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BIOMEDICAL & CLINICAL ENGINEERING
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New Trends in Medical Planning & Clinical Solutions
By Ghadeer Ahmed lotfy
Within the 21st International Operations & Maintenance Conference in the Arab Countries
An Initiative by
OMAINTEC
المجلس العربي للتشغيل والصيانة
Arab Operations & Maintenance Council
Organized by
EXICON.
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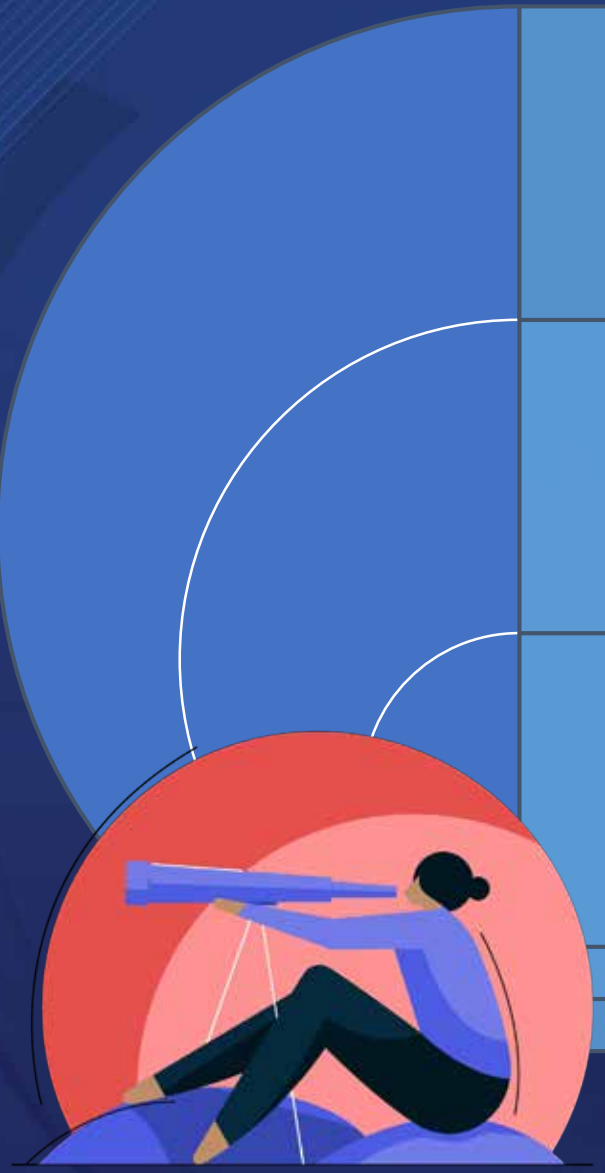
Agenda



Introduction	• Medical planning phases • Challenges • Case-study activity
New technologies and trends	• VR and AR • Automated machines and Advanced software • AI in medical planning
Efficient medical planning	• Data driven decision making • Resources allocation • Great patient experience

Medical planning phases

1. Master Plan (Site analysis, Space allocation, Functional design, Infrastructure planning, Future expansion and flexibility)
2. Design Phase (2D , 3D, MEP, Medical, Safety, Budget, ….)
3. Equipment Planning (medical and non-medical)
4. Commissioning
5. Implementation supervision

Challenges and area of improvement

1 Master Plan

Complexity Stakeholder engagement, Data availability and accuracy, Long-term sustainability, Flexibility and adaptability

Geographic Information Systems (GIS) and data analytics

2 Design Phase

Communication and collaboration, Balancing functionality and usability, Time and resource constraints

AI sites , new technologies such as online platforms

3 Equipment Planning

Cost Management, Technological Advancements, Equipment Lifecycle Management, Integration and Interoperability:, Training and Education

1. Data-Driven Decision Making
2. Collaboration and Communication
3. Standardization and Streamlining
4. Risk Assessment and Mitigation
5. Continuous Evaluation and Improvement

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Case Study

5 Minute Timer

End

New technologies and trends

VR & AR

AI

Geographic Information Systems (GIS) and data analytics

Automated machines

Advanced Software

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New technologies and trends

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By: Biomedical engineering students

Automated machines and Advanced software

Automated machine

-Automated safety cabinet
-Automated lab
-Automated samples transaction
-Automated robot
-Automated medication despiser
-Fire escape system in structure

Advanced software

-Electronic health records (HER) systems
-Medical billing software
-practice/Hospital management software
-Telemedicine software

Efficient medical planning

Data-driven decision making

Analyzing patient demographics, medical histories, and outcomes can help identify patterns and trends, enabling planners to optimize workflows, anticipate patient needs, and allocate resources effectively

Resource allocation

Efficient medical planning requires careful allocation of resources, such as staff, equipment, and facilities. By analyzing data on patient demand, treatment requirements, and resource availability, planners can ensure that resources are distributed optimally. This includes scheduling staff shifts, managing equipment utilization, and optimizing facility capacity to minimize wait times and maximize efficiency.

Great patient experience

A key aspect of efficient medical planning is prioritizing a positive patient experience. This involves streamlining processes, reducing wait times, and enhancing communication between patients and healthcare providers. By leveraging technology, such as online appointment scheduling, patient portals, and automated reminders, medical planners can improve patient satisfaction and engagement

Group Discussion

Knowledge transfer

Challenges

Ideas

Future Work

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