Center for Healthcare Improvement for Addictions, Mental Illness and Medically Vulnerable Populations

"Research & Training to Improve Clinical Care"

HARBORVIEW MEDICAL CENTER
UW Medicine

Prevalence of Mental Illness and Substance Abuse Diagnoses among Harborview Medical Center Outpatients

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METHODS CORE REPORT

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PREVALENCE OF MENTAL ILLNESS AND SUBSTANCE ABUSE DIAGNOSES AMONG HARBORVIEW MEDICAL CENTER OUTPATIENTS

Background

The Center for Healthcare Improvement for Addictions, Mental Illness and Medically Vulnerable Populations (CHAMMP) was established in January 2006 as the newest Center of Emphasis at Harborview Medical Center (HMC). CHAMMP is a research and training center focused on improving the quality and coordination of care for disadvantaged patients with co-morbid medical and mental illness and addiction problems. As part of its mission, CHAMMP examined the prevalence of mental illness and substance abuse diagnoses among patients with various medical conditions seen at HMC outpatient clinics. This information is important for identifying ways to improve treatment coordination for individuals with mental illness and addiction problems at HMC and beyond.

Harborview Medical Center's primary mission is to provide and teach exemplary patient care and to provide healthcare to King County's mission population. Patients with mental illness and substance abuse are prominently listed among HMC's priority patient populations. In fiscal year 2006, HMC had more than 81,000 Emergency Department visits, 18,750 inpatient hospital admissions, and 358,950 outpatient visits. It employed over 4,000 full-time equivalent staff and provided more than $112 million in charity medical care, close to one-quarter of the charity medical care for Washington State.

Data

For this report, we examined data from 41 HMC outpatient clinics for October 1, 2004 through October 1, 2006. The 41 clinics serve adults and do not include outpatient clinics focused on psychiatric conditions. For each patient, we analyzed ICD-9 codes for mental illness and substance abuse diagnoses in the person's medical treatment history at HMC. ICD-9 codes used to determine the prevalence of mental illness and substance abuse disorders are described in the Technical Notes and Appendices at the end of this report, along with details about the selection of outpatient clinics and data extracted.

Patient Demographics

At the 41 HMC outpatient clinics, a total of 76,070 unique patients were seen during 457,610 visits in the two-year period. Approximately 45% of the patients were female; 62% were Caucasian; 20% were African American; almost 9% were Asian; 8% were Hispanic; and less than 2% were Native American. Their average age was 45 years. About 15% did not speak English.

What Percent of HMC Outpatients Had Mental Illness and Substance Abuse Diagnoses?

- Almost 41% of outpatients were estimated to have a diagnosis of mental illness.
- About 20% of outpatients were estimated to have a diagnosis of substance abuse.
- Approximately 16% of outpatients were estimated to have mental illness and substance abuse diagnoses.
- An estimated 46% of outpatients were found to have either a mental illness, or a substance abuse diagnosis, or both. At 19 of the 41 clinics, the proportion of patients with any diagnosis was over 50% (see Figure 4, page 8).
- The percentage of patients with diagnoses of mental illness and/or substance abuse varied considerably across clinics (see Figures 1-4, pages 5-8).
- Primary care clinics saw the highest percentage of patients with mental illness and/or substance use diagnoses and surgical clinics saw the lowest percentage (see Table 1 below).

Table 1. Patients with Mental Illness and Substance Abuse Diagnoses (Dx): Percent by Type of Clinic

Type of Clinic[a]	Any Mental Illness Dx	Any Substance Abuse Dx	Mental Illness *and* Substance Abuse Dx	Any Mental Illness *or* Substance Abuse Dx	Neither Mental Illness nor Substance Abuse Dx
Primary Clinics (*N* = 26,347[b])	53.2%	24.2%	21.8%	58.8%	41.2%
Specialty Clinics (*N* = 19,391[b])	46.7%	20.6%	17.4%	49.9%	50.1%
Surgical Clinics (*N* = 33,163[b])	26.3%	16.4%	10.4%	32.5%	67.5%
Rehab Clinics (*N* = 6,302[b])	37.9%	18.8%	13.9%	42.7%	57.3%
'Other' Clinics (*N* = 12,062[b])	45.3%	20.8%	16.0%	50.1%	49.9%
All clinics (*N* = 76,070)	**40.6%**	**20.1%**	**15.8%**	**46.0%**	**54.0%**

a. See Appendix C for a definition of types of clinics.
b. N represents the number of unique patients seen.

How Frequently Did HMC Outpatient Clinics See Patients with Mental Illness and Substance Abuse Diagnoses?

Between October 1, 2005 and October 1, 2006, HMC outpatient clinics saw patients with any mental illness *or* substance abuse diagnosis more than twice as often as patients with neither diagnosis: 4.7 versus 2.1 times per year (see Table 2). Patients with a mental illness *and* substance abuse disorder diagnosis were seen somewhat more frequently, namely, 5.5 versus 2.1 times per year.

Table 2. Patients with Mental Illness and Substance Abuse Diagnoses (Dx): Average Yearly Number of Visits by Type of Clinic

Type of Clinic[a]	**Any Mental Illness Dx**	**Any Substance Abuse Dx**	**Mental Illness *and* Substance Abuse Dx**	**Any Mental Illness *or* Substance Abuse Dx**	**Neither Mental Illness nor Substance Abuse Dx**
Primary Clinics (*N* = 26,273[b])	3.54[d] (4.85)[c]	3.06 (5.19)	3.68 (5.63)	3.39 (4.71)	1.91 (2.90)
Specialty Clinics (*N* = 19,383[b])	2.99 (4.75)	3.77 (5.98)	4.08 (6.32)	2.93 (4.68)	1.57 (2.31)
Surgical Clinics (*N* = 33,162[b])	1.63 (2.37)	1.48 (2.30)	1.52 (2.33)	1.59 (2.35)	1.41 (1.89)
Rehab Clinics (*N* = 6,302[b])	2.71 (5.96)	2.35 (5.93)	2.58 (6.07)	2.59 (5.91)	1.63 (4.35)
Other Clinics (*N* = 12,055[b])	1.47 (3.00)	1.37 (2.32)	1.43 (2.44)	1.44 (2.91)	1.27 (1.96)
All Clinics (*N* = 76,070[b])	**5.02 (8.25)**	**4.67 (8.86)**	**5.54 (9.90)**	**4.68 (7.92)**	**2.13 (3.71)**

a. See Appendix C for a definition of types of clinics.
b. N represents the number of unique patients seen.
c. Numbers in parentheses represent standard deviations.
d. Average number of visits to each type of clinic was calculated as follows: the number of visits for all patients who visited a particular type of clinic was averaged for a one year period. The "All Clinics" average is based on the number of visits all patients made to any clinic over a one year period.

Conclusions

A review of the records of patients seen in 41 HMC outpatient clinics over a recent, two-year period indicates that approximately 46% of the patients had a mental illness or substance abuse diagnosis and 16% had both diagnoses. Despite HMC's role as a safety net setting, dedicated to serving mentally ill patients and patients with substance abuse problems, the sheer proportion of patients presenting with these conditions outside of HMC specialty mental health services poses significant challenges. One reason for this challenge is the limited availability of specialized resources to manage these patients in such settings. Another reason is that patients presenting with mental illness, addiction problems, or both are often unusually complex, because many have chronic physical health conditions that are complicated by their addiction and mental illness [1].

We found variation across clinics in the prevalence of mental illness and substance abuse diagnoses and in the frequency with which patients with these diagnoses are seen. The observed variation likely reflects real differences. However, differences in clinic organization, provider focus, and available time and expertise may contribute to differences in detection and, thus, lower prevalence among surgical compared to primary care outpatients.

Our analysis, further, indicates that patients with diagnoses of mental illness and substance abuse, on average, are seen twice as often as patients without such diagnoses. This finding raises the question whether patients with these diagnoses consume a disproportionate amount of healthcare resources for which reimbursement is scarce, as many of the patients are likely to be un- or underinsured.

The challenges presented by patients with addiction and mental illness diagnoses are exacerbated by the paucity of available evidence regarding best practices for treating them. Although evidence-based medicine is the model in most healthcare settings, evidence is lacking for patients with addiction and mental illness co-morbidities. Individuals with such co-morbidities are often excluded from clinical trials due to the complexity of their disability, their disadvantaged status, and their erratic help-seeking [2,3]. As a result, few evidence-based practices exist to guide treatment of individuals with the co-morbid conditions described here. As one author put it, healthcare providers often know the least about how to care for the patients who most need their help [3].

The mission of CHAMMP at HMC is to begin to fill this gap. This report represents one of a number of ongoing efforts within CHAMMP towards this goal. We anticipate that future reports will expand the information presented here by providing more information on types of mental illness and substance abuse diagnoses, on service use, and cost among HMC patients.

Figure 1. Percent of Patients with Any Mental Illness Diagnoses at HMC Outpatient Clinics

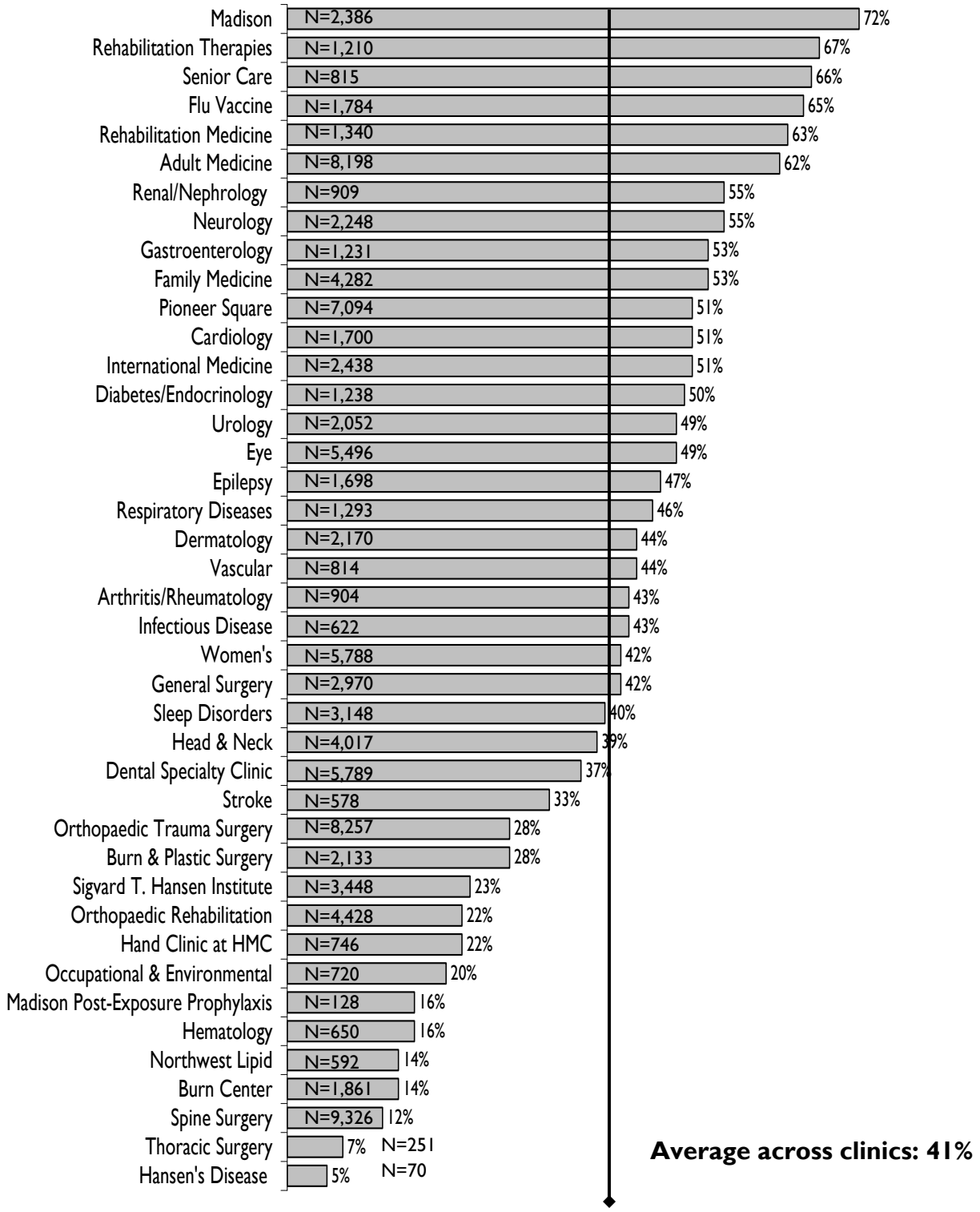


Figure 2. Percent of Patients with Any Substance Abuse Diagnoses at HMC Outpatient Clinics

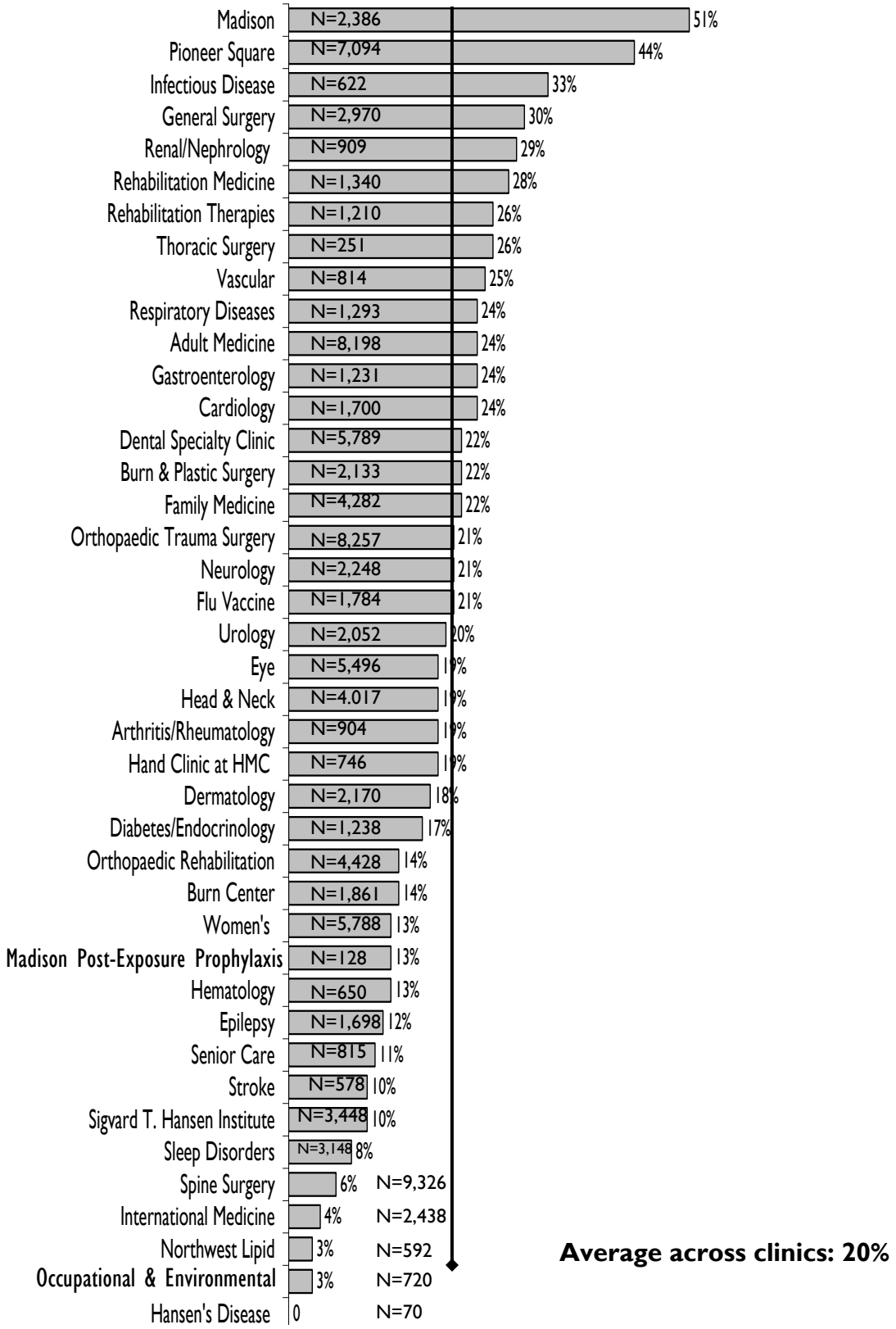


Figure 3. Percent of Patients with Mental Illness *and* Substance Abuse Diagnoses at HMC Outpatient Clinics

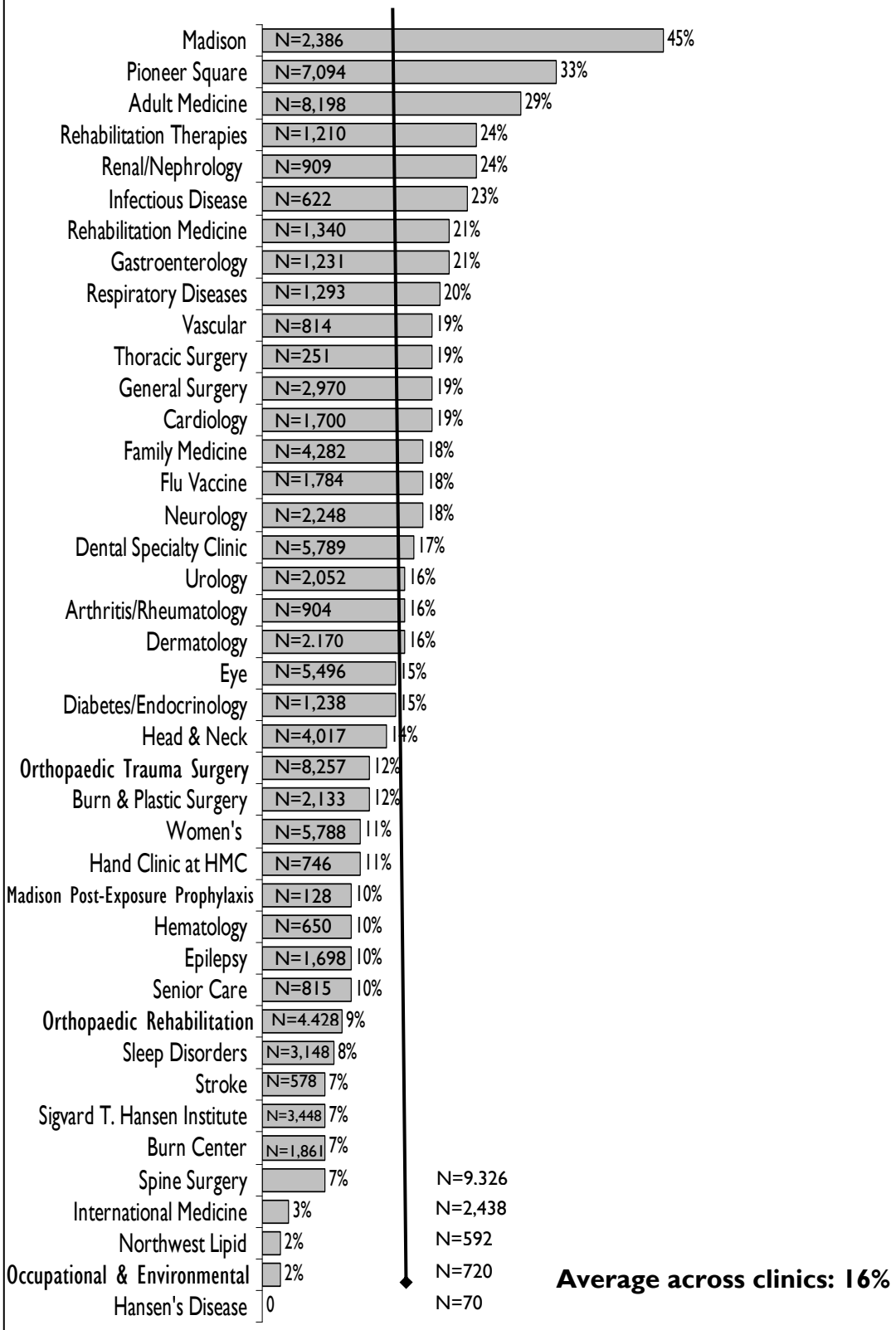
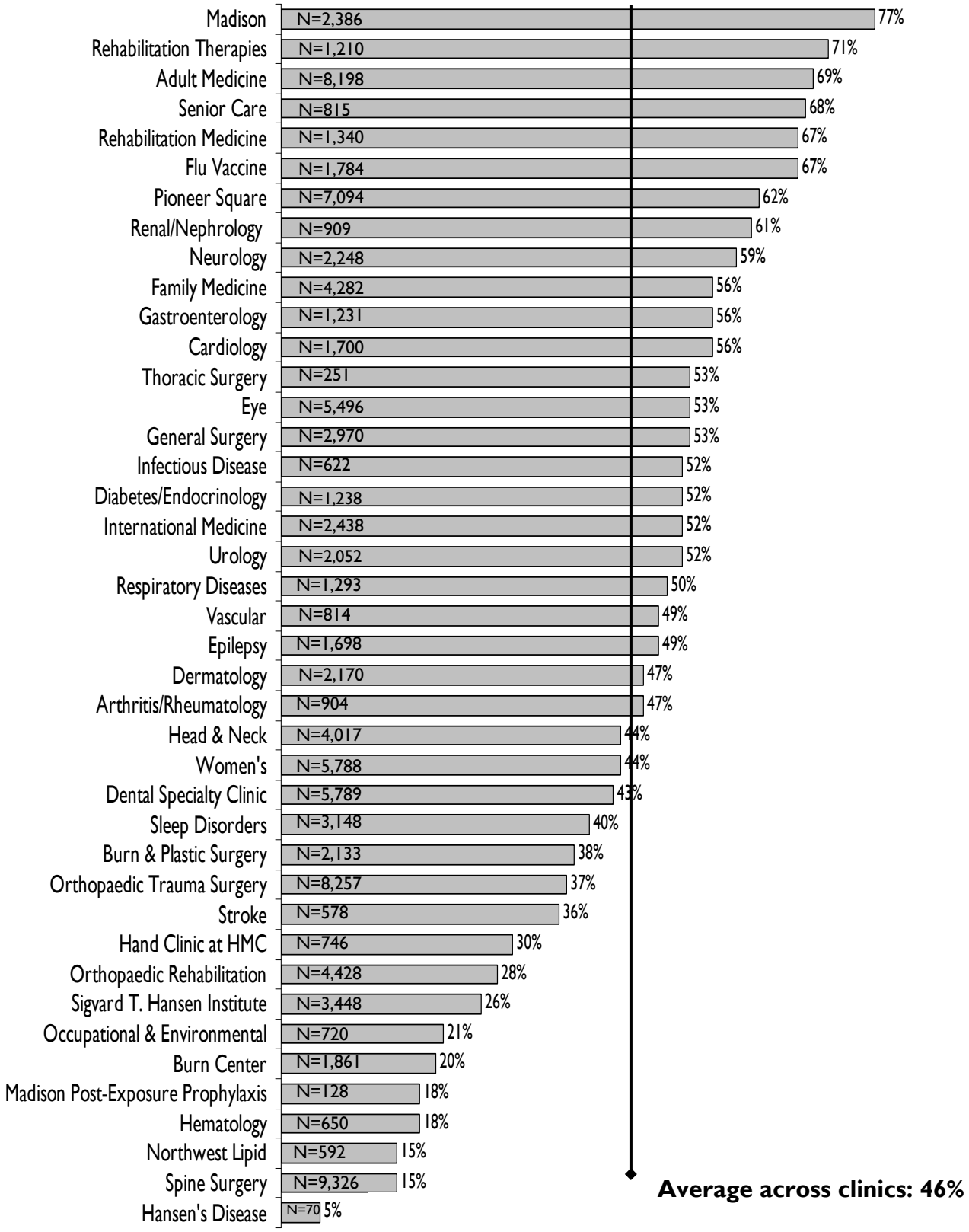


Figure 4. Percent of Patients with Any Mental Illness or Substance Abuse Diagnosis at HMC Outpatient Clinics



TECHNICAL NOTES

Clinic Definitions

This report is based on data from patients seen between October 1, 2004 and October 1, 2006 at HMC outpatient clinics that serve adults and are unrelated to psychiatry. At HMC, an outpatient clinic can be comprised of one or more service centers. Thus, to capture all outpatient visits to a clinic, data were extracted by service center. We identified 96 service centers unrelated to psychiatry that serve adults. We combined these into 41 clinics. In addition, we created 5 groupings of the 41 clinics: primary clinics, specialty clinics, surgical clinics, rehab clinics, and 'other' clinics (see Appendix C for the grouping).

When it was unclear how to combine data from different service centers into a specific clinic, we contacted the clinic manager for advice. In some instances, the clinic manager recommended separating a service center from the rest of the clinic due to a difference in the patient base. For example, the Madison Clinic manager suggested distinguishing patients from their clinic from patients at the Post-Exposure Prophylaxis (PEP) clinic, because patients in the PEP clinic are tested for HIV, whereas patients in the Madison Clinic have been diagnosed with HIV.

Data Extracted

For each service center, we extracted data from the HMC Mindscape Aggregating Program (MAP) system. MAP imports data from HMC information systems, including from Mindscape, the physician user interface, and ORCA, the Online Record of Clinical Activity. ORCA is a medical record used alongside Mindscape for clinical practice and billing. MAP includes data on encounters, findings, procedures, and patient characteristics. We extracted data on service center code, clinic code, patient ID number and name, service date, type of service received, service diagnoses, patient date of birth, gender, race, and language code. We then aggregated these data by patient ID number and name. In addition, we used patient ID numbers to extract data from the MAP patient problem list. The patient problem list is a database that contains a compilation of ICD-9 codes assigned to a patient when they are seen at HMC.

Diagnosis Definitions

We examined all ICD-9 codes in each patient's medical treatment history at HMC for codes related to mental illness (see Appendix A) and substance abuse (see Appendix B). For mental disorders, we included a spectrum of DSM-IV non-substance use disorders, with the exception of disorders specific to childhood or adolescence. For substance-related disorders, we included ICD-9 codes for alcohol or drug abuse or dependence and disorders that are substance-related, such as intoxication and intoxication delirium. The ICD-9 codes were selected in consultation with the Chief of Service for the Department of Psychiatry and Behavioral Sciences at HMC. The codes represent clinically significant conditions, that is, conditions known to cause functional impairment and to impact the course of outcomes of medical illness.

Based on the presence or absence of the selected ICD-9 codes, we created five categories: (1) Any Mental Illness Diagnosis; (2) Any Substance Abuse Diagnosis; (3) Mental Illness <u>and</u> Substance Abuse Diagnosis; (4) Any Mental Illness <u>or</u> Substance Abuse Diagnosis; and (5) Neither Mental Illness nor Substance Abuse Diagnosis. The Any Mental Illness category is comprised of patients

who had at least one ICD-9 code for mental illness; the Any Substance Abuse category is comprised of patients who had at least one ICD-9 code for substance abuse; the Mental Illness and Substance Abuse category is comprised of patients who had at least one mental illness-related ICD-9 code and at least one substance abuse ICD-9 code; the Any Mental Illness or Substance Abuse category is comprised of patients who had at least one ICD-9 code for either a mental illness or substance abuse disorder; and the Neither Mental Illness nor Substance Abuse category includes patients for whom no ICD-9 codes related to mental illness or substance abuse were found in their medical record.

REFERENCES

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2. Justice AC, et al. The Veterans Affairs healthcare system: A unique laboratory for observational and interventional research. *Med Care*. 2006; 44(8 Suppl 2): S7-S12.
3. Walkup JT, Yanos PT. Psychological research with administrative data sets: An underutilized strategy for mental health services research. *Prof Psychol Res Pr*. 2005; 36(5): 551-557.

APPENDIX A

Mental Illnesses and Associated ICD-9 Codes

Mental Illness	ICD-9 Code
Attention Deficit Disorder	314.00 314.01 314.1 314.2 314.8 314.90
Delirium	293.0 780.09
Dementia	290.0 290.10 - 290.13 290.3 290.20 - 290.21 290.40 - 290.43 290.8 290.9 293.1 294.1 294.8 294.9
Amnesia	294.00 294.80 294.90
Mental Retardation	299.0 299.80 317.X[a] 318.0 - 318.2 319.X[a]
Mental Disorder Due to Organic Brain Damage	310.0 310.2 310.8 310.9
Schizophrenia	295.X[a]
Other Psychotic Disorders	293.81 293.82 297.0 297.1 297.2 297.3 297.8 297.9 298.0

Mental Illness	ICD-9 Code
Other Psychotic Disorders (continued)	298.1 - 298.4 298.9 299.9
Depressive Disorders	296.20 - 296.26 296.30 - 296.36 300.4 311
Bipolar Disorders	296.0X[a] 296.4X[a] 296.5X[a] 296.6X[a] 296.7 296.8 293.83 296.10 296.81 - 296.82 296.89 301.13
Mood Disorder NOS	296.9X[a]
Anxiety Disorders	293.89 300.00 300.01 300.02 300.09 300.20 300.21 300.22 300.23 300.29 300.3 308.3 309.81
Somatoform Disorders	300.1 300.7 300.81 306.X[a] 307.54 307.80 307.89
Factitious Disorders	300.16 300.19
Dissociative Disorders	300.12 - 300.15 300.6
Sexual Dysfunction	302.70 - 302.76 302.79

Mental Illness	ICD-9 Code
Sexual Dysfunction (continued)	306.51 607.84 608.89 625.0 625.8
Paraphilias	302.2 - 302.4 302.81 - 302.84 302.89 302.9
Gender Identity Disorder	302.6 302.85 302.9
Eating Disorder	307.1 307.50 307.51
Sleep Disorders	307.4X[a] 347.00 780.52 780.54 780.59
Impulse Control Disorders	312.30 - 312.34 312.39
Adjustment Disorders	308.0 308.1 308.2 308.4 308.9 309.0 309.10 309.22 309.23 309.24 309.28 309.29 309.3 309.4 309.82 309.83 309.89 309.9
Personality Disorders	301.0 301.10 - 301.12 301.20 - 301.22 301.3 301.4

Mental Illness	ICD-9 Code
Personality Disorders (continued)	301.50 301.51 301.59 301.81 - 301.84 301.89 301.9
Unspecified Mental Disorders	293.89 293.9 300.5 300.89 300.9 310.1 316.0

a. All 4th and/or 5th digits are included in the diagnostic category.

APPENDIX B

Substance Abuse Disorders and Associated ICD-9 Codes

Substance Abuse Disorder	ICD-9 Code
Alcohol Use Disorders	291.X 303.0 303.9 305.0
Substance Abuse Disorders other than Alcohol	292.0 292.11 292.12 292.2 292.81 - 292.84 292.9 304.0 304.1 304.2 304.3 304.4 304.5 304.6 304.7 304.8 304.9 305.3 305.2 305.4 305.5 305.6 305.7 305.8 305.9

APPENDIX C

Grouping of HMC Outpatient Clinics

Primary Care Clinics

- Adult Medicine Clinic
- Family Medicine Clinic
- International Medicine Clinic
- Pioneer Square Clinic
- Senior Care Clinic
- Women's Clinic

Specialty Clinics

- Arthritis/Rheumatology Clinic
- Cardiology Clinic
- Dermatology Clinic
- Diabetes/Endocrinology Clinic
- Epilepsy Clinic
- Gastroenterology Clinic
- Hematology Clinic
- Infectious Disease Clinic
- Madison Clinic
- Madison Post-Exposure Prophylaxis Clinic
- Neurology Clinic
- Northwest Lipid Clinic
- Occupational & Environmental Clinic
- Renal/Nephrology Clinic
- Respiratory Diseases Clinic
- Sleep Disorders Center
- Stroke Clinic

Surgical Clinics

- Burn Center
- Burn and Plastic Surgery Clinics
- General Surgery Clinic
- Hand Clinic at Harborview
- Orthopaedic Trauma Surgery Clinic
- Otolaryngology, Head, and Neck Surgery Clinic
- Sigvard T. Hansen Institute (Foot & Ankle Clinic)
- Spine Surgery Clinic
- Thoracic Surgery Clinic
- Urology Clinic
- Vascular Clinic

Rehabilitation Clinics

- Orthopaedic Rehabilitation Clinic (includes Occupational and Physical Therapy in the Hand Clinic and Physical Therapy in the Orthopaedic Trauma Surgery Clinic)
- Rehabilitation Medicine Clinic (includes Rehabilitation Medicine and Rehabilitation Musculoskeletal Clinic Service Centers)
- Rehabilitation Therapies Clinic (includes Occupational Therapy-Comprehensive Outpatient Rehabilitation Program, Physical Therapy-Comprehensive Outpatient Rehabilitation Program, Therapeutic Recreation-Comprehensive Outpatient Rehabilitation Program, and Speech Therapy-Comprehensive Outpatient Rehabilitation Program)

'Other' Clinics

- Dental Specialty Clinic Cost Center
- Eye Clinic (includes Ophthalmology Clinic and Eye Clinic-Attending Service Centers)
- Flu Vaccine Clinic (seasonal clinic attached to Adult Medicine Clinic)
- Hansen's Disease Clinic

Additional copies of this report can be obtained from the CHAMMP Program Coordinator at grovera@u.washington.edu or (206) 744-1764.

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