- Clarify duties, optimise division of responsibilities
- Optimise structures
- Secure structures to coordinate monitoring
- Take account of quality management and infection prevention

G-3 Implementation support

Support implementation with suitable tools and positive incentives

With the provision of appropriate implementation guidance for hospitals and nursing homes, the Confederation arouses the interest of institutions in the strategy's concerns and facilitates uniform and resource-efficient implementation. At the same time, the cantons are to periodically evaluate the implementation of measures taken on their territory. By supporting and evaluating implementation, the Confederation and the cantons aim at making safety and quality a norm of institutions' everyday work.

Important sub-areas of this key measure include:

- Support and evaluate implementation with suitable tools
- Support pioneering projects and programmes in infection prevention

- Improve incentives to implement preventive measures
- Consider HAI reduction measures as a criterion in supervisory, planning and licensing processes

G-4 Knowledge management

Build up and expand knowledge

Knowledge exchange and networking in the field of HAI monitoring, prevention and control is the objective of this measure. Decentralised knowledge is pooled, geared to the respective target group and made publicly accessible.

Important sub-areas of this key measure include:

- Set up a knowledge platform
- Secure knowledge transfer between theory and practice
- Actively push international cooperation

Monitoring action area

Strategic thrust

On the basis of existing structures, ongoing programmes and legal foundations, and by respecting responsibilities at the cantonal and federal levels, the monitoring of HAIs and their pathogens is being developed in Switzerland as needed. To this end, there are plans to record HAIs (outcome data) and pathogens as well as observe significant structural and process parameters (e.g. quality of monitoring or adherence to prevention measures in institutions). Depending on requirement, the collected data are evaluated locally (health institution), regionally (cantons) or nationally (Confederation, ANQ, etc.) and promptly made available to the parties concerned. They are used as a basis for developing and implementing targeted interventions or for evaluating their impact.

Strategic objective

A national system for monitoring HAIs and their influencing factors (structures and processes) has been set up and is in operation. HAI data and analyses are promptly available and presented according to needs and target group. Switzerland has a high level of knowledge about the epidemiology of dangerous pathogens which can cause HAIs.

Key measures

M-1 National monitoring system

Set up and operate a national monitoring system

On the basis of recommendations and derived standards and guidelines regarding data requirement, methods and procedures, a national monitoring system is being designed. Currently existing monitoring programmes in Switzerland will be expanded and coordinated with each other.

Important sub-areas of this key measure include:

- Strengthen stakeholders locally and provide appropriate training
- Ensure quality of monitoring

M-2 Targeted data utilisation

Evaluate data in a targeted manner, making analyses available promptly according to needs and target group

Relevant observations are regularly evaluated at institutional, cantonal or federal level according to defined criteria. Data are used as recommended by the specialists responsible (cf. measure G-1).

Important sub-areas of this key measure include:

- Evaluate data promptly, according to needs and target group
- Provide feedback on adherence-related observations directly to the staff concerned
- Introduce public reporting and benchmarking

M-3 Early detection

Enhance early detection

The NOSO Strategy provides the necessary framework to ensure that any threatening HAI outbreaks are detected early and the spread of pathogens can be contained.

Important sub-areas of this key measure include:

- Enhance early detection systems within institutions
- Determine reporting topics and deadlines, and put them on a statutory basis

Prevention and control action area

Strategic thrust

Targeted measures are designed to ensure that the different stakeholders (mainly the Confederation, cantons, hospitals, nursing homes and professional societies) and persons affected (staff, patients, residents and visitors) are aware of the problem, take it seriously and contribute to implementing the NOSO Strategy. Information, practical implementation guidance and evaluations help organisations and individuals review and where necessary adapt their attitude and behaviour regarding infection risks in accordance with the strategy objective.

Strategic objective

Staff, patients, residents and visitors to hospitals and nursing homes are familiar with the problem of HAIs and their consequences for personal and public health. They understand the measures to be taken and help implement them. Immunisation is promoted in hospitals and nursing homes.

Key measures

PC-1 Optimisation and further development

Optimise and further develop prevention and control

Healthcare facilities are continuously putting into practice the recommendations and derived national standards and guidelines on prevention and control of HAIs.

PC-2 Awareness-raising and involvement

Promote public awareness and involve those directly affected in infection prevention

The promoting of awareness and involvement occurs in a suitable form at various levels and addresses decision-makers at institutional, cantonal and national levels as well as patients, residents, visitors and even the general public.

Important sub-areas of this key measure include:

- Develop and implement a communication concept specifically to particular target groups for informing the public
- Involve patients, residents and visitors in infection prevention
- Stakeholders formally declare their commitment

PC-3 Learning and dialogue culture

Promote learning and dialogue culture in hospitals and nursing homes

In every healthcare facility, infection prevention becomes an integral part of corporate culture and quality management. The possibility of sanction-free reporting on errors and incidents contributes to the constructive dialogue and thus to the institution's continuing development.

PC-4 Promotion of preventive vaccination

Promote preventive vaccination in hospitals and nursing homes

Healthcare facilities motivate their staff to be vaccinated against preventable infectious diseases and have their vaccination status checked regularly. They also make other persons who are in hospitals or nursing homes either temporarily or in the longer term increasingly aware of the benefits of vaccination.

Education and research action area

Strategic thrust

The institutions in charge of the respective levels of education coordinate the optimisation of educational concepts and offers in the area of infection prevention. In cooperation with university hospitals and other healthcare institutions as well as professional societies and associations, they ensure education and continuing professional development of healthcare professionals into specialists in infection prevention. Hospitals and nursing homes support their staff's continuing professional development. Research into infection risks is promoted, as is research into the possibilities and limitations of improving patient safety.

Strategic objective

Staff in hospitals and nursing homes are trained in infection prevention according to needs. They have the necessary competence to help reduce HAIs. Research and development are promoted and the use of new technologies is systematically evaluated.

Key measures

ER-1 Infection prevention in education

Reinforce the importance of infection prevention in training and continuing professional development

Learning objectives in relation to dealing with HAIs are defined at all levels according to the established needs and for all professions according to the specific task, with learning content being conveyed accordingly. Medical and non-medical staff in health care institutions have the necessary competence to help reduce HAIs.

Important sub-areas of this key measure include:

- Provide training and continuing professional development for specialists in infection prevention as needed
- Reinforce the importance of infection prevention in continuing professional development of staff in healthcare institutions
- Institutionalise staff training in the area of infection prevention

ER-2 Research promotion

Anchor the issue of HAIs in research promotion

Research and innovation promotion stakeholders at national and local levels are encouraged to launch an increasing number of solicitations on the subject of HAIs and identify existing gaps in research. Cantons use the opportunity of their service contracts with the universities to influence the future direction of healthcare research.

ER-3 New technologies, quality assurance

Determine costs, efficacy and safety of new technologies, reinforce quality assurance

Decision-making principles are being developed that will allow technology users to assess costs, efficacy and safety of technological innovations even before they are introduced. To this end, evidence-based measurement data are defined and utilised.

NOSO Strategy – Summary of responsibilities

The following table provides an overview of possible responsibilities with regard to design and implementation of the measures. Details are clarified further with stakeholders and partners in the course of implementation planning. Defined responsibilities may change based on the structuring of the measures.

¹ The responsible organisations for the design are each shown in the colour of the according action area; the overall control (technical responsibility) is under the stakeholders marked with *. The coordinating stakeholders are shown in black. General rule: The cantons are being integrated into the coordination of the measures by the Coordination Body EpG according art. 54 of Epidemics Law, which is headed by the Confederation.

AA	Measure/ sub-area	Measure design		Measure implementation
		Design (technical responsibility*); coordination ¹	Resource requirement/ cost bearer (design)	

Governance	G-1 Standards and guidelines			
	Minimum number of specialist staff	Swissnoso+*, professional societies, H+, university hospitals; Confederation	Confederation, Swissnoso+	Cantons, hospitals, nursing homes
	Data requirements, methods and standards	Swissnoso+*, ANQ, professional societies, H+, university hospitals; Confederation	Confederation, Swissnoso+	Hospitals, nursing homes
	Recommendations for data processing	Swissnoso+*, ANQ, CURAVIVA/senesuisse, CMPH, H+; Confederation	Confederation, cantons, Swissnoso+	Hospitals, nursing homes
	Competences and learning objectives	Institution in charge of the respective level of education*, cantons, SGI; Confederation	Institution in charge of the respective level of education, cantons	Hospitals, nursing homes
	G-2 Responsibilities and structures			
	Tasks and division of responsibilities	Confederation*, ANQ, CURAVIVA/senesuisse, professional societies, CMPH, H+, Swissnoso+, Patient Safety Switzerland; Confederation	Confederation	ANQ, Confederation, CURAVIVA/senesuisse, CMPH, H+, Swissnoso+, Patient Safety Switzerland
	Optimise structures	Confederation*, ANQ, CURAVIVA/senesuisse, professional societies, cantons, H+, Swissnoso+, Patient Safety Switzerland; Confederation	Confederation	Swissnoso+, hospitals, nursing homes
	Coordination structures for monitoring	Confederation*, ANQ, CURAVIVA/senesuisse, professional societies, CMPH, H+, Swissnoso+, Patient Safety Switzerland; Confederation	Confederation	Swissnoso+, hospitals, nursing homes
	Quality management and infection prevention	H+*, CURAVIVA/senesuisse, Confederation, cantons, Swissnoso+; H+, cantons	H+, cantons	Hospitals, nursing homes
	G-3 Implementation support			
	Implementation guidance and evaluations	Swissnoso+*, CURAVIVA/senesuisse, professional societies, H+, Patient Safety Switzerland, university hospitals; Confederation, CMPH	Confederation, Swissnoso+	Professional societies, cantons, hospitals, Patient Safety Switzerland, nursing homes
	Support pioneering projects	Patient Safety Switzerland*, H+, Swissnoso+; Confederation (EpG and quality strategy)	Confederation, Patient Safety Switzerland, Swissnoso+	Hospitals, nursing homes
	Improve incentives	Confederation*, CURAVIVA/senesuisse, H+, cantons, Swissnoso+, santésuisse; Confederation, cantons	Confederation	Cantons, hospitals, nursing homes
	Infection prevention as a criterion for planning, supervision and licensing	Cantons*, Confederation, CMPH, H+, Swissnoso+; cantons	Cantons	Cantons, hospitals, nursing homes
	G-4 Knowledge management			
Knowledge platform	Swissnoso+*, CURAVIVA/senesuisse professional societies, H+; Confederation	Confederation, Swissnoso+	Professional societies, hospitals, nursing homes	
Knowledge transfer	Swissnoso+*, professional societies; Confederation	Confederation, Swissnoso+	Professional societies, hospitals, nursing homes	
International cooperation	Confederation*; Confederation	Confederation	-	

Monitoring	M-1 National monitoring system			
	Strengthen stakeholders	Swissnoso+*, CURAVIVA/senesuisse, cantons, H+; Confederation, CMPH	ANQ, Confederation, cantons, Swissnoso+, hospitals, nursing homes	ANQ, Swissnoso+, hospitals, nursing homes
	High-quality monitoring	Swissnoso+*; Confederation, CMPH	ANQ, Confederation, Swissnoso+	ANQ, Swissnoso+, hospitals, nursing homes
	M-2 Targeted data utilisation			
	Evaluation of data	Swissnoso+*; Confederation	ANQ, Confederation, Swissnoso+	ANQ, Swissnoso+, hospitals, nursing homes
	Internal feedback on adherence	Swissnoso+*; H+	Confederation, Swissnoso+	Hospitals, nursing homes
	Public reporting and benchmarking	ANQ*, Swissnoso+*; Confederation, CMPH	ANQ, Confederation, Swissnoso+, cantons	Will be defined within the framework of the implementation planning
	M-3 Early detection			
	Enhance early detection	Swissnoso+*; Confederation	Confederation, Swissnoso+	Hospitals, nursing homes
	Complete ordinances	Confederation*, Swissnoso; Confederation	Confederation, Swissnoso+	Hospitals, nursing homes

Prevention and control	PC-1 Optimisation and further development			
	Optimisation and further development	Confederation*, CURAVIVA/senesuisse, CMPH, H+, Swissnoso+, Patient Safety Switzerland; Confederation, CMPH	Confederation, cantons	Hospitals, nursing homes
	PC-2 Awareness-raising and involvement			
	Communication concept	Confederation*, CURAVIVA/senesuisse, CMPH, H+, Swissnoso+, Patient Safety Switzerland; Confederation	Confederation	Hospitals, nursing homes
	Involve persons affected	Confederation*, CURAVIVA/senesuisse, FMH (Swiss Medical Association), CMPH, H+, Swissnoso+, Patient Safety Switzerland; Confederation	Confederation, cantons	Hospitals, nursing homes
	Formal commitment	Confederation*, CURAVIVA/senesuisse, CMPH, H+; Confederation, CMPH	Confederation, cantons	Cantons, hospitals, nursing homes
	PC-3 Learning and dialogue culture			
	Learning and dialogue culture	Confederation*, CURAVIVA/senesuisse, CMPH, H+, Swissnoso+; Confederation	Confederation, cantons	Hospitals, nursing homes
	PC-4 Promotion of preventive vaccination			
	Promotion of preventive vaccination	Confederation*, CMPH; Confederation, CMPH	Confederation, cantons	Hospitals, nursing homes

Education and research	ER-1 Infection prevention in education			
	Basic and continued training of facilitators	Institution in charge of the respective level of education*; Confederation	Institution in charge of the respective level of education, cantons	Cantons, hospitals, nursing homes
	Infection prevention for staff in healthcare institutions	Hospitals*, nursing homes*, cantons; Confederation	Cantons, hospitals, nursing homes	Hospitals, nursing homes
	Institutionalise education in infection prevention	Hospitals*, nursing homes*; Confederation, CMPH, H+	Hospitals, nursing homes	Hospitals, nursing homes
	ER-2 Research promotion			
	Research promotion	Professional societies*; Confederation, CMPH	Swissnoso+; Confederation	Research institutions, university hospitals
	ER-3 New technologies, quality assurance			
	New technologies and quality assurance	Professional societies*; Confederation	Swissnoso+, Confederation	Research institutions, hospitals, nursing homes

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