Do Guidelines Make a Difference

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Architects of Online Health Knowledge
for
Clinical Decision Support

EDS Claims for Benefits

- The claims benefits from EDS fall into 3 broad categories (Sintchenko et al., 2002):

  - *Improved patient safety* e.g. through reduced medication errors and adverse events and improved medication and test ordering;

  - *Improved quality of care* e.g. by increasing clinicians' available time for direct patient care, increased application of clinical pathways and guidelines, facilitating the use of up-to-date clinical evidence, improved clinical documentation and patient satisfaction; and

  - *Improved efficiency in health care delivery* e.g. by reducing costs through faster order processing, reductions in test duplication, decreased adverse events, and changed patterns of drug prescribing favouring cheaper but equally effective generic brands.

EDS: Requirements for Success

- To be successful EDS programs need to become an integral part of day to day clinical management.

- Achieving this goal has been a significant challenge due to a number of barriers not addressed by historic solutions:

  – Low clinician buy-in
  – Lack of relevance to clinical practice
  – Poor integration with clinician workflow
  – Poor functionality – response times and user interface
  – Poor maintenance of clinical data – requirement for highly specialised skills

EDS: End User Needs

- Patient specific, best practice advice delivered at the point of care in real time
- "Right knowledge, right place, right time"
- Fully integrated with existing information systems
- Enhances clinical workflow and does not intrude into practitioner / patient interaction
- Adaptable to reflect locally agreed clinical management
- Reflects "real world" clinical management
- Able to handle multiple conditions / situations

EDS: Barriers to Successful Implementation

- A range of issues and challenges need to be addressed before electronic decision support systems can be implemented successfully. These issues include:

    - Concerns about quality and safety aspects of electronic decision support systems
    - Gaining acceptance of health professionals
    - Implementation issues
    - Level of investment required.

Limitations of evaluation components of CDSS studies

- Many studies fall into traps such as over emphasising user satisfaction

- While CDSS are often justified on the basis of clinical benefit, evaluation often focuses on technical issues or on clinical processes, measurement of clinical outcomes is still sadly rare

Limitations of evaluation components of CDSS studies

- More specific failings include:

    - A focus on post-system implementation evaluation of users' perceptions of systems.
    - A reliance upon retrospective designs which are limited in their ability to determine the extent to which improvements in outcome and process indicators may be causally linked to the CDSS.
    - Rare adoption of a comprehensive approach to evaluation where a multi-method design is used to capture the impact of CDSS on multiple dimensions.
    - Concentration on assessment of technical and functionality issues, which are estimated to explain less than 20% of IT failures. Such evaluations have also failed to determine why useful and useable systems are often unsuccessful.
    - Expectations that improvements will be immediate. In the short term there is likely to be a decrease in productivity. Implementing information systems takes time and measuring its impact is complex thus a long-term evaluation strategy is required but rarely implemented.
    - Almost none use naturalistic design in routine clinical settings with real patients and most studies involved doctors and excluded other clinical or managerial staff.

Sintchenko et al., 2003

Fish Hooks in EDS Projects

- Practitioners may perceived little to be gained by using the more detailed decision support system

- Requirements to switch between the guideline and the clinical system present significant barriers

- The complexity of interventions demanding time, training and disruption

- Degree to which software in embedded to support in the specified model of care.

- Needs for focused training to key people in a practice

- Provision of financial incentives

Case Study

- OBJECTIVE:
  - To assess the effects of computer-based cardiac care suggestions.
- DESIGN:
  - A randomized, controlled trial targeting primary care physicians and pharmacists.
- SUBJECTS:
  - A total of 706 outpatients with heart failure and/or ischemic heart disease.
- INTERVENTIONS:
  - Evidence-based cardiac care suggestions, approved by a panel of local cardiologists and general internists, were displayed to physicians and pharmacists as they cared for enrolled patients.
- MEASUREMENTS:
  - Adherence with the care suggestions, generic and condition-specific quality of life, acute exacerbations of their cardiac disease, medication compliance, health care costs, satisfaction with care, and physicians' attitudes toward guidelines.
- RESULTS:
  - Subjects were followed for 1 year during which they made 3,419 primary care visits and were eligible for 2,609 separate cardiac care suggestions. The intervention had no effect on physicians' adherence to the care suggestions (23% for intervention patients vs 22% for controls). There were no intervention-control differences in quality of life, medication compliance, health care utilization, costs, or satisfaction with care. Physicians viewed guidelines as providing helpful information but constraining their practice and not helpful in making decisions for individual patients.
- CONCLUSIONS:
  - Care suggestions generated by a sophisticated electronic medical record system failed to improve adherence to accepted practice guidelines or outcomes for patients with heart disease. Future studies must weigh the benefits and costs of different (and perhaps more Draconian) methods of affecting clinician behavior.

Effects of Computerized Guidelines for Managing Heart Disease in Primary Care. Tierney et al. J GEN INTERN MED 2003; 18:967–976.

Case Study

- Using data from each patient's electronic medical record and data entered by the physician (vital signs, symptoms, and NYHA class), the workstation generated guideline-based cardiac care suggestions for all enrolled patients.

- For patients in the physician control group, these suggestions were withheld. For patients in the physician intervention group, the cardiac care suggestions were printed at the end of the medication list on the encounter form and displayed as "Suggested Orders" on physicians' workstations.

- This screen displayed the suggested order, possible actions for each order (i.e., order or omit), and a brief explanation. Physicians could view the guidelines and references via the "help" key. They could avoid all suggestions made for that patient that day by hitting the "escape" key.
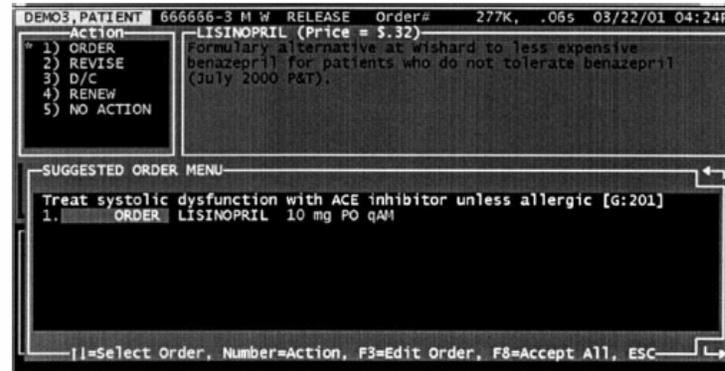
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What to Look for in the Published Literature

- Clear definition of the clinical problem that CDSS will address
- Clinical relevance and applicability of the intervention(s)
- Clinical relevance of the decision support solution
- Clinical workflow relevance – when where and how decision support is provided
- User interface to decision support
- Scope of the expected behaviour change – new technology, new intervention etc
- Support for behaviour change – training etc
- Requirements for and use of incentives – financial etc
- Study design – qualitative and quantitative approaches

Summary

- There is a lack of a rigorous, comprehensive, consistent approach to the evaluation of Guideline / EDS implementation projects.

- There is widespread variation in the evaluation methods chosen, making it very difficult to compare the effectiveness of different systems.

- The development of an standard evaluation methodology would be of significant advantage (EDS AGREE?)