

Basic Overview of The National Ambulatory Medical Care Survey (NAMCS) and The National Hospital Ambulatory Medical Care Survey (NHAMCS)

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Overview

- **Most recent public use files**
- **NAMCS survey design & data collection methodology**
- **NHAMCS survey design & data collection methodology**
- **Public Use files**

Most recent NAMCS and NHAMCS Public Use files

http://www.cdc.gov/nchs/ahcd/ahcd_questionnaires.htm

- **2012 NAMCS public use file**
 - Includes office visits to traditional physicians sample (AMA/AOA sample)
 - Public use file released May 2015
 - Provides National and state visit estimates
 - Separate Community Health Center visit file released (in progress)
- **2011 NHAMCS public use files**
 - Emergency Department visits
 - Outpatient department visits

NAMCS and NHAMCS

NAMCS and NHAMCS Data Users

- Health professional associations
- State and federal policy makers
- Health services researchers
- Epidemiologists
- Universities and medical schools
- Broadcast and print media

NAMCS/NHAMCS Data in the News

- The Washington Post reported on a study examining wait times in the ER using NHAMCS data, and
- The USA Today published an article about prescribing antibiotics for asthma citing a study that used NAMCS and NHAMCS data combined.

How are NAMCS and NHAMCS Data Used?

- **Changes in utilization and practice**
 - Diagnoses, tests/procedures, prescribing
- **Quality of care**
 - Impact of performance measures and educational campaigns
 - Healthy People 2010 & 2020 objectives
- **Health disparities**
- **Adoption/Diffusion of new technologies**
 - Electronic health records

NAMCS/NHAMCS Data in Journals

- Trends in antibiotic prescribing rates for children and adolescents
- Trends in opioid prescribing by race/ethnicity for patients seeking care in US emergency departments
- Racial differences in visit duration of outpatient psychiatric visits

NAMCS

Original NAMCS Survey Goals

- National statistics
- Health policy formulation
- Medical practice management

2012-2015 NAMCS Survey Goal

- **Monitor clinical preventive services provided in physicians' offices**
- **Add clinical data elements to monitor evidence-based preventive services**
- **New data expands the capacity of CDC and its health department partners for monitoring the effects of expanded health coverage on use of appropriate preventive services.**

Scope of NAMCS

- **Physicians must:**
 - Be classified by American Medical Association (AMA) or American Osteopathic Association (AOA) as primarily engaged in office-based patient care
 - Not be federally employed
 - Not specialize in anesthesiology, radiology, or pathology
- **Community Health Center (CHC) providers sampled starting in 2006**
- **Basic sampling unit is the physician-patient visit**
- **In-scope visits:**
 - Occur in physician's office, including CHCs
 - Must be for medical purposes
- **Out-of-scope visits:**
 - Administrative visits
 - House calls, emails, phone calls

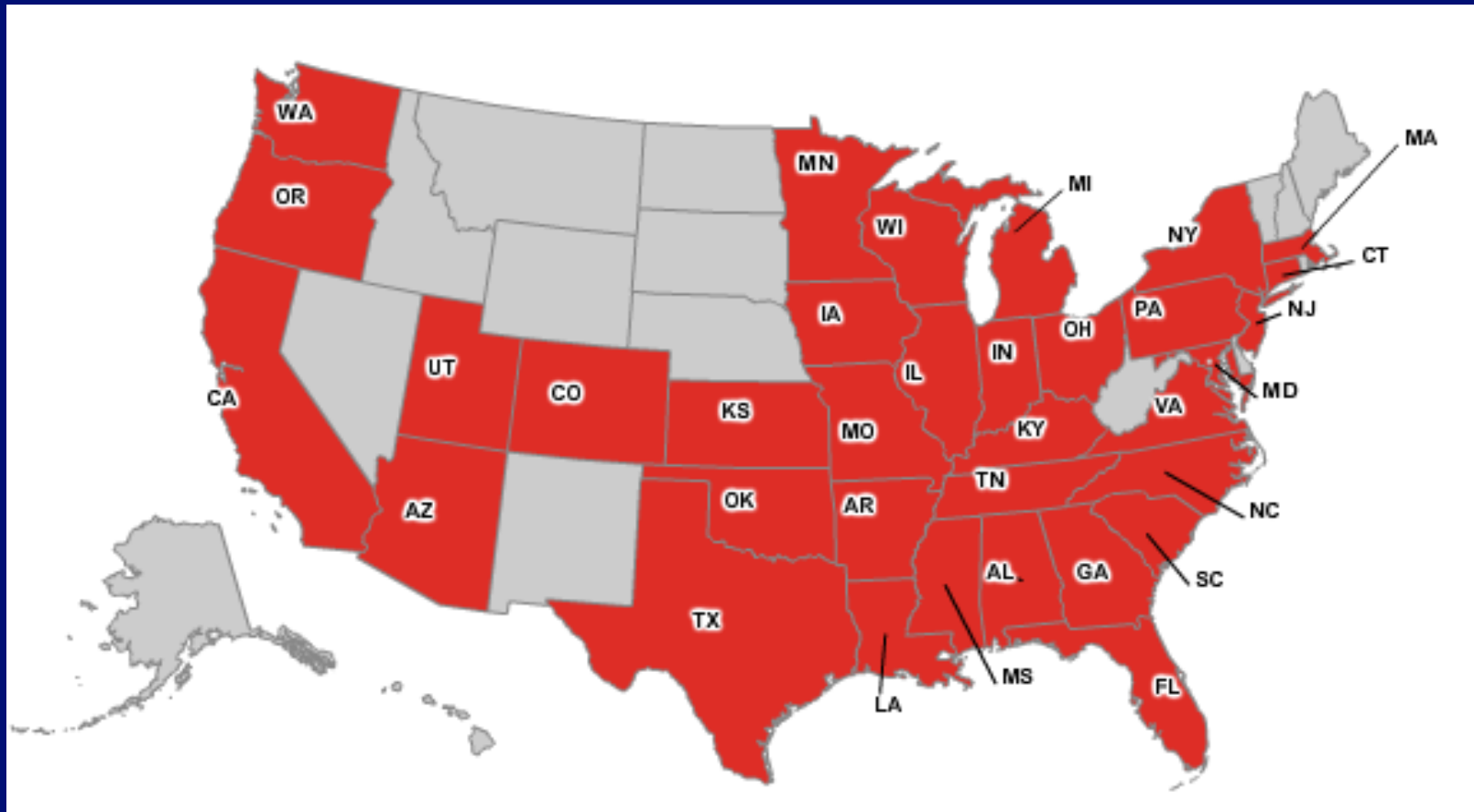
In-Scope NAMCS Locations

- Freestanding clinic/urgicenter
- Community health centers
- Mental health centers
- Non-federal government clinic
- Family planning clinic
- HMO
- Faculty practice plan
- Private solo or group practice

Out-of-Scope NAMCS Locations

- Hospital EDs and OPDs
- Ambulatory surgicenter
- Institutional setting (schools, prisons)
- Industrial outpatient facility
- Federal Government operated clinic
- Laser vision surgery

2012 NAMCS Targeted States



NAMCS State estimates

- **Number of targeted states by survey year**
 - 2012: 34
 - 2013: 22
 - 2014: 18
 - 2015: 16
- **Number of targeted states in survey design dependent on funding levels**

2012-2015 Sample Design

- **American Medical Association (AMA)/ American Osteopathic Association (AOA) Sample frame**
- **Two stage sample of AMA/AOA physician visits**
 - ~15,000 physicians sampled within 9 Census divisions/targeted states
 - ~30 patient visits sampled per physician
 - Additional physicians sampled for three supplemental studies
- **Three stage sample of CHC visits**
 - HRSA sample frame of community health center (CHC) delivery sites
 - ~2,000 CHCs sampled within 9 Census divisions/targeted states
 - Up to 3 physicians/PAs/NPs/Nurse mid-wives sampled
 - ~30 Patient visits sampled per provider
- **1 week reporting period for visits**

NAMCS Physician Specialty Strata

- General/Family practice
- Internal Medicine
- Pediatrics
- General Surgery
- Obstetrics & Gynecology
- Orthopedic Surgery
- Cardiovascular Diseases
- Dermatology
- Urology
- Psychiatry
- Neurology
- Ophthalmology
- Otolaryngology
- Other specialty
- Oncology

(2006, 2007 & 2012)

2012+ Data Collection

- US Census Bureau is our field agent
- Introductory letter sent 2-3 months before reporting period
- Computerized data collection instrument is used to:
 - Determine eligibility
 - Collect PII physician data,
 - Select sample of visits
 - Abstract visit data
- Visit data are abstracted by interviewers
 - Office staff who prefer to abstract data use a dedicated laptop to enter the data (<2%)

NHAMCS

Original NHAMCS Survey Goals

- National statistics
- Measure hospital-based outpatient care, including emergency department care
- Health policy formulation

NHAMCS History

- Planning began in 1976
- Annual data collection since 1992
- Scope expanded in 2009 to include ambulatory surgery settings
- Computerized data collection began in 2012

NHAMCS Scope

- Basic unit of sampling is patient visit
- Emergency departments (EDs), outpatient departments (OPDs) of non-institutional general and short-stay hospitals
- Scope expanded to include hospital ambulatory surgery (AS) settings in 2009 and ambulatory surgery centers (ASCs) in 2010
- Not Federal, military, or Veterans Administration facilities
- Located in 50 states and D.C.

Out-of-Scope OPD Clinics

- Chemotherapy
- Radiation
- Physical therapy
- And other ancillary services

NHAMCS Sample Design

- **Multistage probability design**
 - 112 PSUs
 - Hospitals within PSUs
 - Clinics within OPDs, Emergency Service Area (ESA) within EDs, Ambulatory Surgery (AS) settings
 - Patient visits within OPD clinics, ESAs, AS settings
- **Sample of Ambulatory Surgery Centers (ASCs) outside of hospitals**
 - Patient visits within ASCs
- **4-week reporting period**
- **483 hospitals sampled in 2011**
- **# Visits: 136,296,400 ED; 125,721,428 OPD; 27,838,852 ASL (combined) visits**

2012+ Data Collection

- **US Census Bureau is our field agent**
- **Introductory letter sent 2-3 months before reporting period**
- **Computerized data collection instrument is used to:**
 - Determine eligibility
 - Collect Hospital induction data
 - Select sample of visits
 - Abstract visit data
- **Visit data are abstracted by interviewers**
 - Hospital staff who prefer to abstract data use a dedicated laptop to enter the data (2%)

NAMCS/NHAMCS Strengths

- Amount of utilization
- 2012 NAMCS will measure utilization in 34 states
- Health care users
- Treatment patterns
- Trends over time
- Springboard for future research

NAMCS/NHAMCS Limitations

- Few outcome measures
- Longitudinal purposes
- Episode of illness
- Rare event estimation
- Not person-based

Public Use Files

<http://www.cdc.gov/nchs/ahcd.htm>

Public Use Microdata Files

- **Downloadable flat ASCII files**
 - NAMCS, 1973-2010, 2012
 - NHAMCS, 1992-2011
 - 2005-2010 Physician trend file
 - Updated annually

Public Use Data File Documentation

- **Description of survey**
- **Population estimates to calculate rates**
- **Instructions on how to complete PRF**
- **Reason for visit classification codes**
- **Medication codes-ingredient & drug entry**
- **Detailed list of variables**
 - Collected data
 - Recoded variables
 - Created variables
 - Design variables

Data Items Available on Public Use Data Files

- **Patient characteristics**
 - Age, sex, race, ethnicity
- **Visit characteristics**
 - Source of payment, continuity of care, reason for visit, diagnosis, treatment, medications
- **Provider/Practice characteristics**
 - State (NAMCS 2012 only)
 - Physician specialty
 - Hospital or physician ownership
 - Patient care revenue
 - EMR/EHR capabilities

Data Items Available on Public Use

Data Files (cont.)

- Multum/NCHS Hybrid drug characteristics
 - Prescription, DEA & composition status, therapeutic category
- Contextual variables based on patient zip
 - % of poverty, median HH income, % adults with bachelor's degree or higher, urban/rural (thru 2010)
- Recoded variables
 - Patient's BMI, physician specialty group, race groupings

Repeating Fields on 2012

Patient Record form (from text entries)

- **Reason for visit** (3 fields)
- **Physician's diagnosis** (3 fields)
- **Cause of injury** (ED only)
- **Diagnostic/Screening services** (NAMCS & OPD: 5 fields)
- **Ambulatory procedures** (NHAMCS-ASL: 7 fields)
- **Medications** (NAMCS & OPD: 10 fields, NHAMCS-ED: 12, NHAMCS-ASL: 12)

Double Counting Example

National Ambulatory Medical Care Survey (NAMCS) - Ver 15.06.01 4/13/2015

Forms Answer Navigate Options Help Show Watch Window

1 First 2 Prev 3 Next 4 Last 5 Add 6 Delete 7 Exit

EHR/EMR Rev_Cont NewPat_Comp Pat_Appts Patient Information Biometrics/Vital signs Reason for visit Injury Continuity of Care Diagnosis Services Meds Dis

? [F1] Services Enter all Examinations/Screenings, Laboratory tests, Imaging, Procedures, Treatments, and Health education/Counseling

<input type="checkbox"/> 1. NO SERVICES	<input type="checkbox"/> 22. Glucose, serum	<input type="checkbox"/> 45. Biopsy	<input type="checkbox"/> 67. Psychotherapy
Examinations/Screenings	<input type="checkbox"/> 23. Gonorrhea test	<input type="checkbox"/> 46. Cardiac stress test	<input type="checkbox"/> 68. Radiation therapy
<input type="checkbox"/> 2. Alcohol misuse screening (includes AUDIT, MAST, CAGE, T-ACE)	<input type="checkbox"/> 24. HbA1c (Glycohemoglobin)	<input type="checkbox"/> 47. Colonoscopy	<input type="checkbox"/> 69. Wound care
<input type="checkbox"/> 3. Breast	<input type="checkbox"/> 25. Hepatitis testing/Hepatitis panel	<input type="checkbox"/> 48. Cryosurgery (cryotherapy)/Destruction of tissue	Health education/Counseling
<input type="checkbox"/> 4. Depression screening	<input type="checkbox"/> 26. HIV test	<input type="checkbox"/> 49. EKG/ECG	<input type="checkbox"/> 70. Alcohol abuse counseling
<input type="checkbox"/> 5. Domestic violence screening	<input type="checkbox"/> 27. HPV DNA test	<input type="checkbox"/> 50. Electroencephalogram (EEG)	<input type="checkbox"/> 71. Asthma
<input type="checkbox"/> 6. Foot	<input type="checkbox"/> 28. Lipid profile	<input type="checkbox"/> 51. Electromyogram (EMG)	<input type="checkbox"/> 72. Asthma action plan given to patient
<input type="checkbox"/> 7. Neurologic	<input type="checkbox"/> 29. Liver enzymes/Hepatic function panel	<input type="checkbox"/> 52. Excision of tissue	<input type="checkbox"/> 73. Diabetes education
<input type="checkbox"/> 8. Pelvic	<input type="checkbox"/> 30. PAP test	<input type="checkbox"/> 53. Fetal monitoring	<input type="checkbox"/> 74. Diet/Nutrition
<input type="checkbox"/> 9. Rectal	<input type="checkbox"/> 31. Pregnancy/HCG test	<input type="checkbox"/> 54. Peak flow	<input type="checkbox"/> 75. Exercise
<input type="checkbox"/> 10. Retinal/ Eye	<input type="checkbox"/> 32. PSA (prostate specific antigen)	<input type="checkbox"/> 55. Sigmoidoscopy	<input type="checkbox"/> 76. Family planning/Contraception
<input type="checkbox"/> 11. Skin	<input type="checkbox"/> 33. Rapid strep test	<input type="checkbox"/> 56. Spirometry	<input type="checkbox"/> 77. Genetic counseling
<input type="checkbox"/> 12. Substance abuse screening (includes NIDA/NM ASSIST, CAGE-AID, DAST-10)	<input type="checkbox"/> 34. TSH/Thyroid panel	<input type="checkbox"/> 57. Tonometry	<input type="checkbox"/> 78. Growth/Development
Laboratory tests	<input type="checkbox"/> 35. Urinalysis	<input type="checkbox"/> 58. Tuberculosis skin testing/PPD	<input type="checkbox"/> 79. Injury prevention
<input type="checkbox"/> 13. Basic metabolic panel (BMP)	<input type="checkbox"/> 36. Vitamin D test	<input type="checkbox"/> 59. Upper gastrointestinal endoscopy/EGD	<input type="checkbox"/> 80. STD prevention
<input type="checkbox"/> 14. CBC	Imaging	Treatments	<input type="checkbox"/> 81. Stress management
<input type="checkbox"/> 15. Chlamydia test	<input type="checkbox"/> 37. Bone mineral density	<input type="checkbox"/> 60. Cast/splint/wrap	<input type="checkbox"/> 82. Substance abuse counseling
<input type="checkbox"/> 16. Comprehensive metabolic panel (CMP)	<input type="checkbox"/> 38. CT scan	<input type="checkbox"/> 61. Complementary and alternative medicine (CAM)	<input type="checkbox"/> 83. Tobacco use/Exposure
<input type="checkbox"/> 17. Creatinine /Renal function panel	<input type="checkbox"/> 39. Echocardiogram	<input type="checkbox"/> 62. Durable medical equipment	<input type="checkbox"/> 84. Weight reduction
<input type="checkbox"/> 18. Culture, blood	<input type="checkbox"/> 40. Ultrasound	<input type="checkbox"/> 63. Home health care	Other services not listed
<input type="checkbox"/> 19. Culture, throat	<input type="checkbox"/> 41. Mammography	<input type="checkbox"/> 64. Mental health counseling, excluding psychotherapy	<input checked="" type="checkbox"/> 85. Other service
<input type="checkbox"/> 20. Culture, urine	<input type="checkbox"/> 42. MRI	<input type="checkbox"/> 65. Occupational therapy	
<input type="checkbox"/> 21. Culture, other	<input type="checkbox"/> 43. X-ray	<input type="checkbox"/> 66. Physical therapy	
	Procedures		
	<input type="checkbox"/> 44. Audiometry		

85

CaseID: 00120100 DIAG_SERVICE 8:02:11 PM RP: 04/18-24 RESP NAME: Dennis McCool SW: 1 TE: 1 PRF Number: 1999992 1/3

Double Counting Example (cont.)

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Forms Answer Navigate Options Help Show Watch Window

1 First 2 Prev 3 Next 4 Last 5 Add 6 Delet 7 Exit

EHR/EMR Rev_Cont NewPat_Comp Pat_Appts Patient Information Biometrics/Vital signs Reason for visit Injury Continuity of Care Diagnosis Services Meds Dis

1 of 1 PRF's MRN: NAMCS Services

◆ Specify other exam/test/service
x-ray of foot

◆ Specify other exam/test/service
Enter '0' if no other exam/test/services provided

◆ Specify other exam/test/service
Enter '0' if no other exam/test/services provided

◆ Specify other exam/test/service
Enter '0' if no other exam/test/services provided

◆ Specify other exam/test/service
Enter '0' if no other exam/test/services provided

CaseID: 00120100 OTHER_SP 8:03:18 PM RP: 04/18-24 RESP NAME: Dennis McCool SW: 1 TE: 1 PRF Number: 1999992 2/3

Medications

- The currently fielded 2015 medication list collects up to 30 medications that were ordered, supplied, administered or continued during this visit
- . You will be analyzing 2012 data, which collected up to 10 drugs for NAMCS and OPD; and up to 12 drugs for ED **and ASL**

Caveats for Services, Procedures, Medications

- **Diagnostic Services**: Mark all Examinations/Screenings, laboratory tests, Imaging, **Procedures**, Treatments, Health education/Counseling, and other services
ORDERED or PROVIDED
- **Medications**: Were any prescription or non-prescription drugs **ORDERED or PROVIDED** (by any route of administration) at this visit?

Coding Systems Used

- **A Reason for Visit Classification (NCHS)**
 - Listed in Documentation File
 - Updated annually
- **ICD-9-CM**
 - Diagnoses
 - External causes of injury
 - Procedures
- **ICD-10-CM (starts October 2015) will be applied to 2016 survey data**

Coding Systems Used (cont.)

- **Two drug classification systems**
 - In-house unique classification scheme
 - MULTUM/NCHS hybrid

Thank You

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