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The Role of Information Technology in Providing Patient Safety

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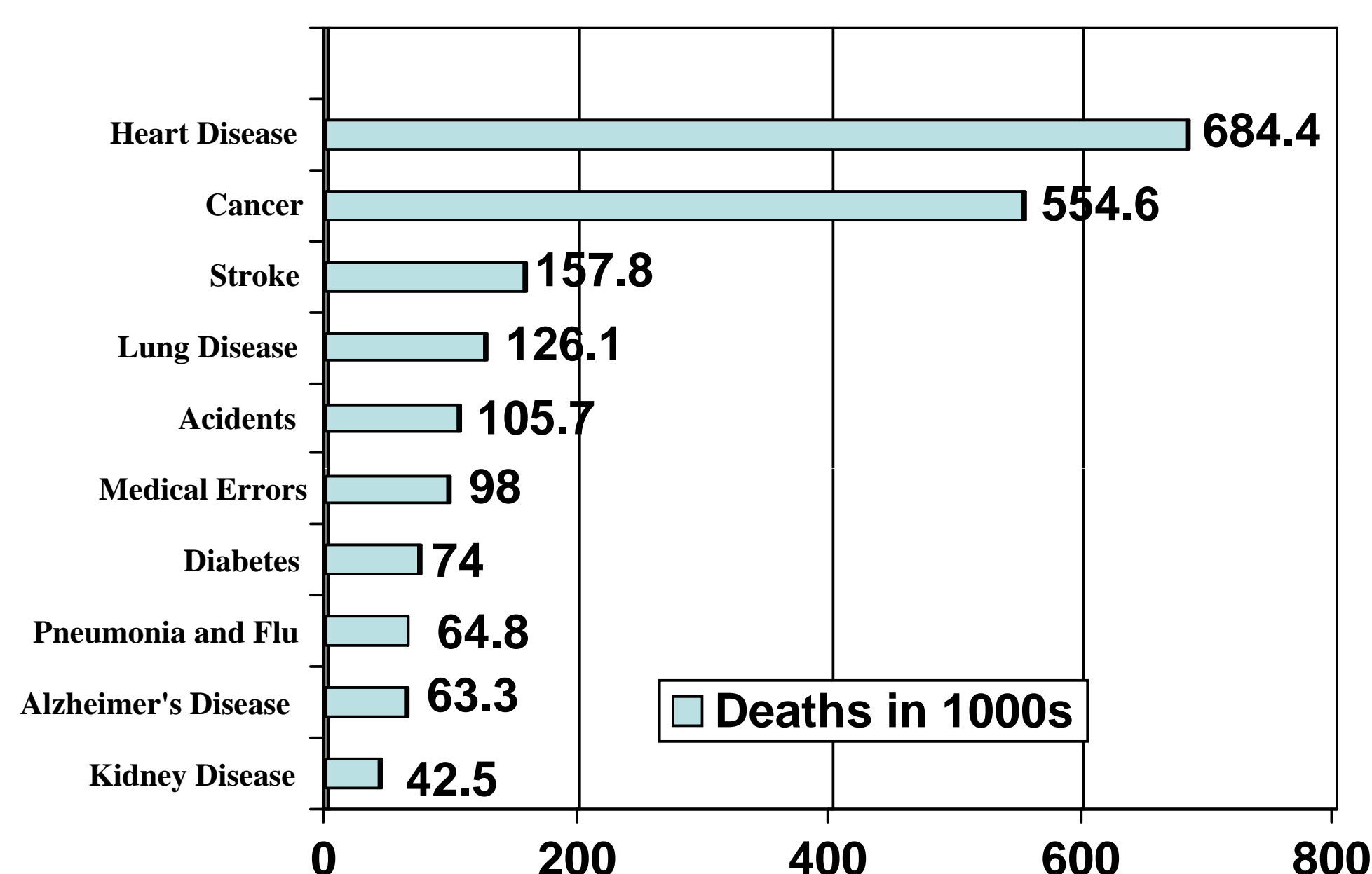
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Top Ten Causes of Death in the U.S.



Project Goals and Objectives

- To evaluate the effectiveness of information technology in reducing medical errors.
- To examine developmental trends in the effectiveness of data sharing regarding medication errors in hospitals.
- To use the results to assist hospitals to improve patient safety by reducing medication errors.

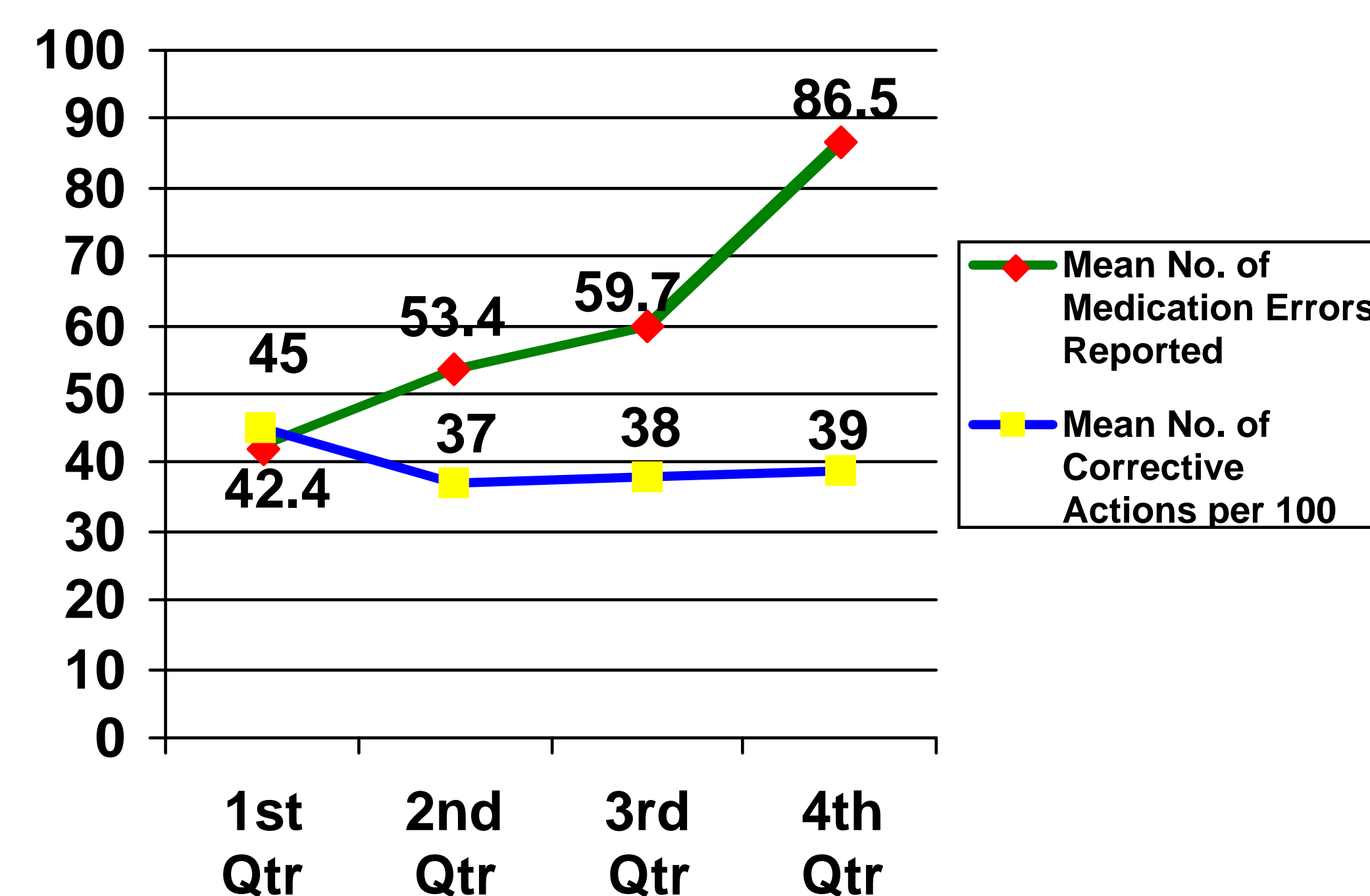
Methods

- Data
 - 17,000 reports of medication errors from 25 Pennsylvania hospitals
- Analytic Strategy
 - Structural equation modeling
 - Computer simulation

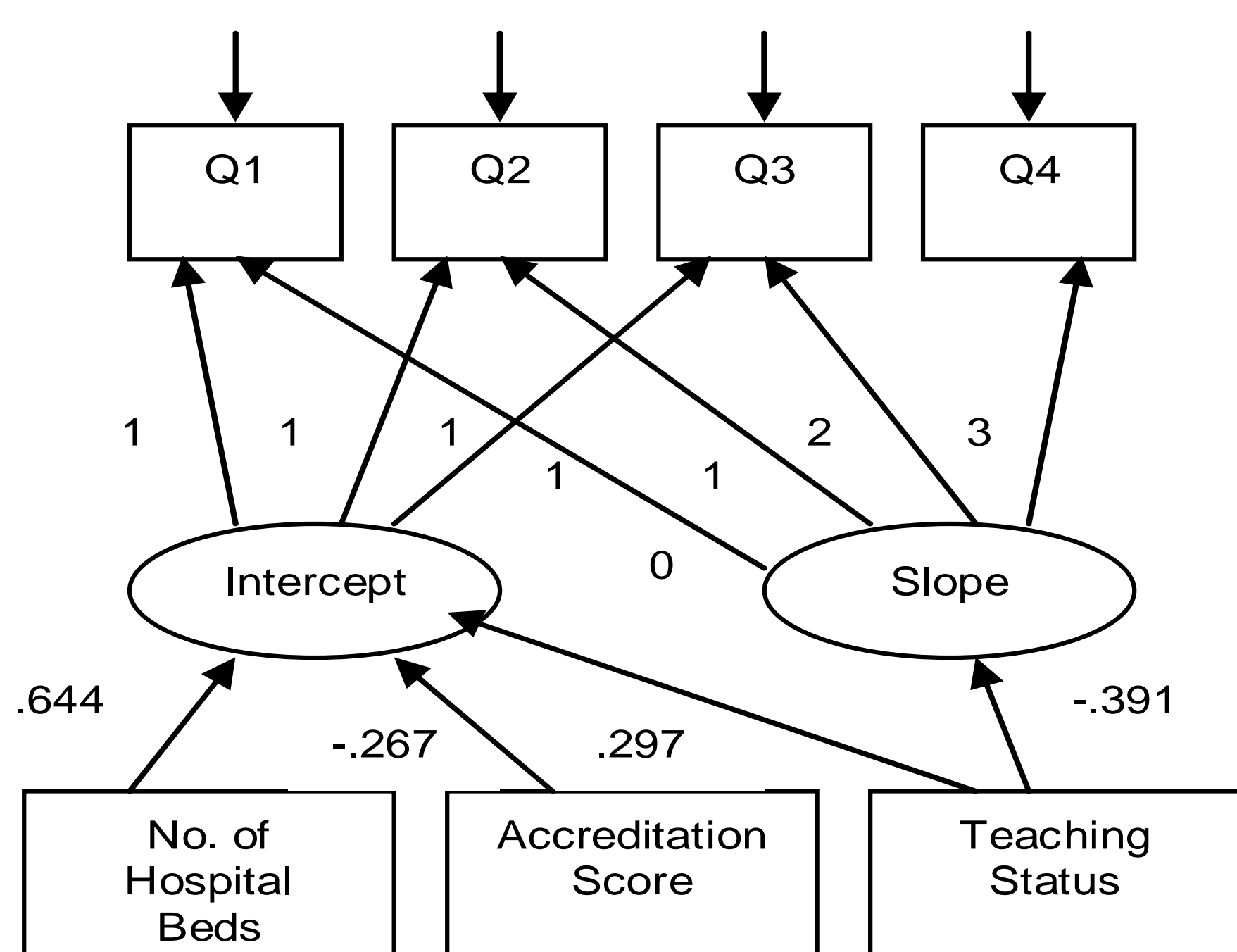
Results To Date

- Despite significant baseline differences between hospitals, error reporting increased at similar rates across hospitals over four quarters
- By contrast, the reporting of corrective actions remained unchanged
- Improved patient safety requires more than voluntary reporting of errors. Organizational changes are essential for significant improvement in patient safety

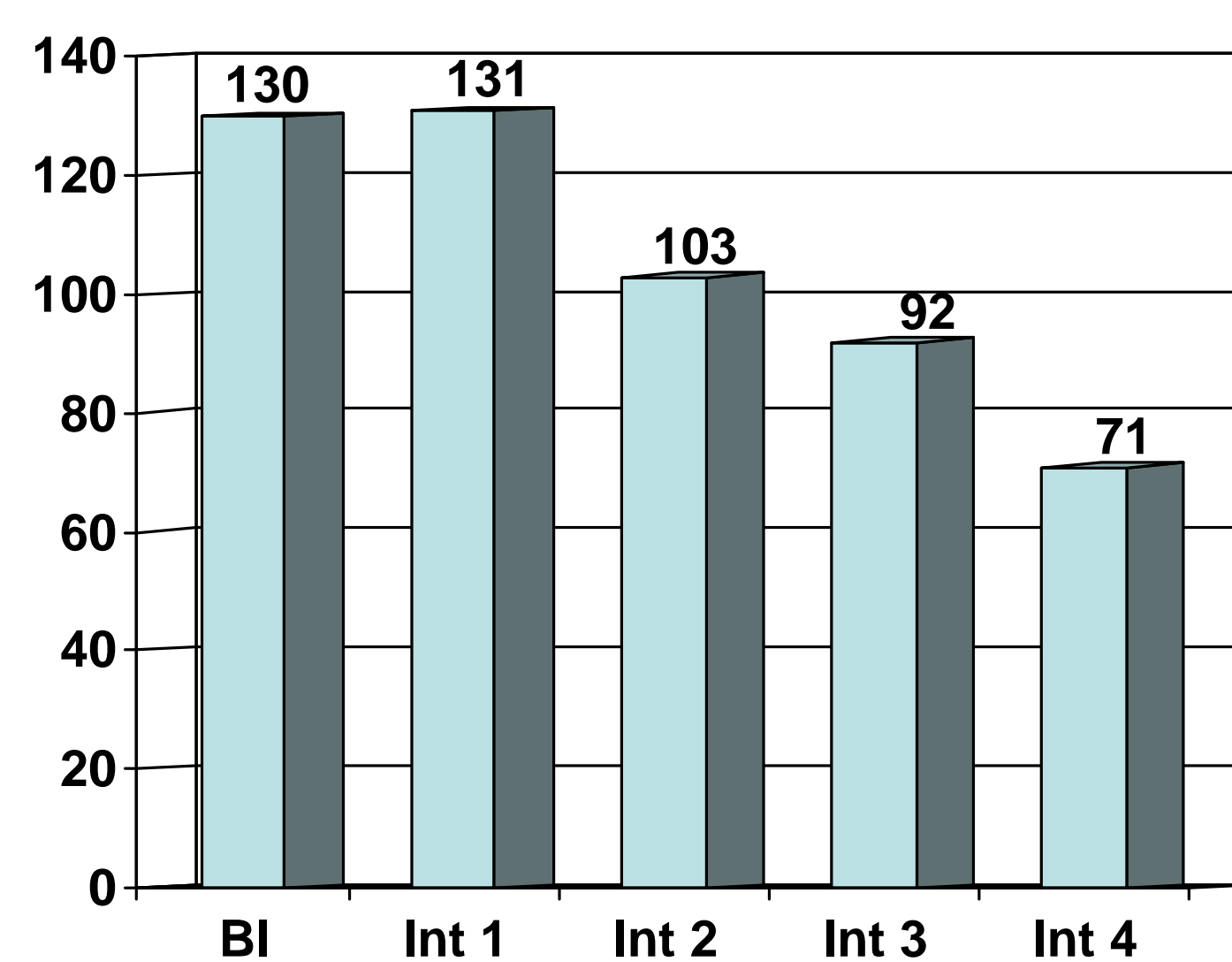
Medication Errors and Organizational Changes Reported over Four Quarters



Latent Growth Curve Model



Estimated Average Number of Medication Errors that Could Have Results in ADEs by Quarter



Simulation

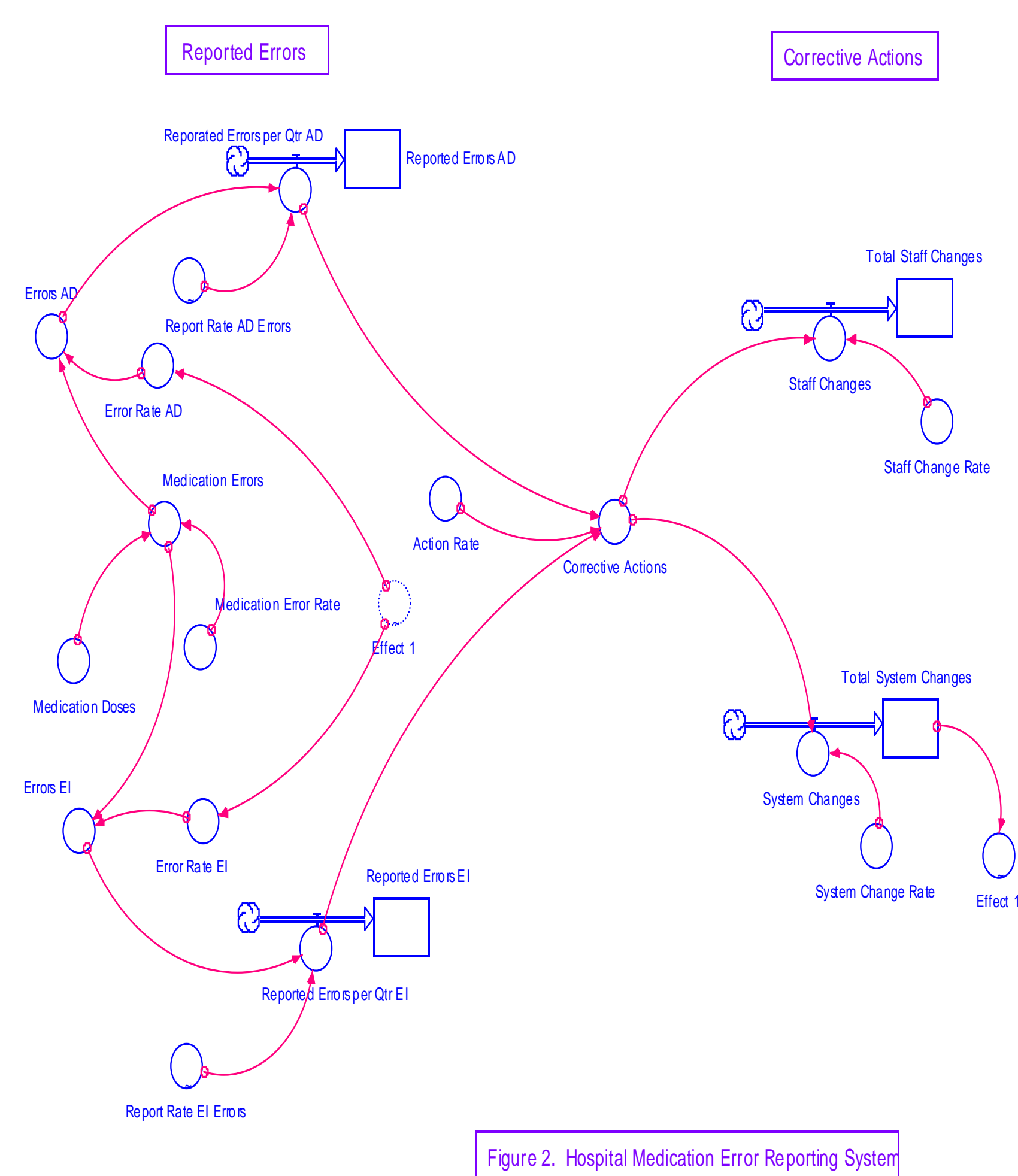


Figure 2. Hospital Medication Error Reporting System

- [BL] Existing information system
- [1] Computer-based physician order entry system
- [2] Computer-based physician order entry system that provides dosing information about drugs at the time orders are written
- [3] Pharmacists participation on physician rounds
- [4] Pharmacists participation and organizational commitment to identify causes of errors and make system changes to improve patient safety

Implications

- Implementation of a basic CPOE system would have little effect on the rate of serious medication errors
- Inclusion of pharmacists on physician rounds would reduce medication errors by 20%
- Organizational Commitment to system changes following medication errors would reduce the error rate by 70%

Conclusions

- There is a mismatch between patient safety goals and hospital actions to reduce the risk of future medication errors.
- Hospitals increasingly recognize the need to implement error reporting systems
- At the same time they fail to implement organizational and IT changes needed to improve patient safety.
- Actual error reduction will require organizational changes and IT to be carefully institutionalized and integrated into long term plans.