Optimizing Use of Drugs- UPHS Drug Use and Effects Program

- Introduction
- Background
- UPHS Drug Use and Effects Program
- Warfarin/TMS Study
- Conclusions

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Patient Safety and Medical Errors

- Iatrogenic injuries: up to 180,000 US deaths each year, and disability or prolongation of hospital stay in another 1.3 million
- Medical errors: 44,000-98,000 annual deaths, more than MVA, breast cancer, or HIV
- Medical errors: annual costs of $17-29 billion

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Risks Associated With the Use of Drugs

- Adverse drug events are the most common iatrogenic causes of patient injuries

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Drug Use and Effects Program

- Adverse drug reaction reporting
- Drug usage evaluation
- Pharmacy cost containment

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Selected Interventions

- Antibiotic management program
- Antibiotics for URI
- Anticoagulation management program
- Cisapride drug interactions
- Deletion of zolpidem from formulary
- Increasing outpatient BP control
- Limit high-dose hydromorphone PCA
- Long-term use of PPIs
- Proper use of COX2 inhibitors
- Propoxyphene use

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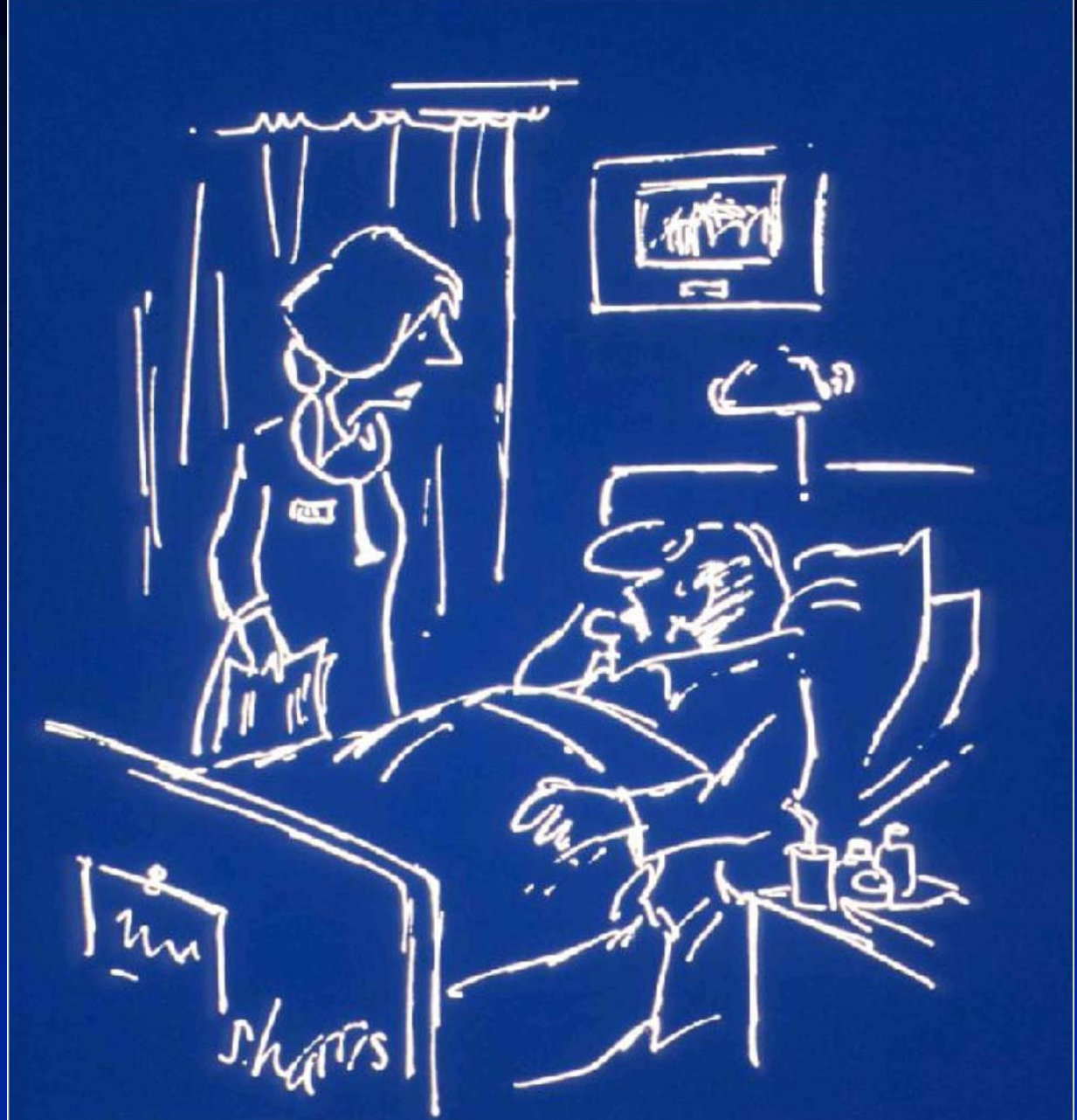

"I stopped taking the medicine because I prefer the original disease to the side effects."

Increasing use of IT interventions

- Immediate EPIC alerts with withdrawal of trimethobenzamide, pergolide, tegaserod,rofecoxib, and valdecoxib
- EPIC-delivered warnings regarding celecoxib, metoclopramide, rosuvastatin

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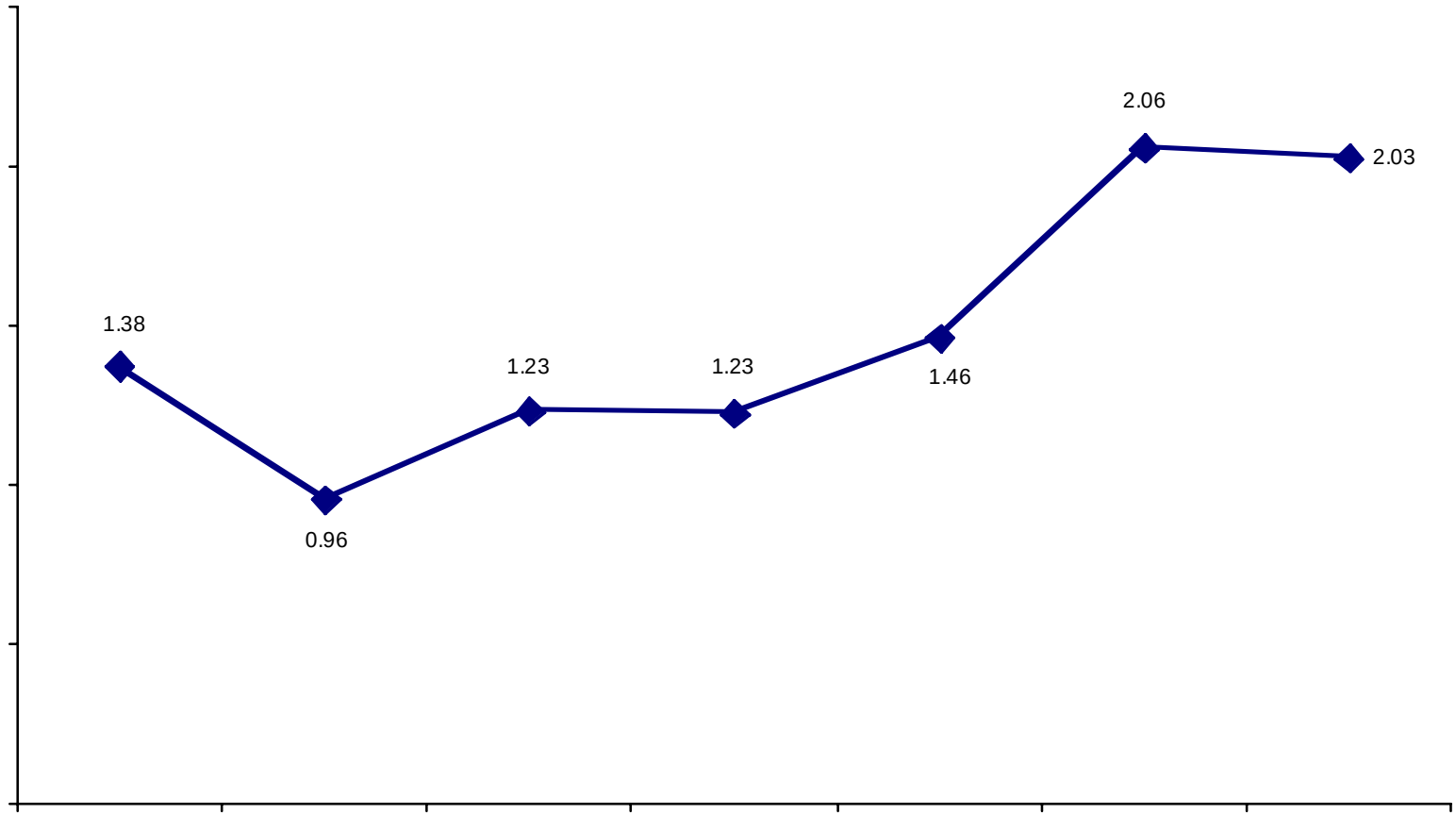
1.38
0.96
1.23
1.23
1.46
2.06
2.03

IT Intervention Evaluations Underway

- Metoclopramide RCT
- Warning fatigue
- Warfarin + NSAID RCT
- Insomnia/hypnotic RCT
- Warfarin + TMS RCT

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Warfarin/TMS Study

- **Objective: To determine if a computerized stop order will reduce the number of concurrent TMS and warfarin orders accepted through the inpatient electronic ordering system**

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Background

- Warfarin: common anticoagulant used for DVT, atrial fib, prosthetic heart valves, etc.
- Trimethoprim/sulfamethoxasole (TMS): common antibiotic well known to interact with warfarin
- Rarely is an infection sensitive to only one antibiotic

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Background

- Currently UPHS pharmacists intervene with MDs stop an order for tms ordered concurrently with warfarin
- Yet, 166 inpatients received concurrent tms & warfarin during FY 2003-2004

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Background

- **Hypothesis: an automatic stop against simultaneous electronic orders for tms and warfarin will reduce the number of patients receiving both drugs concurrently compared to current practice**

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Methods

- Design: RCT
- Setting: UPHS hospitals
- Subjects: Residents & NPs using CPOE
- Primary Endpoint: New concurrent prescription order for tms and warfarin accepted through the electronic ordering system

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Study Design

- Intervention: an automatic electronic stop of the tms or warfarin order
  - A pop-up window that notifies the physician or nurse practitioner that the order cannot be processed due to a significant potential drug interaction
  - Same pop-up window lists exceptions permitting further processing of order
- Controls: Usual care

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Observations

- IRB had difficulties with the study, as they were worried about random allocation to usual care!
- Compromise solution was to create a “DSMB”, reviewing each episode where the system triggered an alert

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Results

- **Indeed, the DSMB DID stop the study early due to episodes of potential patient harm (delayed access to life-sustaining therapy), in the intervention group!**

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"To my data, right or wrong."

Conclusion

- **ALL interventions need evaluation, to be sure they are effective, and safe**

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