



STATE OF MARYLAND

DHMH

Maryland Department of Health and Mental Hygiene
201 W. Preston Street • Baltimore, Maryland 21201

Martin O'Malley, Governor – Anthony G. Brown, Lt. Governor – John M. Colmers, Secretary

OCT 02 2007

The Honorable Ulysses Currie
Chairman
Senate Budget and Taxation Committee
3 West Miller Senate Office Bldg.
Annapolis, MD 21401-1991

The Honorable Norman H. Conway
Chairman
House Appropriations Committee
131 Lowe House Office Bldg.
Annapolis, MD 21401-1991

**RE: P_123_2007_JCR_DHMH_Report on the Most Common Diagnoses for Frequent
Emergency Department Visitors and Plans to Reduce Emergency Department Visits**

Dear Chairmen Currie and Conway:

The 2007 Joint Chairmen's Report requires the Department to submit a report by October 1, 2007 on the most common diagnoses for Medicaid enrollees who make frequent emergency department visits, along with recommendations for reducing the frequency of these visits. The enclosed paper explores the issues identified in the JCR and their potential impact on the Medical Assistance program.

If further information is required, please do not hesitate to contact Tricia Roddy, Director of Planning, at (410) 767-5806.

Sincerely,



John M. Colmers
Secretary

Enclosure

cc: John Folkemer
Tricia Roddy
Anne Hubbard

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**Report to the General Assembly
Emergency Room Visits for Medicaid Enrollees
October 2007**

Background

In recent years, health care consumers across the United States including Medicaid enrollees are increasingly seeking care in emergency rooms (ERs). This is despite the fact that ERs are an expensive and inadequate setting for primary and specialty care. In 1997, Maryland implemented HealthChoice, a managed care system for most Medicaid enrollees, which was expected to lower ER use. The expectation that ER use should decrease under managed care is based on the premise that a managed care system is capable of promoting ambulatory care. For example, managed care organizations (MCOs) provide enrollees with a medical home and implement disease management programs that encourage enrollees to access preventive care. Both of these programs help enrollees manage their chronic conditions. During the first few years of HealthChoice, ER visit rates unexpectedly increased.¹ By 2001, ER use among HealthChoice enrollees leveled off and has since remained static.² Despite State and MCO efforts to reduce ER use, utilization remains steady, with roughly one in four recipients receiving an ER visit.³

As a response to budget bill language that appears on page 123 of the 2007 Joint Chairmen's Report, this report outlines the most common diagnoses for frequent ER users and provides recommendations to reduce inappropriate ER use. The emergency room data evaluated includes enrollees in both the HealthChoice and fee-for-service programs.

Emergency Room Utilization Rates

During calendar year (CY) 2006, there were 866,028 Medicaid enrollees with at least one month of eligibility in both the HealthChoice and fee-for-service programs. Most of these enrollees did not use the ER frequently. For instance, 72.2% (625,525 enrollees) never visited an ER and 15.9% (another 137,272 enrollees) only sought care in an ER one time. Approximately 12% of Medicaid enrollees visited an ER more than once during this period with 0.01% (94 enrollees) having more than 50 ER visits (Table 1).

¹ ER visits were defined as visits to ERs that did not lead to hospitalizations.

² DHMH HealthChoice Evaluation, 2006.

³ Ibid.

Table 1: Number of ER Visits for All Medicaid Recipients CY 2006, N = 866,028		
Number of Visits	Frequency	Percent
0	625,525	72.2%
1	137,272	15.9%
2	51,990	6.0%
3	22,626	2.6%
4	11,178	1.3%
5	6,066	0.7%
6	3,513	0.4%
7	2,189	0.3%
8	1,366	0.2%
9	959	0.1%
10	629	0.1%
10-20	2,132	0.2%
21-30	316	0.0%
31-40	115	0.0%
41-50	58	0.0%
51-100	80	0.0%
101+	14	0.0%
ALL	866,028	100.0%

The tables below show the frequency of ER visits by different demographic groups. Of Medicaid enrollees, 240,503 had one or more ER visit during CY 2006, and these members visited the ER a total of 498,089 times.⁴

Age Group

Across the various age groups, of those that used the ER, the 40-64 age group had the highest average visits per user, with 3.0, followed by the 21-39 age group, with 2.6 average visits per user (Table 2). Those in the 40-64 age group make up 13.7% of the total Medicaid population with 118,396 enrollees, but account for 23.8% of the total ER visits.

⁴ ER visits are defined as one visit per person per day. This may slightly underestimate the number of actual ER visits because some beneficiaries may have made multiple trips to the ER within the same day.

	All Members, N = 866,028	Members with at Least 1 ER Visit, N = 240,503	Number of ER Visits, N = 498,089	Average Visits Per User
Age Group	Frequency	Frequency	Frequency	Average
0 to <1	36,296	10,418	17,388	1.7
01-02	67,596	27,787	52,790	1.9
03-05	85,068	24,570	38,970	1.6
06-09	99,106	22,046	32,605	1.5
10-14	110,775	23,359	35,408	1.5
15-18	86,374	23,372	40,370	1.7
19-20	27,867	8,434	18,389	2.2
21-39	158,768	41,169	106,797	2.6
40-64	118,396	39,448	118,543	3.0
65+	75,782	19,900	36,829	1.9
ALL	866,028	240,503	498,089	2.1

Region

By region, enrollees in Baltimore City who use ER services have the highest utilization rate, with an average of 2.3 ER visits per user. The Washington suburbs have the lowest utilization rate, with an average of 1.8 ER visits per user (Table 3). Baltimore City enrollees account for 26.8% of the total Medicaid population, while accounting for 35.9% of total ER visits.

	All Members, N = 866,028	Members with at Least 1 ER Visit, N = 240,503	Number of ER Visits, N = 498,089	Average Visits Per User
Region	Frequency	Frequency	Frequency	Average
Baltimore City	232,438	77,731	178,985	2.3
Baltimore Suburban	213,176	57,522	118,994	2.1
Washington Suburban	251,248	56,322	101,317	1.8
Western Maryland	47,418	14,247	30,280	2.1
Southern Maryland	39,686	10,808	20,954	1.9
Eastern Shore	80,650	23,546	46,890	2.0
Out of State	1,412	327	669	2.0
ALL	866,028	240,503	498,089	2.1

Gender

Females represent 59.3% of all Medicaid enrollees, while males represent 40.3% of the Medicaid population. Males and females tend to use the ER at approximately the same rate, and among those using the ER, both males and females averaged 2.1 visits per year (Table 4).

	All Members, N = 866,028	Members with at Least 1 ER Visit, N = 240,503	Number of ER Visits, N = 498,089	Average Visits Per User
Gender	Frequency	Frequency	Frequency	Average
Female	513,345	141,233	294,578	2.1
Male	352,683	99,270	203,511	2.1
ALL	866,028	240,503	498,089	2.1

Comorbidity

As expected, enrollees with greater health problems are more likely to visit the ER. Of those visiting the ER, enrollees considered to have very serious or high comorbidity conditions (approximately 6.2% of the Medicaid enrollees) used the ER an average of 3.5 times in CY 2006 (Table 5). Further, those with very high comorbidity conditions accounted for 29.0% of all ER visits in CY 2006. There are 94,450 enrollees (approximately 10.9% of the total Medicaid population) in the high comorbidity group; 50,589 had one or more ER visits in CY 2006.

	All Members, N = 866,028	Members with at Least 1 ER Visit, N = 240,503	Number of ER Visits, N = 498,089	Average Visits Per User
Comorbidity Level	Frequency	Frequency	Frequency	Average
Low Comorbidity	468,374	59,873	77,002	1.3
Moderate Comorbidity	214,278	88,870	157,529	1.8
High Comorbidity	94,450	50,589	118,731	2.3
Very-High Comorbidity	53,754	40,979	144,598	3.5
Other	35,172	192	229	1.2
ALL	866,028	240,503	498,089	2.1

*A beneficiary's health status is proxied by comorbidity classification. This methodology uses a member's past Medicaid utilization to assign them to one of 93 mutually exclusive health status categories, defined by morbidity (from clinical diagnoses), age and gender.

Emergency Room Diagnoses

Enrollees using the ER present very diverse primary diagnoses. The following table shows the frequency distribution of primary diagnoses by large ICD-9-CM categories. Injury / poisoning was the most common diagnosis, accounting for 18% of ER visits. Symptoms / signs of ill-defined conditions, a group including loss of consciousness, chest pain, and other symptoms, was the next most common diagnosis group, accounting for 15.5% of the ER visits. Diseases of the respiratory system accounted for 14.0% of the ER visits (Table 6). Table 7 provides a list of the most frequently occurring primary diagnoses for ER visits among Medicaid patients in CY 2006.

ICD-9 Category	Diagnosis Group	Frequency	Percent
001-139	Infectious and Parasitic	27,132	5.4%
140-239	Neoplasms	2,173	0.4%
240-279	Endocrine, Nutritional, Metabolic, Immunity	9,722	2.0%
280-289	Blood/Blood-Forming Organs	5,214	1.0%
290-319	Mental	30,078	6.0%
320-389	Nervous System and Sense Organs	28,649	5.8%
390-459	Circulatory System	15,307	3.1%
460-519	Respiratory System	69,832	14.0%
520-579	Digestive System	32,508	6.5%
580-629	Genito-urinary System	22,057	4.4%
630-677	Complications of Pregnancy, Childbirth, Puerperium	24,641	4.9%
680-709	Skin and Subcutaneous Tissue	21,652	4.3%
710-739	Musculoskeletal System/Connective Tissue	24,012	4.8%
740-759	Congenital Anomalies	426	0.1%
760-779	Perinatal Period	1,606	0.3%
780-799	Symptoms, Signs, Ill-defined Conditions	77,373	15.5%
800-999	Injury and Poisoning	89,899	18.0%
V01-V83	V codes	15,787	3.2%
E800-E999	E codes	4	0.0%
Missing	Primary diagnosis not recorded	17	0.0%
ALL		498,089	100.0%

**Table 7: 45 Most Frequent Primary Diagnosis Codes for ER Visits, All Medicaid Members,
N = 498,089**

	PDX	Primary Diagnosis Label	Frequency	Percent
1	4659	ACUTE URI NOS	14,785	3.0%
2	3829	OTITIS MEDIA NOS	11,895	2.4%
3	7806	PYREXIA UNKNOWN ORIGIN	9,522	1.9%
4	49392	ASTHMA,UNSPECIFIED,WITH (ACUTE)EXACERBAT	9,386	1.9%
5	7999	UNSPECFD VIRAL INFECTION	8,936	1.8%
6	462	ACUTE PHARYNGITIS	7,636	1.5%
7	78900	ABDOMINAL PAIN UNSPECIFIED SITE	7,368	1.5%
8	5990	URIN TRACT INFECTION NOS	7,073	1.4%
9	486	PNEUMONIA, ORGANISM NOS	6,970	1.4%
10	64893	OTH CURR COND-ANTEPARTUM	6,931	1.4%
11	5589	NONINF GASTROENTERIT NEC	6,758	1.4%
12	78650	CHEST PAIN NOS	6,427	1.3%
13	7840	HEADACHE	5,170	1.0%
14	78659	CHEST PAIN NEC	5,130	1.0%
15	78039	OTHER CONVULSIONS	4,810	1.0%
16	78703	VOMITING ALONE	4,801	1.0%
17	920	CONTUSION FACE/SCALP/NCK	4,653	0.9%
18	84500	SPRAIN OF ANKLE NOS	4,208	0.8%
19	49390	ASTHMA, UNSPECIFIED	4,023	0.8%
20	7295	PAIN IN LIMB	3,911	0.8%
21	4660	ACUTE BRONCHITIS	3,725	0.7%
22	311	DEPRESSIVE DISORDER NEC	3,673	0.7%
23	7242	LUMBAGO	3,462	0.7%
24	V583	ATTEN-SURG DRESSNG/SUTUR	3,250	0.7%
25	6826	CELLULITIS OF LEG	3,192	0.6%
26	37230	CONJUNCTIVITIS NOS	3,173	0.6%
27	5259	DENTAL DISORDER NOS	3,096	0.6%
28	4280	CONGESTIVE HEART FAILURE	3,050	0.6%
29	78909	ABDOMINAL PAIN OTHER SPECIFIED SITE	3,046	0.6%
30	490	BRONCHITIS NOS	3,025	0.6%
31	28262	HB-SS DISEASE WITH CRISIS	2,938	0.6%
32	56400	CONSTIPATION,UNSPECIFIED	2,934	0.6%
33	340	STREP SORE THROAT	2,746	0.6%
34	7245	BACKACHE NOS	2,726	0.5%
35	95901	HEAD INJURY UNSPECIFIED	2,725	0.5%
36	27651	DEHYDRATION	2,660	0.5%
37	87342	OPEN WOUND OF FOREHEAD	2,655	0.5%
38	64003	THREATENED ABORT-ANTEPAR	2,337	0.5%
39	6929	DERMATITIS NOS	2,322	0.5%
40	88	VIRAL ENTERITIS NOS	2,315	0.5%
41	8830	OPEN WOUND OF FINGER	2,248	0.5%
42	7821	NONSPECIF SKIN ERUPT NEC	2,221	0.4%
43	8470	SPRAIN OF NECK	2,212	0.4%
44	30500	ALCOHOL ABUSE-UNSPEC	2,170	0.4%
45	7802	SYNCOPE AND COLLAPSE	2,019	0.4%

Inappropriate Emergency Room Use

To consider the possible causes and the appropriateness of emergency visits, all ER visits by Medicaid enrollees were classified. Visits were classified according to the widely used classification methodology developed by researchers at the New York University Center for Health and Public Service Research (NYU) in collaboration with the United Fund of New York. This methodology classifies emergency visits as follows:

- 1) *Non-emergent* - immediate care not required within 12 hours based on the patient's vital signs, presenting symptoms, medical history, and age;
- 2) *Emergent but primary care treatable* - treatment was required within 12 hours but it could have been provided effectively in a primary setting; e.g., CAT scan or certain lab tests;
- 3) *Emergent but preventable/avoidable* - emergency care was required, but the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness, like flare-ups of asthma;
- 4) *Emergent, ER care needed, not preventable/avoidable* - ambulatory care could not have prevented the condition; e.g., trauma or appendicitis;
- 5) *Injury* -injury principal diagnosis;
- 6) *Mental health* -mental health principal diagnosis;
- 7) *Alcohol-related* -alcohol-related principal diagnosis;
- 8) *Drug-related* -drug-related principal diagnosis; and
- 9) *Unclassified* -conditions that could not be classified due to insufficient sample sizes available to the expert panel.⁵

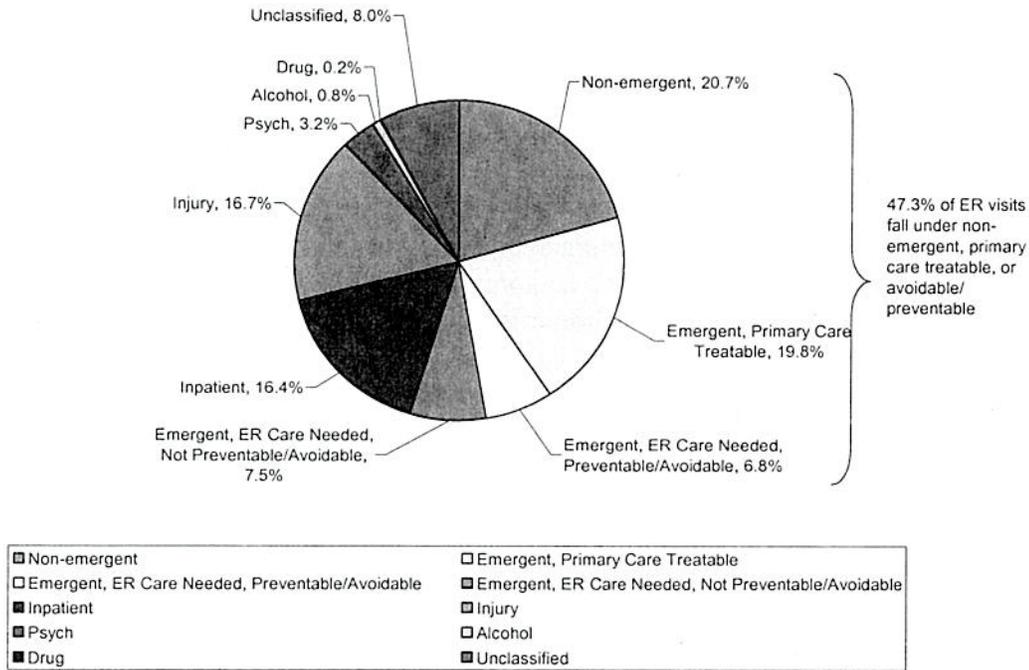
ER visits falling into classifications 1 through 3 may indicate a lack of enrollee access to primary care or an unwillingness to delay treatment to coincide with normal physician office hours. ER visits falling into classifications 4 and 5 are the least likely to be prevented with access to primary care or other medical interventions.

Analysis of ER visits in CY 2006 for the Maryland Medicaid population using the NYU methodology yields the following results.

⁵Because we are interested in looking at all ER visits by Medicaid members in during calendar year 2006, we have included inpatient ER visits (defined as ER visits that did lead to an inpatient admission) as an additional classification.

Figure 1:

Classification of All ER Visits for the Medicaid Population, CY 2006



Of the total ER visits by Medicaid recipients in CY 2006, 47.3% were for a form of ER care which could have been avoided or prevented with timely and quality primary care (combining *non-emergent*, *emergent but primary care treatable*, and *emergent, ER care needed, preventable/avoidable*) (Figure 1). Sixteen percent of ER visits led to an inpatient admission, while 16.7% of ER visits had a principal diagnosis of injury. One percent of ER visits were alcohol or drug related, and 3.2% were mental health diagnoses.

Recommendations to Reduce Emergency Room Use and Improve Primary Care Access

Almost half of the ER visits in CY 2006 were avoidable or preventable, indicating a need for ER alternatives. One such alternative is an urgent care center. Recognizing this, the Department is proposing regulations that permit urgent care centers to enroll as Medicaid providers. Doing so would allow these centers to be reimbursed for services provided. Because urgent care centers are more affordable than ERs, they will help reduce the burden on ERs while providing more cost effective care. However, it should be noted that most of these centers are located in suburban areas so this strategy is unlikely to reduce ER use in urban and rural areas.

The number of ER visits can also be reduced by more effectively managing chronic conditions of those with high incidence of comorbidity. In September 2007, the Department applied for grant funding from CMS in response to the request for proposals entitled, *Grant Funds for the Establishment of Alternative Non-Emergency Services Providers*. The Department proposed to expand capacity of non-emergency service providers in three pilot sites, including rural, suburban, and urban areas. The grant funds would be used to: (1) create an information exchange system between pilot hospitals and community partners; (2) enable the redirection of patients who are inappropriately using hospital emergency rooms to an appropriate source of care, (3) promote community alternatives; (4) evaluate and track program outcome measures; and (5) develop a source of sustainable funding for these projects and other projects throughout the State. The Department's plan to redirect patients to an appropriate source of care will require community partners to create more flexible primary and urgent care office hours. To effectively avoid inappropriate ER use and unnecessary hospitalization, the Department also seeks to develop a more comprehensive care management system, especially for patients with ambulatory care sensitive conditions and multiple comorbidities.

Conclusion

The Department is committed to reducing the frequency of ER visits among Medicaid enrollees. The classifications of ER visits show that 47.3% of ER visits could have been avoided or prevented. In order to reduce these unnecessary ER visits, improving access to primary care is imperative, such as through the use of urgent care centers. Improving case management, especially for those with comorbidities, will also reduce ER visits. If awarded the grant, the Department plans to link hospital ERs with community partners to divert inappropriate ER use and better manage enrollees' care. Regardless of whether the Department receives the grant, the Department will collaborate with the HealthChoice managed care organizations on ways to reduce inappropriate use of the ER.