

What does emergency department data tell us about the safety net?

Oregon Healthcare Research and Evaluation Collaborative
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Emergency departments' role in the safety net



The canary in the coal mine

- The ED is not the problem, but a way of understanding the problem
 - Problems with access to care
 - Impact of policy changes
 - Opportunities to improve access

Impact of ED use on national health care costs is small

- As a proportion of US health care expenditures
 - 1.9% of national expenditures
 - 88% of ED expenditures are for insured patients
 - Half of uninsured costs are recovered from patients
 - ED costs by the poor = 0.47% of US health care costs

■ Tyrance, Amer J Public Health, 1996

Impact on hospital costs is small

- Providence Health Care System
 - ED costs ~ 5% of uncompensated care costs
 - The doorway to the inpatient setting (the other 95% of costs)

Savings from reducing ED use through co-payments

- Optimistic scenario: co-payments for ED would only reduce total spending by 2%
 - i.e., 25% reduction X 7% of total spending
- These savings might be offset
 - If patients delay care and are admitted for more expensive treatment
 - No evidence of this on the private side
 - Some evidence this happened with OHP Standard in 2003
 - If patients use primary care setting instead
 - If they require more administrative overhead

■ Handel, McConnell, Wallace and Gallia

Does ED use measure access in Oregon?

- Impact of OHP policy changes, 2003
- Regional variation in ED use

OHP Standard, Feb-March 2003

- Increased premiums
 - Eliminated exemptions for homeless or those with no incomes
 - 6 month lock-out for late premium payments
- New co-pays
- Decreased benefits
 - Eliminated dental and out-patient mental health among other services

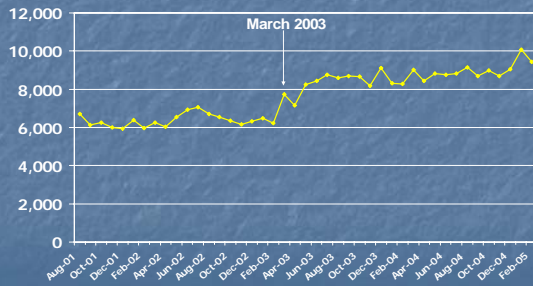
Impact on OHP Standard Enrollment

- Standard enrollment fell from 102,000 adults in 2002 to 51,000 adults in late 2003
- Enrollment of those with no incomes fell from 42,000 in 2002 to 17,500 in Oct. 2003

Methods

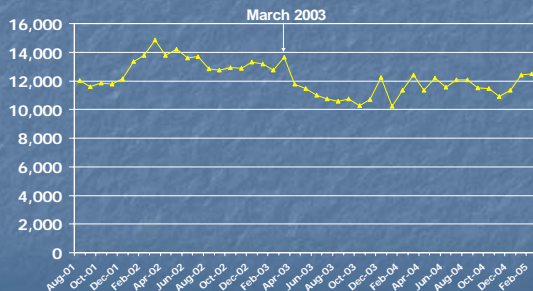
- Emergency department visits
- 25 participating EDs
 - Rural (11 EDs)
 - Urban (14 EDs)
- August 2001 through February 2005
 - 2,675,673 total ED visits

ED visits by uninsured rose from 6,441/month in 2002 to 8,754/month in 2004



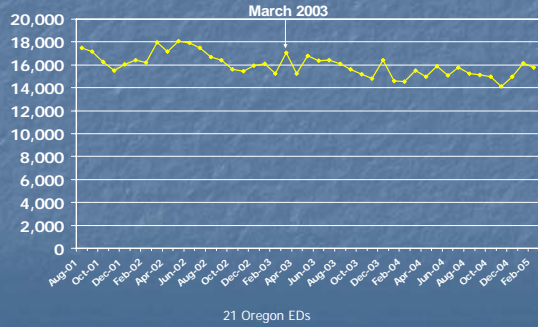
21 Oregon EDs

OHP-sponsored ED visits fell from 13,489/month in 2002 to 11,529/month in 2004

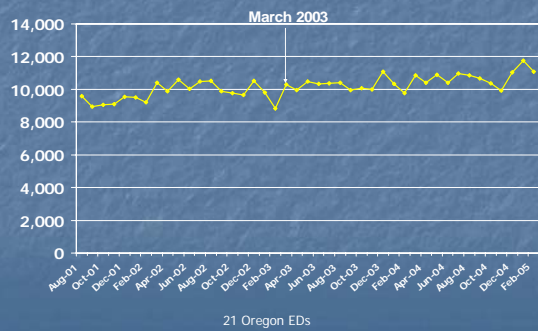


21 Oregon EDs

Commercially-sponsored visits fell from 16,782/month in 2002 to 15,066/month in 2004

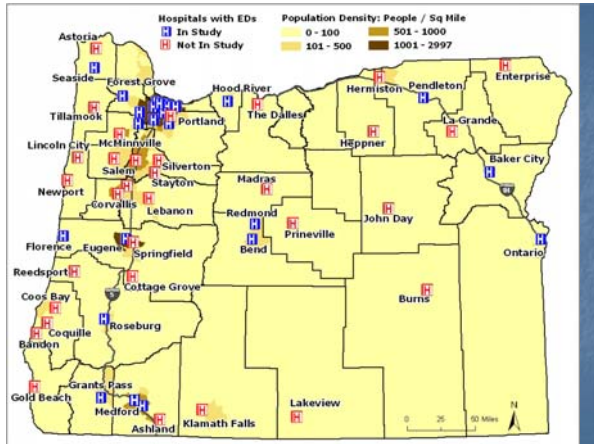


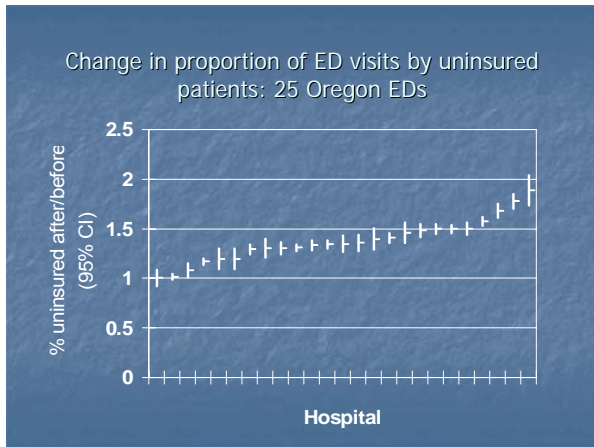
Medicare-sponsored ED visits 10,036/month in 2002 and 10,542/month in 2004

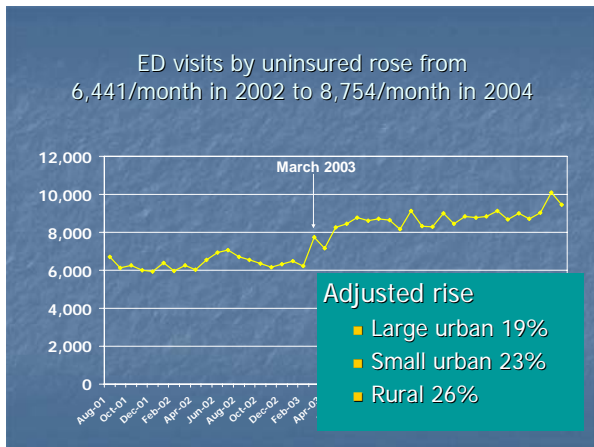


Behavioral health visits

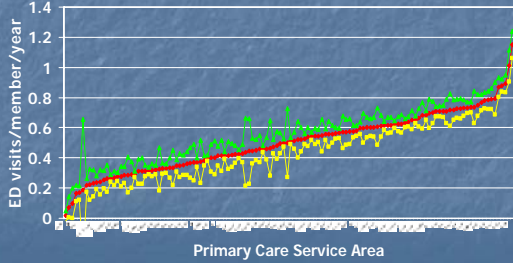
- Uninsured:
 - Psych visits 292 → 608/month
 - Drug-related 102 → 277/month
 - Alcohol-related 224 → 408/month







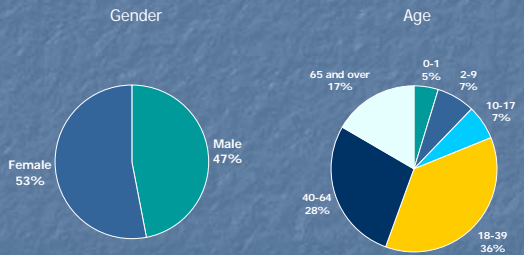
ED use by OHP enrollees varies >10-fold in different Oregon Communities



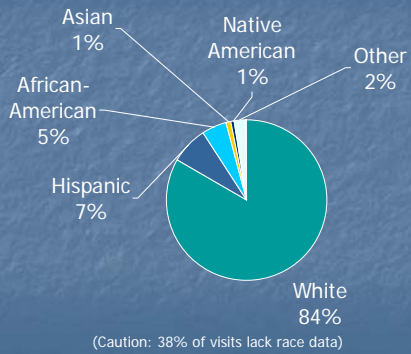
Opportunities to improve access

- Background
 - Who uses the ED?
 - When?
 - Why?
- Strategies
 - Targeting diseases
 - Targeting heavy users
 - Targeting locations

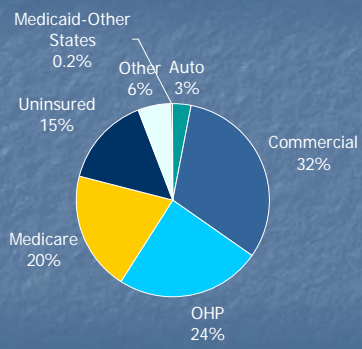
Who uses the ED? ED visits by age and gender



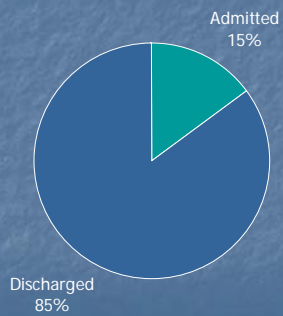
ED visits by race/ethnicity



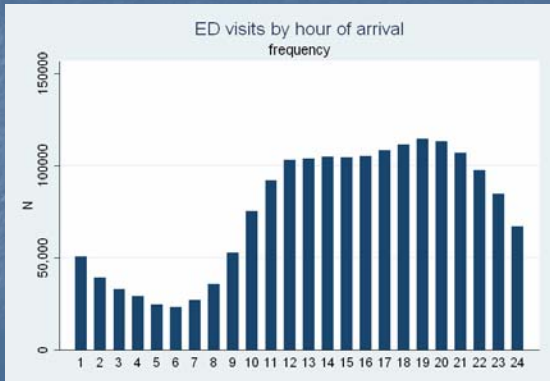
ED visits by payer



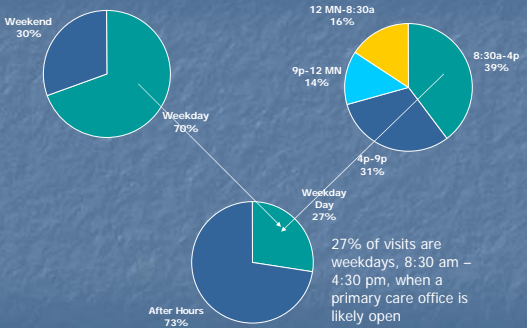
Admission Status



When do patients come to the ED?



When do patients come to the ED?



Why do patients come to the ED?

- Common diagnoses?
- Such an easy question
- So hard to answer!
 - By ICD9 diagnosis code?
 - By category?
 - By urgency or appropriateness?

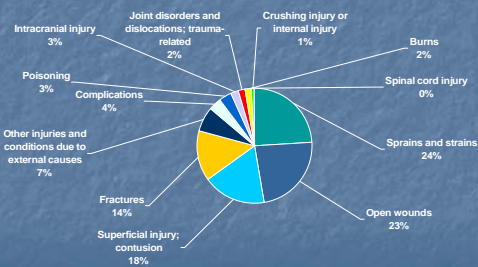
Common ICD9 diagnosis codes

icd9text	Number of Visits
784.0 headache	35,856
847.0 sprain of neck	34,792
465.9 acute uri nos	34,574
883.0 open wound of finger	33,356
786.50 chest pain nos	32,641
486 pneumonia, organism nos	31,319
789.09 abdmnal pain oth spcf st	28,843
599.0 urin tract infection nos	27,855
786.59 chest pain nec	27,018
382.9 otitis media nos	26,084
847.2 sprain lumbar region	24,901
780.6 fever	24,428
462 acute pharyngitis	24,281

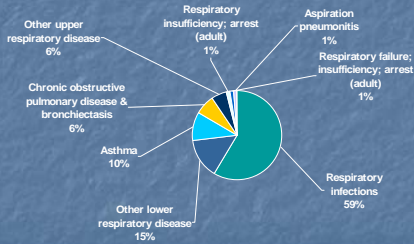
Clinical Classification System

CCS Level 1	Number of Visits
Injury and poisoning	617,790
Diseases of the respiratory system	264,750
Symptoms; signs; and ill-defined conditions and factors influencing health statu	231,055
Diseases of the nervous system and sense organs	183,370
Diseases of the circulatory system	173,419
Diseases of the digestive system	157,322
Diseases of the musculoskeletal system and connective tissue	124,207
Diseases of the genitourinary system	111,219
Mental disorders	100,552
Diseases of the skin and subcutaneous tissue	69,251
Infectious and parasitic diseases	44,879
Endocrine; nutritional; and metabolic diseases and immunity disorders	31,236
Complications of pregnancy; childbirth; and the puerperium	30,863
Residual codes; unclassified; all E codes [259. and 260.]	18,979
Neoplasms	8,905
Diseases of the blood and blood-forming organs	4,805
Certain conditions originating in the perinatal period	2,972
Missing CCS code	2,804
Congenital anomalies	765

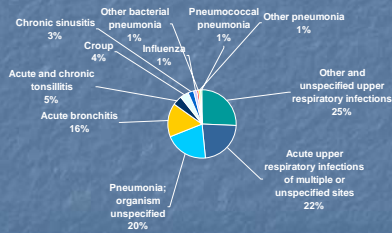
Injury and poisoning



Respiratory



Respiratory infections



Other and unspecified upper respiratory infections: Many may be minor

ICD9 code	Number of Visits
462 acute pharyngitis	24,281
034.0 strep sore throat	6,783
461.9 acute sinusitis nos	6,316
461.0 ac maxillary sinusitis	781
464.00 ac laryngitis w/o obst	447
461.8 other acute sinusitis	342
460 acute nasopharyngitis	257
461.1 ac frontal sinusitis	173
464.20 ac laryngotrach no obstr	91
464.30 ac epiglottitis no obstr	85
461.2 ac ethmoidal sinusitis	68
464.10 ac tracheitis no obstruc	57

Other and unspecified upper respiratory infections: Some are life-threatening

ICD9 code	Number of ED Visits
464.30 ac epiglottitis no obstr	85
464.50 supraglottitis w/o obs nos	20
464.31 ac epiglottitis w obstr	11
464.11 ac tracheitis w obstruct	4
464.01 ac laryngitis w obstruct	3
464.51 supraglottitis w obstr nos	3

But what about "inappropriate" visits?

- Clinicians often find that the question doesn't make sense.
- Prospective vs. retrospective
 - Chest pain example
- No gold standard
- Clinicians often disagree on record review
- Different measures of urgency fail to agree

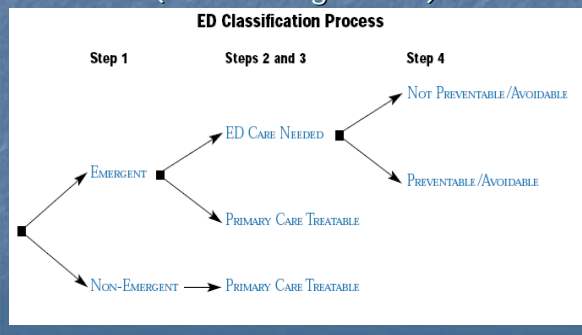
"Inappropriate" ED visits: case histories

- Primary care treatable emergency
- Emergency, ED care needed, potentially avoidable
- Emergency, ED care needed
 - "Near miss"

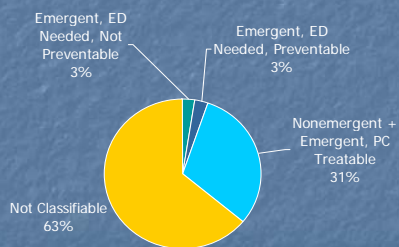
Impact of gatekeeping "inappropriate" ED visits

- Can't predict which ED visits will require aggressive treatment
 - Telephone triage
 - Managed care gatekeeping
 - In-person triage
- Adverse outcomes when we try
 - Abbuhi SB, Lowe RA. Academic Emergency Medicine 1996
 - Lowe RA, Abbuhi SB. Ann Emerg Med 2001

Emergency Department Algorithm (John Billings et al.)



ED Algorithm: most visits cannot be classified



How can we use diagnoses to understand ED use?

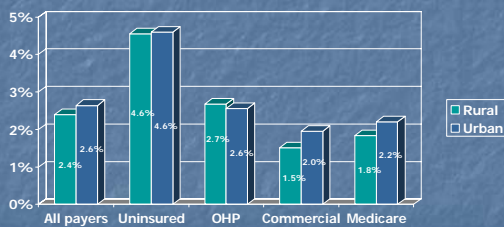
- Clinically meaningful categories
 - Approach depends on what we want to know
 - ICD9 codes
 - Clinical Classification System
- "Appropriateness" not very useful
 - Emergency Department Algorithm
 - "Obviously inappropriate" isn't obvious
- Specific diagnostic groups based on policy questions
 - More promising

Diagnostic groups based on policy questions

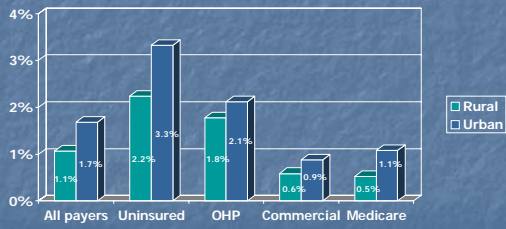
Frequency of diagnoses among ED visits (%)*				
	Drug	Alcohol	Other Psychiatric	Dental†
Uninsured	3.1	4.6	6.9	5.1
OHP	2.0	2.6	8.0	3.2
Medicare	0.9	2.1	11.0	0.4
Commercial	0.8	1.8	6.4	0.9
Total	1.5	2.6	7.6	2.0

* 2004 data, 25 EDs
 † Principal diagnosis

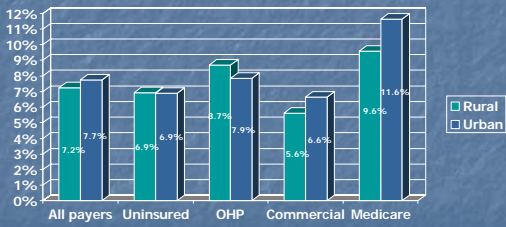
Alcohol-related ED visits



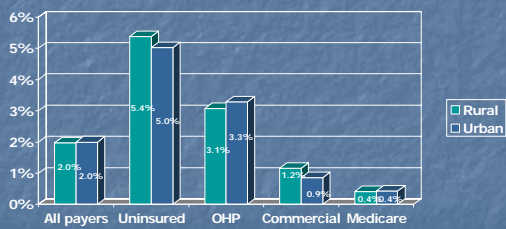
Drug-related ED visits



Psychiatric ED visits (excludes chemical dependency)

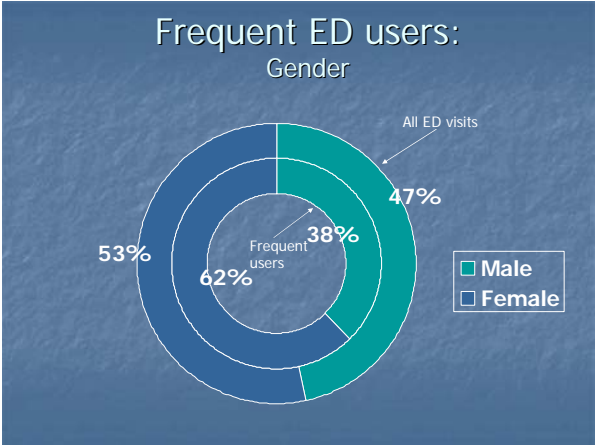


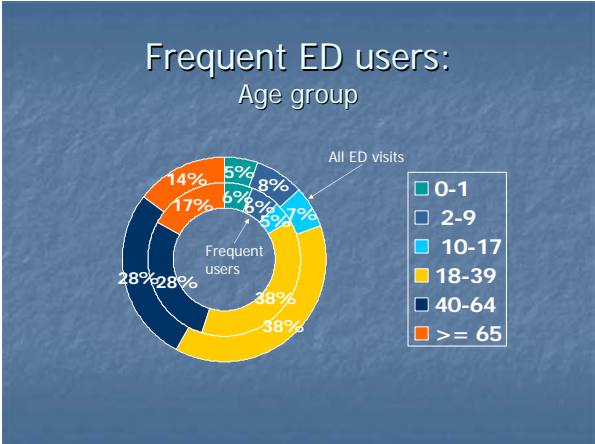
Dental ED visits



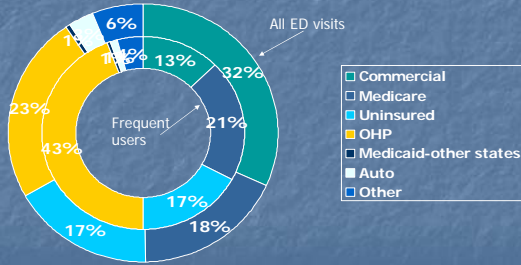
Frequent ED users:
Portland tri-county area

- ≥6 visits/6 months, January-June 2004





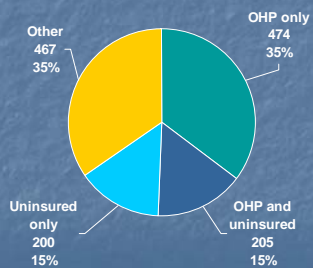
Frequent ED Users: Source of Payment for Visit



Diagnoses in frequent users (≥6 visits/6 months)

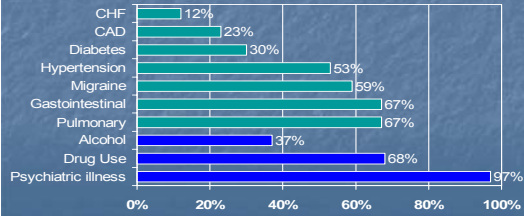
ccsLevel1	Number of ED Visits	Commonest Conditions
Injury and poisoning	620	Superficial injury
Diseases of the digestive system	237	Teeth & jaw
Mental disorders	237	Alcohol & substance-related
Diseases of the musculoskeletal system	200	"Other"
Symptoms; signs; and ill-defined	156	
Diseases of the respiratory system	150	Infections

We can't manage OHP frequent users without managing the uninsured



Heavy Utilizers: OHP Data

- 202 (0.02%) patients with ≥ 75 ED visits
 - Mean number of ED visits 109 (median 96, range 75 - 475)
 - Median number of primary care providers = 2
 - 5% of enrollees had 4 providers
 - 11% had 3 providers
- Damon Kuehl



Want me to make it look better?

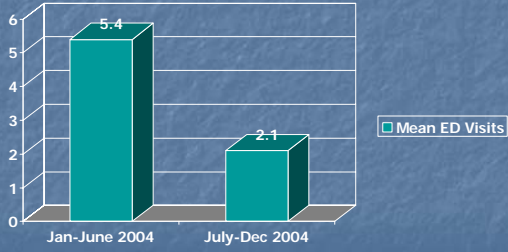
**"DOGBERT'S ED SOLUTIONS"
WILL CUT HEAVY USERS'
UTILIZATION IN HALF WITHIN
SIX MONTHS**

Tricounty ED Intervention
Projected Results

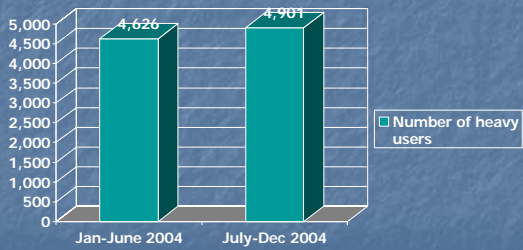
Period	Mean ED Visits
Jan-June 2007	6.4
July-Dec 2007	2.1

Intervention among patients with 4 or more ED visits, Jan-June 2007

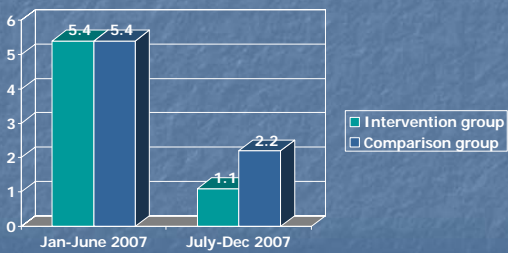
Tri-County ED Use by Patients with ≥ 4 ED Visits Jan-Jun 2004



ED use by patients with ≥ 4 ED visits July-Dec 2004



Oregon ED Intervention Study Results



Intervention among patients with 4 or more ED visits, Jan-June 2007

Conclusions

- When the canary in the coal mine dies ...



- Don't do CPR on the canary

Reminder...

- When the canary in the coal mine dies, don't do CPR on the canary.
 - The problem is not the ED
 - The problem is not patients who use the ED "inappropriately"
- Trying to reduce ED use won't save much money. It will endanger patients and distract from the real issues.
- ED use is an indicator of access barriers elsewhere.

So what do we know from ED use?

- Unmet need for behavioral health and dental care
 - Simply counting ED visits for these conditions probably under-estimates the magnitude of the need
- Opportunity to locate resources where they are most needed
- Frequent users
 - ED-based intervention to provide alternative sites for comprehensive, integrated care?
 - Is this redundant with the other strategies?
