Automated Web-Based Healthcare Quality Management Systems:
Design and Implementation Considerations

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NexTech 2017, November 12 - 16, 2017 - Barcelona, Spain
The Plan

• True stories
• Remarkable facts about the future of healthcare
• Healthcare industry challenges
• Why do we need automation?
• From paper to digital
• Automated QMS
• Automation steps
• System features
• System technology
True stories

• Back in the 1990s a patient had a **wrong leg** amputation at the University of Florida Medical Center!!!

• The janitor pulled out the life support from a patient to plug in his floor waxing machine!!!
True stories

• A man was tested pregnant in a public hospital in Lebanon!
Facts about the future of healthcare

- Preventive medicine will soar.
- Healthcare will go from general to personal.
- Robots will be optimized for health tasks.
Facts about the future of healthcare

- **Collaboration will destroy silos.**
- **Doctors will have access to more data.**
Healthcare industry challenges

- Rising costs
- Increased demand
- More informed patients
- Patient expectation changes
- Shortage of HR
Need to improve Quality of services
Automation

Operating or controlling a process by electronic devices with minimal human intervention
From paper to digital
Applied in Healthcare

- Forms
- Procedures
- Tasks

Automated workflow

Outcome
Why do we need automation?

Better Service

Increased precision

Reduce labor costs

Efficiency
Why do we need automation?

Better interaction with patients and stakeholders

More structured organization

Increases the transaction handling capacity

Improves the internal control system
Automated QMS

- Enterprise web-based system
- From admission till discharge
- Structured around the international standards for quality management
- A portal to critical quality information
# Automated QMS

- Admission management
- Patient Management
- Nursing Administration
- Quality Management
- Maintenance forms
- Purchasing and stocks
- Pharmacy management
- Radiology and Lab integration
- HR management
- Billing and discharge
- Reporting and Indicators module
Patient Management

• Patient files

• Patient medical history

• Laboratory tests and radiology archives

• Billing details

• Coverage details

• Appointments for out-patients
Nursing Administration

- Nursing schedules
- Task lists
- Activity reports
- Daily checkups
Biomedical Module

• Checklists

• Equipment life cycle documents

• Biomedical maintenance requests
From paper to digital

- Requirements gathering
- Requirements analysis
- Design
- Implementation
- Testing
- Operations & Maintenance
1. Requirements gathering

• Collect forms

• Collect Policies & Procedures

• Collect written workflow
2. Analyze requirements

Who does what? How is it done?
3. Design

1. Database structure
2. Workflow structure
3. Interface
4. Implementation

Design  Code  Interface
5. Testing
6. Operations & Maintenance

- Get things into action
- Regular updates
- Regular enhancements
System Features

- Web-Application
- Centralized database
- Separate integrated modules
- Configurable design
System Features

- Accessible from any web browser
- Can be hosted on local servers
- Better control and governance
- Predefined content = easier reporting
More features

• Automatic backup

• Integrated notification system

• Real-time tasks tracking

• Upload files

• Export data tables
An Example
An Example