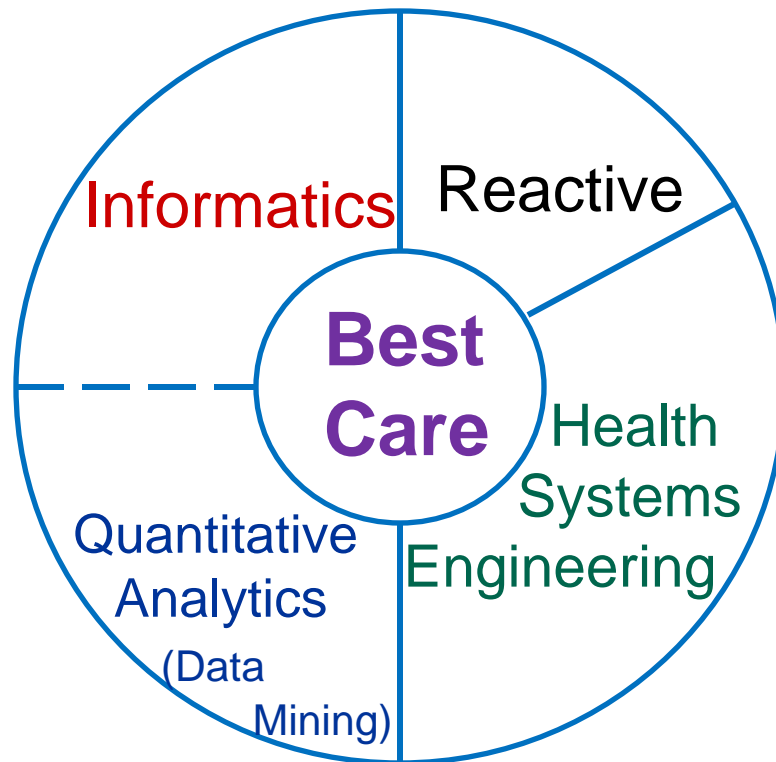


HealthCare Quality



HC Quality Tools

- Affinity Diagram
- 5Ss for HC
- Control Chart
- Histogram
- Kaizen Blitz Road Map
- Lean Nursing
- Pareto Chart
- Process Capability
- Process Flow Map
- Relational Diagram
- SIPOC+CM Diagram
- SMART Matrix
- Spaghetti Diagram
- Systems Thinking

- First Do No Harm, Then Make No Waste
- Focus Areas:
 - Efficiency.
 - Quality basics: customer satisfaction.
 - Patient safety.
 - Technology and quality improvement.
 - Quality systems and organizational excellence.
 - Building and sustaining a quality culture.

- Excess cost of due to mistakes
- Hospitals bill for the mistakes they make
- If care were error free, then cost must have been less
- To Err Is Human
- Whether we can minimize?
- Better quality helps reduce cost

- For any given error event reported to us, had the error not happened, how much less costly the care would have been?
- Can we estimate the excess cost due to mistakes?
- Developed case-control matching analysis

Definition of Terms

- **Case = A patient that experienced a safety event.**
 - All types of safety events were included in this study - medication, falls, accidental trauma, device/equipment, surgical events, tests, treatments/procedures and other (does not include behavioral events, or complications like infections or pressure ulcers).
- **Control = A like patient that DID NOT experience a safety event.**

Case Control Study



Match
←————→

Diagnosis
Severity
Age
Gender



Case
(Event Report)

Control
(No Event Report)

No
Match

Case-Control Study Design (retrospective)

- Identification of patient safety event cases (later focused on just falls, mislabeled specimens, etc.).
- Compared (matched pairs) actual total cost (activity based cost accounting) and LOS.
- Computed average differences of means and totals, and summarized aggregate impact.
- Statistical significance and differences reported.
- Random and Median Cost draw were done for multiple matches.
- Stratified analyses performed for type of error, harm score and year.

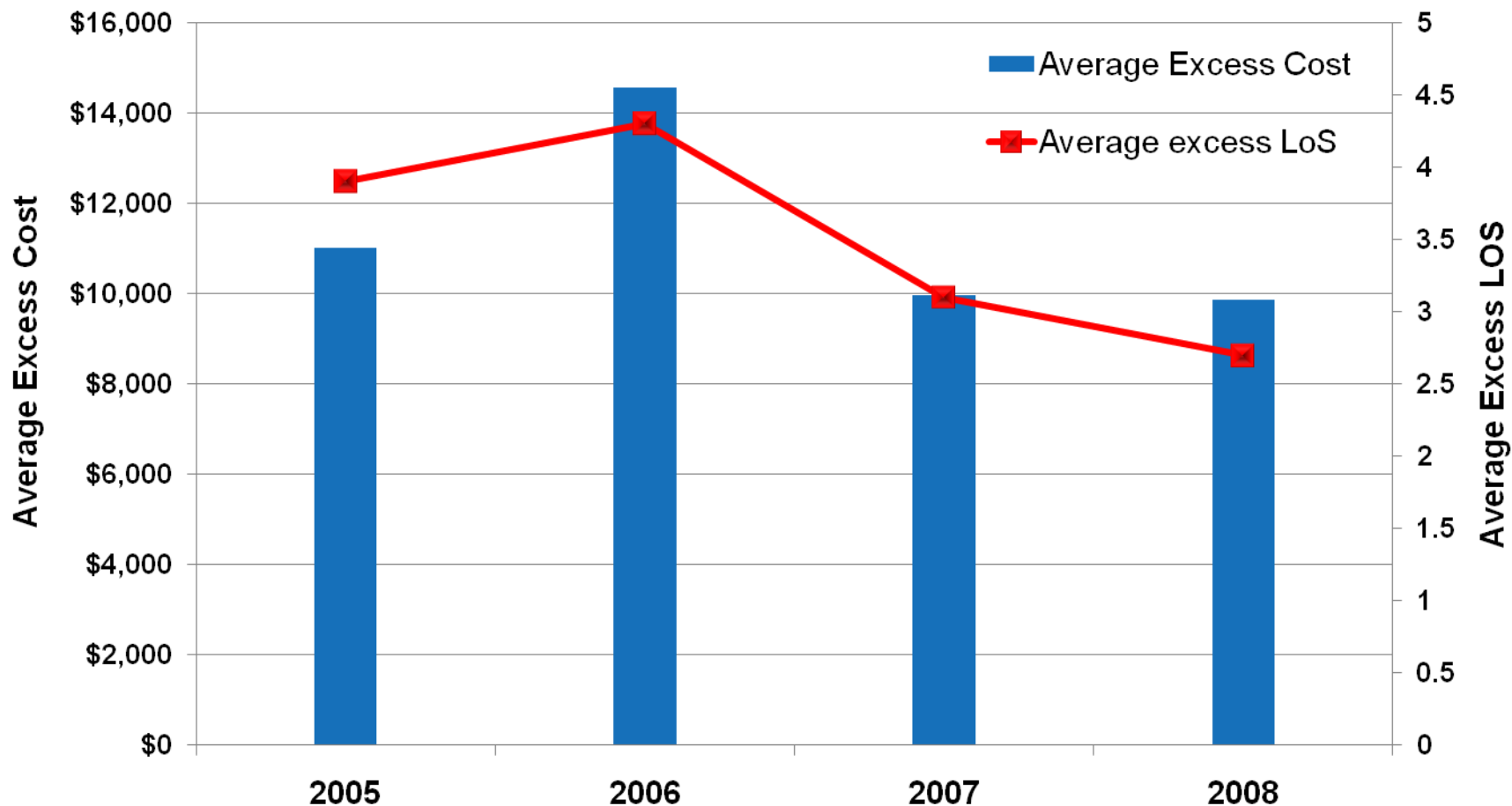
Matching Model



Key Findings: 2005-2008

- Significant differences observed in average length of stay (LOS) and costs between Cases with safety events (all events with harm score D or greater) and matched Controls without.
- Average excess stay of ~ 3 or more days (> 2,200 total excess days).
- Average cost difference ~ \$ 10,000 per case (> \$ 8 M annualized).
- Opportunity cost: Chances are high that all inpatient diversions and cancellations could have been accommodated had patient safety events been avoided

Average Differences in LOS and Costs – Cases and Matched Controls



Annual Differences in LOS and Costs – Cases and Matched Controls

Year	Number of PSN Cases	Matches Found	Average Cost Difference (\$)	Total Cost Difference (on matched cases)	Average LoS Difference (Days)	Total LoS Difference (on matched cases)
2005	948	680	\$11,018	\$7,492,240	3.9	2,652
2006	1,121	787	\$14,575	\$11,470,525	4.3	3,384
2007	1,731	1053	\$9,967	\$10,495,251	3.1	3,264
2008	1,368	843	\$9,868	\$8,318,724	2.7	2,276

- Using this baseline as ROI for safety investments.
- Translated to an ongoing scorecard “waste” measure.
- Accelerating targeted risk reduction and quantify savings.

Mr. Pareto Head BY MIKE CROSSEN

Well, we certainly have never seen such a unique application of PDCA.



It seems that you do a great job with **Plan**, **Do** and **Check**.



I think Deming meant "A" to stand for "Act" – not "Avoid." Hey – where are they going?

