Lehigh Valley Health Network

LVHN Scholarly Works

Determining Funding Allocation for Inpatient Versus Outpatient Transportation

Sophie Rizvi

Martin A. Martino MD

Determining Funding Allocation for Inpatient Versus Outpatient Transportation

Sophia Rizvi, BS

Martin Martino, MD, Physician Leadership Academy

Lehigh Valley Health Network, Allentown, Pennsylvania

Background

A study published in 2014 indicated 3.6 million Americans miss or postpone medical care due to a lack of transportation [1]. National estimates for appointments missed due to lack of transportation are as high as 25%, per a systematic review article in 2013 [2]. Ridesharing companies like Uber Health and Lyft have started to provide funded transportation to healthcare appointments for Medicaid patients [3].

However, studies have shown that hospitals suffer great economic impact with no-shows [4]. A study analyzing missed patient appointments over a 12-year period at 10 clinics indicated as high as $16.65 million lost to "no-show" appointments, per fiscal year. The same source estimated a $3 million loss to missed appointments at a community hospital.[3] At the Lehigh Valley Health Network (LVHN), 54% of homeless patients surveyed by the Street Medicine Program indicated transportation was the biggest barrier to accessing healthcare last year.

An Integrated Healthcare Network offers both inpatient and outpatient treatment services [5]. Leadership must often choose between funding aspects of inpatient over outpatient treatment and vice versa, due to a finite amount of funds. Upon literature review, there is a lack of up-to-date evidence supporting the decision to provide more funding for inpatient versus outpatient services in American hospital systems.

Problem Statement

The purpose of this study is to demonstrate the financial advantage of providing hospital-funded inpatient vs. outpatient discharge transportation.

Methods

IRB Status: Non-Human Subjects Research and Quality Improvement

Retrospective chart review.

Patients undergoing treatment at the Lehigh Valley Hospital in the inpatient unit were identified using EPIC.

All patients admitted to the Medicine service on a specific day were assigned a number.

Five numbers were generated using the Random Number Generator Google Application.

The patients assigned to the resulting numbers were included in the "inpatient" group for chart review.

All patients who attended an outpatient appointment, on the same specific day, were assigned a number. Patients were randomly assigned to the "outpatient" group using a similar method, as above. These methods were repeated on another day to include a total of 10 patients in each group.

The insurance reimbursement for the inpatient and outpatient group was determined by following the process outlined in Figure 1.

The average outpatient office visit is 20 minutes [6]. For comparison, total reimbursement for an inpatient admission was divided by the number of days of the stay and fractioned to 20 minutes (i.e. average appointment length).
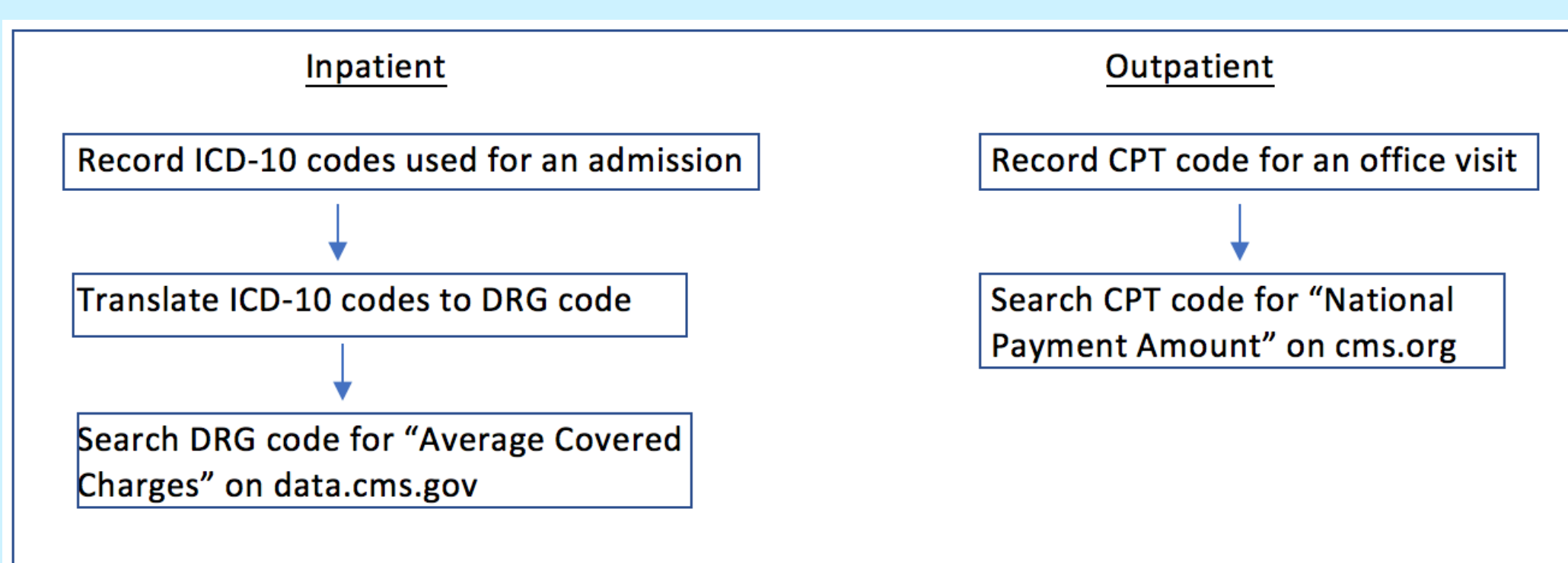
Inpatient
- Record ICD-10 codes used for an admission
- Translate ICD-10 codes to DRG code
- Search DRG code for "Average Covered Charges" on data.cms.gov

Outpatient
- Record CPT code for an office visit
- Search CPT code for "National Payment Amount" on cms.org

Figure 1: Determining insurance reimbursement in the inpatient versus outpatient setting.

Results Gathered

Inpatient Group
The ICD-10 codes per inpatient admission and length of hospital stay were recorded for 10 patients chosen randomly.

Table 1: Inpatient Group: ICD-10 Codes Per Admission

Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Code: E11.9	Code: R56.9	Code: E03.9	Code: I10	Code: F41.9
Code: E78.5	Code: R29.898	Code: E78.2	Code: I48.92	Code: F32.9
Code: E87.1	Code: R55	Code: E55.9	Code: M17.10	Code: F11.90
Code: R04.2	Code: R93.89	Code: R50.9	Code: R73.03	Code: F19.10
Code: R50.9	Code: J98.8	Code: I10	Code: I48.91	Code: R74.0
Code: G62.9	Code: R50.9	Code: J96.01	Code: G43.109	Code: R93.1
Code: F41.9	Code: R27.8	Code: M79.89	Code: C79.31	Code: A41.9
		Code: J81.0		Code: F19.939
		Code: I50.21		Code: F11.20
		Code: R07.81		Code: I80.9
		Code: J20.5		Code: I82.409
		Code: R05		
		Code: R06.01		

Table 1: shows ICD-10 codes for five patients in the inpatient group.

Total insurance reimbursement of each inpatient admission was determined using the process described in Figure 1.

The average insurance reimbursement for 20 minutes of an inpatient admission was determined by:
1st: Dividing the total reimbursement by the total days of admission
2nd: Fractioning the daily reimbursement to 1/72th (of a day).

The average of all the 20-minute reimbursements of each patient was taken.

This process is detailed for the five patients of the inpatient group in Table 2.

Table 2: Calculating average insurance reimbursement over a 20-minute period in the inpatient setting

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Length of Stay (in days)	2	35	4	4	8
Insurance Reimbursement per day:	$53,316.49	$2,543.47	$45,098.13	$26,759.08	$16,463.67
Total Insurance Reimbursement	$106,633	$89,021.42	$180,392.50	$107,036.31	$131,709.33
Insurance Reimbursement per 20 minutes:	$740.51	$35.33	$626.36	$371.65	$228.66
Average	$400.50				

Table 2: shows the average insurance reimbursement for five patients in the inpatient group and the data required to calculate this average.

The average insurance reimbursement, per 20 minutes, for all 10 patients of the inpatient group was calculated to be **$731.59**.

Outpatient Group
CPT codes per outpatient office visit were recorded from 10 patient charts, also chosen randomly.

Table 3: Outpatient Group: CPT Codes Per Office Visit (duration of 20 minutes each)

Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
G0439	99213	99213	99213	99212

Table 3: shows CPT codes for five patients in the outpatient group.

Total insurance reimbursement of each outpatient office visit was determined using the process described in Figure 1.

Table 4: Calculating average insurance reimbursement for outpatient office visits

	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Total Insurance Reimbursement:	$401.60	$302.25	$302.25	$302.25	$186.11
Average:	$298.89				

Table 4: shows the average insurance reimbursement for five patients in the outpatient group and the data required to calculate this average.

The average reimbursement for all 10 patients of the outpatient group was **$178.43**.

Inpatient v. Outpatient Group Comparison:

There is a **$553.16** ($731.59-$178.43) greater reimbursement (per 20 minutes) during an inpatient, as compared to outpatient, encounter.

Discussion

Importance of the Results:
Providing financial assistance for transportation could lead to faster patient or "bed" turnover, which is financially advantageous.

The LVHN accrues $553.16 more per 20 minutes during an inpatient, as compared to outpatient, encounter.

As a result, providing funded transportation for inpatient, as opposed to outpatient, discharge could be of greater financial benefit to the hospital.

Limitations of the Study:
The study is limited by:
- sample size
- a lack of access to actual reimbursement costs

Future Direction:
- Increase the number of patients analyzed.
- Assess frequency of missed appointments.
- Upcoming "Pilot" study at LVHN.
- Medical specialty outpatient offices.
- Take into account:
  - procedure codes
  - hospital professional fees
  - facility fees

Relation to SELECT Competencies:
1. Health Systems:
   - Quality Improvement
   - Iron Triangle of Healthcare (shown in Figure 2)
   - Systems Engineering
2. Values-Based Patient-Centered Care:
   - Disparities & Social Determinants of Health
   - Vulnerable Populations
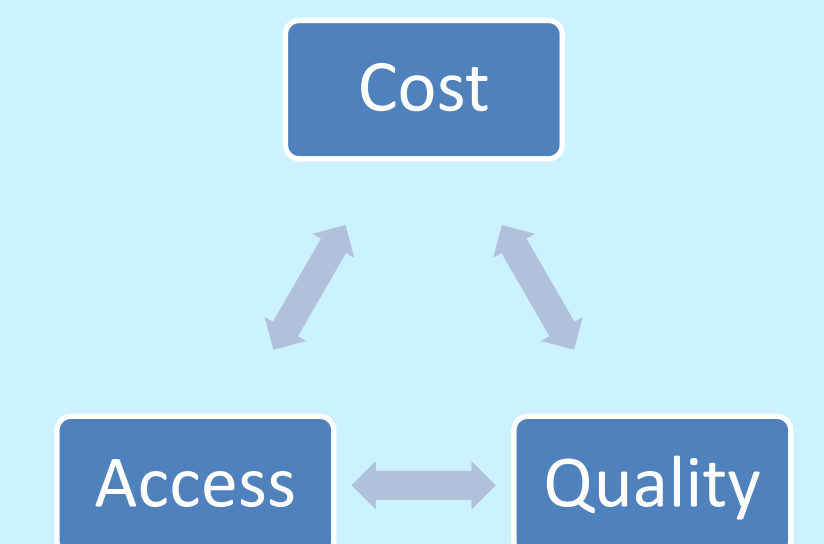3. Leadership:
   - Power & Influence

Cost — Access — Quality

Figure 2: Elements of the Iron Triangle of Healthcare

Conclusion

These results serve as impetus for healthcare networks to manage healthcare disparities by:
- funding **inpatient** discharge transportation.
The network could generate more revenue for itself (at the same time).

Hopes of one day providing transportation for majority of patients in need
- including those the current Medicaid ride-sharing program has not benefited.

Systems-Level Change consistently benefits both:

- individual patients
  and
- hospitals

REFERENCES

1. Hughes-Cromwick, P, Wallace, R, Mull, H, & Bologna, J. (2005). *Cost Benefit Analysis of Providing Non-Emergency Medical Transportation* (pp. 1-105, Rep.). Ann Arbor, MI: Altarum Institute.
2. Syed ST, Gerber BS, Sharp LK. Traveling towards disease: transportation barriers to health care access. *J Community Health*. 2013;38(5):976–993.
3. White, J. (2016). Hospitals help patients with transportation issues. *Healthcare Business & Technology*. http://www.healthcarebusinesstech.com/hospital-transportation/.
4. Kheirkhah P, Feng Q, Travis LM, Tavakoli-Tabasi S, Sharafkhaneh A. Prevalence, predictors and economic consequences of no-shows. *BMC Health Serv Res*. 2016;16:13. Published 2016 Jan 14.
5. Jensen, K. M. and J. A. Paladino (1997). "Cost-effectiveness of abbreviating the duration of intravenous antibacterial therapy with oral fluoroquinolones." *Pharmacoeconomics* 11(1): 64-74.
6. Grant, R., et al. (2004). "Trends in complexity of diabetes care in the United States from 1991 to 2000." *Arch Intern Med* 164(10): 1134-1139.

© 2018 Lehigh Valley Health Network

SELECT
Scholarly Excellence.
Leadership Experiences.
Collaborative Training.
Experiences for a lifetime. A network for life.™

USF HEALTH · MORSANI COLLEGE OF MEDICINE · UNIVERSITY OF SOUTH FLORIDA

Lehigh Valley Health Network