Characterizing and Quantifying Opportunities in Outpatient Care that Lead to Emergency Department or Urgent Care Visits

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Objective

1. Create and test a taxonomy to classify the challenges (and hence opportunities) in outpatient settings that may lead to avoidable Emergency Department (ED) or Urgent Care Center (UCC) visits.
2. Describe the prevalence of potentially avoidable visits using the taxonomy.
3. Measure 30 and 90 day all-cause attributable costs in a subset of enrolled patients stratified by whether the ED or UCC visit was avoidable.

Background

EDs in the USA treat 136 million patients annually at a cost of $48.3 billion. While EDs provide critical support for patients, some proportion of ED visits are unnecessary and thus represent a form of waste and are a safety event signal. There is limited evidence to suggest how many ED visits are truly avoidable and many of the models developed for this purpose are controversial. Complex factors may prompt a patient to seek care in an ED or UCC. A poor understanding of the factors that lead to unnecessary ED or UCC use will inhibit the transition to community-based care models. A classification scheme (taxonomy), properly derived and tested, would aid in an understanding the predominant causes and effects of challenges in outpatient care and would also provide contextual information to improve education/training for patients and their providers, in order to reduce cost and decrease unnecessary healthcare utilization while enhancing quality and safety initiatives.

Study Design

The solutions-oriented taxonomy, adapted from the Joint Commission and other sources, was comprised of four principal domains: (1) *Access*, (2) *Knowledge/Health Literacy of the Patient and Family*, (3) *Knowledge and Factors of the Clinical Team*, and (4) *Organizational Factors.* It also classified *Outcomes and Harms.* 5 full physician shifts from each of 4 urban EDs and 5 urban UCCs were randomly selected for observation. Using the developed taxonomy, all patients seen on that randomly selected shift were reviewed and their visit was classified according to the taxonomy. The review included both patient interviews (where consent was obtained) and chart review. The study was approved by the IRB.

Table 1: Demographics and Patient Information (N=1,025)

		ED	InstaCare (UCC)	P Value
Total number (%)		301 (29.3%)	724 (70.7%)	NA
Gender	Male	171/57.4%	424/59.2%	
	Female	127/42.6%	292/40.8%	0.5887*
Age (mean years)	Mean ± std	42.5 ± 22.1	37.7 ± 20.4	**0.0123*** **
Interviewed (%)		69/22.9%	222/30.7%	**0.0117***
Age ≤ 14 years (%)		23/7.7%	76/10.6%	0.1569*
Primary Payer	SelectHealth (%)	48/16.0%	241/33.3%	
	Medicare (%)	63/20.9%	89/12.3%	
	Medicaid/Medicaid HMO (%)	43/14.3%	32/4.4%	
	Commercial Insurance (%)	40/13.4%	94/13.0%	**0.0150****
	Self-Pay (%)	55/18.3%	55/7.6%	
	Other	52/17.3%	213/29.4%	
Select Health	Yes	48/16.0%	241/33.3%	**<0.0001***
Race	Declared	26/8.7%	23/3.2%	
	Am. Indian or Alaskan	1/0.3%	3/0.4%	
	Asian	4/1.3%	15/2.1%	
	African American	9/3.0%	8/1.1%	0.2023**
	Hawaiian or Pac. Islander	3/1.0%	11/1.5%	
	White	257/85.7%	664/91.7%	
Prior Visit to PCP or other OP setting in ≤ 7 days? (%)	Yes	63/20.9%	46/6.4%	**<0.0001**
Charlson Comorbidity Index (CCIS) group	No chronic condition recorded (CCIS=0)	176/58.5%	498/68.8%	
	CCIS=1	56/18.6%	129/17.8%	**<0.0384****
	CCIS>=2	69/22.3%	97/13.4%	

***Chi-square; **Mantel-Haenszel Chi-square; ***t-test**

Challenges

Developing the taxonomy: The literature basis was a bit impractical and academic. It took some time to overcome the challenge of existing methodologies as we hoped for a "solutions-oriented" taxonomy.
Low rate of interviewed patients during enrollment: Our team had expected an interview rate of 75%. However, we actually interviewed only 28.4% of enrolled patients.
Work effort required to review patient charts and apply the taxonomy: We only had a pool of 5 physicians to perform the reviews of 1,031 cases to apply the taxonomy.

Results

- **ED patients were older and more likely to use Medicare, Medicaid, or self-pay as compared to UCC patients.**
- **20.9% of patients who presented to the ED had a visit to their PCP or other OP setting within 7 days of their ED visit (6.4% for UCC patients).**
- **27% of ED visits and 22.2% of UCC visits were deemed avoidable.**
- **The most commonly cited categories leading to potentially avoidable ED and UCC visits are those associated with Access (ED: 21.3%, UCC: 16.0%) and the Knowledge/Health Literacy of the Patient/Family (ED: 17.6%, UCC: 15.5%).**
- **ED patients with avoidable ED visits accrued higher costs over the subsequent 30 and 90 days than UCC patients (SelectHeatlh analysis).**

Table 2: Outcomes of Taxonomy Application

		ED	InstaCare (UCC)	P Value
Setting Of Visit (All)	*None*	10/3.3%	42/5.8%	
	Phone Call Directed	5/1.7%	8/1.1%	
	Tele-Service Directed	0	2/0.3%	
	EMS Service	17/5.7%	0	0.3965**
	Clinic Directed	34/11.3%	19/2.6%	
	Inpatient Directed	2/0.7%	2/0/3%	
	Self-Directed	222/73.8%	645/89.1%	
	Other	11/3.6%	3/0.4%	
Setting Of Visit	*Self-Directed*	222/73.8%	645/89.1%	**<0.0001***
Problem with Access	*Yes*	64/21.3%	115/16.0%	**0.0432***
Problem with Knowledge of Patient/Family	*Yes*	53/17.6%	112/15.5%	0.3964*
Problem with Knowledge of Clinical Team	*Yes*	15/5.0%	7/0.98%	**<0.0001***
Organizational Factors	*Yes*	24/8.1%	20/2.8%	**0.0002***
Avoidable Visit *Missing=90*	*No*	179/73.1%	537/77.8%	
	Yes	66/26.9%	153/22.2%	0.1303*
Harms	*No*	9/3.0%	85/11.7%	
	Yes	72/23.9%	66/9.1%	
	Unknown	3/1.0%	11/1.5%	**0.0003****
	Missing	217/72.1%	562/77.6%	
Harms (n=138)	*Financial Only*	50	57	
	Temporary Harm	21	9	
	Harm, Hospitalization	2	0	
	Harm, Permanent	0	0	
	Harm, ACLS	0	0	
	Harm, Death	0	0	

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Table 3: First Pass Taxonomy

SETTING	ACCESS	KNOWLEDGE		ORGANIZATIONAL FACTORS	OUTCOMES	HARM (Only score on F4, F6 and F8)	EXAMPLE
		PATIENT/FAMILY HEALTH LITERACY (PATIENT LEVEL)	*CLINICAL TEAM FACTORS (PROVIDER LEVEL)*				
Told to come from Phone call	Geographical Problems	Lack of understanding of costs	*Provider misunderstanding of costs and benefits/risks of IC/ED visit*	*Care coordination lapses*	Yes PCP or specialist; No preceding outpatient visit; appropriate IC/ED visit	No harm	BP check only and returned to PCP without generating a FIN
Told to come from Tele-Service	General access problems (hours of operations or no one to answer call)	Lack of understanding of benefit/risks with visit to IC/ED	*Misdiagnosis*	*Lack of standard of care*	Yes PCP or specialist; No preceding outpatient visit; avoidable IC/ED visit	Financial harm only	Patient checked in to IC/ED and generates a bill but no IV or Xrays
EMS Service (directed or transported)	Outpatient Care Bandwidth Problems (open but cannot work them in)	Misplaced understanding of urgency of medical situation	*Chronic pain issues*	*Financial incentives misaligned*	Yes PCP or specialist; Yes preceding outpatient visit; appropriate IC/ED visit	Temporary harm including psychologic harm (E)	IV start, Xrays (this will be the most common)
Told to come from Clinic	Outpatient Care Resource Challenges (A) Behavioral Health (B) Need for Advanced Diagnostics (C) Need for Advanced Therapeutics	Disrupted patient-provider/clinic communication or care management	*Risk avoidance*	Cultural lapses (A) Non-collaboration (B) Operations and operations leadership (C) Lapses in high reliability	Yes PCP or specialist; Yes preceding outpatient visit; avoidable IC/ED visit	Harm (avoidable visit) leading to hospitalization (F)	Any hospitalization
Told to come from Inpatient	Financial Challenges/Constraints	Misperception of other options for care	*Provider misunderstanding of IC/ED workflows and resources*	*Improper balance of varied missions*	No PCP or specialist; therefore no preceding visit; appropriate IC/ED visit	Harm (avoidable visit) leading to permanent harm (G)	Stroke or other
Self-directed to IC/ED	**Patient/Family Perception of Lack of Access**	**Patient/Family Choice or preference**	*Lack of awareness of IH CPMs or other knowledge sources*	Other	No PCP or specialist; therefore no preceding visit; avoidable IC/ED visit	Harm (avoidable visit) and required ACLS (H)	ACLS efforts
Other	Other	Other	*Unintended consequence of outpatient care*	None evident		Death (I)	Patient died in IC/ED
None evident	None evident	**None evident (prudent layperson standard met)**	Other				
			None evident				

Lessons Learned

A taxonomy for this purpose seems essential, but to effectively apply the taxonomy, interviews with the patient are essential and must be tightly structured. Precise definitions for all components of a safety taxonomy are also required. The rates of potentially avoidable ED and UCC visits were high using this methodology, and are associated with excess costs in the short term thus providing ample opportunity for process improvement.

References

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