



Using an HIE for community-wide interventions

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Integrated Care Collaboration
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Outline

- Introduction to ICC
- Data Analytics Methodology
- Example: Emergency Department Frequent Users among Un/Underinsured
 - Problem Statement
 - Questions
 - Methodology
 - Results
 - Limitations
 - Summary
- Discussion

Integrated Care Collaboration (ICC)

- Consortium of safety net providers in Central Texas Region (pop: ~2 million)
- To improve access to healthcare for un/underinsured
- 24 members: hospitals, clinics, academic institutions, mental health agency, public health departments, EMS, jail health, call centers
- Hybrid model of a health information exchange (HIE) with a database

ICC Functions

- Point-of-care sharing of patient-data using HIE network
- Quality improvement and evaluation using data repository
- Strategic planning and research using the HIE database
- Community-coordinated provider efforts using the collaboration

I-Care Database

- MPI/CDR (Master Patient Index/Clinical Data Repository)
 - Accessed through an internet software application
- Data collected via electronic interfaces
 - Only for uninsured or those on assistance programs
 - Demographics, encounters, PHI disclosure authorizations, medications, labs

I-Care Snapshot

- Over 70 locations: 16 hospitals, 50 clinics, 1 Mental Health Authority, 2 Physician Networks
- Nearly 800,000 unique patients (un/underinsured)
- About 5 million encounters (2002-present)
- More than 750,000 prescriptions

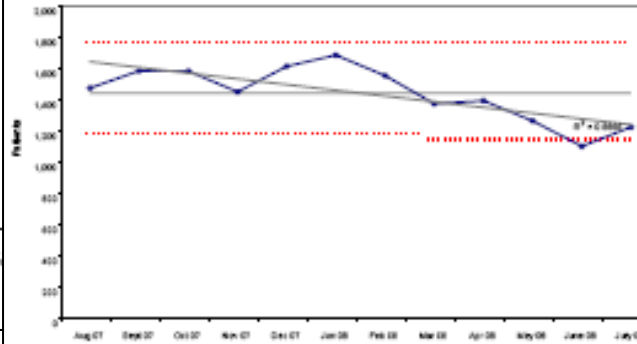


Dashboard

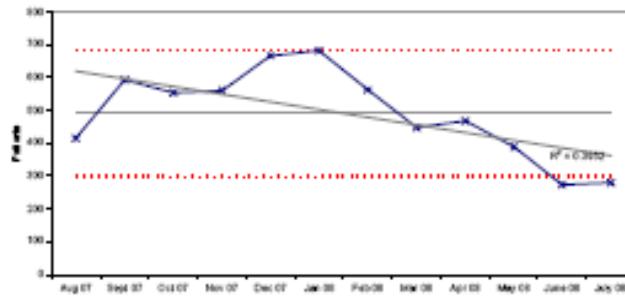
ICC DASHBOARD REPORT

ICC October Dashboard Report – Aug07-Jul08

Patients with All Preventable Chronic ED visits
(Asthma, COPD, Chronic Bronchitis, Diabetes, Hypertension, CHF)



All ED Patients with Asthma Diagnoses

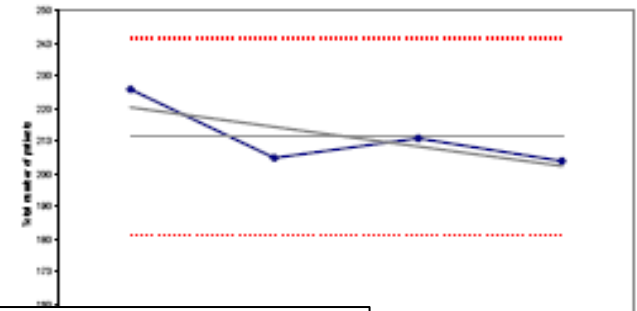


ED- Chronic Disease & Asthma

Integrated Care

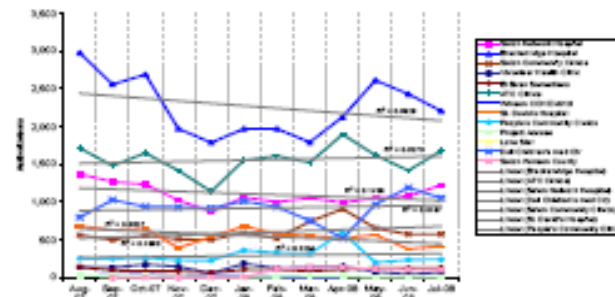
ICC October Dashboard Report – Aug07-Jul08

ED Frequent Flyers at all ICC Member Hospital facilities

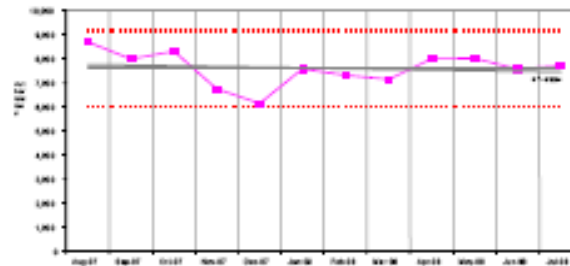


ICC October Dashboard Report – Aug07-Jul08

Signed Authorizations Received by Member by Month



Total Signed Authorizations Received



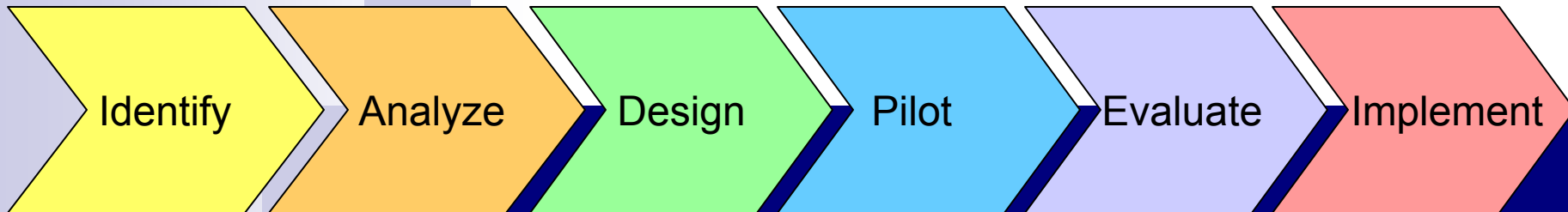
Authorizations

Feb 08 - Apr 08 May 08 - Jul 08

more ED visits within a 3 month time

ED Frequent Flyers

Methodology



Identify actionable items through:

- Data analysis
- Dashboard
- Patients
- Case studies
- Expert views

Use ICare data to understand impactable points in system:

- Detailed Data Analysis
- Hypothesis Testing
- Predictive Modeling
- Shared Results
- Community Standards

Design focused intervention to impact outcomes identified and analyzed using data:

- Use Research Design Criteria to assess impact
- Develop Business Plan

Pilot intervention to test translating evidence into practice:

- Collect and link relevant data to I-Care

Thorough evaluation of process and outcomes:

- Estimate ROI for proposed interventions

Based on evaluation:

- Finalize Community Standard
- Implement sustainable intervention shared across ICC members
- Continuous monitoring and improvements

Emergency Department (ED) Frequent Users (FU)

■ Problem Statement

- ED services are overburdened*
- Some patients use the ED services more frequently than others**

* *American College of Emergency Physicians, 2009*

** *Shumway 2008, Huang 2008, Byrne 2003*

Emergency Department (ED) Frequent Users (FU)

■ Project Scope

- To identify and stratify frequent users of ED services and design interventions to improve care

Emergency Department (ED) Frequent Users (FU)

Questions

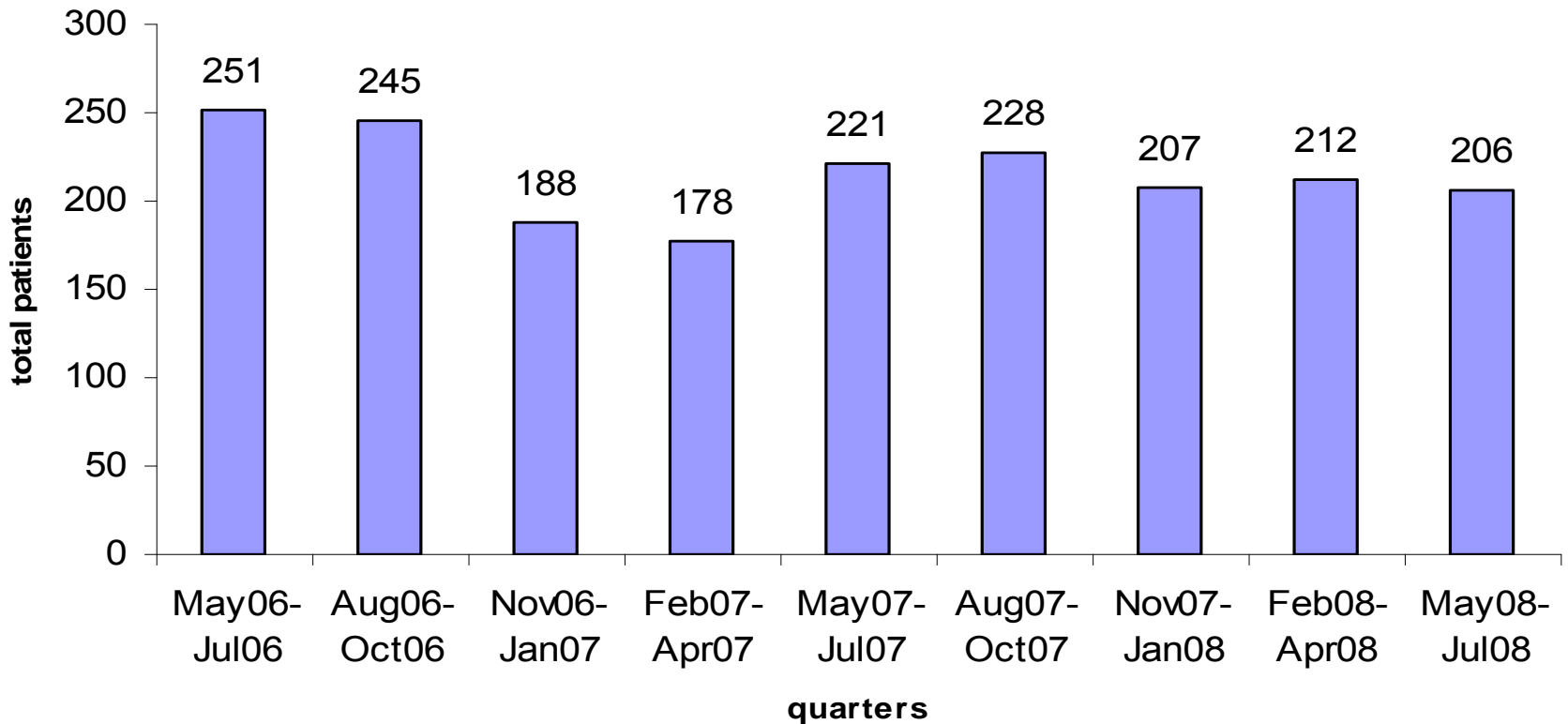
- Who are the ED Frequent Users?
- Are ED FUs a homogenous group?
- Are ED FUs a static group?
- Are there differences within ED FUs by
 - frequency of use
 - utilization of non-ED services
 - clinical diagnoses

Emergency Department (ED) Frequent Users (FU)

■ Methodology

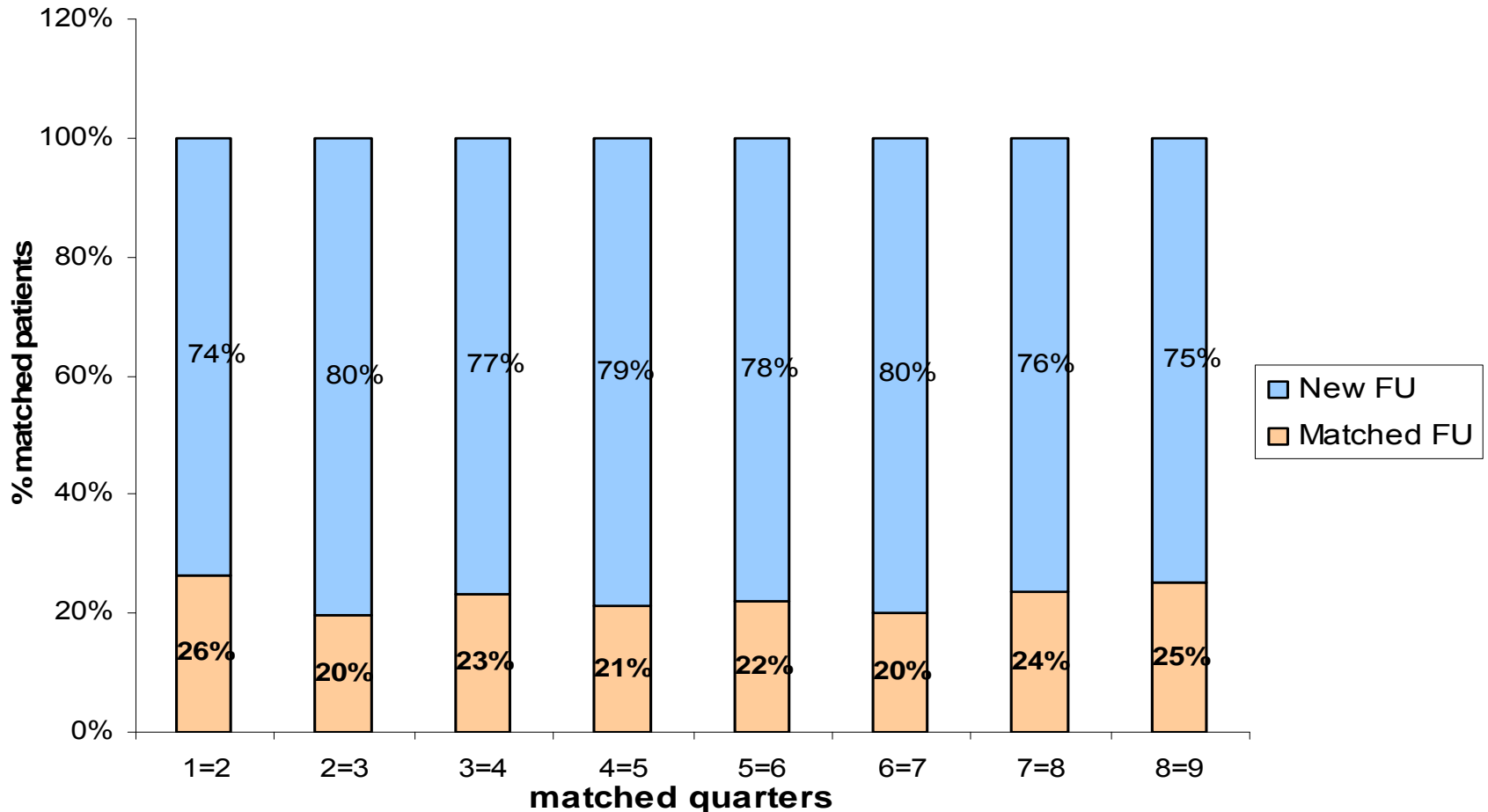
- Secondary data analysis
- Define frequent user of ED based on utilization: ≥ 6 ED visits in a quarter
- Identify patients in I-Care database using above definition
- Time period: May 2006 – July 2008

ED Frequent Users*, 2006-08



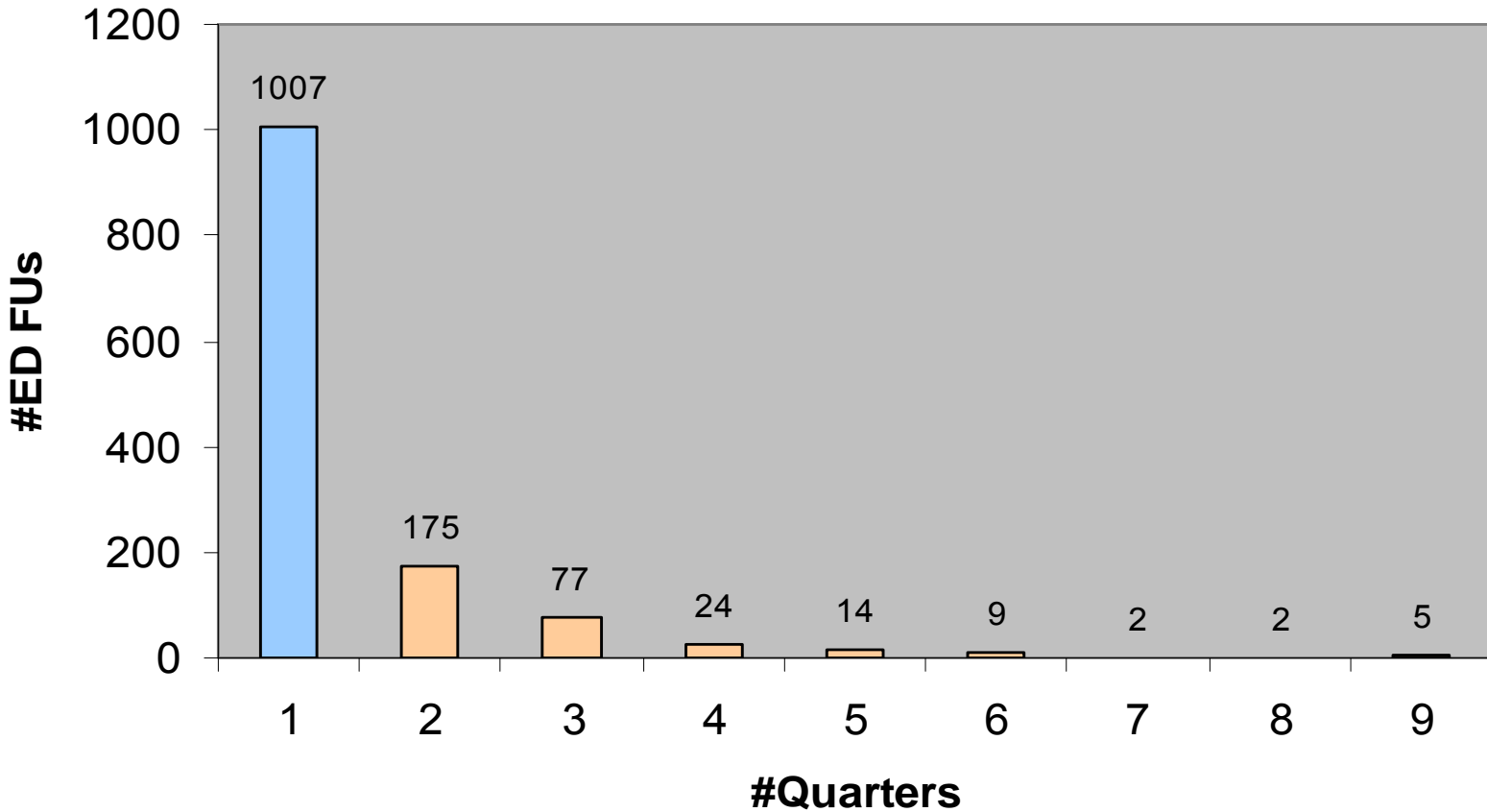
*ED Frequent Users defined as patients with ≥ 6 ED visits in a quarter (3months)

ED Frequent Users (FUs) Matched in Consecutive Quarters, 2006-08



**ED Frequent Users defined as patients with ≥ 6 ED visits in a quarter (3months)*

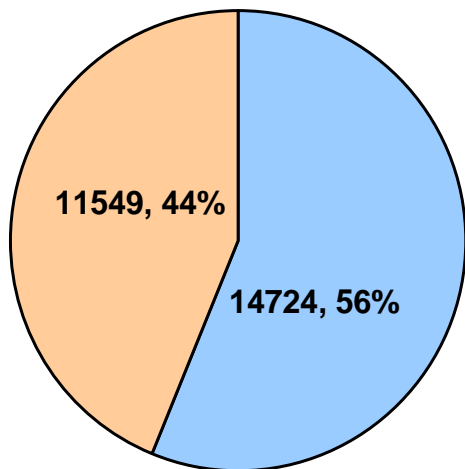
ED FUs in Quarters, 2006-08



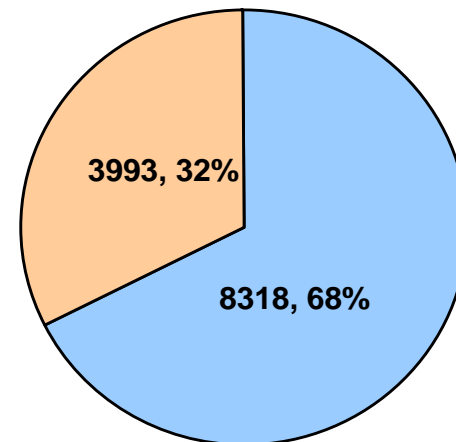
Total ED FUs, 2006-08=1315

Utilization by ED FUs, 2006-2008

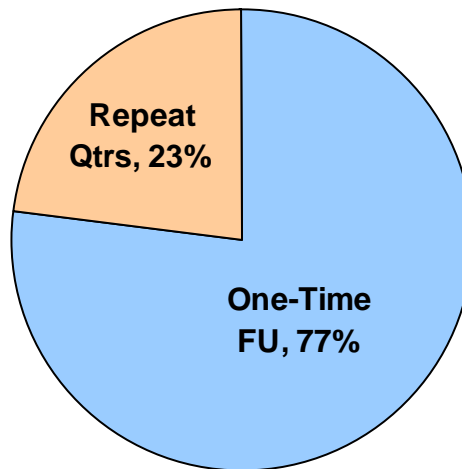
ED 06-08



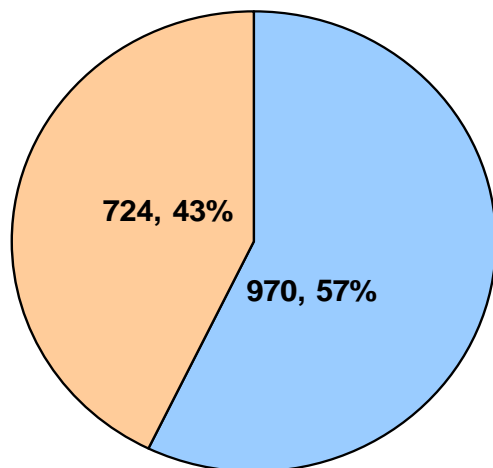
CV 06-08



ED FUs

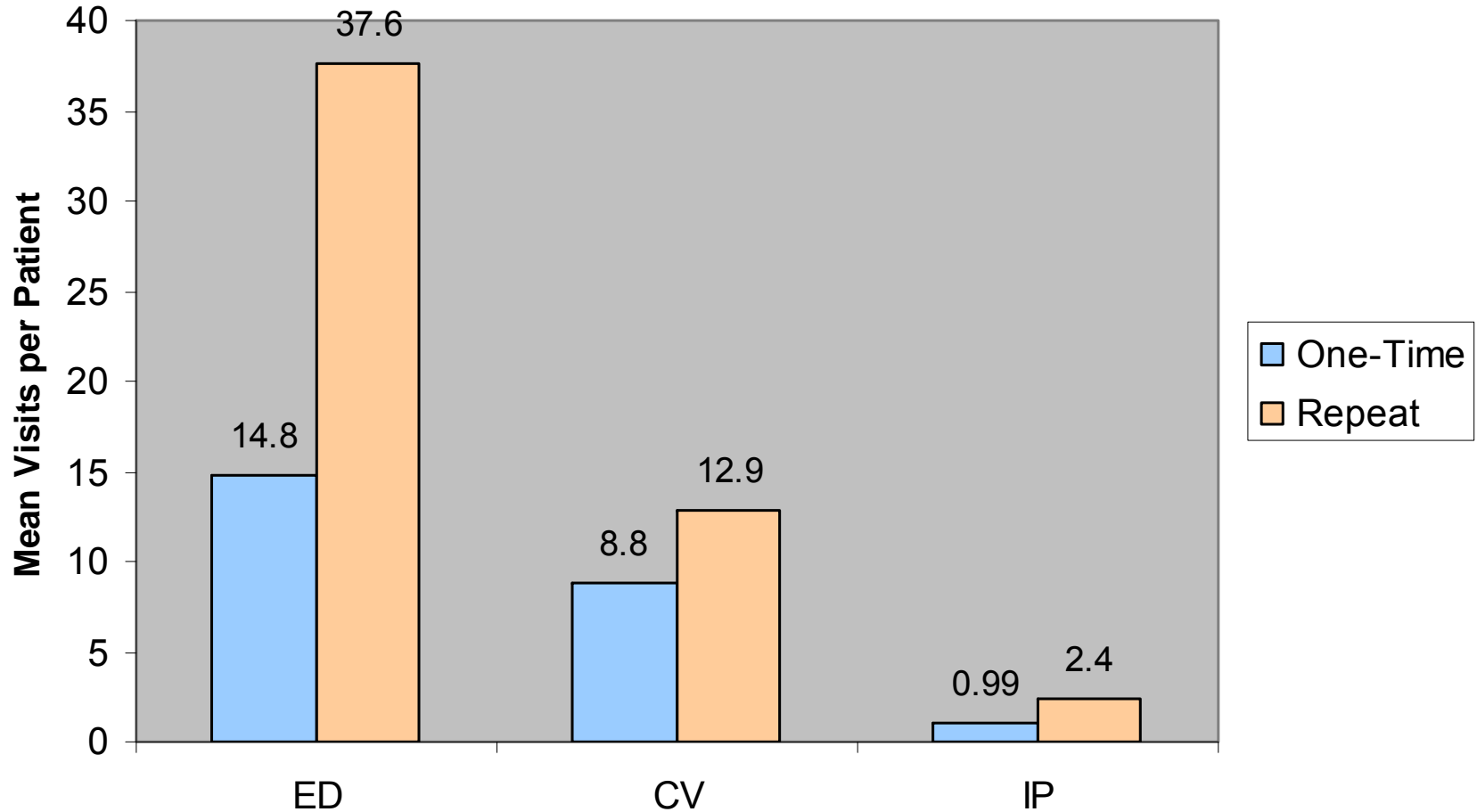


IP 06-08



N=1315

Mean Utilization per Adult EDFU by Repeat Quarters, 2006-08



Data Limitations

- Includes data from ICC members only
- Includes only patients identified as uninsured or underinsured
- Does not include Medicare patients' data from hospitals

ED Use for 9 Continuing ED FUs

Patient	2003	2004	2005	2006	2007	2008	Individual Pt. total
#1	27	15	27	80	36	31	216
#2	39	34	55	108	97	50	383
#3	0	7	14	17	31	16	85
#4	4	12	29	43	37	7	132
#5	43	83	87	78	42	51	384
#6	10	9	17	39	38	27	140
#7	6	48	49	94	84	75	356
#8	22	73	94	116	68	55	428
#9	23	110	111	103	62	145	554
Total ED visits per year	174	391	483	678	495	457	2,678

Case Study

- Complex patient who had >100 ED encounters each year for 4 years
- A detailed citywide care plan that involved all ED, MHMR Team, EMS, criminal justice dept
- Various strategies attempted: tokens, everyday cash, door to door 20 minutes
- Admitted to a group home in December 2008
- Only two emergency department visits in first half of 2009

Preliminary Findings

- ED FUs is a heterogenous group that is not static
- In 2 years, 23% of ED FUs had ≥ 6 ED visits in a quarter more than once
- Mean utilization of non-ED services was higher in the Repeat-ED FUs
- Top 9 ED FUs have $>2,500$ visits since 2003
- Coordinated community-wide interventions may reduce preventable frequent use



Discussion

- Community HIE can improve the capacity of local healthcare system to identify and stratify frequent users of ED
- Analysis of HIE data can help in development of focused strategies to improve care for un/underinsured patients through coordinated care plans