

# Towards The Modelling of Health Care Processes' Complexity Within Health IT System Development

# Introduction

- Between 10 to 40 % of elective surgeries are cancelled
- 20 % are cancelled on the day of surgery
- 50 % of this cancellations are reported as avoidable





# Introduction

## Surgery cancellations are undesirable in hospital settings

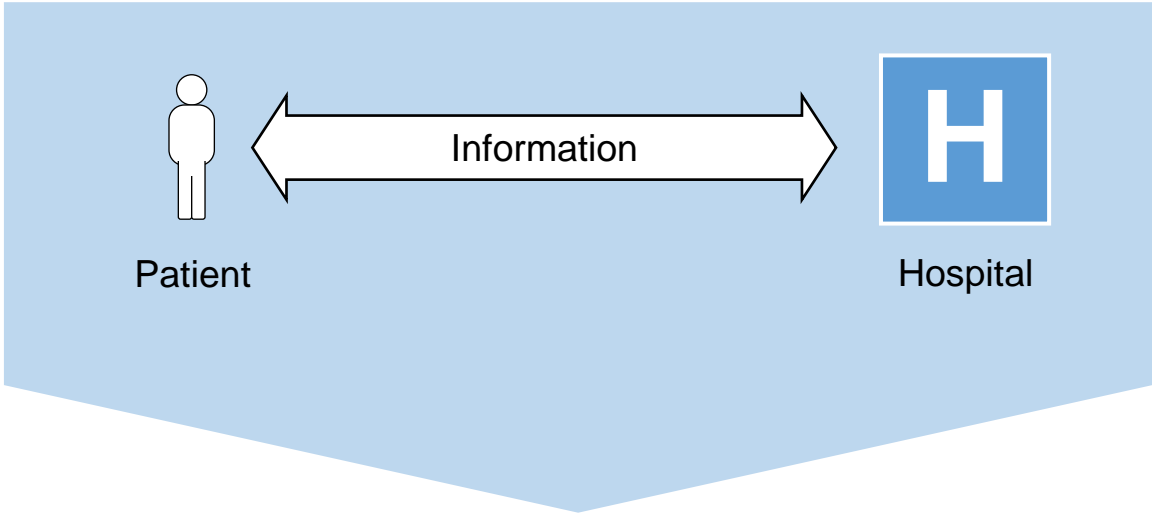
- increase costs
- reduce productivity and efficiency
- increase waiting lists
- directly affect the patient






# Aim

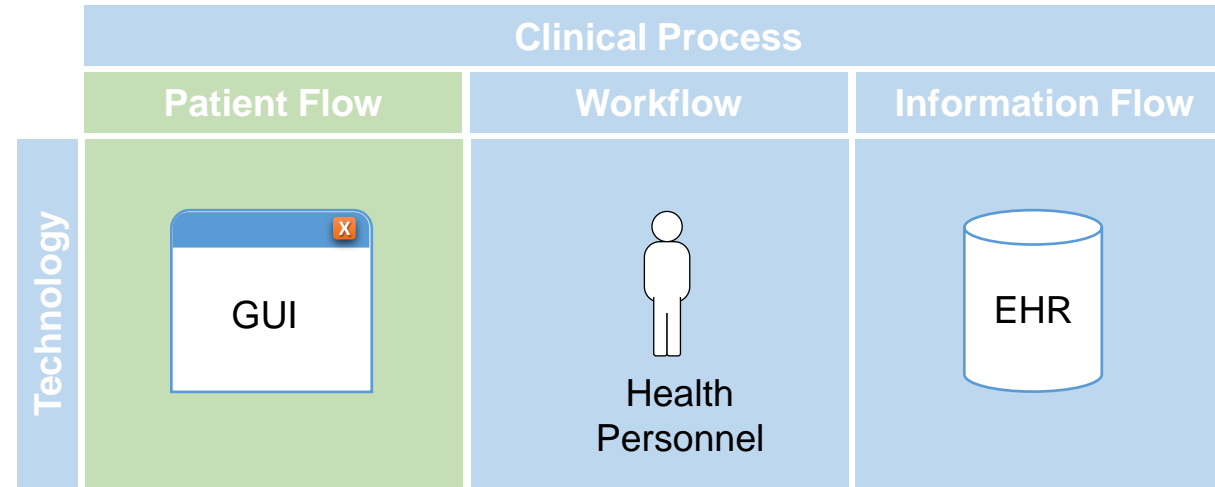
Reduce the elective surgery cancellations at UNN, by studying pre-operative planning and explore if it may be moved from the hospital to the patient at home

# System analysis of the eTeam-Surgery framework



Clinical Process			
	Patient Flow	Workflow	Information Flow
Technology	 GUI	 Health Personnel	 EHR

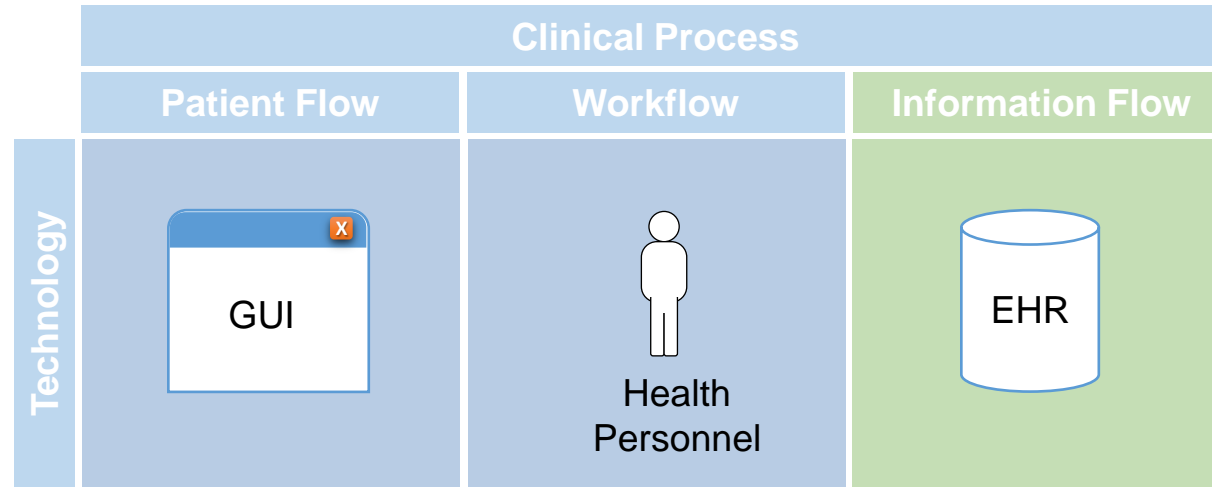
# System analysis of the eTeam-Surgery framework



## Challenges

- Safe communication platform
- Data confidentiality / privacy
- Seamless integration with the EHR

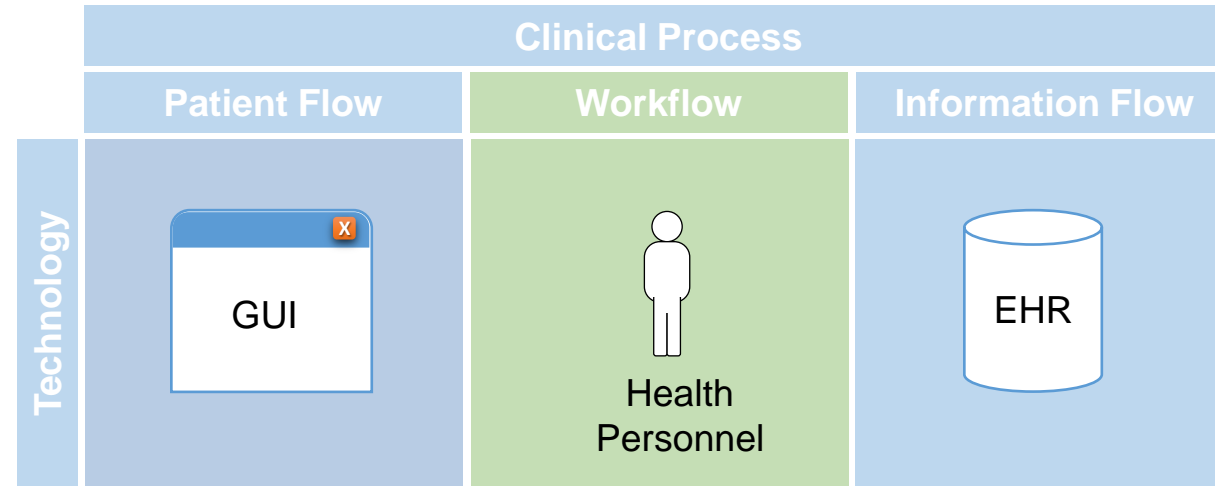
# System analysis of the eTeam-Surgery framework



## Challenges

- Map the existing information flow
- Define when the information gathered by eTeam is required
- Integrate eTeam in the information flow

# System analysis of the eTeam-Surgery framework



## Challenges

- Standardize the clinical process so it can be supported by eTeam Surgery
- Manage the impact that eTeam Surgery will have on the workflow
  - Balance the workload of health personnel
  - eTeam Surgery is supposed to simplify the workflow!!!



# Interdisciplinary approach

How to bring the Health care complexity into IT System Development?

# Three stages methodology

## Stage 1

Analyses of historical data on the number of cancellations and the reported reason, provided by the Lean project at the hospital

## Stage 2

Observation and interviews with health workers at the hospital

## Stage 3

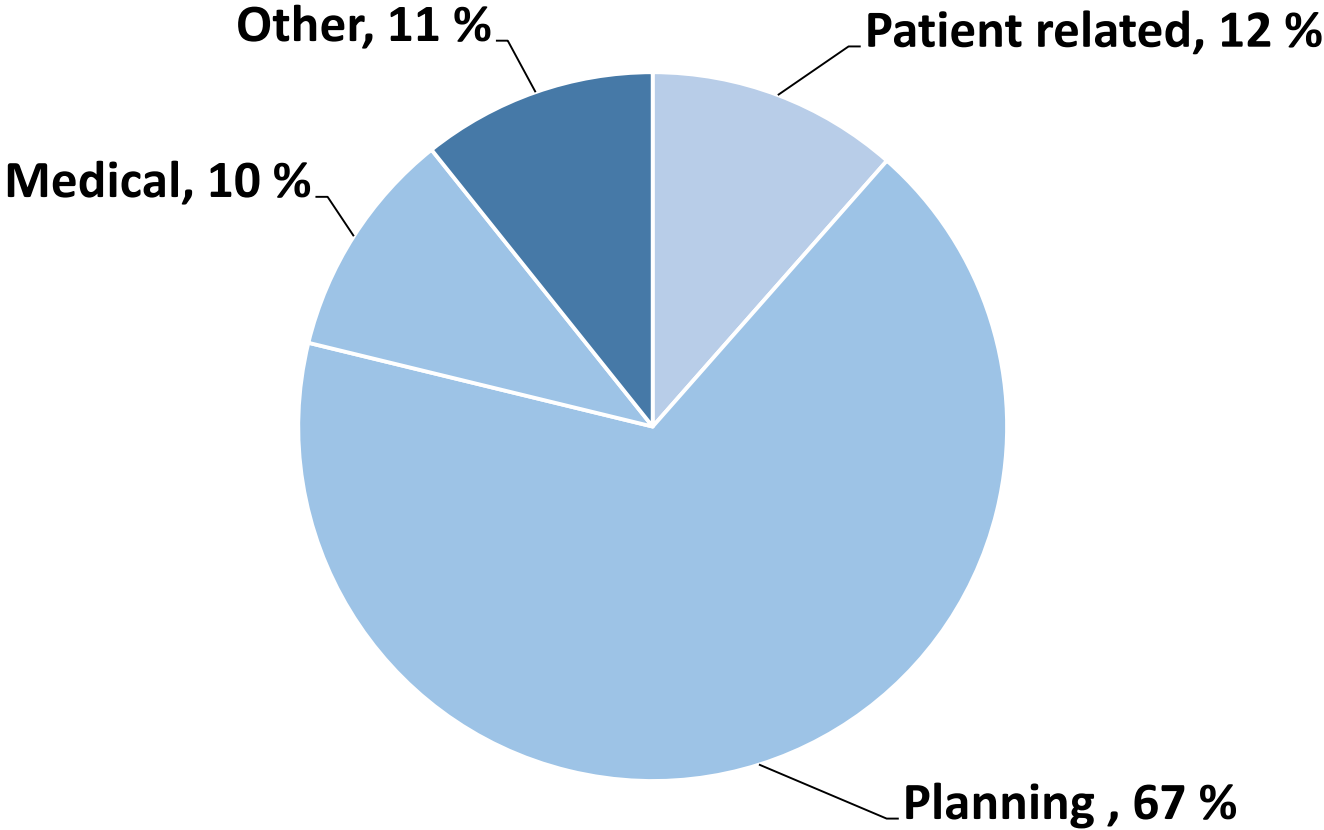
In-depth interviews with health workers at a specific department

## Stage 1

How the problem is represented by the empirical field

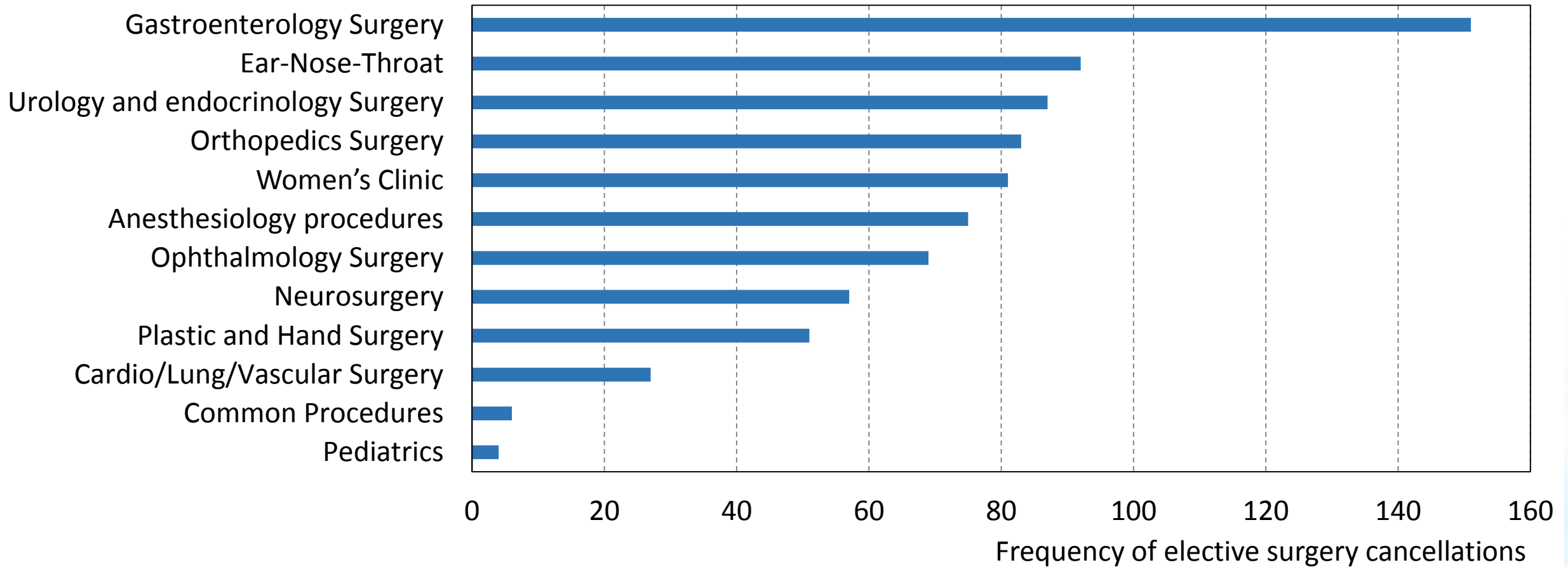
# Results - Stage 1

## How the problem is represented by the empirical field



# Results - Stage 1

## How the problem is represented by the empirical field





## Stage 2

Field work at the hospital and our analyses of the problem

## **Results - Stage 2**

**Field work at the hospital and our analyses of the problem**

**Heterogeneity and multiplicity of care processes at department level**

## Stage 3

**In-depth interviews with health workers involved in the pre-operative planning (surgeons, anaesthesiologists, coordinating nurse, theatre nurses, anaesthetic nurses, secretaries)**

## Results - Stage 3

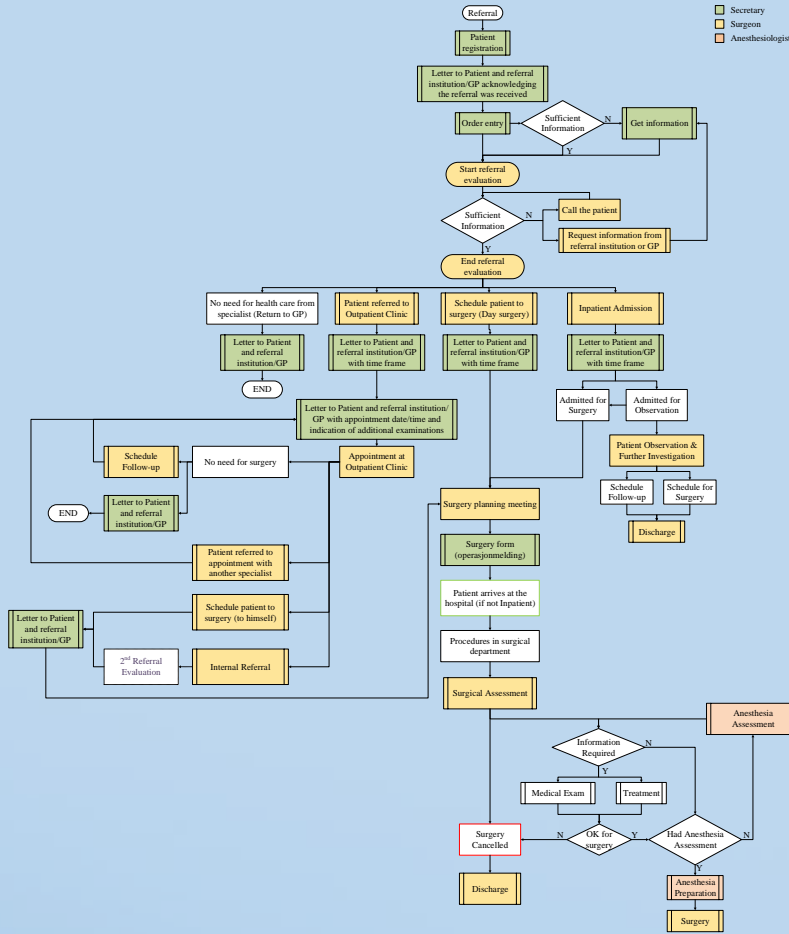
In-depth interviews with health workers involved in the pre-operative planning

**Diversity of work patterns is also evident on the professional group level**

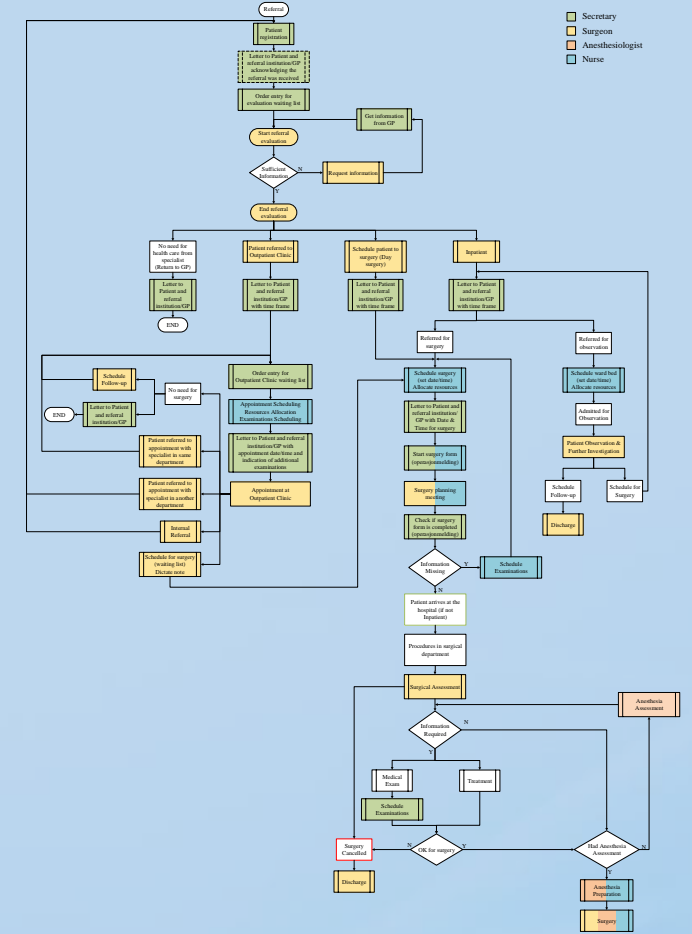
# Results - Stage 3

## In-depth interviews with health workers involved in the pre-operative planning

Surgeon



Coordinating nurse





# Conclusions

## How to use this knowledge?

- Process models that describe the care process complexity
- Re-engineer the care process
  - Standard care process
  - Definition of requirements for health IT systems
- Preparing the organization for IT implementation
  - Need to change/standardise the work patterns

# Thanks for listening

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