Frequent users of Hospital Emergency Departments in California

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Shannon McConville and Renee Hsia

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Presenter Disclosures: Shannon McConville

(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose.

Background

- Frequent users of emergency departments (ED) long a focus for practitioners and delivery systems, increasing interest from policymakers.
- No standard definition of what constitutes frequent use in the literature.
  - Most common threshold 4+ visits per year (Lacalle & Rabin, 2010)
- ED patients with highest use:
  - Visit multiple EDs (Fuda & Immekus, 2006); have high prevalence of chronic conditions, behavioral health issues (Doran et al, 2013; Billings & Raven, 2014; Vinton et al. 2014)
- Limited studies to date for California and across multiple hospital settings over time.

Research Questions

- How does frequency of ED use vary across California patients and hospitals?
- What are the demographic and health-related characteristics of frequent ED users?
- How does insurance status differ by frequency of ED use?
- What are patient-level correlates of frequent ED users and how do they differ from non-frequent users?

Data source: Hospital discharge abstracts

- California Office of Statewide Hospital Planning and Development (OSHPD) collect discharge information from all licensed hospitals
- Provides universe of all emergency department and inpatient visits in state
- Most previous analyses using discharge data conducted at encounter-level
- But, non-public version provides opportunity to link encounter records across patients

Patient-level Data Construction

- Record Linkage Number (RLN) – scrambled SSN provided for *most* encounter records
- Collapse encounter level data records by RLN to create patient-level data set
  - Identify unique patients and generate counts of total annual encounters by visit type
  - Merge patient-level characteristics with other encounter-level characteristics
    - Age, sex, race/ethnicity, primary language
    - Diagnoses (primary and others), payer source, disposition

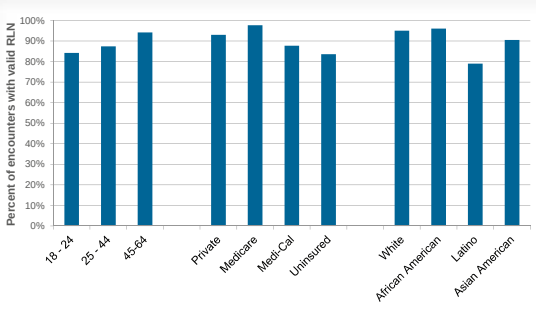
Patient-level Characteristics

- Demographic characteristics based on modal values
- Insurance coverage
  - Based on expected payer source
  - Multiple visits, multiple payers
    - Create mutually exclusive, hierarchical categories: any Medicare; any Medicaid; any uninsured.
    - Always same coverage, change coverage
- Chronic condition/disease flags
  - Group ICD-9 codes based on AHRQ Clinical Classifications Software (CCS) single-level
  - Uses primary diagnosis and up to 24 other diagnoses on all available discharge records

Quality of RLN-linkage

Visit Type	Total Visits	Valid RLN	% Valid RLN
Full Sample			
ED - Admit	1,820,036	1,644,308	90%
ED - No Admit	10,897,885	8,414,996	77%
Total ED Visits	12,717,921	10.059,304	79%
Non-Elderly Adult Sample (Age 18 – 64)			
ED - Admit	906,715	817,186	90%
ED - No Admit	6,667,189	5,881,608	88%
Total ED Visits	7,673,904	6,698,794	**89%**

Presence of RLN by Patient Characteristics

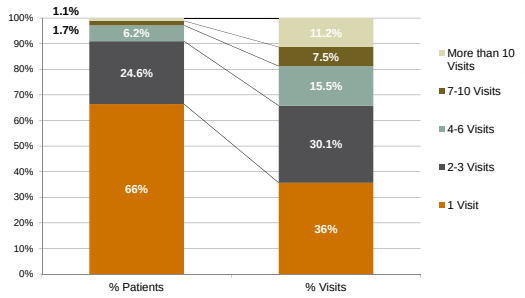


Findings

- In 2013, we identified more than 3.5 million non-elderly adults who made at least one visit to a hospital ED throughout California.
- These patients were responsible for about 6.7 million ED encounters; 12.3% resulted in a hospital admission.
- Frequent users (4+ visits) comprised less than 10% of all ED patients, but made more than one-third of all ED visits.
- Examined multiple years of data from 2009 thru 2013, results extremely consistent across all years.
  - All pre-ACA coverage expansions

Frequent users (4+) responsible for disproportionate share of ED visits

Fewer than 1% of patients are responsible for over 10% of all visits



Higher shares of Non-Hispanic White and African American patients among frequent users

	1 Visit	2-3 Visits	4-6 Visits	7-10 Visits	10+ Visits	All ED Patients
Mean age	40.0	39.8	40.3	41.2	41.6	40.0
Female	53.8%	57.3%	59.4%	58.9%	54.2%	55.1%
% English-speaking	90.9%	92.7%	95.0%	96.8%	98.4%	91.8%
Race/Ethnicity						
% Non-Hispanic White	45.1%	42.8%	45.3%	47.7%	51.6%	44.7%
% Non-Hispanic Black	10.1%	14.2%	18.1%	20.0%	20.6%	11.9%
% Latino	31.2%	34.4%	31.5%	28.6%	25.4%	31.9%
% Non-Hispanic Asian	7.0%	5.0%	3.2%	2.5%	1.7%	6.2%
% Non-Hispanic Other	0.3%	0.5%	0.4%	0.5%	0.5%	0.4%
% Race missing	6.2%	3.1%	1.4%	0.7%	0.2%	5.0%

Public insurance sources cover majority of heavy ED users

	1 Visit	2-3 Visits	4-6 Visits	7-10 Visits	10+ Visits	All ED Patients
Same payer						
% Always Medicare	5.3%	7.8%	11.0%	13.3%	12.6%	6.5%
% Always Medicaid	15.2%	20.3%	22.5%	21.3%	16.4%	17.0%
% Always Uninsured	24.9%	20.8%	16.0%	11.9%	8.8%	22.9%
% Always Private	54.7%	34.2%	18.1%	10.9%	6.2%	46.1%
Multiple payers						
% Some Medicare		2.2%	5.0%	7.6%	12.0%	1.1%
% Some Medicaid		9.5%	20.8%	28.5%	37.0%	4.5%
% Some Uninsured		5.2%	6.6%	6.6%	7.0%	1.9%

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Frequent ED users have high prevalence of chronic conditions

	1 Visit	2-3 Visits	4-6 Visits	7-10 Visits	10+ Visits	All ED Patients
Heart Disease	6.8%	13.0%	21.7%	30.1%	41.5%	10.0%
Cancer	2.2%	4.2%	6.7%	8.2%	9.1%	3.2%
COPD	1.9%	5.3%	11.3%	18.2%	26.9%	3.9%
Diabetes	8.4%	14.2%	20.7%	26.0%	32.0%	11.2%
Hypertension	15.2%	24.7%	35.2%	44.2%	54.1%	19.7%
Asthma	4.8%	9.8%	16.9%	23.6%	31.1%	7.4%
Liver disease	1.7%	4.3%	8.6%	13.5%	20.4%	3.2%
Alcohol-related	3.4%	7.0%	13.0%	20.3%	31.9%	5.5%
Substance use	3.1%	8.8%	19.7%	33.0%	54.9%	6.6%
Mental health	20.0%	38.6%	60.5%	76.5%	89.4%	28.8%

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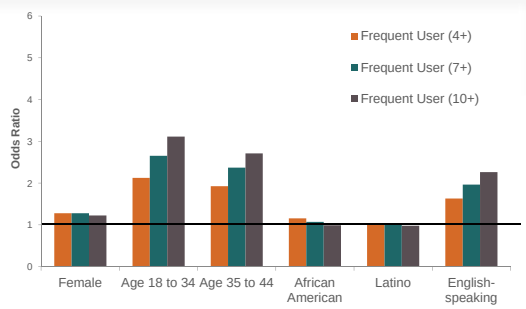
Younger adults and English-speakers have increased odds of frequent use



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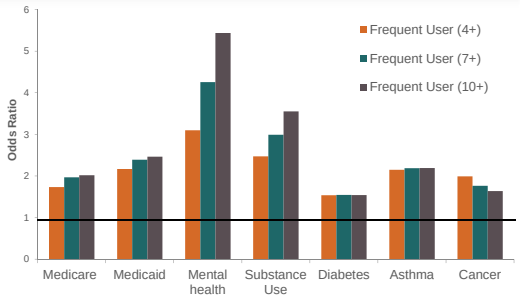
Behavioral health conditions have largest effect on increased odds of frequent use



Key Take-Aways

- Frequent ED users have high health burdens including large shares of patients with chronic conditions such as diabetes, asthma, and heart disease.
- Mental health conditions and substance use disorders are key predictors of heavy ED use.
- Even after controlling for a host of demographic and health conditions, patients covered under Medicaid are most likely to be frequent users.
- Changes in coverage also seem to be correlated with frequency of ED use, but more analytic work needed.

Policy Implications

- Inform strategies to manage resources as people shift from being uninsured to Medicaid under ACA coverage expansions.
- Large increases in Medicaid enrollment combined with expanded coverage for mental/behavioral health services could prove salutary, but will require targeted efforts and coordination.
- California State Medicaid policy changes in the works:
  - ACA (Sec 2703) Health Homes for patients with complex needs
  - Renewed 1115 Waiver – 'whole-person' pilot projects support case management, integrated social and behavioral supports, housing assistance.
  - Recently approved federal waiver to revamp the state's Drug Medi-Cal program.

Limitations

- Do not observe patients across outpatient settings including clinics and physician offices.
- Some covariates (health conditions, multiple coverage sources) more likely to be coded with more visits.
- Discharge data do not provide other potentially important covariates i.e. poverty status, work status.
- Inability to link across other programs to identify specific populations i.e. homeless or veterans.
- Pre-ACA coverage expansions; forthcoming 2014 discharge data will allow for updated analysis to examine any changes in the first year of ACA.

Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

Shannon McConville (mcconville@ppic.org; 415-291-4481)

Thank you for your interest in this work.