20. HVITAL: THE MOST ADVANCED ANALYTICS SYSTEM TO ANTICIPATE CLINICAL ALERTS AND OVERSEE OPERATIONS

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SÃO JOÃO

BACKGROUND:

The São João Hospital Centre in Porto, Portugal, has developed an innovative Big Data and analytics platform. Called HVITAL (Health SurVeillance, MonIToring and ALert), this advanced analytics system analyses 560 billion data points, integrates clinical data flows and alerts healthcare professionals to potential risk situations, so that they can intervene quickly.

A Big Data Warehouse providing actionable knowledge.
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OBJECTIVES:

- Transform Big Data into actionable knowledge
- Improve oversight of operations
- Anticipate clinical alerts
- Speed up clinical and operational interventions

METHODS:

The new HVITAL platform was developed with the aim of transforming the way that clinical data is processed in a major Portuguese hospital. As a doctor walks down a second-floor corridor in the São João Hospital Center, his mobile pops up a message: 'HVITAL Alert: concerning signs of blood pressure drop and systemic inflammation have just been detected in patient bed n° 701'. This enables him to take prompt action.

HVITAL is a state-of-the-art ICT & Big Data platform capable of monitoring and analysing in real-time, 24 hours a day, a massive amount of clinical data that is scattered across hospital systems. It correlates more than 300 million records per minute. Its analytical power has become crucial in order to provide immediate insights to the management team and help them proactively identify and address operational issues on the hospital's nine floors.

HVITAL is also crucial for clinicians, as it automatically identifies and promptly alerts them to patients at risk of infection and clinical deterioration. The essence of its added value relies on the fact that no human can analyse and integrate so much data, from disparate systems, in such a short period of time.

RESULTS:

What has been achieved?

- **Won multiple awards for outstanding ICT innovation:**
  - **1st prize in Microsoft Health Users Group Innovation Awards 2014**
  - **1st prize in ITEuropa European IT & Software Excellence Awards 2014**
  - **HIMSS® Europe Elsevier Digital Healthcare Award 2016**
- HVITAL developed and fully operational
- More efficient use of large amounts of data
- Faster identification of risk situations and clinical and operational interventions
- Improved patient care

Awards won by HIVITAL for outstanding ICT innovation.
Reference: http://hvital.com/

TAKE-AWAYS:

What worked well?

- Analysing the patient's journey and developing a patient-centric model
- Selecting top priorities: antibiotic stewardship, infection control and clinical deterioration risk
- Centralising 560 billion data points from diverse sources in one Big Data Warehouse
- Delivering a new operational tool to help doctors in the field
- Providing real-time information, ranking patients by risk level, and alerting healthcare professionals to critical events

For further information: https://www.enterprisetimes.co.uk/2016/11/21/sao-joao-hospital-center-masters-digital-healthcare/

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