WHEN YOU HAVE TO BE RIGHT - CLINICAL DECISION SUPPORT AT THE POINT OF CARE

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WOLTERS KLUWER HEALTH CLINICAL SOLUTIONS, UPTODATE
Doctors Have Clinical Questions

Unanswered clinical questions impact patient management decisions

Approximately **2 out of 3** clinical encounters generate a question

Physicians have approximately **11 clinical questions a day**

60% of questions go unanswered

Answering all clinical questions could change **5 to 8 patient management decisions each day**

A 47 year old notes new bleeding between her periods. She is otherwise healthy and takes no regular medications but is allergic to penicillin.

She notes occasional chest pain occurring mostly after eating. Her primary care provider recommends a follow-up visit in one year but no other testing.

One-year later, she is referred to a gynecologist who diagnoses endometrial cancer and recommends that her uterus and ovaries be removed.
After results of a stress test are unclear, her primary care physician recommends that she undergo cardiac catheterization before surgery to be sure her chest pain was not caused by a heart condition.

Her catheterization is essentially normal but she has noted some mild, nagging numbness in her fingers since the procedure.
• Surgery is performed seemingly without complications. The pathology suggests the cancer has been completely removed

• 12 hours after surgery, she develops a fever for which she is given Tylenol. Seven hours later, a nurse calls the covering physician because the patient looks ill. Her blood pressure is lower than normal

• She is transferred to the intensive care unit with sepsis and is started on antibiotics, one of which is related to penicillin

• She recovers after one month in the ICU where she suffered multiple complications including the need to amputate one of her toes and remove part of her intestines
## Impacting Care: A Case Study

<table>
<thead>
<tr>
<th>Condition</th>
<th>Outcome</th>
<th>How UpToDate could have helped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abnormal Bleeding</td>
<td>Delay in diagnosis</td>
<td>UTD would have led to earlier diagnosis and efficient evaluation</td>
</tr>
<tr>
<td>Catheterization</td>
<td>Unnecessary preoperative work-up</td>
<td>UTD guidance would have prevented</td>
</tr>
<tr>
<td>Sepsis</td>
<td>Diagnosis was delayed and condition was likely not managed optimally.</td>
<td>Guidance from UTD could have helped</td>
</tr>
<tr>
<td></td>
<td>Caused by a surgical complication</td>
<td></td>
</tr>
<tr>
<td>Choice of Antibiotics</td>
<td>PCN given to allergic patient</td>
<td>UTD and Lexicomp provide correct choices.</td>
</tr>
<tr>
<td>Hereditary Cancer</td>
<td>Patient and family may be at risk for colon and uterine cancer.</td>
<td>UTD would have provided correct guidance</td>
</tr>
<tr>
<td></td>
<td>A proper family history was not obtained</td>
<td></td>
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</tbody>
</table>
Clinical Decision Support: Getting It Right

- Context & Format: Clinicians Find Useful
- The Right Guidance
- At the Right Time
- The Right Decision
Researchers at Harvard University Find Clinical Decision Support Associated with Improved Outcomes

**Improved Quality**
- Every condition on Hospital Quality Alliance Metrics

**Shorter Lengths of Stay**
- 372,000 days over 1 year

**Lower Mortality Rates**
- 11,500 lives over 3 years

- Isaac T, Zheng J, Jha A. Use of UpToDate and outcomes in US hospitals.

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**CIOsummit**

6-7 OCTOBER, 2014 | ROME, ITALY
Economic Impact of CDS at Salford Royal NHF Foundation

Forrester Research found Salford Royal NHS Foundation Trust (SRFT) recovered the costs of a leading Clinical Decision Support System in 90 days.

Benefits Included:

- Staff productivity
- Diagnostic test efficiencies
- Improvements in the quality of care

Source: November 2011, Forrester Research: The Total Economic Impact Of UpToDate’s Clinical Decision Support System For Healthcare Institutions;

A Case Study Of Salford Royal NHS Foundation Trust in the UK
National Adoption

UpToDate has national contracts with the governments of Iran, Norway, Saudi Arabia and Spain. These countries have standardized the use of UpToDate in public healthcare.

In countries such as Luxembourg, the Netherlands and Switzerland use of UpToDate is a de facto standard.
Impact: Changing Millions of Clinical Decisions

A Quarter Billion (254 877 259) Topic Views in 2013

over 80 million changed Decisions
Future Access: Anytime, Anywhere
Future Clinical Decision Support Pathways

• Effective decision support requires maximal integration in the clinical workflow:

**EMR/EHR:**
- InfoButton
- Link
- Search field
- Patient-specific

**Mobile Apps:**
- Cellular data
- Wi-Fi
- No Signal
One Roadmap for the Future

The European EMR Adoption Model in 7 Stages to Highest Quality in Patient Care

- Complete EMR, CCD transactions to share data. Data warehousing feeding outcomes reports, quality assurance, and business intelligence; Data continuity with ED, ambulatory, OP.
- Physician documentation interaction with full CDSS (structured templates related to clinical protocols trigger variance & compliance alerts) and Closed loop medication administration.
- Full complement of PACS displaces all film-based images.
- CPOE in at least one clinical service area and/or for medication (i.e. e-Prescribing); may have Clinical Decision Support based on clinical protocols.
- Nursing/clinical documentation (flow sheets); may have Clinical Decision Support for error checking during order entry and/or PACS available outside Radiology.
- Clinical Data Repository (CDR) / Electronic Patient Record; may have Controlled Medical Vocabulary, Clinical Decision Support (CDSS) for laboratory, casual drug checking. Document imaging and health information exchange (HIE) capability.
- Ancillaries – Lab, Radiology, Pharmacy – All installed OR processing LIS, RIS, PHIS data output online from external service providers.
- All three Ancillaries (LIS, RIS, PHIS) Not installed OR Not processing Lab, Radiology, Pharmacy data output online from external service providers.

“Paperless” patient record environment for highest quality of care, data continuity & full HIE

- Full electronic clinical decision support, and highest medication safety
- Completely electronic diagnostic image management
- Electronic order entry with decision support and result reporting
- Clinical ordering and documentation – especially nursing care
- A patient-centered electronic data repository
- Electronic diagnostic and pharmacy department information

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Are you future-ready?

- Evaluate CDS in a partnership between HIT and clinical leaders
- Think holistically about EMR/EHR in terms of user needs
- Ensure that CDS is an integral part of the workflow
- mHealth is here to stay – ensure CDS part of your mHealth strategy
Thank You
Questions & Answers