Support for improving quality of healthcare and patient safety in Slovenia

Phase 9: IT functional specifications

Functional and design requirements

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European Commission

REPUBLIC OF SLOVENIA
MINISTRY OF HEALTH

AARC NTT DATA

Contents

1. Objective

Objective of the document

Present the **definition of the incident reporting system** and a draft of **functional requirements for the new system of quality of care** and **patient safety.**

2. Introduction

In order to achieve in Slovenia a healthcare system that **guarantees patient safety** and **quality of care**, it is necessary to consider:

Clinical Risk Management

Comprises the totality of the strategies, structures, processes, methods, instruments and activities used in **prevention, diagnosis, therapy** and **nursing** care, that support staff at all levels, functions and professions in recognising, analysing, assessing and handling **risks in patient care**, so that the safety of patients, of those involved in their care and the organisation itself is increased.

Patient safety incident

Determined as an **event or circumstance** that could have resulted, or did result, in unnecessary **harm to a patient**. Errors may be manifested by doing the wrong thing (commission) or by failing to do the right thing (omission) during either the planning or execution phase.

Pillars of a system that promotes patient safety and quality of care

- Community engagement and health literacy
- Information management
- Staff Education and Skills
- Patient participation
- Care of Patients
- Research and continuos improvement

3. Incident classification

Type of incidents

Non – exhaustive list

Accidents

Falls

Patient behaviour

Healthcare devices

Analog and digital documentation

Clinical and administrative management

Infection related to health care

Infrastructures and installations

Pressure injuries

Medication

Vaccines

Nutrition

Oxygen and other medical gases

Blood products

Damage category

1 Sentinel event

2 Serious event

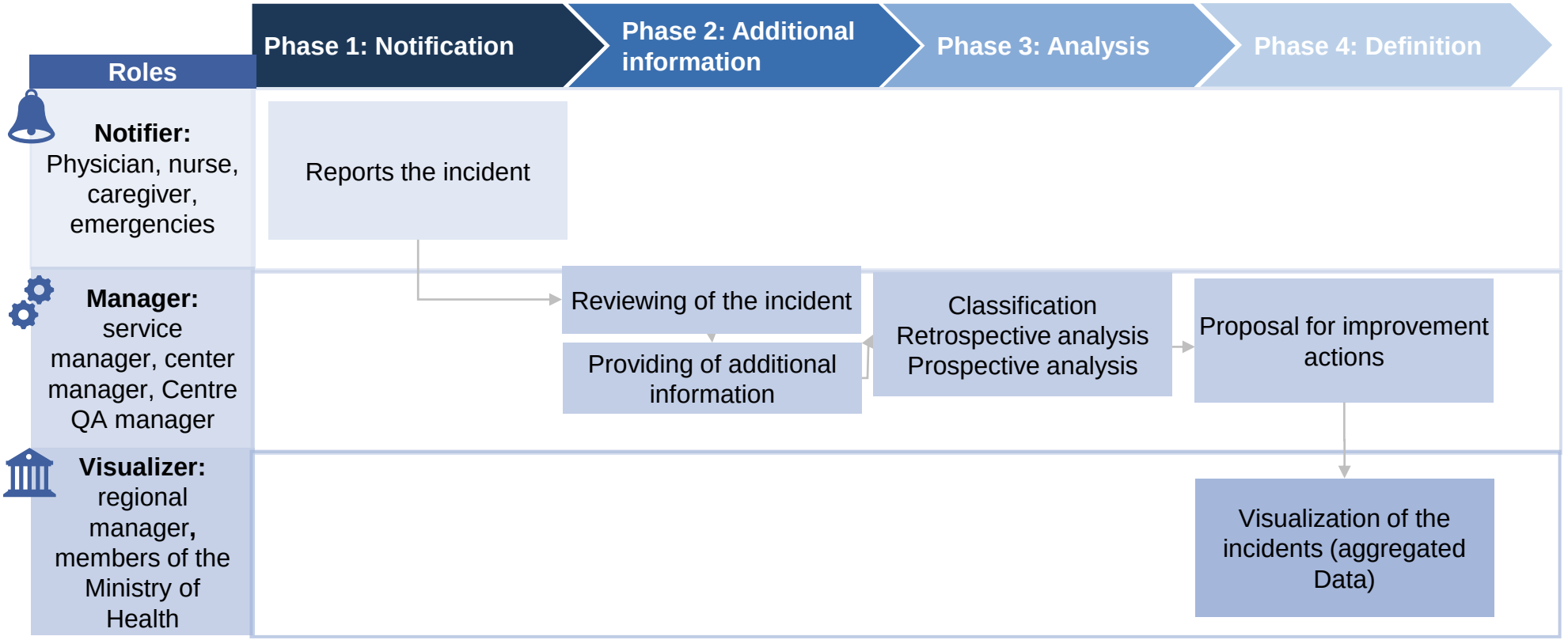
3 Potential event

4 Potentially compensable event

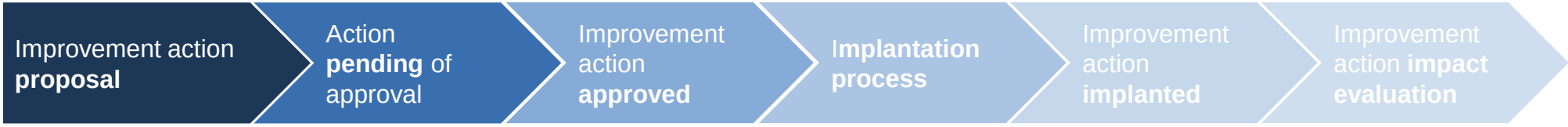
5 Preventable event

6 No damage event

4. Clinical risk management process



Phases of the journey of the improvement action



5. New IT system

Principles of the IT quality platform

The new system will provide **easy access** to the **demographic and clinical data of the patient** through a single-entry point, transparency, health care and higher efficiency as support for daily activities, planning and implementation process of health care; decision-making, scientific research and education.

A quality platform is a system that integrate patient safety and quality of care management.

Principles for successful **quality platform**

Principle 01

System that's easy for patient care staff to use

When a patient safety reporting **interface is integrated with the electronic health record (EHR),** staff can enter incidents quickly and efficiently

Principle 02

System that administrators can customize in-house, in real time

Flexibility and **ease-of-use** are critical features valued by nursing administrators who often need to **adjust data queries and customize reports**

Principle 03

Protect the anonymity of reporters

When staff can report incidents anonymously, they are less inhibited to share information

Principle 04

Integrate a dashboard with quality indicators

This indicators are measurable elements that refer to the structures, processes and outcomes of care, and imply a judgement on the quality of care provided, so their integration with patient safety incidents is essential.

5. New IT system

System model

IT quality platform for Slovenia

Main components of the system

Notification

Adapted forms by level of care

- Incident characteristics
- Risk matrix
- Types of incidents
- External factors
- Measures/proposals for improvement
- Mitigating factors

Analysis

Tools for analysing reporting incidents

- Fault Tree Analysis
- Cause-effect analysis
- Process analysis
- Barrier analysis
- Prospective analysis

Management and learning

Improvement actions and secure practices

- Dashboard: Visualization and management of quality indicators
- Newsletter about patient safety and quality of care
- Alerts
- Risk management
- Training activities

These system provides an objective, real-time overview of patient safety, clinical risk control and quality of care that will help in decision-making.

In order **to successfully** develop this new system, it is necessary to:

- **Adapt legislation** so that the reporting of incidents by medical professionals does not have a negative impact.
- Define and develop **protocols and clinical guidelines** for action in situations that may affect the **patient's safety**.

5. New IT system

Role Matrix

	Incident / event reporting	Incident / event analysis	Visualization of segmented data	Visualization of global aggregated data	Quality indicator visualization	Forms management	User / roles management
Ministry of Health Administrator	☑		☑	☑	☑		
Regional manager	☑		☑ Regional level		☑ Regional level		
Centre manager and Centre QA manager (PC centre, hospitals, social care centres)	☑	☑	☑ Hospital and service level		☑ Hospital and service level		
Service manager	☑	☑	☑ Service level				
Professionals (doctors, nurses, caregivers…)	☑						
User Administrator						☑	☑

5. New IT system

Requirements

Forms

- Integrated with the EHR (local) to extract information about the patient, but the application can be located in other system.
- Forms can be used at any time or place, via the **intranet or on-site using a tablet or cell phone**
- **Intuitive** and **adaptable** forms to different realities. → Possibility of parameterization of some fields (organization "not visible by the professional")
- **Feed-back** and training about the incident to the notifier
- **Anonymous** notifications

Visualization tools

- **Reports** and **dashboards**
- Analysis tools (Possibility to display and configure graphs of the current year's data)
- **Risk matrix**
- Possibility to **configure** and **download** reports
- **Exporting data** in the usual formats
- Improvement actions and assignment of tasks
- Status updates and notifications to monitor the handling of reports

5. New IT system

Requirements

Management

- Quality and patient safety indicators management and visualization (Dashboard)
- Automatic tool with a classification that materialises **a risk matrix** according to the **impact** and **probability of** occurrence (low, medium, high) and classifies the risk by colour.
- Analyse data by using various analytical techniques
  - **Retrospective analysis (for each incident)**:
    1. Root cause or contributing cause analysis (Ishikawa / RCA)
    2. Fault tree analysis (the various why)
    3. **Process analysis**: which processes have been involved in the incident, what we should have done (protocol) vs. what we did and analyse the gap and see if the gap was the root cause of the incident.
    4. **Analysis of barriers** so that the incident would not have occurred: analyse the barriers that existed to minimise the impact of the adverse event or to prevent (protocol, etc...)
  - **Prospective analysis** (for a group of incidents):
    1. How **improvement actions** can be put in place that minimize / prevent incidents (Failure Mode and Effect Analysis – FMEA) link to protocols**.**
- Definition and **implementation of follow-up of improvement actions**
- **Repository of protocols** about how to avoid incidents
- Status updates and notifications to monitor the handling of reports
- Scheduling, monitoring, assessing and securing your improvement actions
- **Workflow management** for the automation of the right follow-up steps, depending on the type of incident

5. New IT system

Quality of care and patient safety indicators dashboard

Following principle 4 of the new platform, a dashboard with quality-of-care indicators should be included in the platform.

It is very important for any healthcare system to know what is **happening in real time**. Having this global and real vision facilitates decision-making, allowing management and professionals to stay ahead of the competition, act swiftly in the event of incidents, detect points for improvement and focus on quality and patient safety.

In order to have a good quality care system, it is very important to **integrate patient incident reporting with quality and safety indicators.**

Using a system with a dashboard to monitor all patient safety and quality indicators provides a true picture of what

A dashboard is a management tool that can be used to measure the situation and evolution of an administration from an overall perspective.

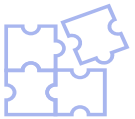
The dashboard is therefore a strategic management system, consisting of:

Formulating a consistent and transparent strategy.

Communicating the strategy throughout the organization

Coordinating the objectives of the various organizational units

Connect care and quality objectives with financial and budgetary planning



Identify and coordinate strategic initiatives

Systematically measure performance, proposing timely corrective actions

5. New IT system

Quality of care and patient safety indicators dashboard - benefits

There are countless advantages to using a dashboard within a healthcare system. Among the most important of these are:

- ✓ It shows a global vision of the system's situation in relation to patient safety and quality
- ✓ It facilitates the design and planning of strategies
- ✓ It provides intelligent information
- ✓ Involves the organization in the overall strategy
- ✓ Improves internal communication
- ✓ Allows the success of the strategy to be assessed

5. New IT system

Quality of care and patient safety indicators dashboard – Quality indicators list

During **phase 8**, a number of indicators have been defined which can be divided into two groups:

- WHO-rated patient incident type **safety indicators**
  - MRSA colonization
  - Pressure ulcers
  - Falls
  - Sharps injuries (staff)
  - Incidence of pneumonia associated with mechanical ventilation
  - Surgical wound infection
- Indicators of **quality of care**
  - Gynaecology - gynaecological surgeries - blood loss
  - Perinatology – transfusions
  - Perinatology - births without intervention
  - Thoracic surgery - carcinoma surgery - complications
  - Thoracic surgery - carcinoma surgery – reoperations
  - Thoracic surgery - carcinoma surgery - postoperative death
  - Postoperative thromboembolism
  - Efficiency in the operating theatre
  - Hospital consumption of antimicrobial drugs
  - Safety culture
  - 30-day mortality due to stroke
  - Percentage of acute stroke treated with IVT
  - Level of care in the intensive care/therapy unit
  - Hand hygiene
  - Overall mortality/hospitalisations due to heart failure
  - Overall mortality/hospitalisation from any cause
  - Duration of hospitalisation for heart failure
  - Rehospitalizations for heart failure within 30 days of initial hospitalisation
  - STEMI - time from first contact with the healthcare system to arrival at hospital
  - STEMI - door to balloon time
  - Percentage of NSTEMI patients treated with PCI
  - Percentage of ACS patients treated with new antiplatelet drugs
  - Percentage of admissions to psychiatric hospital against volition
  - Preoperative anaemia
  - Postoperative hypothermia
  - Proportion of patients screened before anaesthesia/sedation for non-urgent operative/diagnostic procedures
  - Standardised mortality rate of critically ill patients
  - Post-operative complications
  - Length of stay
  - Symptoms and functional status - The Aberdeen Varicose Vein Questionnaire
  - Unplanned readmission within 30 days of discharge
  - Patient's health-related quality of life (EQ-5D-5L)
  - Catquest-9SF visual function
  - Oxford Hip Score
  - Oxford Knee Score

6. Next steps

Development plan of the new IT quality platform

In order to develop and implant a new IT quality platform to monitor and manage patient safety and quality of care, it is necessary to carry out the following 3 phases:

Phase 1: Design

- Gain management support
- Appoint the "architect" of the framework
- Define the measurement architecture
- Build consensus around strategic objectives
- Define the implementation plan
- Define the evaluation and control KPIs
- Define the functional requirements of the system
- Select and design indicators ☑
- Define the communication and training plan
- Define the integration model of the dashboard with the patient safety reporting and clinical risk management system

Phase 2: Implantation

- Development of the whole system for quality of care and patient safety
- Development of the implementation plan
- Deployment the communication and training plan
- Training of the people involved in the scorecard

Phase 3: Operation

- Chart review
- Decision-making
- Improvement review
- Communication of results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FUTURE
AT HEART