Extending the IT Infrastructure in Healthcare with Mobile Technology

Case study of the MET System

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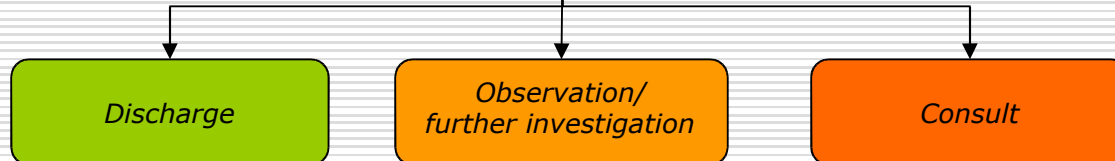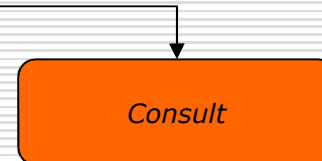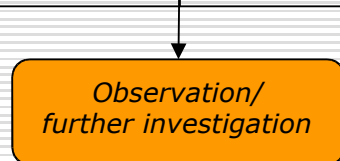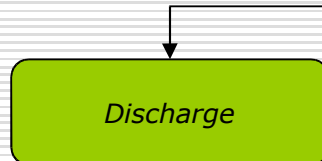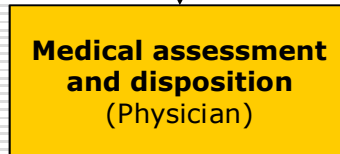**GLOBAL MOBILE ENTERPRISE**
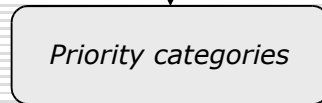*Mobile Business Solutions*

General Outline

□ Emergency triage and need for support

□ Required support and available IT infrastructure

□ Mobile extension: MET system

□ Clinical trial of MET system

□ Conclusions and future development

Emergency Triage and Need for Support

Canadian Triage Acuity Scale (CTAS)
CTAS1 – Immediate
CTAS2 – $\leq$ 15 min.
CTAS3 – $\leq$ 30 min.
CATS4 – $\leq$ 1 hour
CTAS5 – $\leq$ 2 hours

Prioritization
(Triage nurse)

Priority categories

Medical assessment and disposition
(Physician)

Discharge

Observation/ further investigation

Consult
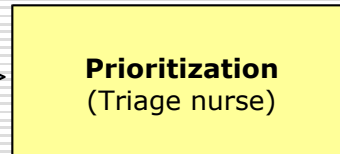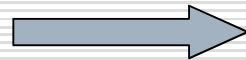
Required Support
and Available IT Infrastructure

- Useful and acceptable support implies close fit to the clinical workflow

- Support should be provided when and where it is necessary – directly at the point of care

- Available IT infrastructure turned out to be too limited to provide appropriate support
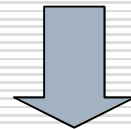
- It had to be extended with mobile technology to satisfy requirements for the support

Mobile Extension: MET System

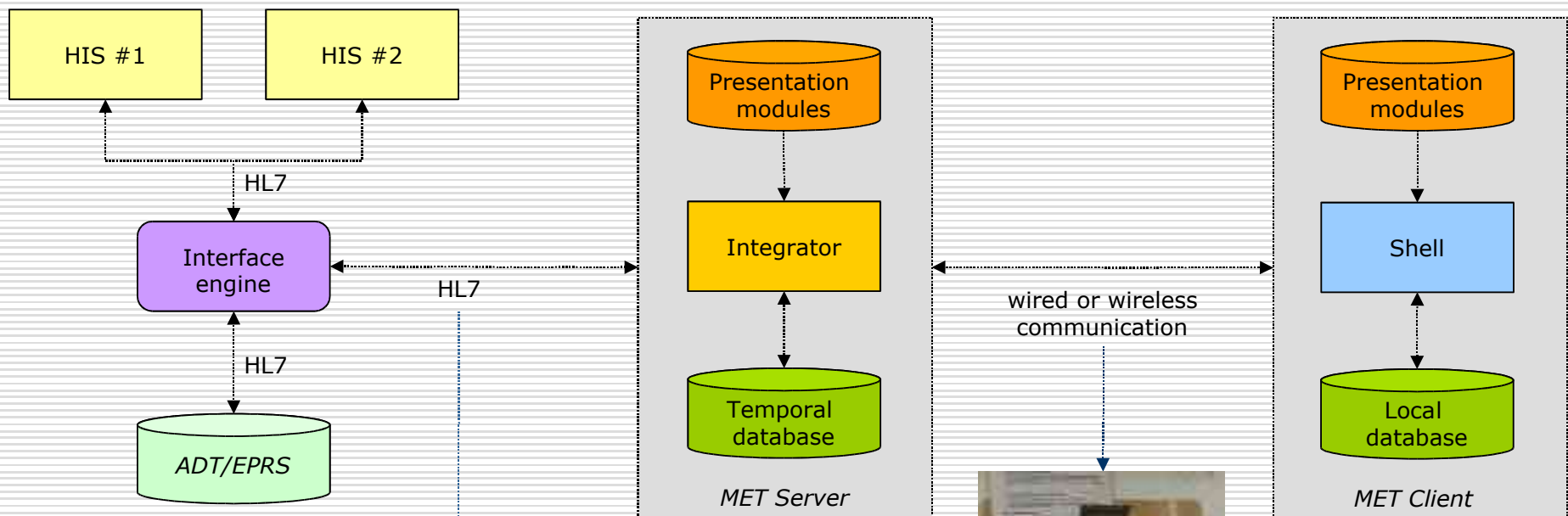MET (Mobile Emergency Triage) is a mobile clinical system for supporting triage of various acute conditions

□ MET is available at the point of care
- Runs on mobile devices
- Runs in weak-connectivity conditions

□ MET is integrated with IT infrastructure – ADT system, EPRS and other HISs

MET Architecture

- Extended client-server architecture for weak-connectivity conditions and integration

MET Operations

Interface Engine

Pateint registered

Patient data available

„Hospital-wide" patient data updated

Admission message

Observation report

Observation report

MET Server

Receive, decode and store patient data

Synchronize patient data

Synchronize presentation modules

Encode and send patient data

Patient data

Presentation modules

MET Client

Synchronization requested

Synchornize patient data

Synchronize presentation modules

GLOBAL MOBILE ENTERPRISE
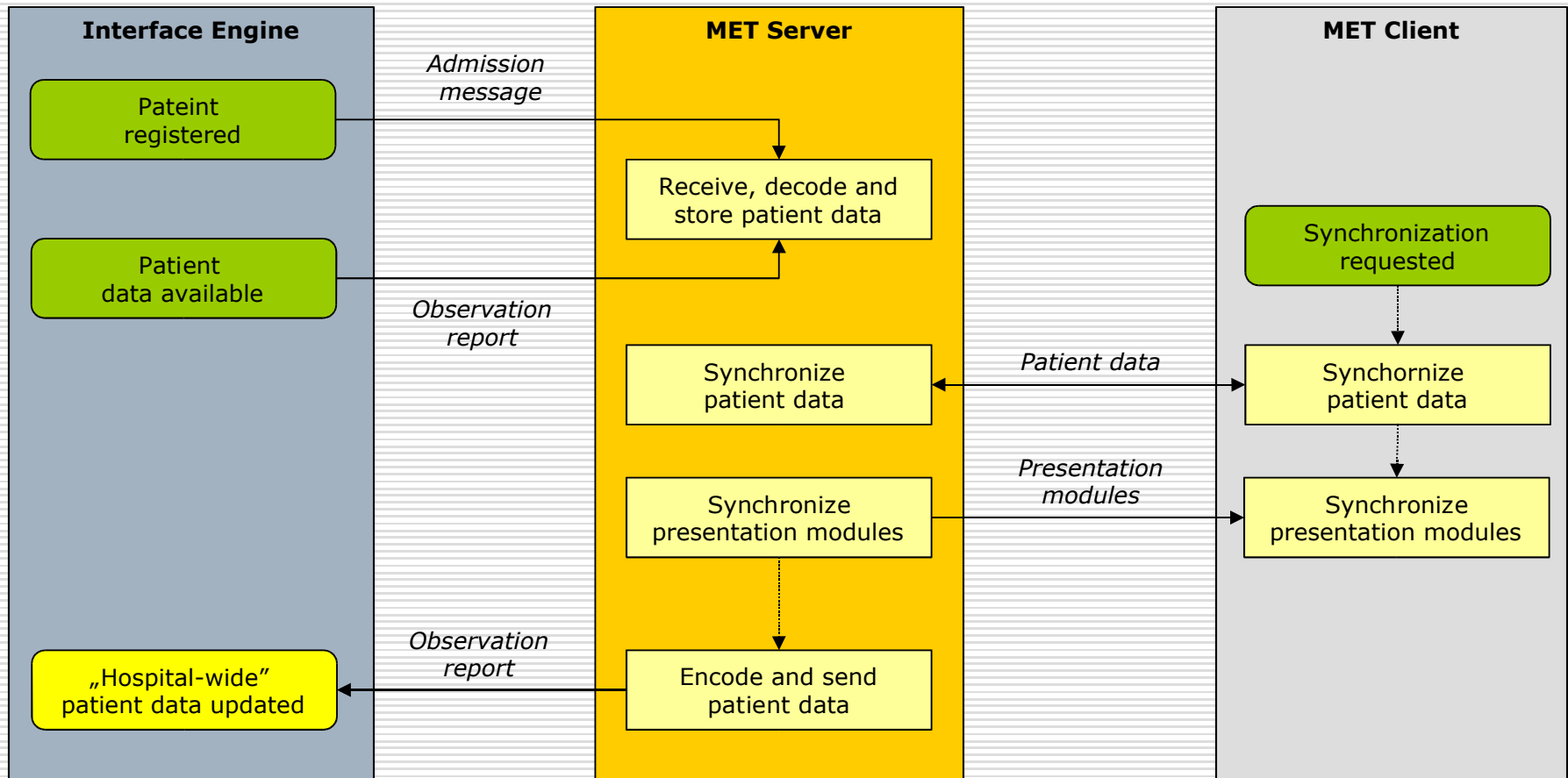
MET Interface

- MET client on specific platforms
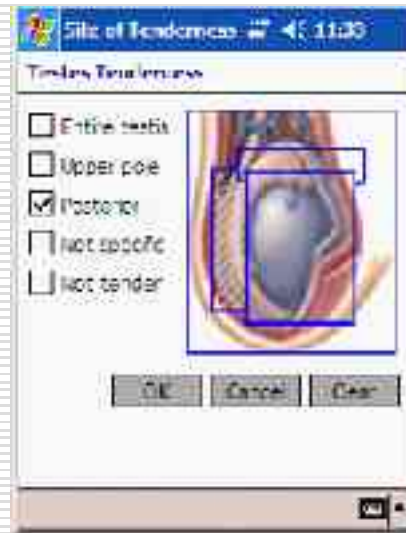
Clinical Trial of MET System

- ☐ Designed to verify the fit into the clinical workflow and compare triage accuracy of MET and clinicians

- ☐ Conducted at CHEO (Children's Hospital of Eastern Ontario) between July 2003 – February 2004

- ☐ Functionality of MET limited to the abdominal pain module

Trial Results

- ☐ Fit to the workflow
    - ▪ MET was used 24/7 by more than 100 clinicians
    - ▪ Clinicians were satisfied with the system integrated with ADT and available at the point of care
    - ▪ Patients did not object to participation in the trial

- ☐ Triage accuracy
    - ▪ Clinicians were slightly more accurate, although not different statistically, than MET (70% versus 65%)
    - ▪ Clinicians and MET achieved the same accuracy for discharged patients (72%) and patients requiring consult (70%)

Conclusions

□ MET system extended the IT infrastructure of a hospital, worked in clinical setting and fitted into the clinical workflow

□ IT infrastructure in healthcare in most cases needs to be better developed to take full advantage of mobile technologies

□ IT infrastructure should be designed and developed with the goal of providing necessary support when and where it is required in mind

Future Development

□ MET is being redesigned to take full advantage of a complete IT infrastructure

  ▪ Open environment for supporting various patient management activities

  ▪ Support for tablet and desktop computers

  ▪ Thin client-server functionality in strong-connectivity conditions (processing on the server side)

  ▪ „Active" server searching for relevant information and „pushing" it to clients

□ We plan a multicenter clinical trial to verify the usability of redesigned MET

Acknowledgment

Thank You

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