

This project is a collaboration between the North Carolina Area Health Education Centers (AHEC) Program, the Department of Psychiatry and Behavioral Sciences, Duke University School of Medicine and the Cecil G. Stearns Center for Health Services Research, University of North Carolina at Chapel Hill.

The Supply and Distribution of Psychiatrists in North Carolina: Existing Issues in the Context of Mental Health Reform

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Introduction
There are at least one million adults experiencing mental disorders at some point during an average year.^{1,2} A recent study of North Carolina patients found that about 15% of adults had a professional diagnosis such as affective/mood disorders, anxiety or depression.³ Despite the high prevalence of mental illnesses in the general population, most individuals with a mental health disorder do not receive treatment.⁴ Barriers to care include inadequate insurance coverage, poor financial resources for patient co-payments and the perceived stigma of mental illness and its treatment. Another important barrier to care is an inadequate supply of and distribution of mental health clinicians, especially psychiatrists. While many mental illnesses can be treated by primary care providers and non-psychiatrist mental health clinicians, many of these require consultation and treatment only by psychiatrists.

The fact sheet analyzes the supply and distribution of psychiatrists in North Carolina and finds:

- A national shortage of psychiatrists across the U.S. Carolina is the potential for an emerging shortage due to the state's mental population growth.
- A critical shortage and maldistribution of child psychiatrists.
- Many counties facing a psychiatrist shortage also face a shortage of primary care providers—a situation that may jeopardize access to care for patients with mental disorders.

Why is it important for North Carolina to take stock of the psychiatric workforce now?
Before 2011, local community mental health programs supported salaried psychiatrists and other mental health clinicians contracted by providing space to patients who could not afford to pay access to private psychiatric care. The reliance of mental health clinicians were largely not dependent on patient fees. Mental health reform, begun in 2003, led to these community programs' conversion to Health Management Entities (HMEs), a business structure designed to ensure effectiveness of mental health care responsibilities and assume the role of insurers of care. The former clinicians of the HMEs were encouraged to leave to join large academic groups to receive LME salaries and benefits made from charges for patients. These newly independent mental health providers are supported by fees generated from patient care. Some local users worried whether this new fee-for-service payment system for publicly-funded providers can provide adequate return to supported providers, especially psychiatrists. Others have suggested that providers, not all of which are fee-for-service, may need reduced fee efforts to primary care patients. This report analyzes the state's mental health system resources a number of important questions that are the focus of this brief. Do LMEs have access to an adequate supply of psychiatrists to meet patient needs? Do particular counties or regions of North Carolina face a shortage of psychiatrists?

Psychiatrists
According to national estimates, North Carolina has 10th in the nation with a ratio of 0.27 psychiatrists per 10,000 population.⁵ Relative to its neighbors, North Carolina is near or below Virginia (1.24 psychiatrists per 10,000 population), but better off than South Carolina (0.09 population per 10,000 population), Georgia (0.20 psychiatrist per 10,000 population), and Tennessee (0.03 psychiatrist per 10,000 population).

A Report on Health Care Resources in North Carolina North Carolina Health Professions 2007 DATA BOOK

Published October 2007
 Cecil G. Stearns Center for Health Services Research
 University of North Carolina at Chapel Hill
 *Always report results by the
 The North Carolina Area Health Education Centers Program
 The UNC-Chapel Hill Office of the President, Raleigh, NC*

State Total

Number of Licenses by Region: 088

■ 2007 ACTIVE HEALTH PROFESSIONALS¹ ■

Physicians	Nurses
Non-Faculty Physicians: 16,762	Registered Nurses: 74,706
Primary Care Physicians: 6,908	Nurse Practitioners: 7,871
Family Practice: 2,274	Certified Nurse-Midwives: 272
General Practice: 174	Licensed Practical Nurses: 17,707
Internal Medicine: 2,113	
Obstetrics/Gynecology: 657	
Pediatrics: 2,270	
Other Specialists: 9,881	
Physicians per 10,000 Population: 20.0	
Primary Care Physicians: 8.4	
Physician Assistants: 3,166	
Podiatrists: 2,241	
Dentists: 3,514	
Dental Hygienists: 3,366	

■ DEMOGRAPHICS ■

Population (Estimate) 2007	Employment and Income Data
White: 6,216,776	Labor Force 2007: 3,943,886
Black: 1,843,083	Registered: 6,716,689
Hispanic: 1,043,083	Unemployed 2007: 23,249
Total: 9,102,942	Manufacturing 2007 (Full Time): 6.5
% of Pop: 100.0%	Per Capita Income 2006: 156,480
	Medicaid Population 2007: 4,053,200

■ HEALTH-RELATED STATISTICS ■

Final Faculty 2006	Total Faculty 2006
Number: 128,247	147,746
Number: 75,712	79,839
% of Pop: 0.8	0.9

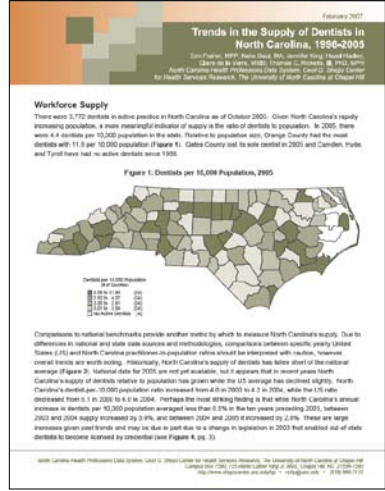
Demographic Profile 2006

Demographic Profile 2006	White	Hispanic
Physicians per 10,000 Population	8.0	6.3
Registered Nurses per 10,000 Population	8.6	8.6

Demographic Profile 2006

Demographic Profile 2006	White	Hispanic
Physicians per 10,000 Population	8.0	6.3
Registered Nurses per 10,000 Population	8.6	8.6

1. Includes all active health professionals in the state who are licensed or certified in any health profession in North Carolina. Excludes inactive health professionals, retired health professionals, and health professionals who are not currently practicing in North Carolina. Excludes health professionals who are not currently practicing in North Carolina. Excludes health professionals who are not currently practicing in North Carolina. Excludes health professionals who are not currently practicing in North Carolina.



Workforce Data and Primary Care: Experiences, Lessons, Recommendations

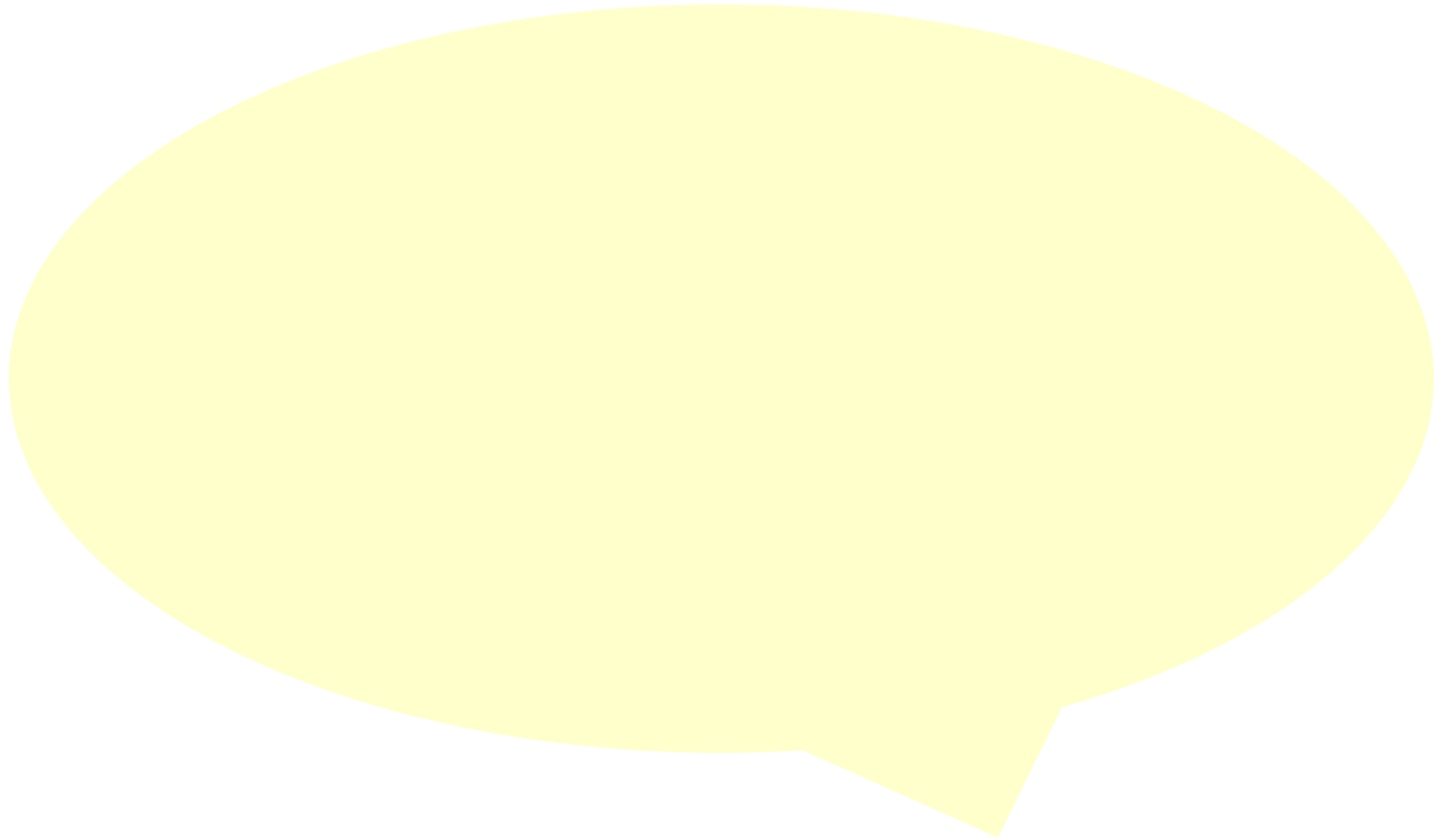
Thomas C. Ricketts, Ph.D.
University of North Carolina at Chapel Hill

Problems:

- ▶ Ongoing battle over what is a primary care professional
 - ▶ Physicians: Family Medicine, general IM, Gen Peds, OBG? Psy?
 - ▶ Nurse Practitioners
 - ▶ Physician Assistants
- ▶ **POLICY**
 - ▶ House reform package defines primary care by specialty group
 - ▶ Same package creates “principal care” classification that will require enumeration for payment and for determination of need and shortage
- ▶ Shortage responses
 - ▶ Focus on primary care and counting



Why count professionals?



Why count primary care professionals?

- ▶ **Support the determination of shortage areas**
 - ▶ Need communication and coordination with technical assistance contractors (PCOs, PCAs, State offices)
 - ▶ Need common definitions that apply to federal rules (or not)
- ▶ **Support policy needs for**
 - ▶ Developing focused training programs
 - ▶ Expanding (changing) medical education graduate and undergraduate
- ▶ **Monitor progress of policy**
 - ▶ NC requires annual assessment of primary care production of four medical schools
 - ▶ Other states have similar requirements



North Carolina

Health Professions Data System

- ▶ A collaboration between the Cecil G. Sheps Center for Health Services Research at UNC-CH and the North Carolina health professions **licensing boards**.
- ▶ Data are provided **voluntarily** by the boards to the Sheps Center—there is no legislation that requires this, there is no appropriation.
- ▶ Core funding provided by:
 - NC AHEC Program Office, data request fees, project cross-subsidies, and the UNC-CH Office of the Provost
 - Cross subsidization by external research projects
 - Small fee income for data requests



The System is Idiosyncratic but not unique in the U.S.

- ▶ 31 years of continuous, complete data (Iowa, SC similar)
 - ▶ Started in 1974 fully implemented in 1978
- ▶ Comprehensive and voluntary collaboration with 12 licensing bodies in North Carolina
- ▶ Data remain the property of licensing board, permission sought for each “new” use
- ▶ System is ***independent*** of government or health care professionals
- ▶ Does NOT rely on survey data or survey process



Categories of Health Professionals in NC Health Professions Data System

- ▶ **Certified Nurse Midwives (1985)**

- ▶ Chiropractors
- ▶ Dental Hygienists

- ▶ Dentists

- ▶ Licensed Practical Nurses

- ▶ **Nurse Practitioners**

- ▶ Occupational Therapists (2006)

- ▶ Occupational Therapy Assistants (2006)

- ▶ Optometrists

- ◆ Pharmacists

- ◆ Physical Therapists

- ◆ Physical Therapist Assistants

- ◆ **Physician Assistants**

- ◆ **Physicians (MDs and DOs)**

- ◆ Podiatrists

- ◆ Psychological Associates

- ◆ Psychologists

- ◆ Registered Nurses

- ◆ Respiratory Therapists (2004)



HPDS Data Collected from Boards

- ▶ “Base” data from initial licensure/approval forms
- ▶ Updated data from renewals of licensure and approvals to practice
- ▶ Includes 100% of active professionals because licensure is required by law
- ▶ We develop a ‘Snapshot’ of files as of October of each year (**Orange Book**)



Data Items Collected (General overview)

Demographic data:

Data elements that *usually* don't change

- Unique identifier
- Name
- Date and place of birth
- Race/ethnicity
- Gender
- Basic professional degree (degree conferred, name and location of institution attended, practice qualifications)



Additional Data Items Collected for Physicians and PAs

- ▶ **Primary, Secondary and Other practice location**
 - ▶ ZIP Code location
 - ▶ Facility type
 - ▶ Hours in clinical care (by location)
 - ▶ Hours in **primary care** (by location)
- ▶ Do you Provide prenatal care?
- ▶ Do you Deliver babies?
- ▶ Hospital Privileges (2007)
- ▶ Licenses ever held in other states/countries (2007)



Mode of Data Collection (Physicians, Physician Assistants)

- ▶ **Annual renewal on physician birthday**
 - ▶ Annual renewal implemented in 1992 at behest of licensing board
 - ▶ Renewal fee cut in half, that is, remained the same
- ▶ **Data collected via web site**
 - ▶ 99% compliance
 - ▶ Flow and completeness monitored over time
 - ▶ HPDS input to structure, flow and process
- ▶ **Data are updated daily in the board on-line files**
- ▶ **Data for “statistical” purposes ported to Sheps as needed but an annual file is benchmarked for October 1.**



Licensure File Creation and Maintenance (continued)

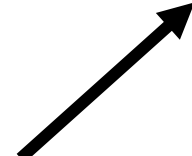
The entire process takes nearly a year
from start to finish

October

Data
come in



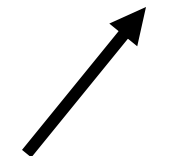
Edits,
cleaning



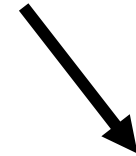
Review for
changes



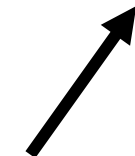
Formatted
initial analysis file



Trial Posts
to web



Data Book
released



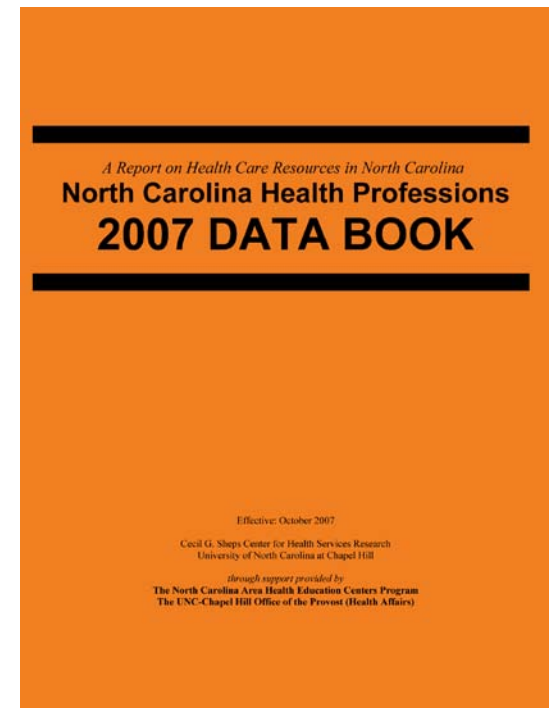
News
Release

August



North Carolina Health Professions Data Book

- ▶ Annual Health Professions Data Book, produced since 1979, details state and county level health professions data; current issue: October 2007 data
- ▶ Publications and research widely used by policymakers, educators, researchers, the media and health professionals as the official source of health professions statistics in NC
- ▶ Supported by the North Carolina Area Health Education Centers Program and the University of North Carolina at Chapel Hill Office of the Provost



North Carolina HPDWeb Site:

<http://www.shepscenter.unc.edu/hp/>



- ▶ Counts of active, licensed health professionals
- ▶ Population by age group and race
- ▶ Employment and income data
- ▶ Vital statistics (births, deaths, pregnancies)
- ▶ Infant mortality rates
- ▶ Hospital and facility data

Aggregated by state, county and regions (AHEC, DHHS, Perinatal)

State Total

Number of Counties in Region: 100



2001 ACTIVE HEALTH PROFESSIONALS* ■

Physicians

Non-Federal Physicians	16,392
Primary Care Physicians	6,908
Family Practice	2,224
General Practice	176
Internal Medicine	2,313
Obstetrics/Gynecology	937
Pediatrics	1,255
Other Specialties	9,484
Physicians per 10,000 Population	20.0
Primary Care Physicians per 10,000 Population	8.4
Federal Physicians**	393
<i>Dentists and Dental Hygienists</i>	
Dentists	3,314
Dental Hygienists	3,866

Nurses

Registered Nurses	74,790
Nurse Practitioners	1,845
Certified Nurse Midwives	172
Licensed Practical Nurses	17,797
<i>Other Health Professionals</i>	
Chiropractors	1,098
Optometrists	821
Pharmacists	7,060
Physical Therapists	3,168
Physical Therapist Assistants	1,594
Physician Assistants	2,032
Podiatrists	231
Practicing Psychologists	1,541
Psychological Associates	946

DEMOGRAPHICS ■

Population Estimates 2001

	Total	Ages 0-18	Ages 19-64	Ages 65+
White	6,124,752	1,461,197	3,850,855	812,690
Nonwhite	2,063,103	654,448	1,238,859	169,756
Total	8,187,855	2,115,645	5,089,764	982,446
% of Pop.	100.0%	25.8%	62.2%	12.0%

Employment and Income Data

Labor Force 2001	3,994,806
Employed 2001	3,773,493
Unemployed 2001	221,313
Unemployment Rate 2001 (%)	5.5
Per Capita Income 2000	\$36,882
Medicaid Eligible 2001	1,354,399

(and duplicated counts)

HEALTH-RELATED STATISTICS ■

Vital Statistics 2000

Resident Births	120,247	Total Pregnancies	147,796	Total Pregnancy Rate	82.9
Resident Deaths	71,732	Teen Pregnancies	19,890	Teen Pregnancy Rate	75.9
% Births <2500 gms	8.8	(ages 15-17)		(ages 15-15)	

Infant Mortality Rates 2000

Total	8.6	White	6.3	Nonwhite	14.4
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Hospital/Facility Data

General Hospital Discharges 2000*	969,860	General Hospital Beds 2001**	20,955	Nursing Facility Beds 2001	42,387
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*Numbers reported include those who are active within the profession and those with inactive activity status who were newly licensed in 2001. Inactive are excluded.

**Includes 2001 total of Board-licensed federal physicians in the armed services, US Public Health Service, Indian Health Service, and the Department of Veterans Affairs.

**Counts are for discharges of county residents from acute-care, short-stay hospitals; numbers exclude normal newborns.

**Counts of hospital beds in acute care short stay hospitals in county.

National Problem:

No consensus on a Minimum Data Set

For primary care or health professions in general

- ▶ What are the standards?
- ▶ Who can and should set them?
- ▶ What will be the purpose of the data?



CHSS* List (1974) informed NC in developing MDS

Issues then (1974):

Employment status

“Setting”

Ownership

Payment plans

Compensation

*Comprehensive Health Statistics System, NCHS

NC Health Professions Data System

Minimum Data Set Guidelines (18 professions)

▶ **PERSONAL INFORMATION:**

- ▶ Name (first, middle initial, last)
- ▶ Home address (street, city, county, state, zip)
- ▶ Birth date/Birth year
- ▶ Gender
- ▶ Race/Race ethnicity
- ▶ *Preferred mailing address



NC HPDS MDS

▶ **LICENSE INFORMATION:**

- ▶ License number
- ▶ License date
- ▶ License type (e.g. regular, temporary, etc.)
- ▶ Activity Status (active, inactive, retired, etc.)



NC HPDS MDS

▶ **EDUCATION INFORMATION:**

- ▶ Basic professional education – degree (degree for licensure)
- ▶ Basic professional education – school
- ▶ Basic professional education – state
- ▶ Basic professional education – year (graduation)
- ▶ *Highest degree attained



NC HPDS MDS

▶ **EMPLOYMENT INFORMATION:**

- ▶ Employment status (see example below):
 - ▶ Employed full time in field
 - ▶ Employed part time in field
 - ▶ Employed in other field – plan to return to field
 - ▶ Employed in other field – do not plan to return to field
 - ▶ Unemployed – seeking employment in field
 - ▶ Unemployed – not seeing employment in field
 - ▶ Unemployed – not seeking employment in any field
 - ▶ Student – in respiratory therapy
 - ▶ Student – not in respiratory therapy
 - ▶ Retired
 - ▶ Other



NC HPDS MDS

- ▶ Practice address (county, ZIP, *practice name, *street, *city)
- ▶ Practice setting (e.g. hospital, home health, nursing home, research, education, other, etc.)
- ▶ Specialty practice area
- ▶ *Secondary practice (practice name, practice county, practice zip, practice setting)
- ▶ *Hours worked per week



Recent Issues, controversies, needs

- ▶ How to allocate new residency slots
- ▶ Is there a “shortage” of
 - ▶ Psychiatrists
 - ▶ General surgeons
- ▶ Malpractice effects
- ▶ Board certification
 - ▶ What is a real specialist?
- ▶ Continuing education
 - ▶ Board wants to monitor better
- ▶ Language ability
- ▶ Intent to retire
- ▶ Intent to return
- ▶ Disciplinary transparency



Some Current Issues for Data

- ▶ **Multiple locations**

- ▶ Actual
- ▶ Postal
- ▶ Organizational

- ▶ **Specialty focus**

- ▶ Natural history of practice changes
- ▶ Focus and procedures

- ▶ **“Intentions”**

- ▶ Malpractice pressures
- ▶ Payment pressure

- ▶ **Transitions**

- ▶ Re-entry
- ▶ “shared” arrangements

- ▶ **Stress of “call”**



Recommendations

- ▶ **K. I. S. S. for a long time**
 - ▶ Limited by high quality data gathered over time will produce more information than complex cross-sectional data — and, it's cheaper.
- ▶ **Prepare for concatenation and linking**
 - ▶ The AMA single record is useful



Stop Here, additional slides are for reference



Location of Practitioners—Primary care shortages are local?

- ▶ A Tale of Geomancy
- ▶ Task: Geocode to Latitude-Longitude all US Physicians
 - ▶ For inclusion in boundaries of HPSAs/MUAs
- ▶ Use Masterfile™ and Mapmarker™ (MapInfo®)
- ▶ Required 12 refining iterations (relation of rules for spelling, numbers)



86% can match to address*

*MaxOffice address protocol

History of Data Initiatives

- ▶ Data gathering is part of the Area Health Education Centers (AHECs) guidance.
 - ▶ Little follow-up
- ▶ 1974 NCHS organizes “Cooperative Health Statistics System” (CHSS) with states agreeing to standards and procedures
 - ▶ No funding was forthcoming
- ▶ “Minimum Data Set for Health Professionals developed by the CHSS in a time of very active health planning.
- ▶ Individual states develop individual systems, some persist to this day
- ▶ Planning dies off.



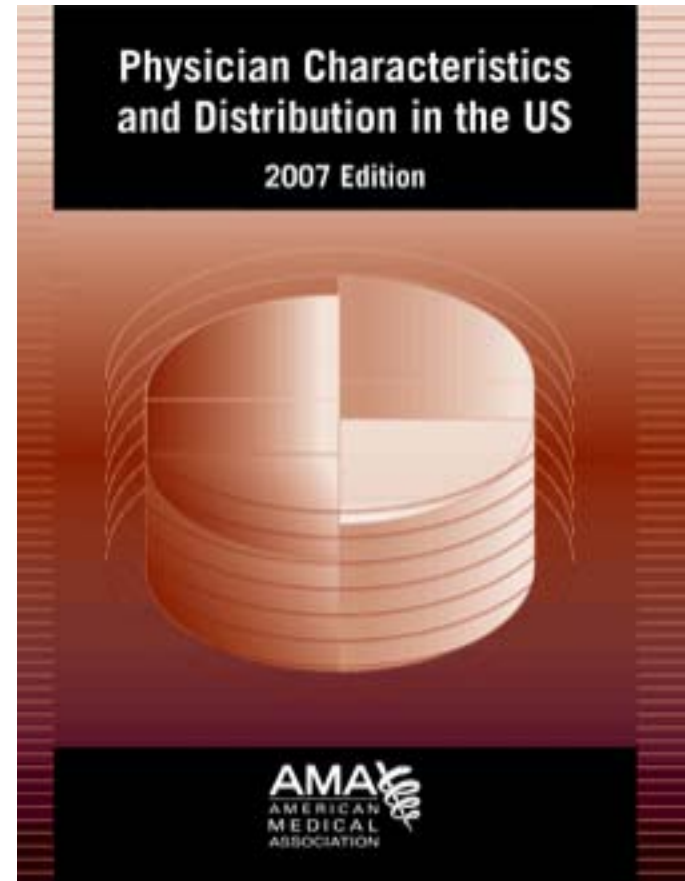
Planning gives way to a “Policy Reactive” approach

- ▶ States dropped systems when they realized there was no money
- ▶ Some states persisted
 - ▶ SC: data system in state government
 - ▶ CO: separate survey with AHEC
 - ▶ CA: through planning system
 - ▶ NC: cooperative model with license boards
 - ▶ IA: cooperative with license system



AMA Masterfile®

- ▶ The best single source of data for national physician supply
- ▶ Established by AMA in 1906 for membership and mailing
- ▶ Maintained continuously
- ▶ Marketed for data analysis



Masterfile dynamics

- ▶ The file is built on previous versions
- ▶ MD enters file on matriculation in LCME/ACGME accredited programs
- ▶ Data added incrementally
 - ▶ Direct survey
 - ▶ Data sharing (NRMP, State Licensing, Postal address correction, specialty boards)
 - ▶ OnLine Data Collection Center (OLDCC) Internet data updates (since 2006)



Masterfile structure

- ▶ All records remain in file
 - ▶ Dead or inactive assigned according to protocol
- ▶ Location data changes—there are multiple locations for individual physicians
 - ▶ Assignment protocol has changed over time
 - ▶ Example: MAXOFFICE assignment



Online Data Collection Center

- ▶ Links to AMA Doctor Finder as well as other AMA products...data items:
 - ▶ Contact info
 - ▶ “preferred mailing address”
 - ▶ Gender
 - ▶ Primary and secondary specialty
 - ▶ Med School, Residency, Board certification (confirmed)
 - ▶ Physician availability, health plan participation, hospital admit privileges, languages spoken



Masterfile has its shortcomings

“The American Medical Association (AMA) Master File has provided the nucleus of information for most physician workforce studies, but it is incomplete in potentially critical areas.”

COGME, 2002



Other national sources

- ▶ The Little Blue Book (WebMD) (www.tibb.com)
- ▶ Phone directory-Internet search systems
- ▶ CMS
 - ▶ Forget OSCAR (Online Survey, Certification and Reporting), UPIN and POS files
 - ▶ NOW *National Provider Identifier* (NPI-as of Jan 2004) a listing of HIPAA-affected physicians
 - ▶ Business ZIP, License state, contact info
 - ▶ “taxonomy” of provider



The NPI

- ▶ A 10-digit, intelligence-free numeric identifier
- ▶ The NPI replaces provider identifiers in use today in HIPAA standard transactions. Including Medicare legacy IDs (UPIN, OSCAR, PIN, and National Supplier Clearinghouse or NSC).
- ▶ Provider's NPI will not change; remains with the provider regardless of job or location changes
- ▶ **Deadline: May 23, 2007**



The National Provider System

- ▶ **NPS Data contents (see Fed Reg 69(15):3457 et seq.)**
 - ▶ Provider “location” separate from mailing address
 - ▶ Provider taxonomy code and other identifiers
 - ▶ Other contact info
- ▶ **Access for data analysis**
 - ▶ DUA form CMS-R-0235
 - ▶ Not yet available....



State Physician Data Systems

- ▶ Grew out of the state-retained license authority and responsibility
- ▶ Emphasis on data availability has been tied to enthusiasm for *Planning*
 - ▶ For founding or expansion of medical schools
 - ▶ For adjustment to license statutes
- ▶ National Health Planning Act stimulated state activity



Optional Structures for DATA tied to the License Responsibility

- ▶ **License Data—State Agency**
 - ▶ Various reporting requirements
 - ▶ Various public use rules
 - ▶ Conflicts between agencies (Licensing, inspection, Medicaid)
- ▶ **Independent Medical Board**
 - ▶ Varying public use rules
 - ▶ Varying capacity for data reporting



Optional Structures for DATA

- ▶ **Joint professional board(s)**
 - ▶ Quasi-governmental, does not mean greater flexibility
- ▶ **Cooperative State Agency-Board**
 - ▶ Policy direction for data can be complex
- ▶ **Cooperative Board - “Other” body**
 - ▶ Requires maintenance of relationships



State Systems, 1990s-2006

- ▶ **Descriptions at this meeting**
 - ▶ New York (Gaetano Forte, Th 1:00)
 - ▶ Arizona (Mark Speicher, Th 1:00)
 - ▶ Nebraska (Kolene Kohll, Th 1:00)
 - ▶ California (Eric Chen, Th 3:30)
 - ▶ Georgia (Stephen Goggans, Fri 10:30)
 - ▶ Michigan (Linda Farquhar, Fr 10:30)
- ▶ **Other recent studies/system innovations**
 - ▶ Wisconsin
 - ▶ Texas



State Initiatives, examples

- ▶ **Federation of State Medical Boards**
 - ▶ Physician Data Center
 - ▶ Model data form development
 - ▶ Coordination of data sets
- ▶ **Wisconsin Physician Data Warehouse**
 - ▶ Coordinate Data Collection
 - ▶ Medical Society Initiative
- ▶ **Iowa physician data system**
 - ▶ Recently rejuvenated, new cooperation



Optional Approaches (Examples)

▶ Nebraska

- ▶ Health Professions Tracking Center, Univ of Nebraska Medical Center and College of Public Health
- ▶ Includes data for parts of Iowa and Wyoming
- ▶ “Sells” the data to users, provides emergency notification services

▶ Michigan

- ▶ Analysis of Masterfile Data for 2005 study
- ▶ Michigan Center for Health Professions (State funding) since 2005



Other State Structures for Analysis

- ▶ **Georgia Workforce Board**
 - ▶ Surveys of physicians
 - ▶ Projections and assessments
- ▶ **Texas Health Professions Resource Center**
 - ▶ Supply trends reports
- ▶ **Utah Medical Education Council**
 - ▶ Residency allocation process



Initiatives, ctd.

- ▶ **Florida workforce data system**
 - ▶ Recent history of attempts to develop system
 - ▶ Government location of licensing data
 - ▶ Structuring analysis system proposed
- ▶ **Arizona**
 - ▶ Medical Board data collection system energized
 - ▶ Arizona State based analysis (Johnson, Rimsza, Garcy, Grossman, 2005)



But what are we talking about

- ▶ **Technical needs of data systems**
 - ▶ Location
 - ▶ Capacity/Specialty
 - ▶ Productivity
- ▶ **If you build a system, will people come?**



What is physician supply?

- ▶ MDs with licenses, or
- ▶ MDs + DOs with licenses or
- ▶ MDs + DOs with licenses who practice clinical medicine, or
- ▶ MDs + DOs with licenses, not in federal employment who practice clinical medicine more than 10 hours per week....



Supply is relevant to specific issues

- ▶ **For HPSAs**
 - ▶ Count to the rule: FTEs in primary care
- ▶ **For determination of new state funded program starts**
 - ▶ Overall supply of clinical practitioners
 - ▶ Supply by location by specialty
- ▶ **Projections**
 - ▶ Heads or skills?



A Hierarchy of Needs for Data

BASIC

Analyses and Data

License counts

Employment counts

National trends

- Practitioners
- Employment

State trends

- Practitioners
- Employment

Association data

- Members
- General data

INTERMEDIATE

Analyses and Data

New professionals

- Education pipeline
- Enrollments
- Degrees
- Trends

Adjustments

- Age
- Gender
- Practice FTE
- Specialty

Substate regions

Migration Patterns

Projections

ADVANCED

Analyses and Data

Special surveys

- Providers
- Educators
- Practitioners

Special problems

- Rural areas
- Inner cities

Small Area Studies

- ZIP/Block/Cities/Towns
- Districts
- Travel Time

Integrated Models

Practice Patterns

Time Series: **What Can Be Done**

BASIC

License counts
National-State

Employment counts
National-State

State trends
Some States

Association data
Most can resurrect

INTERMEDIATE

New professionals
National
Adjustments
Age/Gender- National
Some states
Practice FTE-
some states some years
Specialty
National, Most States

Sub-state regions
resurrectable

Migration Patterns
National with work
Projections
National/Specialty

ADVANCED

Special surveys
Various States/years

Special problems
Rural area
Inner cities
Various states/years

Small Area Studies
Few states, cities
National (Dartmouth)

Integrated Models
National
Practice Patterns
specialties

