

EDIS: Return on Investment & Contracts

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EDIS: ROI & Contracts

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Salient Points from TEPR '03

- Return on Investment (ROI)
 - Little direct ROI on any computer system
 - Other factors gain value, but not necessarily cost reduction
- With good systems
 - Patients themselves can provide > 50% of the necessary documentation

Salient Points from TEPR '03

"The cost savings on documentation is in building a better system to capture data automatically."

Jim Maisel, MD
Chairman, ZyDoc

ROI- What is it, really?

- Return on Investment
 - The money you expect to generate as a result of implementation.
 - Reasonable to expect 15% first year
 - e.g. spend \$100K - get \$115K back
- NOTE: Since EDs are high fixed cost, the majority of additional revenue contributes to profit margin.

Left With-Out Treatment

- Take total LWOTs for previous year
- Assume you capture half
- Multiply times average "collections"
- Include pro fees, if facility collects
- If not, may be reasonable for physician group to contribute & also be "at risk"

Example: Rx & Release

- 70,000 ED visits with 5% LWOT
 - LWOTs = 3500
 - $3500 \times 0.5 = 1750$
- Facility: $1750 \times \$300 = \$525,000$
- Pro Fee: $1750 \times \$100 = \$175,000$
- $\$525,000 + \$175,000$
= **\$700,000 gross ROI**

Example: Lost Admits

- Assume 8% of LWBS would be admitted & you capture half
 - $3500 \times .08 = 280 \times 0.5 = 140$
- Multiply X Average Hospital Collection
- $140 \times \$5,000$ (avg inpatient collection)
 - = **\$700,000**

Total ROI = \$1.4 Million – First Year (from a single metric)

Ambulance Diversion

- These are much worse than LWOT as most are admitted.
- Numbers may be smaller so perhaps equal in value, but additive.

Emergency Department

ED VOLUME 1999 to 2001

Year	Number of patients	Change (%)
1999	69,320	-
2000	80,677	16%
2001	86,000	24%

Average Daily Census 1999 to 2001 YTD

Year	Number of patients
1999	191
2000	216
2001	237

From 1999 to 2001: ED estimated growth rate = 24%

Emergency Department Jan 2000 – Mar 2001

LWT / PressGaney Scores

Month	LWT	PressGaney Score
Jan 00	150	76
Feb 00	150	76
Mar 00	150	76
Apr 00	150	76
May 00	150	76
Jun 00	150	76
Jul 00	150	76
Aug 00	150	76
Sep 00	150	76
Oct 00	150	76
Nov 00	150	76
Dec 00	150	76
Jan 01	150	76
Feb 01	150	76
Mar 01	150	76

Patients LWT and Diverted

Year	LWT	Diverted patients	Total Patients
2000	2,213	1,618	3,831
2001 (Estimate)	5,131	2,990	8,121

Percentage changes from 2000 to 2001 (Estimate):
 LWT: +131%
 Diverted patients: +82%
 Total Patients: +111%

Reimbursement Loss for LWT and Diverted Patients

Year	Inpatient ED (15%)	Outpatient ED (85%)	Total Losses
2000	\$898,932	\$3,568,800	\$4,467,732
2001 (Estimate)	\$1,905,228	\$7,551,600	\$9,456,828

Reimbursement case:
 Inpt: \$6,200
 Outpt: \$276

ED Case Study

Patient complaints* ↓ 63%

Press Ganey rank: 19%ile → 60%ile

Patients LWOT ↓ 79%

Diversion hours ↓ 60%

Additional patients seen = 1112

Additional captured revenue (2 mos.) \$964,476

*comparison Feb-March 2001 to Oct-Nov 2001, same patient volumes

Invalid Arguments

- "You'll get these patients anyway, so you can't count them."
- Not true in competitive markets
- When they do come, they are often sicker resulting in higher costs for the same DRG reimbursement
- Margins are squeezed

TAT Reduction

Physical Plant

- 36,500 visit ED with avg TAT = 4 hours
- Reduce TAT by 1 hour
- Creates 100 bed hours per day
- Equivalent of 4 new beds without adding any additional cost
- Savings estimates vary from \$100,000 to \$250,000 per fully loaded bed

Reduction in TAT

"Butts in Beds"

- 36,500 visit ED avg TAT 4 hours
- 100 pts/day X 4 hours = 400 patient hrs/day
- 20 beds X 24 hrs = 480 bed hours/day
- 83% BIB rate*
(*often referred to as "Utilization")

BIB - continued

- 100 pts/day X 3 hrs = 300 pt hrs/day
- 20 beds X 24 hrs = 480 bed hrs
- $300 \div 480 = 62.5\%$ BIB
- 133 pts X 3 hrs = 399 pt/hrs
- 20 beds X 24 hrs = 480 bed hrs
- $399 \div 480 = 83\%$ BIB
- $33 \times \$300.00 = \$9900/\text{day}$
\$3.6 Million per year

BIB Rate Caveat

- < 65% = comfortable
- 75% = working efficiently & steady
- > 85% = very stressful
- At some point, to stay efficient, additional staff (including physicians) may be needed

Reduced QA Time

- Manual systems take 80 RN hrs/month
- RN = \$20.00/hr = \$1600/month
- Reduce to 8 hrs month @ \$15/hr clerk
- Save \$1480/month or \$17,760/year
- Helps staffing, if short on RNs

Real Life Results

Carilion Health System

- EDIS cost 5 facilities = \$1.5 million
- First Year ROI Revenue = \$1.7 million
- First IT system to ever make money
- Ahead of schedule & under budget
- *So they asked for more !*

Beyond Tracking - CPOE

- HCAB quotes 13% medical error rate
- 49% MD (24% illegible, 25% incomplete)
- 26% Nursing
- 11% Secretary
- Takes 2 minutes correct an order from physician based on time study

Cost of Getting Orders

- 50k meds ordered X 13% error rate
= 6500 X 2 minutes/each
= 13000/60
= 216 hr
- 216 X \$ 20.00 = \$ 4333
- Just to correcting orders!!
- Soft Dollars:
 - Difficult to justify real savings
 - But, illustrates waste due to handwriting

CPOE Time Savings

- Order entry saves = \$1.55/pt
- Automated Results Retrieval = 32¢/pt
- Retrieval of hard copy MR = \$6.42/pt
- ED Results: Volumes ↑10% - FTE ↓11
- Carilion's 137,000 patients resulted in \$262,336 savings
- CPOE is very cost effective

ORIGINAL CONTRIBUTION

Role of Computerized Physician Order Entry Systems in Facilitating Medication Errors

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JAMA
March 9, 2005
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- **RESULTS:** a widely used CPOE system facilitated 22 types of medication error risks. 3/4 of house staff reported observing these error risks, indicating that they occur weekly or more often.

- **CONCLUSIONS:** we found that a leading CPOE system often facilitated medication error risks, with many reported to occur frequently.

- **As CPOE systems are implemented, clinicians & hospitals must attend to errors that these systems cause in addition to errors they prevent.**

Computer Charting

- Transcription cost vary based on model
 - Employed transcriptionist ave \$15.00/hr.
- Determine time spent on ED records
- Assume 50% of ED documentation will computer based.
- 50% dictated for efficiency

Charting Con't.

- Result:
 - Either FTE reduction or
 - More time spent on Radiology, Operative notes, & Discharge Summaries.
 - All three high volume areas demanding resources & drive hospital AR days.
- Real savings at Carilion was 3 FTE's (~\$100,000/year)

The Cost of Paper

- NCR (triplicate forms) = \$1.40 each
- 140,000 X \$1.40= \$196,000
- Lab & Radiology results printed in ED:
 - One result per page at cost of 5¢/page
 - Each result averaged 2 pages
 - Based on 260,000 orders, savings=\$26,000

HIM Labor Savings

- For 100,000 pieces of paper processed:
 - Scanning:
 $650 \text{ sheets/hr} = 153.85 \times \$8.50/\text{hr} = 1,310.77$
 - Indexing:
 $700 \text{ sheets/hr} = 142.86 \times \$8.50/\text{hr} = 1,214.29$
 - Prep:
 $35 \text{ sheets/hr} = 2857.14 \times \$8.50 = 24,285.77$
- HIM labor savings= \$ 27,000

ROI Summary

- LWBS Captured Revenue
- ↑ Volume by ↓ TAT
- Avoid Construction Cost
- Labor Savings:
 - HIM, transcription, chart prep\retrieval
- ED Labor Savings:
 - RN, clerk, order entry, charge capture, etc.
- Paper Savings:
 - Charts, forms, lab results, etc.

Contracts

- A contract needs 3 elements
 - An offer
 - Agree on the terms
 - Something exchanged (usually goods or services for money)

Negotiation

"It ain't 'wrasslin'
till they start 'sweatin' "

E.W. Tibbs
Expert nurse negotiator

Elements

- Definitions
- License
- Source Code Escrow
- Term of Agreement
- Compliance with Laws
 - specify your state not theirs

Elements (cont)

- Delivery & Installation
- Testing & Acceptance
- Point of Contact
- Non-Hiring
- Conduct of Personnel
- Software Updates
- Pricing & Payment Terms

Elements (cont)

- Confidentiality & Limitations of Use
- Liability
- Dispute Resolution
- Cancellation/Termination
- Hardware & System Interfaces
- Support & Help Desk Escalation
- Disaster Recovery

Elements (cont)

- On-site support
- Problem Resolution Response Time
- Versions updates
- Account representative
- Site visit - what's in it for you?
- Shared Risk
 - Predetermined milestones
 - Terms of refund or rebates

Best Advice

- Use an attorney with IT law experience.
- Obtain a financial analysis on potential vendors (Dunn & Bradstreet).
- Ask for proof of vendor revenue committed to R&D. They need to be committed to your future.
- Understand what happens when things do not go well.