

EMERGENCY DEPARTMENT VISITS FOR NON-TRAUMATIC DENTAL CONDITIONS NEW HAMPSHIRE, 2001-2008

Nancy Martin, RDH, MS
Ludmila Anderson, MD, MPH

New Hampshire Department of Health & Human Services
Division of Public Health Services
Oral Health Program

New England Rural Oral Health Conference
September 16, 2011



Objectives

- Explain the rationale for the study
- Describe the methods and major findings
- Discuss the practical implications

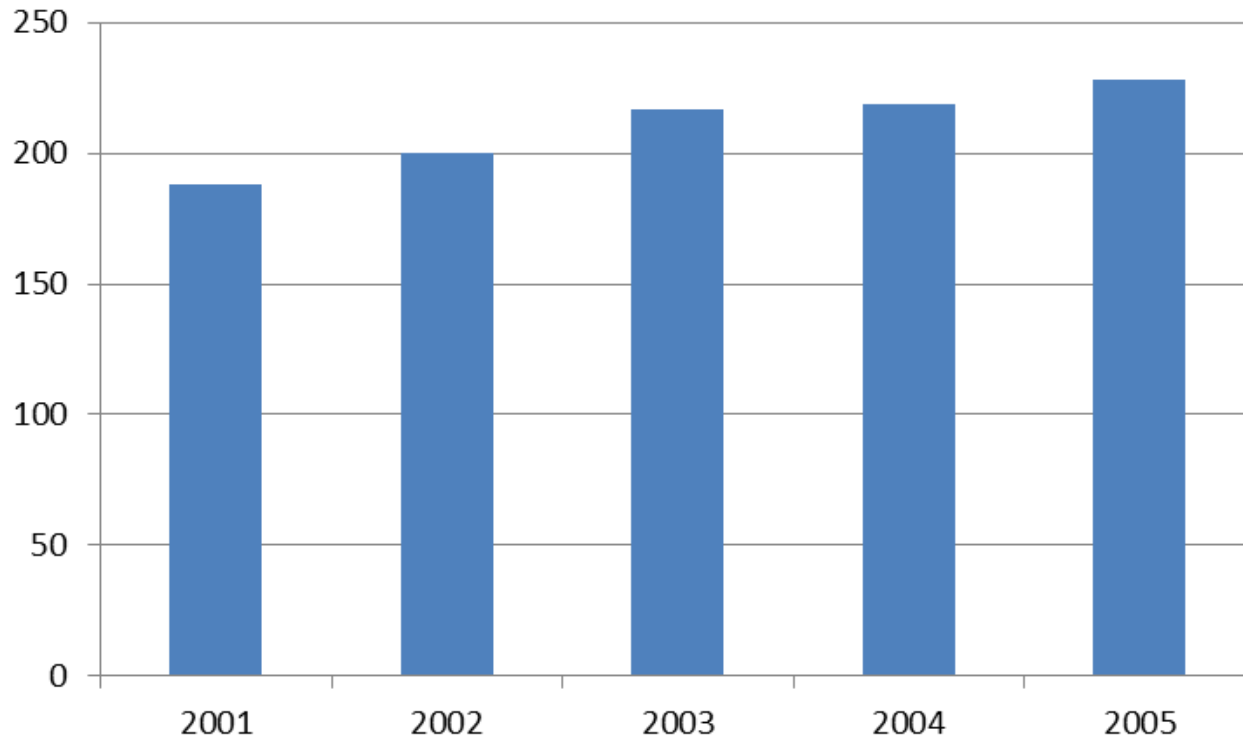
Background

- Ambulatory Care Sensitive (ACS) conditions related Emergency Departments (ED) visits
 - Conditions where timely and effective primary care may reduce or prevent the need for emergency care and hospitalizations
 - Significant increase in ACS chronic disease conditions from 2001-2005
 - Most notable rate of increase was for dental conditions

Selected Chronic Disease Ambulatory Care Sensitive Conditions¹

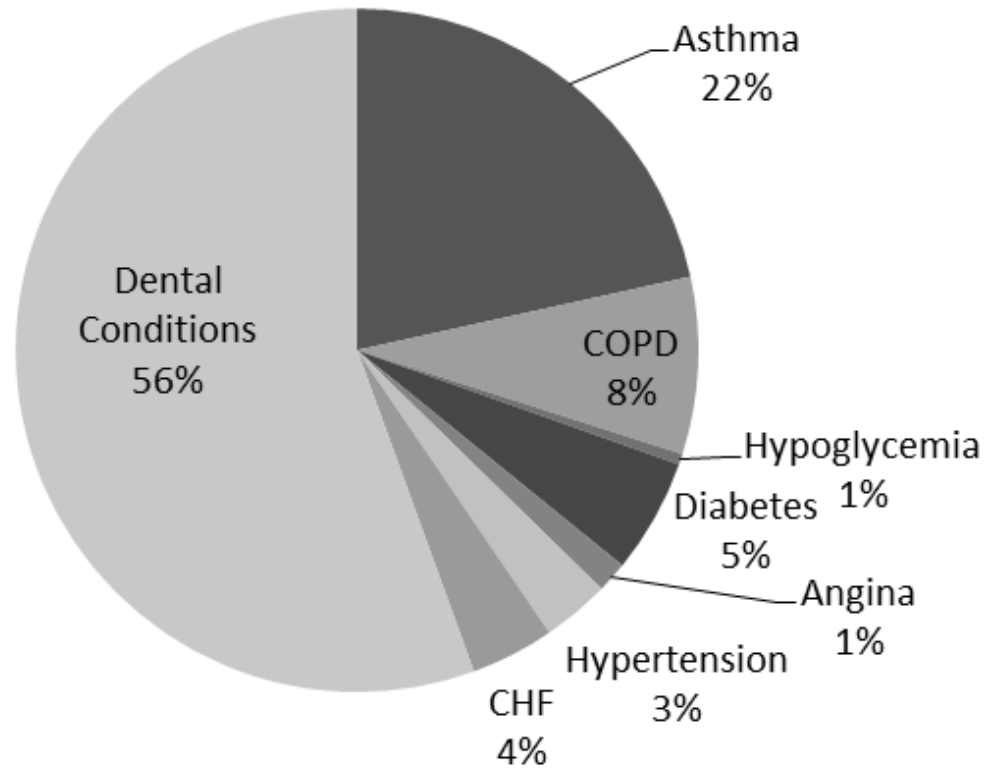
- **Chronic obstructive pulmonary disease** [491, 492, 494, 496, 466.0] (comments: acute bronchitis [466.0] only with secondary diagnosis of 491, 492, 494, 496)
- **Asthma** [493]
- **Congestive heart failure** [428, 402.01, 402.11, 402.91, 518.4] (comment: exclude cases with the following surgical procedures: 36.01, 36.02, 36.05, 36.1, 37.5, or 37.7)
- **Hypertension** [401.0, 401.9, 402.00, 402.10, 402.90] (comment: exclude cases with the following procedures: 36.01, 36.02, 36.05, 36.1, 37.5, or 37.7)
- **Angina** [411.1, 411.8, 413] (comment: exclude cases with a surgical procedure [01-86.99])
- **Diabetes** [250.0, 250.1, 250.2, 250.3, 250.8, 250.9]
- **Hypoglycemia** [251.2]
- **Dental Conditions** [521, 522, 523, 525, 528]

ACS ED Visits for Selected Chronic Disease Conditions, 2001-2005



Age-standardized rate per
10,000 area population

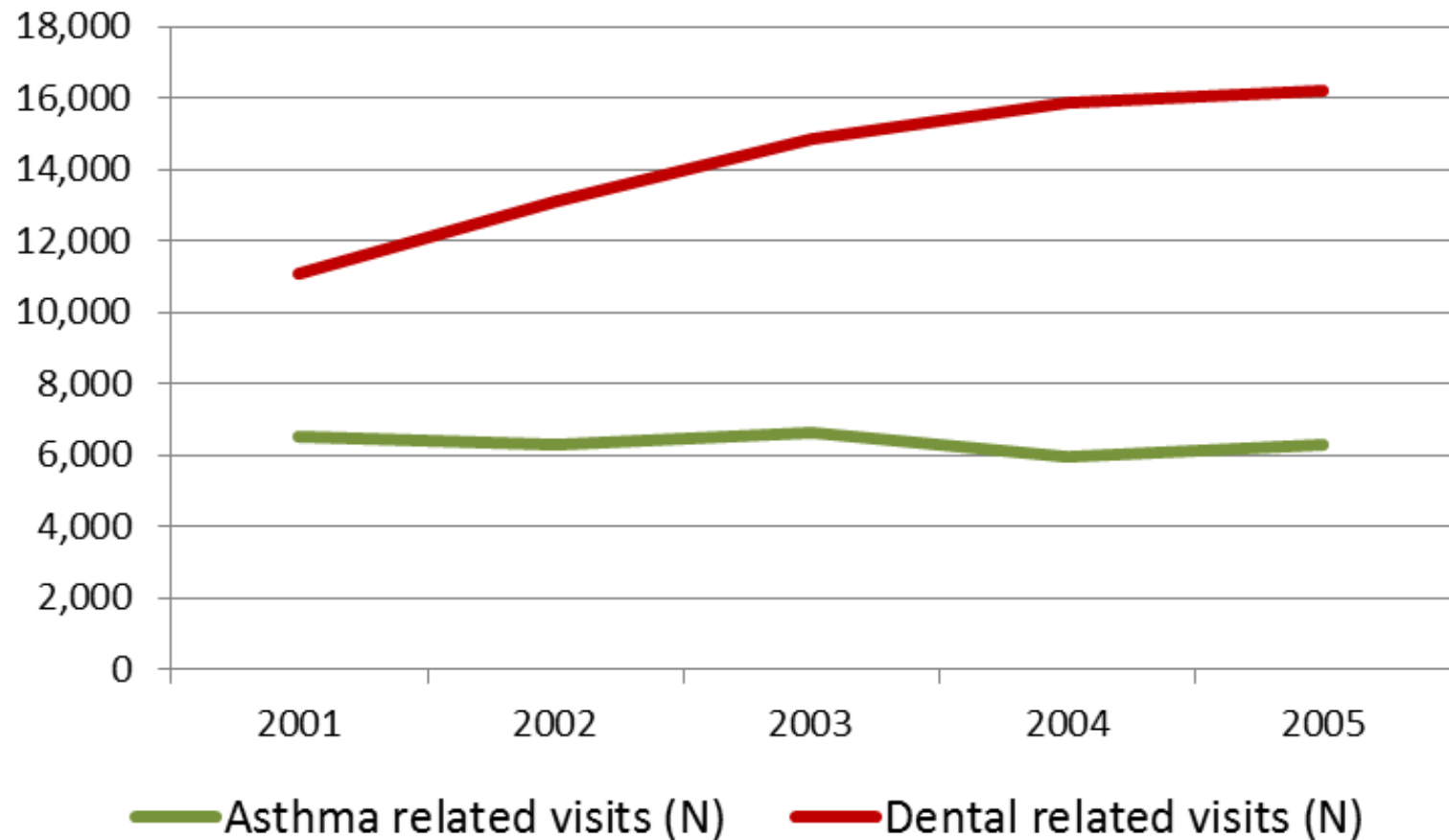
ACS ED Visits for Selected Chronic Disease Conditions, 2005



Charges (\$) for Selected Chronic Disease ACS Conditions, 2005



ACS ED Visits for Asthma and Dental Conditions, 2005



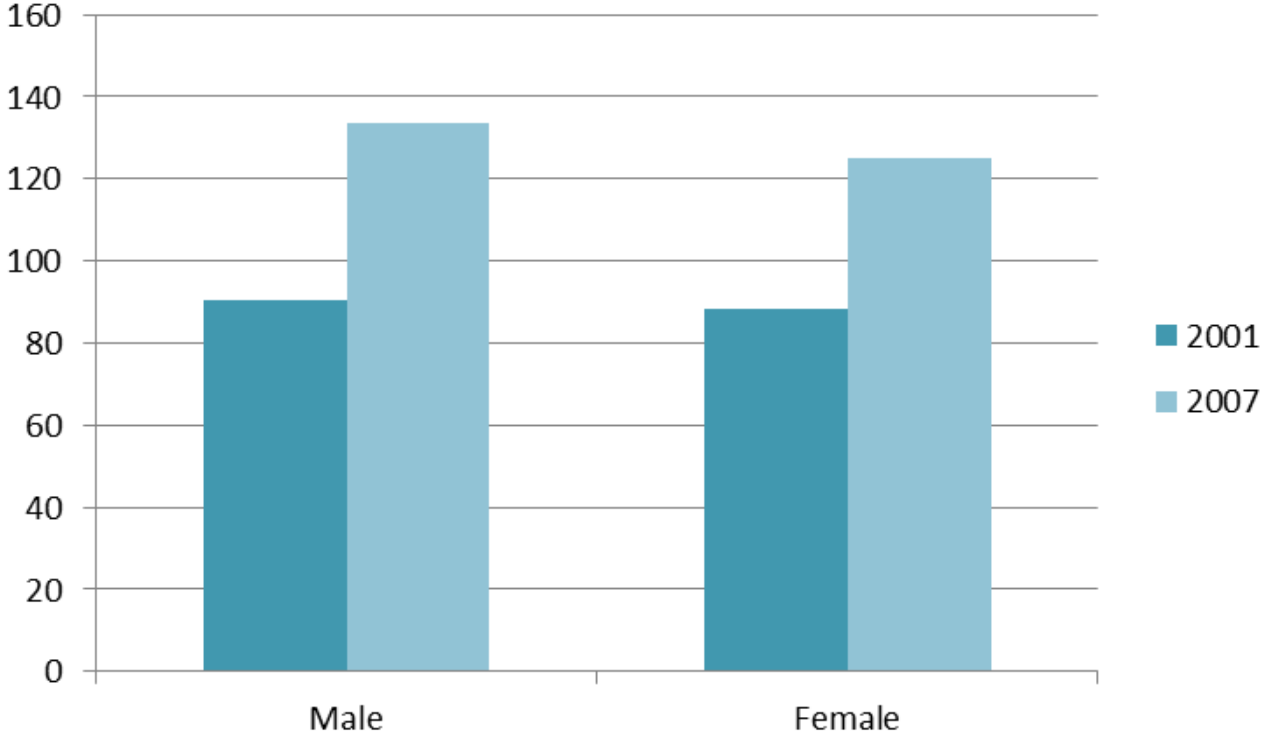
Methods

- Data source
 - NH hospital discharge data 2001-2008
 - Not unduplicated data
 - ED visits by NH residents both in & out of the state
 - 2001-2007 data
 - 2008 provisional data
- Selected ICD-9-CM codes
 - 521 (diseases of hard tissues of teeth, including dental caries)
 - 522 (diseases of pulp and periapical tissues)
 - 523 (gingival and periodontal diseases)
 - 525 (other diseases of the teeth and supporting structures)
 - 528 (disease of oral soft tissues)

Methods

- Analysis
 - Age-specific and age-adjusted rates of visits per 10,000 area population
 - By year, gender and county of residence
 - 95% confidence intervals
 - Spearman correlation coefficient
 - *Rho and p-values* for trend between 2001 and 2007

Results by Gender, 2001 and 2007

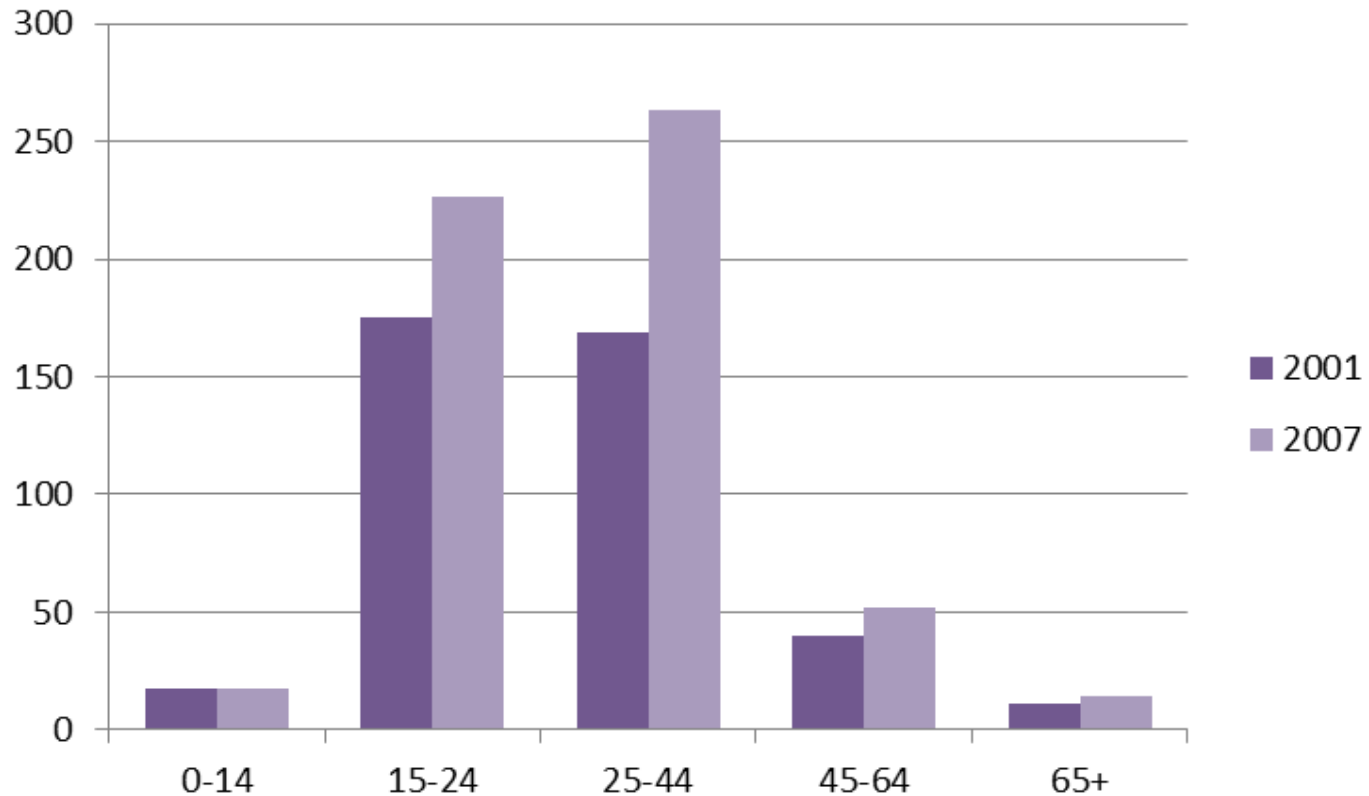


Age-standardized rate per
10,000 area population

Results by Gender

	2001			2007			2001-2007
Variables	N	Rate	95%CI	N	Rate	95%CI	<i>p</i> -value for trend
Total	11,067	89.5	88.6-90.5	16,238	129.3	127.3-131.3	<i>p</i> = 0.0068
Gender							
Males	5,604	90.6	89.3-92.0	8,367	133.7	130.8-136.6	<i>p</i> = 0.0005
Females	5,463	88.5	87.2-89.8	7,871	125.0	122.2-127.8	<i>p</i> = 0.0522

Results by Age, 2001 and 2007

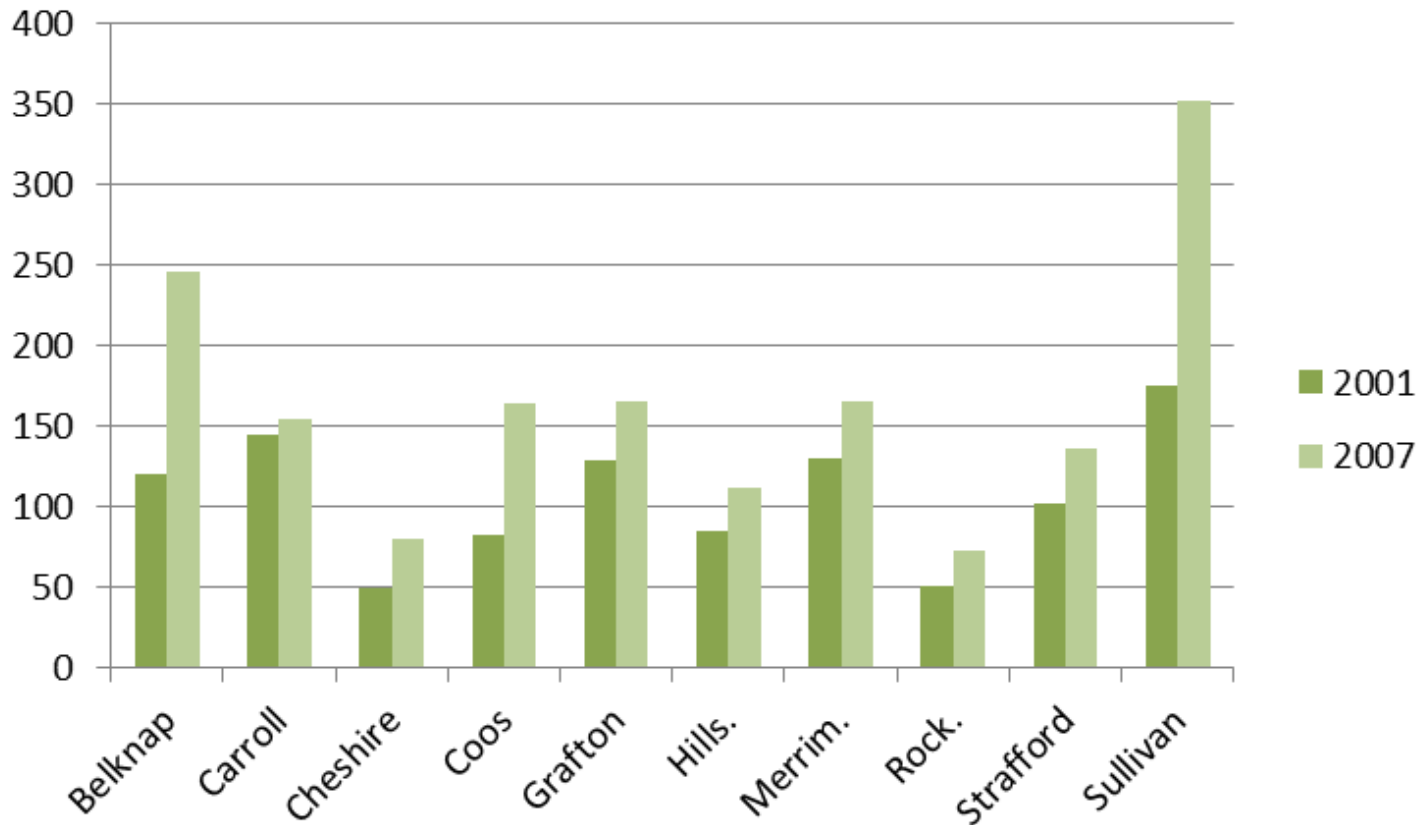


Age-standardized rate per
10,000 area population

Results by Age

	2001			2007			2001-2007
Variables	N	Rate	95%CI	N	Rate	95%CI	<i>p</i> -value for trend
Age Group							
0-14	439	17.1	15.5-18.7	418	17.3	15.6-19.0	<i>p</i> = 0.67
15-24	2,841	175.4	168.9-181.8	4,331	226.4	219.6-233.1	<i>p</i> = 0.25
25-44	6,403	168.6	164.5-172.7	9,263	262.9	257.6-268.3	<i>p</i> < 0.0001
45-64	1,222	39.6	37.4-41.8	1,980	51.9	49.6-54.2	<i>p</i> = 0.0137
65+	162	10.7	9.0-12.3	246	14.2	12.4-16.0	<i>p</i> = 0.0938

Results by County, 2001 and 2007



Age-standardized rate per
10,000 area population

Results by County

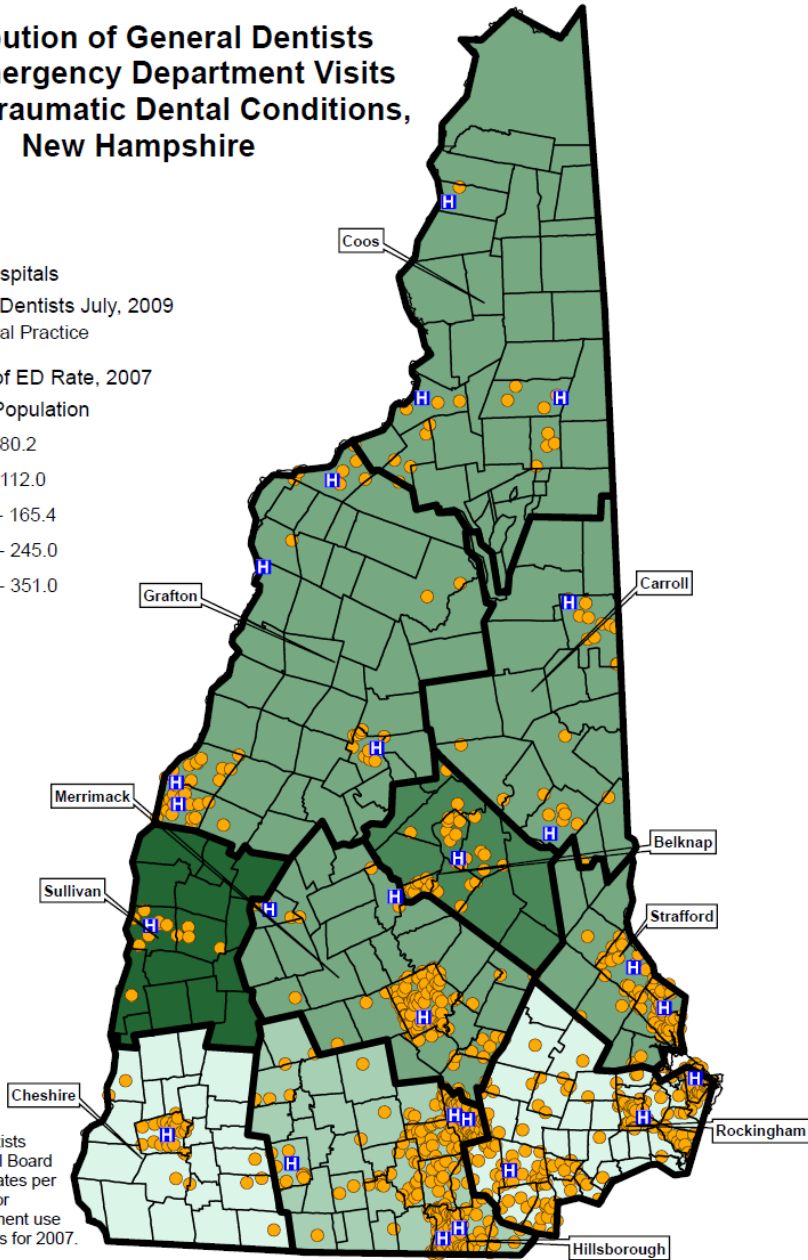
	2001			2007			2001-2007
	N	Rate	95%CI	N	Rate	95%CI	<i>p</i> -value for trend
Belknap	632	120.1	114.9-125.3	1,435	245.0	232.2-257.8	<i>p</i> = 0.0137
Carroll	535	144.2	137.2-151.2	632	153.7	141.4-165.9	<i>p</i> = 0.8192
Cheshire	355	49.8	47.1-52.6	599	80.2	73.6-86.7	<i>p</i> = 0.0005
Coos	236	81.9	76.1-87.7	448	164.0	148.6-179.4	<i>p</i> = 0.0025
Grafton	1,027	129.1	124.7-133.5	1,399	165.3	156.4-174.1	<i>p</i> = 0.0522
Hills.	3,284	84.8	83.1-86.4	4,339	112.0	108.6-115.3	<i>p</i> = 0.2532
Merrim.	1,764	130.4	127.2-133.5	2,323	165.4	158.6-172.2	<i>p</i> = 0.0008
Rocking.	1,371	50.2	48.7-51.7	2,016	73.1	69.8-76.3	<i>p</i> = 0.0085
Strafford	1,226	102.3	99.2-105.5	1,715	135.5	129.0-141.9	<i>p</i> = 0.5345
Sullivan	637	175.0	168.1-181.9	1,332	351.0	332.1-370.0	<i>p</i> = 0.0025

Distribution of General Dentists and Emergency Department Visits for Non-Traumatic Dental Conditions, New Hampshire

H NHHospitals
 NH General Dentists July, 2009
● General Practice

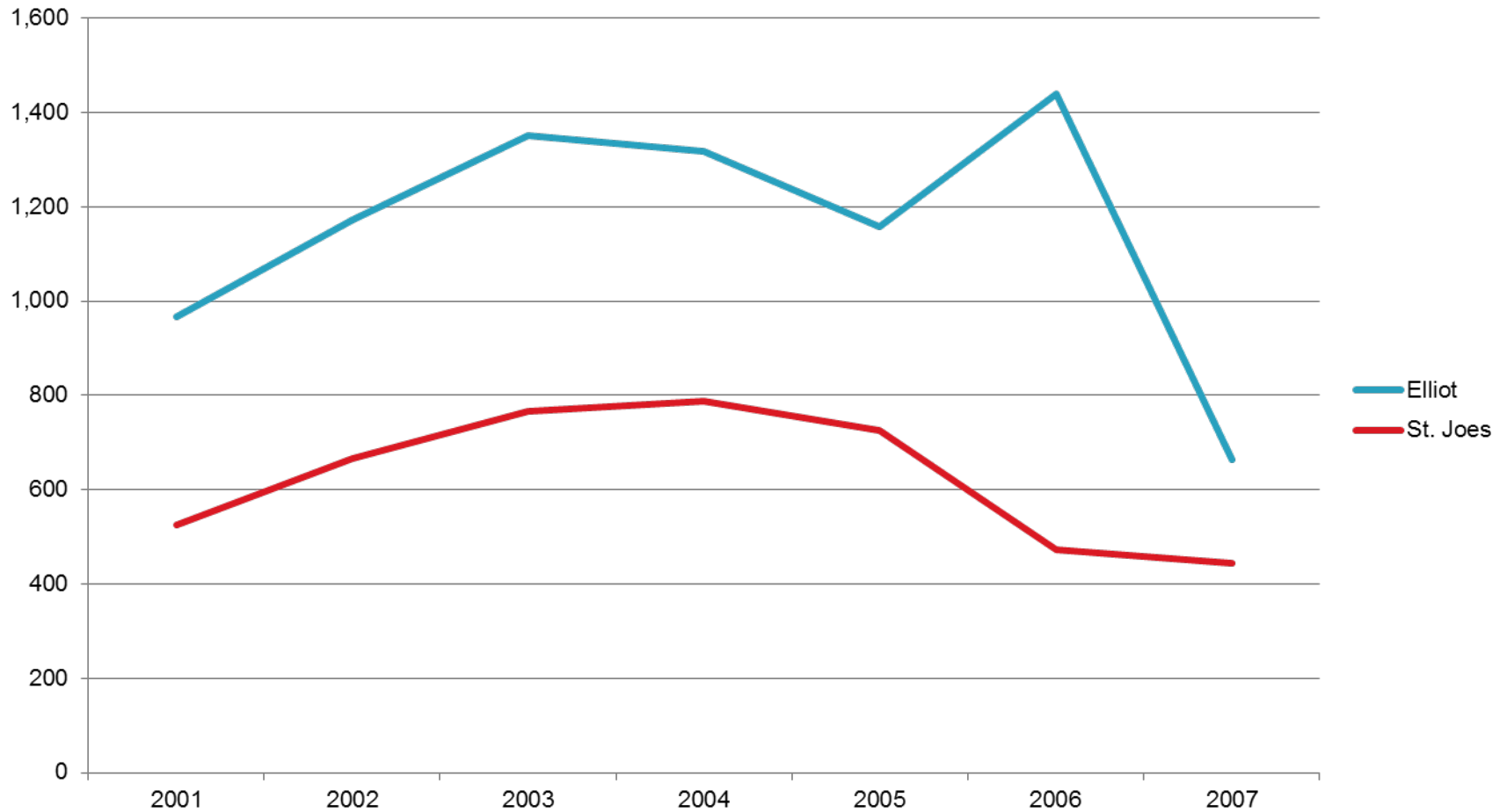
Dental Use of ED Rate, 2007
 Per 10,000 Population

	73.1 - 80.2
	80.3 - 112.0
	112.1 - 165.4
	165.5 - 245.0
	245.1 - 351.0

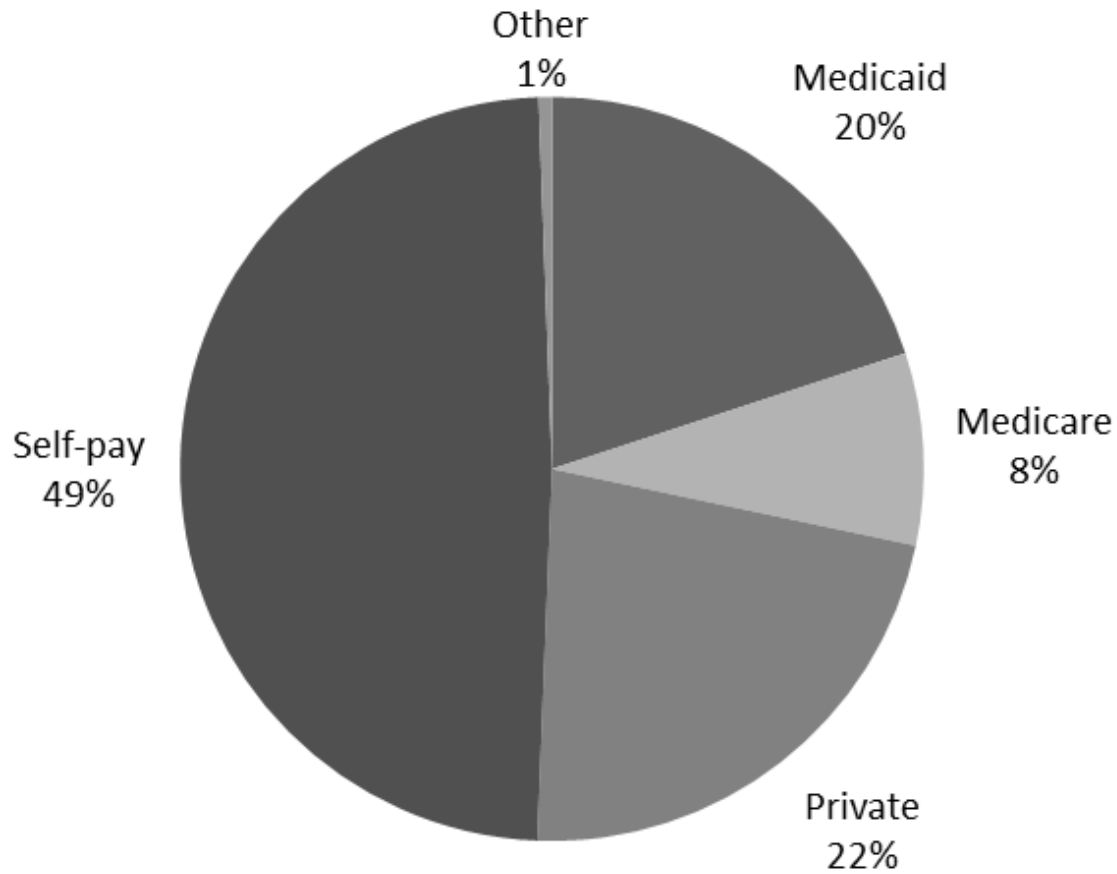


Note: General Dentists based on NH Dental Board listings for 2009. Rates per 10,000 population for Emergency Department use for dental discharges for 2007.

Decrease in ED Visits for Dental Conditions Seen in Selected Hospitals, 2001- 2007



Results by Payers, 2007



Limitations of Findings

- Use of administrative claims data
- Possible errors related to coding and data abstraction from medical records
- Data represent the number of visits made to the ED and not the number of patients
- Current utilization may be changing

Discussion

- Dental conditions not self-limiting
- Preventable dental conditions could be better treated in primary care settings (general dental offices)
- Using the ED for dental care is ineffective

Conclusion

- Dental visits at NH hospital EDs have increased
- Exact reasons are not known
- ED users seeking dental care are not receiving definitive dental treatment
- Represents an inefficient use resources

Future Steps

- Further studies:
 - Hospital discharge data de-duplication
 - Hospital-specific data on ED visits for dental conditions (chart audit)
 - Ongoing, consistent monitoring of ED use for dental care
- Development of targeted interventions

References

1) *Michael M, editor. Access to Health Care in America.* Committee on Monitoring Access to Personal Health Care Services. Institute of Medicine. National Academy Press, Washington, D.C. 1993, p. 221 [cited 2009 Nov 16]. Available from: http://www.nap.edu/catalog.php?record_id=2009

2) *Utilization of Hospital Emergency Departments for Non-Traumatic Dental Care in New Hampshire, 2001-2008.* Anderson L., Cherala S., Traore E., Martin N. *Journal of Community Health.* Volume 36, Number 4, 513-516, DOI: 10.1007/s10900-010-9335-5

Contact Information

Ludmila Anderson 603-271-4473
landerson@dhhs.state.nh.us

Nancy Martin 603-271-4535
nmartin@dhhs.state.nh.us