



UiT The Arctic
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Technical Viewpoint of Challenges, Opportunities, and Future Directions of Policy Change and Information-Flow in Digital Healthcare Systems

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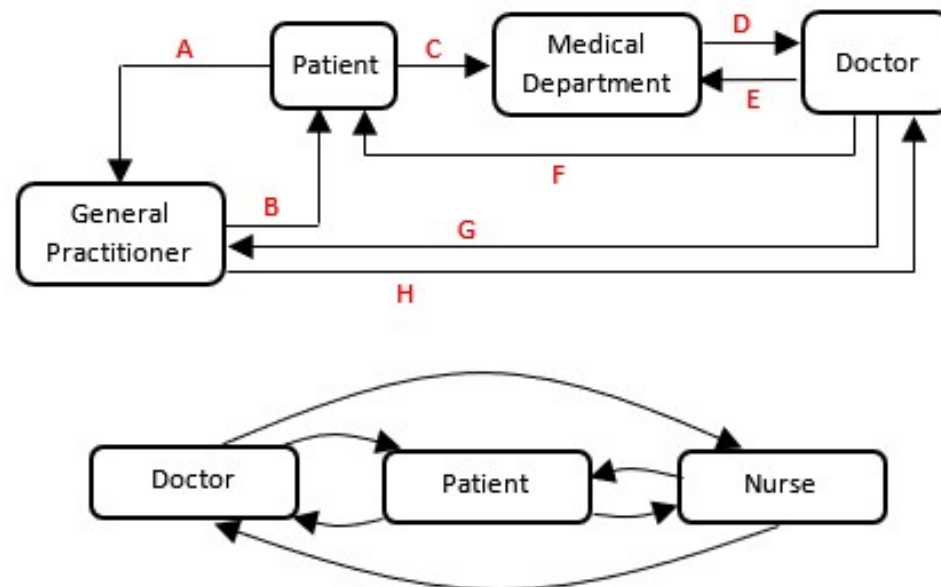
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Introduction

- Digital healthcare infrastructure runs in multi-cluster systems of possibly heterogeneous devices
- Each system cluster operates within distinct administrative domains
- Different systems could be used for various purposes within a single organization
- As healthcare systems become more digitally integrated:
 - Lack of integration becomes problematic and might lead to policy violations
 - High communication overhead and computation consumption might impact the system at different levels

Information Flow In Healthcare System

- The infrastructure of a healthcare system consists of various electronic medical/health records
- Healthcare providers might generate various processes that affect the flow of information within a system
- Such flow of information is shared between the system's participants, and it might constitute one or more processes
- Poor sharing of information could have consequences at different system levels



Healthcare Policy Change and Information Flow Management - Challenges

Distribution and Dependency

Lack of integration

Leak of sensitive information

Performance degradation

Delivery of Care Services

Various participants

Dependent nature

Duplication

Incomplete and Inconsistent Information

Store and retrieve information

No common format for holding data

Policy Change

Poor communication

Information flow strangulation

Procedure cancellation

Inefficient resource utilization

Information Flow Within Healthcare System - Opportunities

Optimize Technical and Functional Concerns

Participants-Oriented Service Processes

Handle Service Failure

IoT Adoption

Open Research Areas

Security Enhancement

Improve information dissemination

Improve Healthcare System Recovery

Restore the system to a specific point
Duration of recovery
Recovery Conflict

Continuous Monitoring

View, analyze, present data and processes in various visual formats and charts
Determine which system's service is not performing optimally
Distinguish between different types of dependencies

Dynamic Detection

Understand all rules within the policy
Deal with dynamic changes of policies during runtime
Ensure participants' rights and preferences are protected

SUMMARY

- As healthcare systems become more digitally integrated, a lack of integration and safe interpretation between heterogeneous systems clusters becomes problematic and might lead to policy violations
- High communication overhead and computation consumption might impact the system at different levels, which impacts the system's performance
- Communications, dependency, precedence, and information shared between system clusters, and their components might be impacted by changing/updating policies associated with data flow in the system
- We provide a technical viewpoint of the challenges, opportunities, and open research areas that lie within digital healthcare systems, policy change, and information flow



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Questions

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Thank you...

