

Effect of Computerized Physician Order Entry and a Team Intervention on Prevention of Serious Medication Errors

July 19, 2016

Healthcare Teams Cyber Discussion Series



The presentation will begin
shortly

Division of Cancer Control and Population Sciences
Healthcare Delivery Program

Series Purpose – for NCI

- Solicit opinions from three sectors of the community regarding problems in the quality of cancer care
 - Providers, Researchers, Health Care Purchasers
- Identify potential research topics that might address those problems
- Focus a research agenda on major underlying factors affecting the processes of cancer care.

For Participants

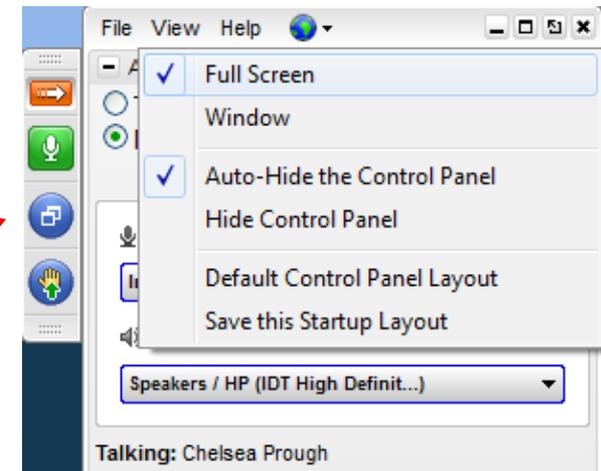
- Understand the perspectives of three communities with respect to problems in cancer care delivery
- Learn conceptual, analytic, and practical approaches to understanding and addressing problems in cancer care delivery
- Contribute to the development of NCI's research agenda

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Instructions – Q&A session

1. If you would like to be unmuted and ask your question out loud, please click on the Raise Hand button (below the orange arrow) to be unmuted.
2. If you would like to type in a question and have a staff member read it to the group, please type it into the “Questions” box.



Questions

Show Answered Questions

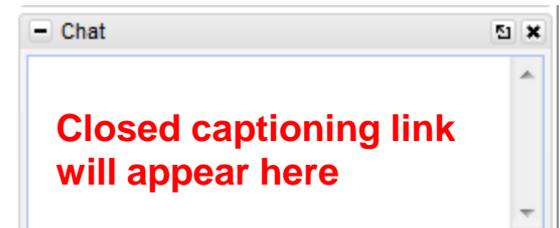
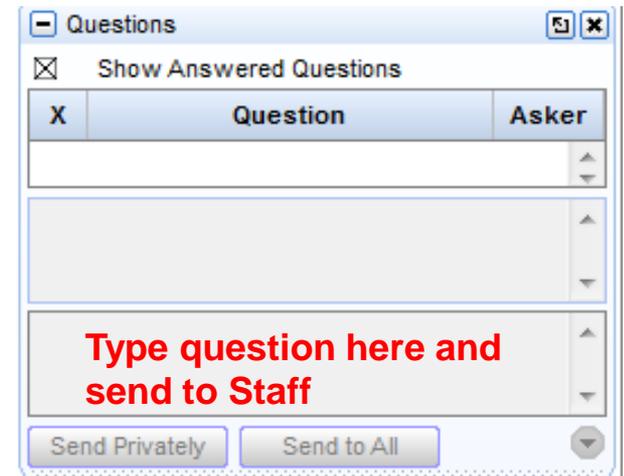
X	Question	Asker

Type question here and send to Staff

Send Privately Send to All

Instructions

1. All lines will be in listen-only mode. If you have technical difficulties or questions during the webinar,
 - please type into the “Questions” box
 - or contact us at (703) 276-6969
 - or HCTcyberdiscussions@nih.gov.
2. If you need to view live closed captioning, please click on the link that will appear in the Chat box.



Review Case Study

67 YO Post-menopausal woman with depression

Depression in a woman with breast cancer

- 67 yo female presents to her primary care physician for routine care

c/o difficulty sleeping, loss of interest in work.

Family supportive and has had two previous episodes that responded to medications. Denies suicidal ideation, history of physical threats or abuse.

- Hx breast cancer (2006)

- Tearful during interview, somewhat flattened affect
- Primary care clinician decides to Rx with SRI

Comments on Case?

Discussion

- Any clinical concerns?
- Any teamwork that could assist in the care?
- Path forward
 - Considers Rx with SSRI (Prozac, celexa, Luvox, Zoloft, paxil, Lexapro)
 - Start?
- How could Health Information Technology help the management of this case?

David Westfall Bates, MD, MSc
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and
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Effect of Computerized Physician Order Entry and a Team Intervention on Prevention of Serious Medication Errors

David Westfall Bates, MD

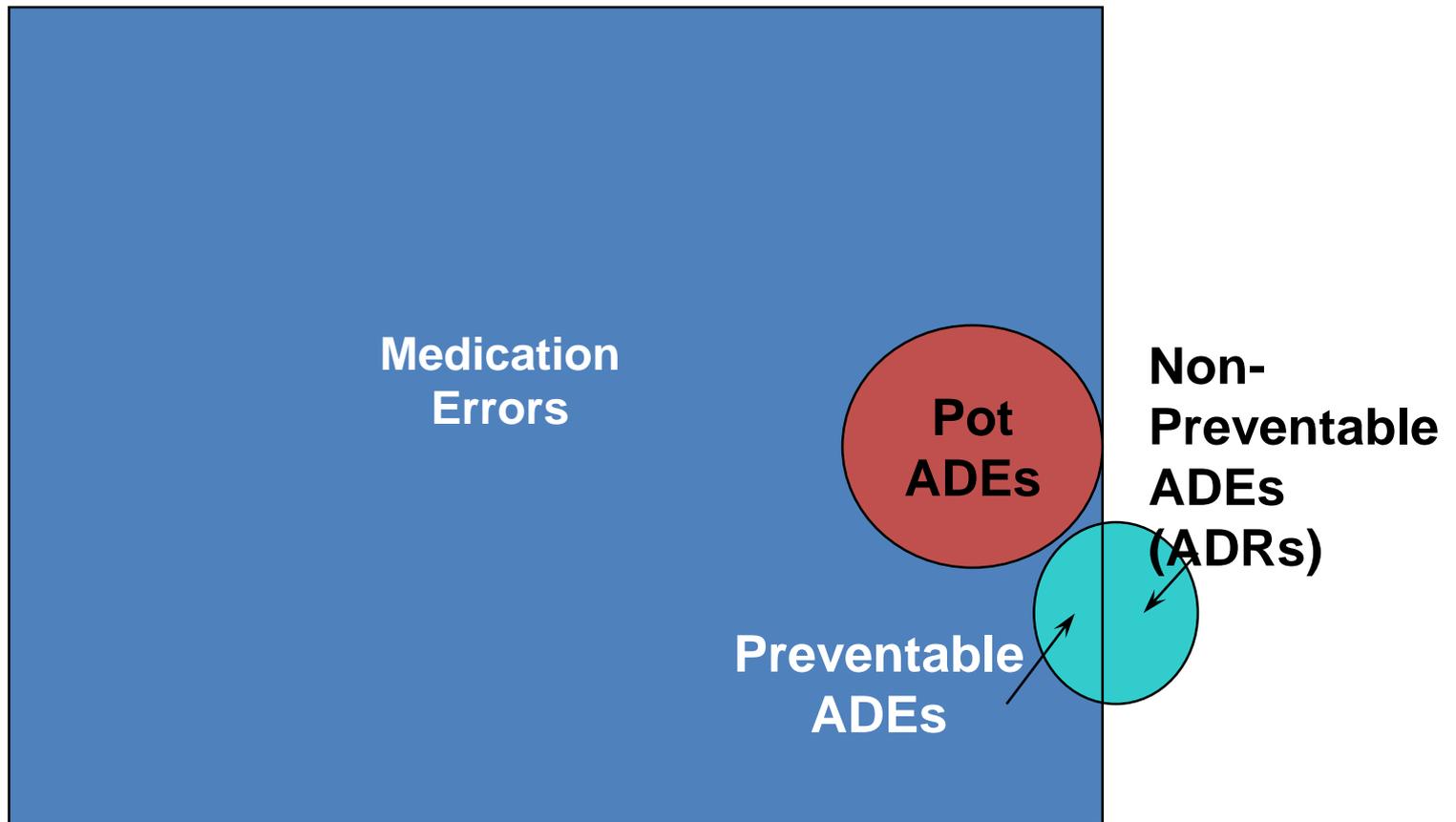
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HARVARD
MEDICAL SCHOOL

Relationships Between Med Errors, Potential ADEs and ADEs



Medication Error Frequency and Potential for Harm

In 10,070 Orders

530 Medication Errors

1.4 per admission

35 Potential ADEs

5 Preventable ADEs

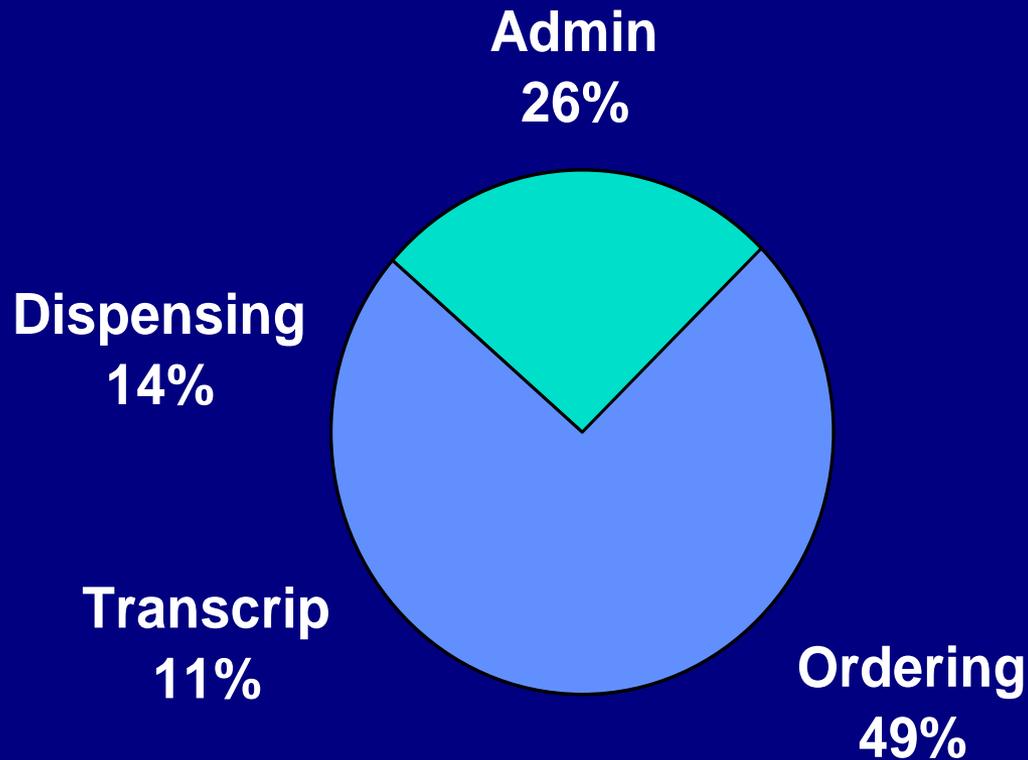
- 1 in 100 medication errors results in an ADE
- 7 in 100 represent potential ADEs

ADE Prevention Study: Key Results

- 6.5 ADEs/100 admissions
 - 28% preventable
 - 3 potential ADEs for every preventable ADE
 - 62% of errors at ordering and transcription stages

JAMA 1995;274:29-43

Error Stage for Preventable ADEs and PADEs (n=264)



Costs of ADEs

- ADEs are expensive
 - \$2461 per ADE, \$4555 per preventable ADE
 - ADE average similar to Utah figure
 - Annual BWH costs \$5.6 million for all ADEs
 - \$2.8 million for preventable ADEs
- These figures excluded costs of:
 - Injuries to patients
 - Malpractice costs
 - Costs of admissions due to ADEs
- Figures justify investment in prevention efforts

Intervention Study: Study Population

- Phase 1: All patients admitted to a stratified random sample of 6 medical and surgical units in a tertiary care hospital over a 6-month period
- Phase 2: all patients admitted to the same units and 2 randomly selected additional units

Interventions

- Computerized physician order entry system for all units
- Team-based intervention that included changing the role of pharmacists for half the units

Improving the Quality of Drug Ordering with CPOE

- Streamlines, structures process
 - Doses from menus
 - Decreased transcription
 - Complete orders required
- Give information at the time needed
 - Show relevant laboratories
 - Guidelines
 - Guided dose algorithms
- Perform checks in background
 - Drug-allergy
 - Drug-drug
 - Drug-laboratory
 - Dose ceiling
 - Drug-pt characteristic

Interventional Trial Data

- Design--controlled trial, using both contemporaneous and time series comparisons, over 15-month period
- CPOE
 - All orders complete
 - Transcription minimized
 - Early checking including drug-allergy, drug-drug
- 55% decrease in serious medication error rate
 - 17% decrease in preventable ADE rate (p=0.37)
- No change with team intervention

Observations

- Was a struggle managing the individual units
- Was very hard implementing the team intervention—pharmacists were regularly getting pulled to do other things

Conclusions

- Saw major benefit even with simple intervention
- Have layered on many additional improvements
 - Notably renal dosing
- This played a major role in helping this become part of meaningful use
- Now hard to imagine using paper prescribing
 - But still lots of work getting decision support right

Thank You!

Next Session

October 11, 2016

1:00PM- 2:00PM

Rebecca Freeman, PhD, RN, PMP

How Nurses and “Non-IT” Factors Can Improve the
Health IT Experience

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