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## Acute Care Patient Transfer Patterns from Community Hospital Emergency Departments

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# Acute Care Leakage



Physician Executive Leadership at Thomas Jefferson University

# Our Team



**Dylan Selbst**



**Michael Knapp**



**Vasil Mico**

## Case Vignette

Thomas Jefferson is a 277 year old male presents to the ED following a traumatic accident. He is actively hemorrhaging and without intervention will soon bleed out. Medical staff treat the source of the bleeding and he makes a full recovery.

A Thomas Jefferson University affiliated ED sees approximately 67,000 patients and admits 13,000 of those patients each year. It refers roughly 5% of its acute care patients out of network. These transfers disrupt continuity of care and represent lost revenue for the system.

...How do we intervene?



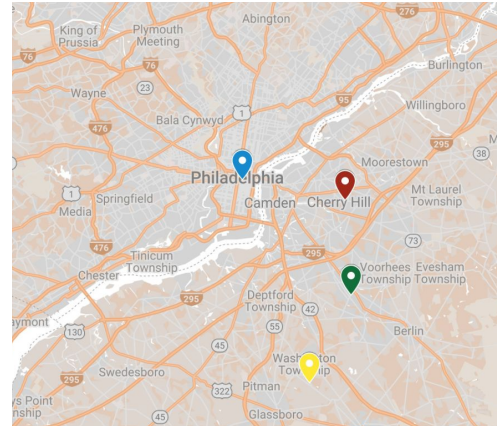
# Project Scope:

**Jefferson Health:** A 14 hospital network in the Philadelphia and Delaware Valley region

**Our focus:** The NJ Jefferson hospitals

**Washington Township, Cherry Hill, and Stratford**

- Out-of-network (OON) volume leakage
- Missed revenue
- Major departmental culprits
- Proposed solution



- TJUH
- Cherry Hill
- Stratford
- Washington Township

## Patients Admitted



CH	7,099
ST	5,661
WT	13,233

**Total 25,993**

## ER Visits



CH	41,761
ST	39,000
WT	66,735

**Total 147,496**

## Average Length of Stay



CH	5.3 days
ST	4.0 days
WT	4.4 days

**Total 4.6 days**

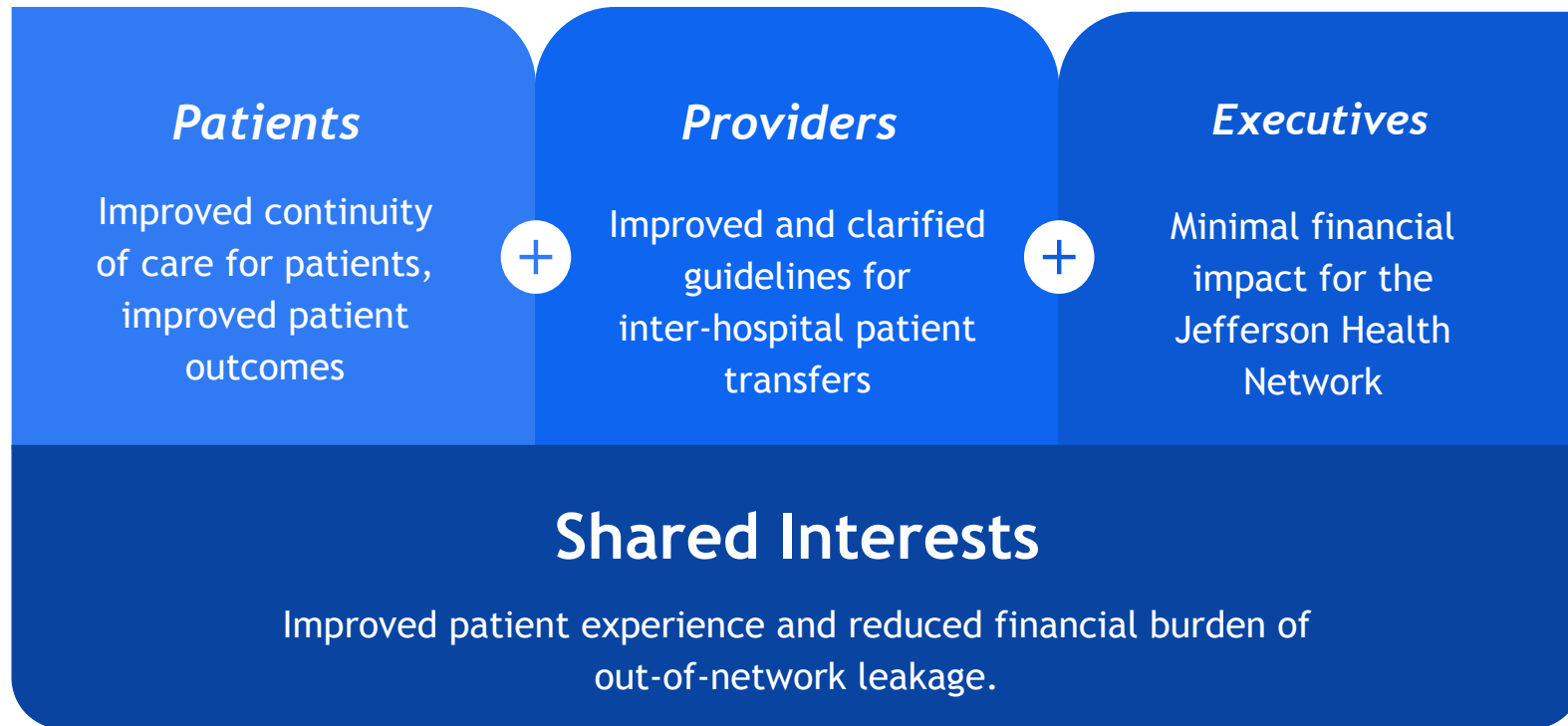
## Births



CH	N/A
ST	N/A
WT	1,015

**Total 1,015**

# Stakeholders



# Methods

## Collection

Received raw leakage data of out of network transfers from *Washington Township, Cherry Hill, and Stratford* hospitals through the Jefferson Transfer Center

## Organization

Cleaned, sorted, and organized all leakage data

## Investigation

Analyzed and represented data trends to visualize and quantify leakage

## Analysis

Calculated financial burden based on approximate cost per leaked patient

# Methods cont.

JX	A	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC
4	Washington Twp																		
5	Cath Lab	Cath Lab	0	1	2	0	1	0	3	4	Cath Lab	\$0	\$13,200	\$26,400	\$0	\$13,200	\$0	\$39,600	\$52,800
6	CCU	CCU	0	1	0	1	1	2	2	5	CCU	\$0	\$13,200	\$0	\$13,200	\$13,200	\$26,400	\$26,400	\$66,000
7	CDU	CDU	4	0	0	0	0	0	4	4	CDU	\$52,800	\$0	\$0	\$0	\$0	\$0	\$52,800	\$52,800
8	ED	ED	152	118	121	119	131	126	510	767	ED	\$2,006,400	\$1,557,600	\$1,597,200	\$1,570,800	\$1,729,200	\$1,663,200	\$6,732,000	\$10,124,400
9	ICU	ICU	40	19	15	14	21	16	88	125	ICU	\$528,000	\$250,800	\$198,000	\$184,800	\$277,200	\$211,200	\$1,161,600	\$1,650,000
10	Med/Surg	Med/Surg	14	13	4	8	9	11	39	59	Med/Surg	\$184,800	\$171,600	\$52,800	\$105,600	\$118,800	\$145,200	\$514,800	\$778,800
11	PCU	PCU	7	4	3	6	5	3	20	28	PCU	\$92,400	\$52,800	\$39,600	\$79,200	\$66,000	\$39,600	\$264,000	\$369,600
12	Step Down	Step Down	16	16	16	17	10	16	65	91	Step Down	\$211,200	\$211,200	\$211,200	\$224,400	\$132,000	\$211,200	\$858,000	\$1,201,200
13	Tele	Tele	78	81	59	96	59	73	314	446	Tele	\$1,029,600	\$1,069,200	\$778,800	\$1,267,200	\$778,800	\$963,600	\$4,144,800	\$5,887,200
14	Other	Other	1	4	2	3	2	3	10	15	Other	\$13,200	\$52,800	\$26,400	\$39,600	\$26,400	\$39,600	\$132,000	\$198,000
15	Total		311	253	220	261	237	247	1045	1529		\$4,105,200	\$3,339,600	\$2,904,000	\$3,445,200	\$3,128,400	\$3,260,400	\$13,794,000	\$20,182,800
16	Cherry Hill																		
17		SERVICE	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2018 Tot	TOTAL		2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2018 Tot	Total
18	CCU	CCU	2	4	0	1	3	2	7	12	CCU	\$26,400	\$52,800	\$0	\$13,200	\$39,600	\$26,400	\$92,400	\$158,400
19	ED	ED	47	70	44	57	62	51	218	331	ED	\$620,400	\$924,000	\$580,800	\$752,400	\$818,400	\$673,200	\$2,877,600	\$4,369,200
20	ICU	ICU	15	19	9	10	3	4	53	60	ICU	\$198,000	\$250,800	\$118,800	\$132,000	\$39,600	\$52,800	\$699,600	\$792,000
21	MED/Surg	MED/Surg	6	4	3	1	5	1	14	20	MED/Surg	\$79,200	\$52,800	\$39,600	\$13,200	\$66,000	\$13,200	\$184,800	\$264,000
22	PCU	PCU	6	1	2	1	1	2	10	13	PCU	\$79,200	\$13,200	\$26,400	\$13,200	\$13,200	\$26,400	\$132,000	\$171,600
23	Step Down	Step Down	7	7	6	4	6	3	24	33	Step Down	\$92,400	\$92,400	\$79,200	\$52,800	\$79,200	\$39,600	\$316,800	\$435,600
24	Telemetry	Telemetry	18	43	23	24	16	15	108	139	Telemetry	\$237,600	\$567,600	\$303,600	\$316,800	\$211,200	\$198,000	\$1,425,600	\$1,834,800
25	Other	Other	0	1	0	0	1	0	1	2	Other	\$0	\$13,200	\$0	\$0	\$13,200	\$0	\$13,200	\$26,400
26	Total		101	148	87	98	96	78	434	608	Total	\$1,333,200	\$1,953,600	\$1,148,400	\$1,293,600	\$1,267,200	\$1,029,600	\$5,728,800	\$8,025,600
27	Stratford																		
28		SERVICE	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2018 Tot	TOTAL		2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2018 Tot	Total
29	ACE	ACE	1	0	0	0	0	0	1	1	ACE	\$ 13,200.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 13,200.00
30	ED	ED	86	106	76	92	45	47	360	452	ED	\$ 1,135,200.00	\$ 1,399,200.00	\$ 1,003,200.00	\$ 1,214,400.00	\$ 594,000.00	\$ 620,400.00	\$ 4,752,000.00	\$ 5,966,400.00
31	ICU	ICU	16	12	7	12	10	6	47	63	ICU	\$ 211,200.00	\$ 158,400.00	\$ 92,400.00	\$ 158,400.00	\$ 132,000.00	\$ 79,200.00	\$ 620,400.00	\$ 831,600.00
32	MED/Surg	MED/Surg	11	7	7	3	3	1	28	32	MED/Surg	\$ 145,200.00	\$ 92,400.00	\$ 92,400.00	\$ 39,600.00	\$ 39,600.00	\$ 13,200.00	\$ 369,600.00	\$ 422,400.00
33	Step Down	Step Down	8	4	6	0	6	7	18	31	Step Down	\$ 105,600.00	\$ 52,800.00	\$ 79,200.00	\$ -	\$ 79,200.00	\$ 92,400.00	\$ 237,600.00	\$ 409,200.00
34	Telemetry	Telemetry	60	34	26	29	36	26	149	211	Telemetry	\$ 792,000.00	\$ 448,800.00	\$ 343,200.00	\$ 382,800.00	\$ 475,200.00	\$ 343,200.00	\$ 1,968,000.00	\$ 2,785,200.00
35	Total		182	163	122	136	100	87	603	790		\$ 2,402,400.00	\$ 2,151,600.00	\$ 1,610,400.00	\$ 1,795,200.00	\$ 1,320,000.00	\$ 1,148,400.00	\$ 7,959,600.00	\$ 10,428,000.00



In 2018 alone, the out-of-network leakage from **Washington Township, Cherry Hill, and Stratford** led to an estimated loss of:

**\$27,482,400**

This loss of revenue is significant for the Jefferson Health network and must be addressed.

# Our main offenders ultimately are...

## Washington Twp.

ED → 49%  
Tele → 30%  
ICU → 8%

## Cherry Hill

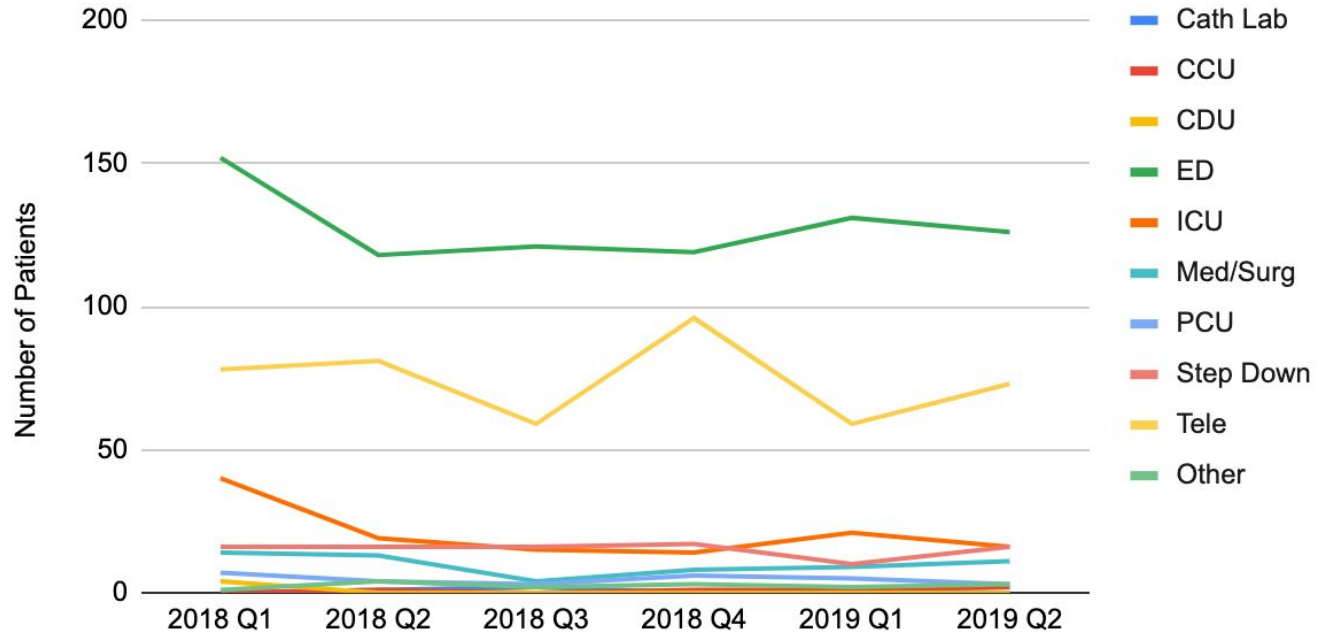
ED → 50%  
Tele → 25%  
ICU → 12%

## Stratford

ED → 60%  
Tele → 25%  
ICU → 8%

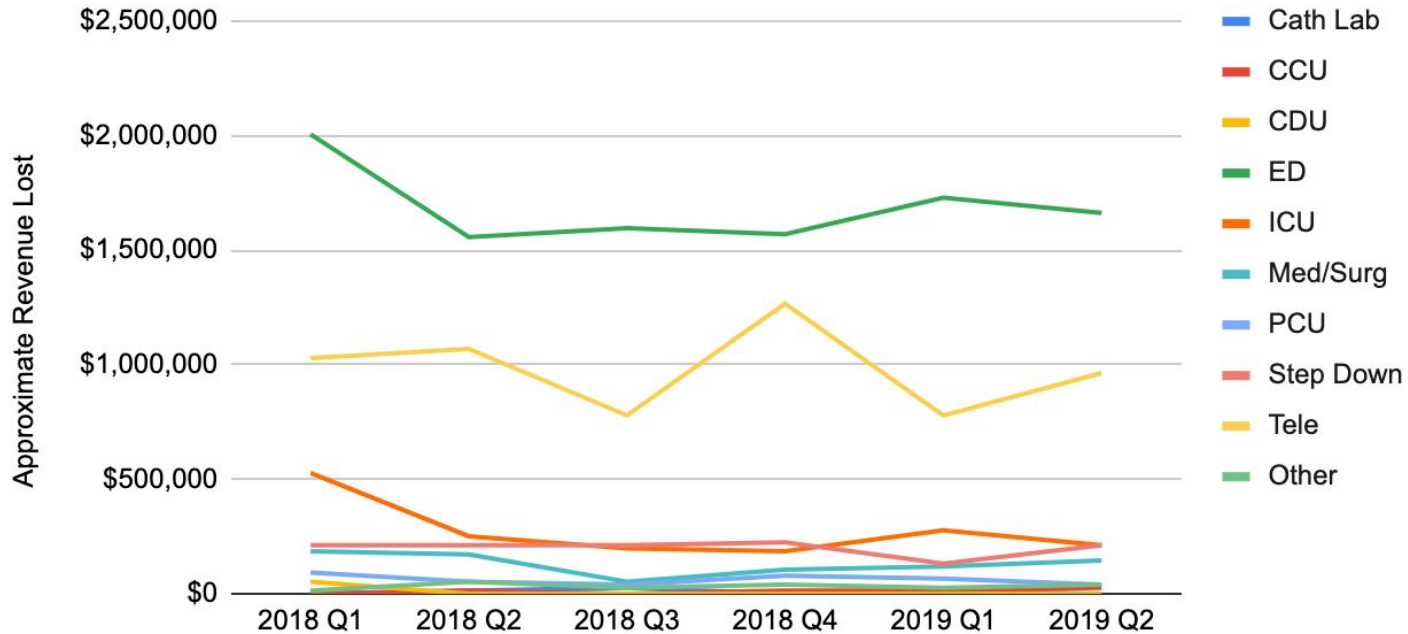
# Example Leakage Data

Quarterly Leakage by Referring Department, Jefferson Washington Township



# Example Leakage Data

Quarterly Leakage by Referring Department, Jefferson Washington Township



# A Closer Look: Emergency Department

## Non-modifiable:

1. Time sensitive intervention
2. Unstable conditions
3. Patient preference

## Modifiable:

1. Awareness among providers
2. Departmental guidelines for inter-hospital transfers
3. Choice Architecture



# Communicating Performance Metrics

We need a method of informing providers about the impact that out-of-network transfers have on the Jefferson Health system.

An intervention should be:

- Simple, yet impactful
- A tool for comparison
- Able to highlight areas for improvement

# Our Solution: A Quarterly Scorecard

**What is a Scorecard?** A visual representation of data, delivered quarterly, to stakeholders representing trends over time in acute care leakage

1. Quarterly trends
2. Projected revenue lost
3. Recipient services in destination hospitals
4. Areas for continued improvement

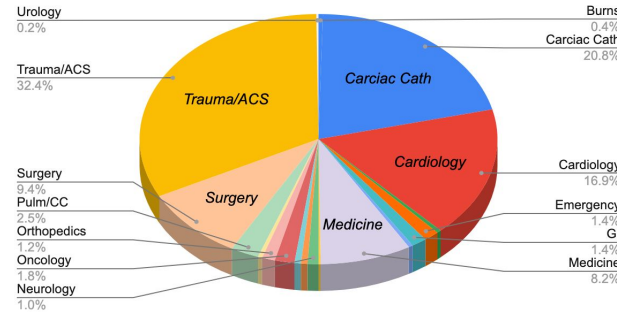
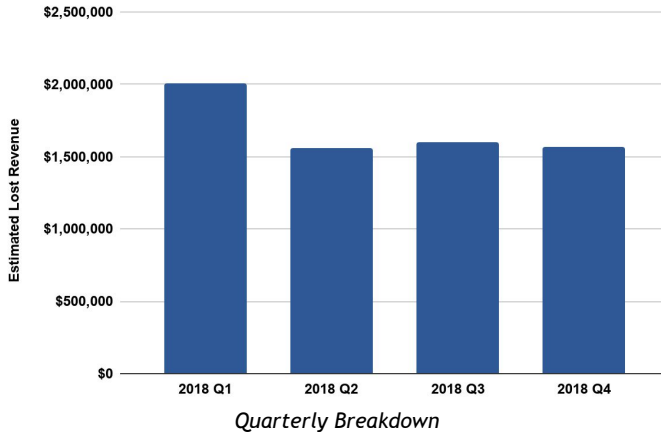
# Acute Care Leakage

## Jefferson Washington Township Hospital: Emergency Department – 2018

### Explanation of Scorecard

*This scorecard indicates the out of network leakage to which your department contributed.*

*Patient leakage is an important stat to monitor because inefficient patient transfer leads to poorer patient outcomes and a loss of revenue for our hospital network.*



Explanation of outgoing service-line breakdown

### Improved:

- Decreased leakage
- Improved patient satisfaction

### Needs Attention:

- Cath service leakage above target goal

Avg. cost per patient lost:

\$13,200

Total Patient Leakage:

510

Total Lost Revenue

\$6,732,000

### Interpretation and Future Directions for this Service

In 2018 the emergency department has saved \$396,000 by referring in-network compared to similar quarters in 2018. We are still slightly short of our overall goal of \$462,000. Patient leakage is an important stat to monitor because inefficient patient transfer leads to poorer patient outcomes and a loss of revenue for our hospital network.

# Scorecard Process

## Design

1. Clean and organize data from the Jefferson Transfer Center
2. Create a scorecard for each department and each hospital
3. Identify trends and areas of focus

## Implementation

1. Deliver scorecards quarterly to department heads
2. Update metrics or visuals used in the scorecard based on feedback
3. Survey providers and department heads about scorecard design

## Analysis

1. Determining baseline impact of the pilot implementation
2. Finalize scorecard design and metrics of interest
3. Expand scorecards to more departments and hospitals

# Quantifiable Goals

1. 10% reduction in OON transfers from these three hospitals equating to **\$2.7 million** in reduced leakage each year
2. Consistently improve physician and patient satisfaction metrics with surveys administered annually
3. Education to 90% of physicians in the Jefferson New Jersey Health Network



# Future directions

1. Retrospective analysis of impact
2. Expand focus on additional hospitals and services
3. Explore physician satisfaction and receive feedback
4. Determine if improvements in patient outcomes and satisfaction were observed

# A Special Thanks to:

Bob Burkholder

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Jefferson Transfer Center

Michael Zimmerman and Chris Li



# Jefferson Health®

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Magee Rehabilitation Hospital | Physicians Care Surgical Hospital | Rothman Orthopaedic Specialty Hospital  
Thomas Jefferson University Hospital