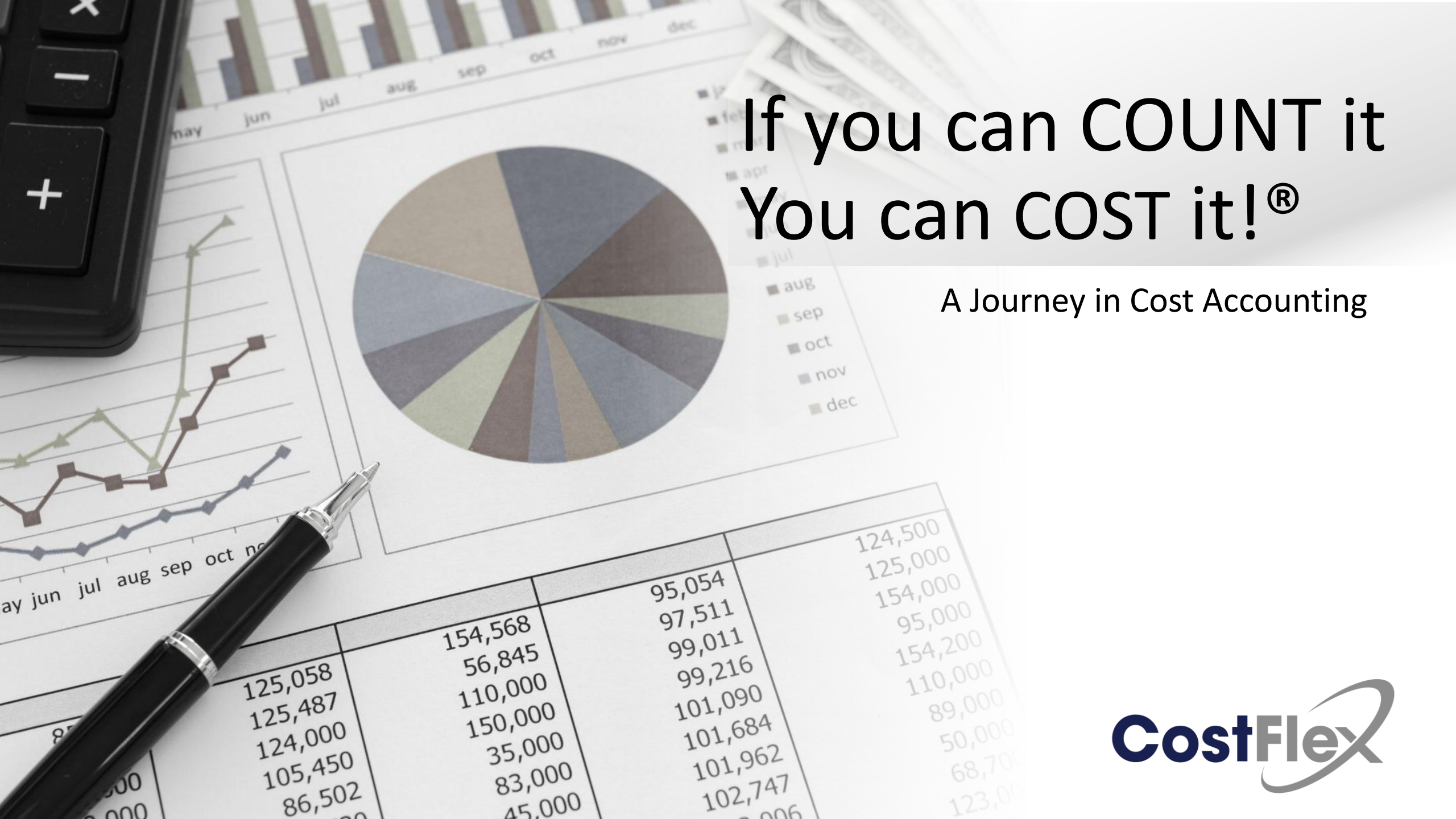


# If you can COUNT it You can COST it!®

A Journey in Cost Accounting



# Introductions – Michael Ryan



- President CostFlex Systems, Inc.
- Involved in cost accounting / decision support for over 30 years.
- Prior: Director of Cost Accounting / Decision support – Springhill Medical Center.
- Installed Systems in US, England, Bermuda, Bahamas and consulting work in Qatar.
- MBA from University of South Alabama.

# Presentation Navigation

Background and Theory

Lessons Learned from UK

Applying activity costing to US / Quantifying Results

Other Feeds

# Presentation Navigation

Background and Theory



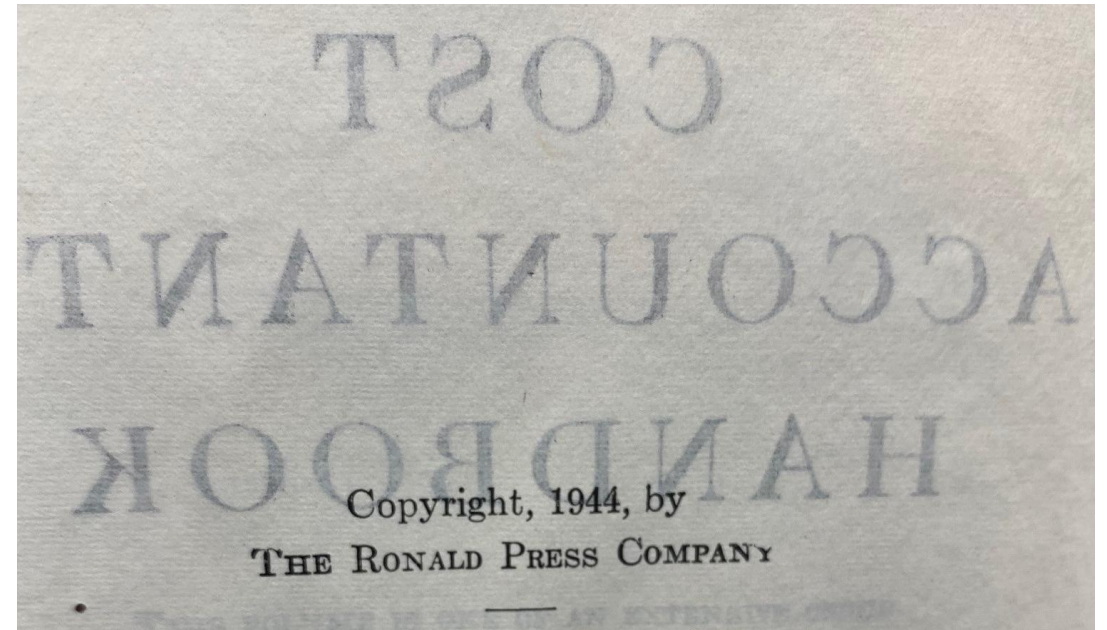
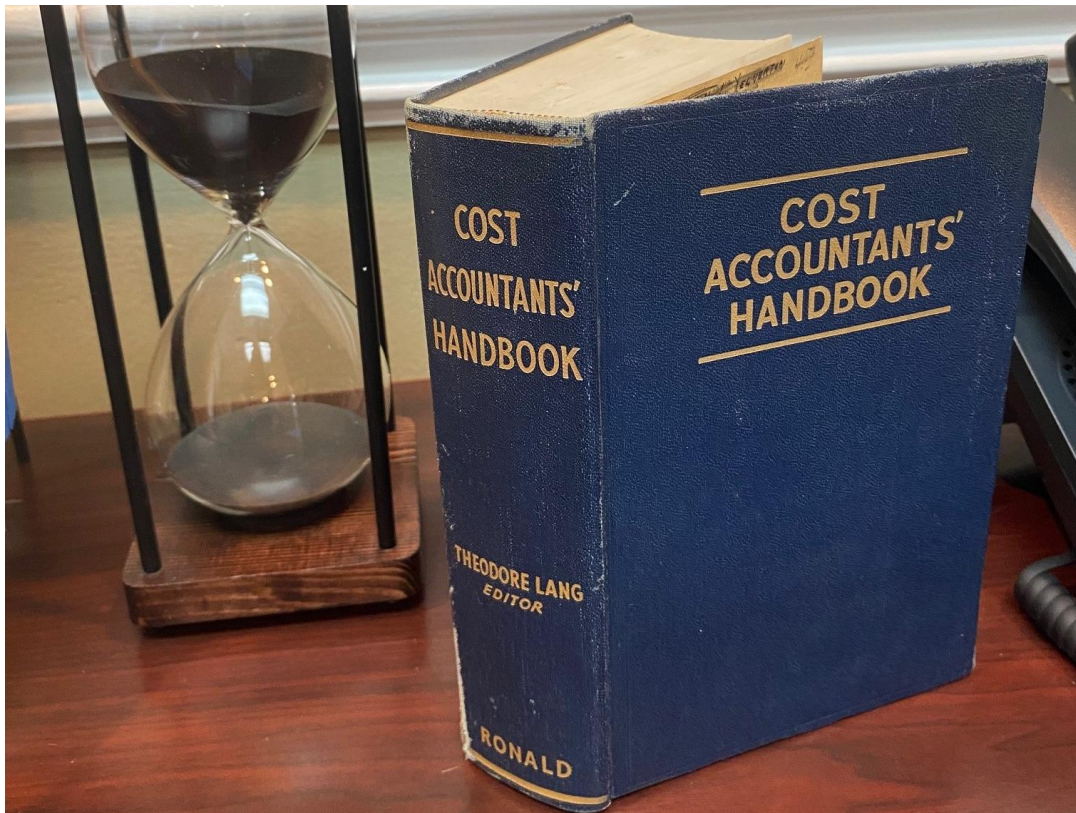
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graph TD; A[Background and Theory] --> B[Lessons Learned from UK]; B --> C[Applying activity costing to US / Quantifying Results]; C --> D[Other Feeds];
```

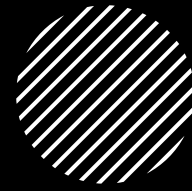
Lessons Learned from UK

Applying activity costing to US / Quantifying Results

Other Feeds

# Theory: Cost Accounting is not new





## Begin with the End in Mind

Cost Accounting provides the feedback to management to run the business that you cannot see with regular financials.

What is Cost Accounting data used for?

We are in the “Behavior Modification” business.



# Uses of Cost Data

- Cost Control of patient care
  - Contribution Margin analysis (any demographic)
  - Comparing physician practice patterns
  - Product Line profitability
- Measuring operational changes:
  - Did they save money or do “cost shifting”?
- Negotiating Profitable Contracts
- Purchase Decisions
- Make vs Buy decisions



# What are we costing?

Patients!



not charge codes  
(there are exceptions!)



# Basic Concepts

Your Expenses are  
your Cost

Cost Accounting:  
moving expenses from  
GL Accounts to  
Activities / Charge  
Codes

# Basic Concepts

Only two inputs and both are known before you start to cost activities.



- **Expenses**

- General Ledger
- Payroll



- **Workload / Activities**

- Charge Codes + Any other activity at the patient level

# Basic Concepts : Costing in the USA (historically)

## Revenue Departments

- Use the Charge Codes posted to patients as our “Activity”

## Non Revenue Departments

- stepped down or related to revenue departments for costing

# Basic Concepts

## Classify Costs into 4 major categories

|          | Direct                            | Indirect                         |
|----------|-----------------------------------|----------------------------------|
| Fixed    | Radiology lease                   | Accounting<br>Housekeeping       |
| Variable | Nursing labor<br>Supplies / Drugs | Housekeeping<br>(nursing floors) |

# Presentation Navigation

Background and Theory

Lessons Learned from UK

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Other Feeds

# England vs US - Hospital Cost Accounting



- Similarities
  - Treating patients
  - Both have expenses and income streams
- Differences
  - Revenue Cycle / Billing / Charge Codes
  - Data collection
    - Disparate systems
    - Multiple accounts for visit
  - Payments
  - Sense of urgency - MRI, office visit cost study
  - Bed occupancy



# Lessons Learned

- Activity Based Cost Accounting, not “Charge” Based Cost Accounting
- Add activities from EVERY department
  - Nursing (50% nonsurgical patient cost)
  - OR
  - PT, Radiology etc.
- Cash – not everything posted to patient account.
- Healthcare Visit concept – care can span visits / bills



# Presentation Navigation

Background and Theory

Lessons Learned from UK

Applying activity costing to US /  
Quantifying Results

Other Feeds

# About Springhill Medical Center

---

- 252 Bed Acute, 11 Inpatient Rehab
- Privately owned – only tax paying hospital in Mobile Alabama
- Started open hearts 27 years ago
- CostFlex implemented in 1989 (CostFlex' s first client)



# Adding Data / increasing accuracy: Cost Non-Revenue departments

- Where possible, cost non-revenue departments to patients and make them a direct cost and avoid spread as overhead.
- Examples:
  - Admitting
  - Business Office
  - Medical Records



# Business Office / Medical Records



Business Office - \$2.3 million / year direct



Admitting - \$1.1 million / year direct



“Normal” Costing – spread as overhead to other areas

Hypothesis: Inpatients get more costs than Outpatients



Instead: Used Activity Based Costing for these departments . . .

# Example of Business Office / Admitting

| <b>CostFlex</b>                     |                             | <b>Springhill Memorial Hospital</b> |  |      |       |       |
|-------------------------------------|-----------------------------|-------------------------------------|--|------|-------|-------|
|                                     |                             | <b>Cost Detail By Department</b>    |  |      |       |       |
|                                     |                             | <b>February 2024</b>                |  |      |       |       |
| <b>Dept: 8240 - BUSINESS OFFICE</b> |                             | <b>Unit Costs</b>                   |  |      |       |       |
| <b>TaskNo</b>                       | <b>Title</b>                | <b>Qty</b>                          | <b>Total = Focused + DeptOH + Indirect</b> |      |       |       |
| 99900050                            | : Business Office SFM       | 8187                                | 29.21                                      | 1.00 | 10.12 | 18.09 |
| 99900098                            | : I/ SFMOffSite Lab Registr | 3529                                | 6.47                                       | 1.00 | 1.76  | 3.71  |
| <b>Dept Totals:</b>                 |                             | <b>11716</b>                        |  |      |       |       |

| <b>CostFlex</b>               |                  | <b>Springhill Memorial Hospital</b> |  |      |       |       |
|-------------------------------|------------------|-------------------------------------|--|------|-------|-------|
|                               |                  | <b>Cost Detail By Department</b>    |  |      |       |       |
|                               |                  | <b>February 2024</b>                |  |      |       |       |
| <b>Dept: 8250 - ADMITTING</b> |                  | <b>Unit Costs</b>                   |  |      |       |       |
| <b>TaskNo</b>                 | <b>Title</b>     | <b>Qty</b>                          | <b>Total = Focused + DeptOH + Indirect</b> |      |       |       |
| 99900051                      | : Admissions SFM | 8187                                | 33.77                                      | 1.00 | 16.30 | 16.47 |
| <b>Dept Totals:</b>           |                  | <b>8187</b>                         |  |      |       |       |

Price History

99900050 Business Office SFM 33334

| Month  | Qty   | Unit Cost | Avg Charge | DNLD Value Av | 01: Suppl |
|--------|-------|-----------|------------|---------------|-----------|
| 202402 | 8,187 | 29.21     | 0.00       | 0.00          | (         |
| 202401 | 8,095 | 29.90     | 0.00       | 0.00          | (         |
| 202312 | 8,154 | 29.94     | 0.00       | 0.00          | (         |
| 202311 | 8,532 | 44.01     | 0.00       | 0.00          | (         |
| 202310 | 8,571 | 28.89     | 0.00       | 0.00          | (         |
| 202309 | 8,068 | 28.76     | 0.00       | 0.00          | (         |
| 202308 | 9,065 | 26.69     | 0.00       | 0.00          | (         |
| 202307 | 7,817 | 27.03     | 0.00       | 0.00          | (         |
| 202306 | 7,916 | 30.07     | 0.00       | 0.00          | (         |
| 202305 | 8,166 | 29.48     | 0.00       | 0.00          | (         |
| 202304 | 7,279 | 35.10     | 0.00       | 0.00          | (         |
| 202303 | 8,143 | 32.01     | 0.00       | 0.00          | (         |

Patient volume and thus costs change from month to month



| PatNo | AdmitDate | DischDate | PatType | InsCo | FinClass | Actual Reimt | Full Costs | Charges  | Charges U | Proj Rein |
|-------|-----------|-----------|---------|-------|----------|--------------|------------|----------|-----------|-----------|
| 110   | 2/13/2023 | 2/13/2023 | C       | 2     | 200      | 59.76        | 124.14     | 202.03   | 202.03    | 57.99     |
| 110   | 2/2/2023  | 2/2/2023  | C       | 54    | 310      | 93.19        | 144.95     | 257.58   | 257.58    | 91.69     |
| 110   | 2/9/2023  | 2/9/2023  | C       | 2     | 200      | 128.70       | 128.70     | 1,454.96 | 1,454.96  | 122.10    |
| 110   | 2/9/2023  | 2/9/2023  | S       | 2     | 200      | 4,230.58     | 760.28     | 7,865.56 | 7,804.65  | 4,230.58  |
| 110   | 2/3/2023  | 2/3/2023  | C       | 2     | 200      | 208.40       | 220.66     | 882.85   | 882.85    | 197.70    |

Detailed Patient Charges

Detailed Patient Charges

Show Accumulator Titles

| TaskNo   | TaskTitle           | Posting Date | HCPCS | TotalQty | TotalChg | TotalCost |
|----------|---------------------|--------------|-------|----------|----------|-----------|
| 42642140 | RENAL               | 2/2/2023     | 76775 | 1.00     | 257.58   | 73.78     |
| 99900050 | Business Office SFM | 2/2/2023     | 0     | 1.00     | 0.00     | 32.58     |
| 99900051 | Admissions SFM      | 2/2/2023     | 0     | 1.00     | 0.00     | 38.59     |

- For this Outpatient, 50% of the Cost of \$144.95 are now attributed to Business Office and Admissions, showing a loss of \$51.76.
- If we only used the Ultrasound cost of \$73.78 we would incorrectly assume the patient was profitable by \$19.41 due to the reimbursement of \$93.19

# A tale of two cost models

- For analysis created 2 separate cost models with same patient data for discharges in 2023.
- Cost No Supplemental:
  - Used “usual” costing methodology only to posted charges were used, and all overhead stepped down
- Cost Supplemental:
  - Indirect departments and micro time loads (upcoming) were used as cost elements in addition to the posted charges (as well as OR times)

# A tale of two cost models

Quantifying results of overhead costing

| Type        | Count   | Charges     | Cost         |             | Variance   | Pct | Per Patient  |         |          |
|-------------|---------|-------------|--------------|-------------|------------|-----|--------------|---------|----------|
|             |         |             | Supplimental | No Supp     |            |     | Supplimental | No Supp | Variance |
| OffSite Lab | 44,788  | 16,891,860  | 3,004,643    | 2,831,498   | 173,145    | 6%  | 67           | 63      | 4        |
| Clinic      | 35,660  | 33,630,527  | 7,930,389    | 5,633,444   | 2,296,945  | 41% | 222          | 158     | 64       |
| EMERGENCY   | 34,313  | 70,891,066  | 8,894,823    | 6,737,781   | 2,157,043  | 32% | 259          | 196     | 63       |
| INPATIENT   | 10,227  | 343,473,451 | 115,409,700  | 118,333,430 | -2,923,730 | -2% | 11,285       | 11,571  | -286     |
| SDC         | 7,856   | 166,238,515 | 37,751,393   | 39,354,443  | -1,603,050 | -4% | 4,805        | 5,009   | -204     |
| Recurring   | 4,893   | 17,554,063  | 4,663,504    | 4,429,072   | 234,432    | 5%  | 953          | 905     | 48       |
| Observation | 3,727   | 56,713,018  | 13,002,078   | 13,107,652  | -105,575   | -1% | 3,489        | 3,517   | -28      |
| OUTPATIENT  | 406     | 18,248,689  | 8,237,021    | 8,466,360   | -229,340   | -3% | 20,288       | 20,853  | -565     |
| Unknown     | 2       | 1,256       | 462          | 333         | 129        | 39% | 231          | 166     | 65       |
|             | 141,872 | 723,642,445 | 198,894,013  | 198,894,013 | 0          |     |              |         |          |

# Adding Data / increasing accuracy : Time capture in departments. Focus: the OR



# Example: OR surgical time downloads

Volumes for one Month in the OR:

Scrub: 48,225 minutes = 803 Hours

| Month  | Dept | Dept Title      | Task Number  | Task Title                | REV | Quantity | Charge | Cost   |
|--------|------|-----------------|--------------|---------------------------|-----|----------|--------|--------|
| 202402 | 7100 | SURGERY         | 9990017      | Nurse Min - Litho         | 0   | 107      | 0.00   | 4.36   |
| 202402 | 7100 | SURGERY         | 9990007      | Nurse Min - Litho         | 0   | 485      | 0.00   | 4.36   |
| 202402 | 7100 | SURGERY         | 9990003      | Nurse Min - OR Other      | 0   | 10,938   | 0.00   | 4.36   |
| 202402 | 7100 | SURGERY         | 9990002      | Nurse Min - OR Scrub      | 0   | 48,225   | 0.00   | 4.36   |
| 202402 | 7100 | SURGERY         | 9990001      | Nurse Min - OR Circ       | 0   | 51,500   | 0.00   | 4.36   |
| 202402 | 7120 | CVOR            | 9990006.7120 |                           |     | 11,631   | 0.00   | 3.18   |
| 202402 | 7120 | CVOR            | 9990005.7120 |                           |     | 18,526   | 0.00   | 3.18   |
| 202402 | 7120 | CVOR            | 9990004.7120 |                           |     | 13,600   | 0.00   | 3.18   |
| 202402 | 7140 | PERFUSION       | 9990008      | Nurse Min - Perfusion     | 0   | 8,726    | 0.00   | 10.71  |
| 202402 | 7160 | OP SURGERY      | 9997160      | O/P SURGERY PREP          | 000 | 830      | 0.00   | 226.56 |
| 202402 | 7200 | GI LAB          | 9990009      | Nurse Min - GL Lab        | 0   | 17,441   | 0.00   | 5.43   |
| 202402 | 8240 | BUSINESS OFFICE | 99900098     | I/ SFMOffSite Lab Registr | 000 | 3,529    | 0.00   | 6.47   |
| 202402 | 8240 | BUSINESS OFFICE | 99900050     | Business Office SFM       | 000 | 8,187    | 0.00   | 29.21  |
| 202402 | 8250 | ADMITTING       | 99900051     | Admissions SFM            | 000 | 8,187    | 0.00   | 33.77  |



1. Hospital had 48,225 minutes or 803 hours of Scrub Tech time clocked into the surgery for February, costing \$4.36 per minute

# Example: OR Scrub Nurse time

2. Each patient in February has a different amount of Scrub Tech time in surgery

3. Targeted Patient had 2 staff in room for surgery:  
 - Scrub for 168 minutes (2 hours 48 min)  
 - Circulator for 241 minutes (4 hours 1 min)

Price History

9990002 Nurse Min - OR Scrub

| Month  | Avg Charge | Qty    | Unit Cost |
|--------|------------|--------|-----------|
| 202402 | 0.00       | 48,225 | 4.36      |
| 202401 | 0.00       | 45,412 | 4.91      |
| 202312 | 0.00       | 50,103 | 4.91      |
| 202311 | 0.00       | 51,940 | 5.38      |
| 202310 | 0.00       | 54,752 | 5.07      |
| 202309 | 0.00       | 54,752 | 4.40      |
| 202308 | 0.00       | 46,844 | 4.95      |
| 202307 | 0.00       | 46,697 | 4.60      |
| 202306 | 0.00       | 56,199 | 3.95      |
| 202305 | 0.00       | 53,665 | 4.25      |
| 202304 | 0.00       | 49,476 | 4.40      |

Patient Task Viewer

TaskNo: 9990002 : Nurse Min - OR Scrub 9990002 : Nurse Min - OR Sc

YYYYMM: 202402 to 202402

Double-click on a patient number to see all the charge codes for that patient

| Pat No   | Date SV  | Date Post | QTY |
|----------|----------|-----------|-----|
| 11012197 | 2/1/2024 | 2/1/2024  | 168 |
| 11012500 | 2/1/2024 | 2/1/2024  | 131 |
| 11012577 | 2/1/2024 | 2/1/2024  | 72  |
| 11012679 | 2/1/2024 | 2/1/2024  | 387 |
| 11012706 | 2/1/2024 | 2/1/2024  | 91  |
| 11012716 | 2/1/2024 | 2/1/2024  | 94  |
| 11012736 | 2/1/2024 | 2/1/2024  | 551 |
| 11012740 | 2/1/2024 | 2/1/2024  | 152 |
| 11012758 | 2/1/2024 | 2/1/2024  | 100 |
| 11012758 | 2/1/2024 | 2/1/2024  | 98  |
| 11012767 | 2/1/2024 | 2/1/2024  | 89  |
| 11012765 | 2/1/2024 | 2/1/2024  | 205 |
| 11012770 | 2/1/2024 | 2/1/2024  | 202 |

Records: 416

| Quantity | Charges:     |
|----------|--------------|
| 115.93   | Average 0.00 |
| 48,225   | Total 0.00   |
| 19       | Minimum 0.00 |
| 1,490    | Maximum 0.00 |

Patient Charge Data

Patient Number: 11012197

Calculate Costs Months To Average

| Task Number | Task Title           | QT  | Costs_Total | Post Date |
|-------------|----------------------|-----|-------------|-----------|
| 9990002     | Nurse Min - OR Scrub | 168 | 732.17      | 2/1/2024  |
| 9990001     | Nurse Min - OR Circ  | 241 | 1,050.31    | 2/1/2024  |
| 9997160     | O/P SURGERY PREP     | 1   | 226.56      | 2/1/2024  |
| 99900050    | Business Office SFM  | 1   | 29.21       | 2/1/2024  |
| 99900051    | Admissions SFM       | 1   | 33.77       | 2/1/2024  |

# 2023 data by MSDRG comparing OR cost methods

| msdrg | msdrg_Title  | PatCount | Days | charges   | Cost_Supp | Cost_NoSupp | Variance | Pct  |
|-------|--|----------|------|-----------|-----------|-------------|----------|------|
| 466   | Revision of hip or knee replacement w MCC                          | 5        | 38   | 338,545   | 160,867   | 156,848     | 4,020    | 2%   |
| 467   | Revision of hip or knee replacement w CC                           | 30       | 79   | 1,996,694 | 990,770   | 995,544     | -4,773   | 0%   |
| 468   | Revision of hip or knee replacement w/o CC/MCC                     | 34       | 77   | 1,858,241 | 910,155   | 927,461     | -17,306  | -2%  |
| 469   | Major joint replacement or reattachment of lower extremity w MCC   | 4        | 25   | 238,304   | 97,824    | 97,704      | 120      | 0%   |
| 470   | Major joint replacement or reattachment of lower extremity w/o MCC | 32       | 167  | 1,310,770 | 570,643   | 584,443     | -13,800  | -2%  |
| 471   | Cervical spinal fusion w MCC                                       | 3        | 30   | 208,976   | 56,682    | 62,070      | -5,388   | -10% |
| 472   | Cervical spinal fusion w CC  | 66       | 84   | 2,722,200 | 910,224   | 943,155     | -32,931  | -4%  |
| 473   | Cervical spinal fusion w/o CC/MCC                                  | 74       | 82   | 2,847,485 | 937,449   | 974,667     | -37,218  | -4%  |
| 474   | Amputation for musculoskeletal sys & conn tissue dis w MCC         | 3        | 77   | 393,156   | 135,158   | 137,988     | -2,830   | -2%  |
| 475   | Amputation for musculoskeletal sys & conn tissue dis w CC          | 3        | 16   | 82,871    | 28,277    | 27,475      | 802      | 3%   |
| 476   | Amputation for musculoskeletal sys & conn tissue dis w/o CC/MCC    | 1        | 2    | 12,738    | 5,116     | 7,994       | -2,879   | -56% |
| 479   | Biopsies of musculoskeletal system & connective tissue w/o CC/MCC  | 1        | 10   | 56,308    | 12,740    | 13,159      | -419     | -3%  |
| 480   | Hip & femur procedures except major joint w MCC                    | 21       | 174  | 1,130,587 | 450,563   | 455,332     | -4,770   | -1%  |
| 481   | Hip & femur procedures except major joint w CC                     | 45       | 279  | 1,790,717 | 720,120   | 730,941     | -10,821  | -2%  |
| 482   | Hip & femur procedures except major joint w/o CC/MCC               | 20       | 89   | 631,280   | 250,602   | 252,174     | -1,571   | -1%  |
| 483   | Major joint & limb reattachment proc of upper extremity w CC/MCC   | 7        | 25   | 348,554   | 170,011   | 169,085     | 926      | 1%   |
| 485   | Knee procedures w pdx of infection w MCC                           | 2        | 18   | 105,167   | 38,146    | 41,207      | -3,061   | -8%  |
| 486   | Knee procedures w pdx of infection w CC                            | 7        | 42   | 219,011   | 80,037    | 82,486      | -2,450   | -3%  |
| 487   | Knee procedures w pdx of infection w/o CC/MCC                      | 3        | 8    | 73,429    | 24,099    | 26,026      | -1,927   | -8%  |

# DRG – 473 - Cervical spinal fusion w/o CC/MCC

## Comparison two similar patients - \$1,500 cost difference in OR staff

| Patient    | Financial Class | Charge | Cost w/ Supp | Cost No Supp |
|------------|-----------------|--------|--------------|--------------|
| 11011913xx | Blue Cross      | 32,066 | 11,083       | 9,122        |

| Activity             | Qty | COST_Activity |
|----------------------|-----|---------------|
| Nurse Min - OR Circ  | 428 | 1,649         |
| Nurse Min - OR Other | 214 | 823           |
|                      |     | 2,472         |

624 minutes of staff

|            |            |        |        |        |
|------------|------------|--------|--------|--------|
| 11011930xx | Blue Cross | 32,692 | 12,875 | 12,455 |
|------------|------------|--------|--------|--------|

| Activity             | Qty | COST_Activity |
|----------------------|-----|---------------|
| Nurse Min - OR Circ  | 122 | 527           |
| Nurse Min - OR Other | 90  | 389           |
|                      |     | 916           |

212 minutes of staff

# Surgeon Analysis can be affected

Direct Labor costs of staff in the Operating room

Inpatients discharged Jan to Dec 2023

Once quantified, the labor costs can cause huge swings in physician practice pattern analysis

| Surgeon   | Count | w/ Supp | No Supp | Variance |
|-----------|-------|---------|---------|----------|
| Dr. 32219 | 84    | 290.30  | 757.71  | -467.42  |
| Dr. 34889 | 83    | 750.19  | 767.58  | -17.39   |
| Dr. 00510 | 78    | 45.17   | 75.52   | -30.36   |
| Dr. 26344 | 72    | 886.33  | 432.55  | 453.77   |
| Dr. 35715 | 68    | 386.03  | 620.82  | -234.79  |



# Data conclusion

Overhead costing to patients and patient level labor minutes can cause a drastic change in the cost analysis.

# Presentation Navigation

Background and Theory

Lessons Learned from UK

Applying activity costing to US / Quantifying Results

Other Feeds

# Other data feeds that CostFlex clients have loaded (mostly from EPIC)

ADT Minutes

Anesthesia  
Case Minutes

Pre-Op Case  
Minutes

Medication  
Dispense  
Actions

OR Records  
Count

ED Elapsed  
Minutes

PACU  
Encounter  
Minutes

Patient Time  
on Nursing  
Unit

# Other Feeds continued . . .

L&D Nursing  
Minutes

Laboratory  
Result Volume

Maternal  
Education And  
Car Seat

Surgical Case  
Minutes

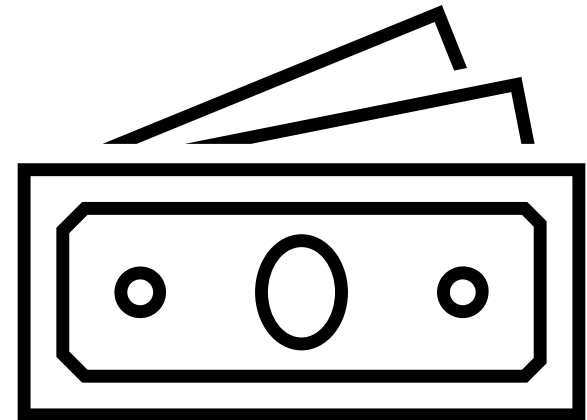
Trauma  
Services -  
HARs

Trauma  
Services -  
Admin

# Adding Data / increasing accuracy

Reimbursement not posted to patient accounts

- Disproportionate Share
- Sales Tax
- Medicare Part A / B Settlements
- Grants



# Adding Data / increasing accuracy

- 340B Costing – Drugs at a discount to outpatients
  - Cost IP / OP differently (OP can cost less)
  - Apply Rebates to just outpatients based on drug expenses



# Closing

- Adding data feeds dramatically increases accuracy
- Is a progression
- Can't do it all at once – start small!
  - If you want to ski jump, you have to learn to ski the bunny slope first.
- Use existing data feeds (harder to create new ones)



Questions

