

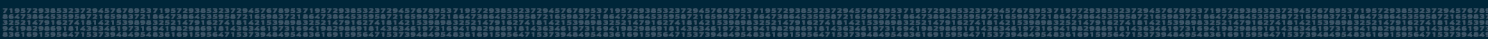
1. INTRODUCTION TO IPUMS

What is IPUMS?

- US & international census and survey data
- Consistent documentation and standardized data allow for easier comparisons and analyses
- Available free of charge

The IPUMS Model

- Access data and documentation via web-based data dissemination systems
- Build a customized dataset
- Receive an email when data are ready
- Download and analyze microdata
- Draw on tutorials, user forum, and user support



Benefits of Using IPUMS

- Harmonization and data enhancements
- Comprehensive online documentation
- Create and download customized datasets
- Online data analysis tools
- User support

Census

Demographic
Surveys

Health Surveys

Census

Demographic
Surveys

Health Surveys

USA

NHGIS

International
Census

Census

USA

NHGIS

International
Census

Demographic
Surveys

CPS

(labor force)

ATUS

(time use)

International
Labor Force

Health Surveys

Census

USA

NHGIS

International
Census

Demographic
Surveys

CPS

ATUS

International
Labor Force

Health Surveys

NHIS

MEPS

DHS

PMA

Census

USA*

NHGIS

International
Census

Demographic
Surveys

CPS*

ATUS*

International
Labor Force

Health Surveys

NHIS*

MEPS*

DHS

PMA

2. USING IPUMS DATA TO STUDY THE HEALTH WORKFORCE

2A. DEFINING THE HEALTH WORKFORCE

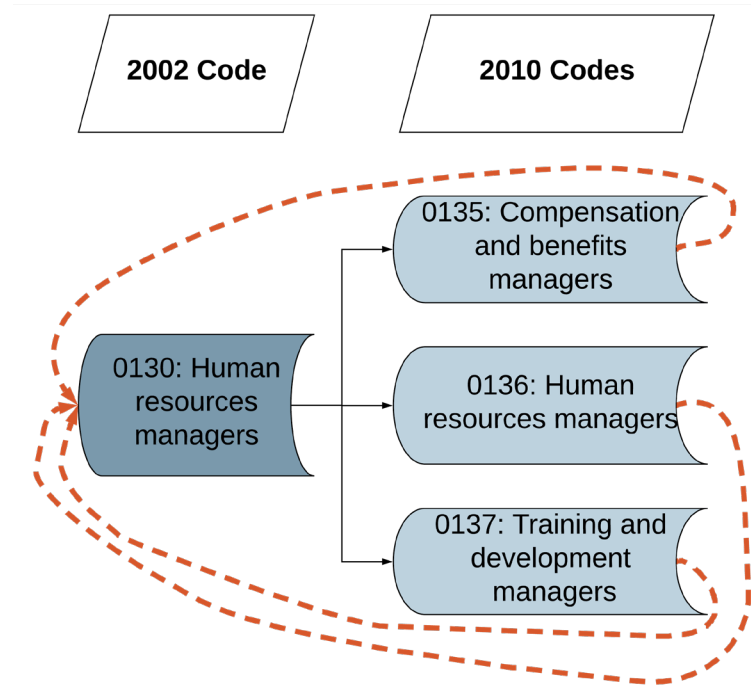
Unharmonized Occupations

- Great for analysis of a single year or small set of years
- Great for analysis of most recent year(s)
- Most fine grained identification of occupations

Unharmonized Occupations

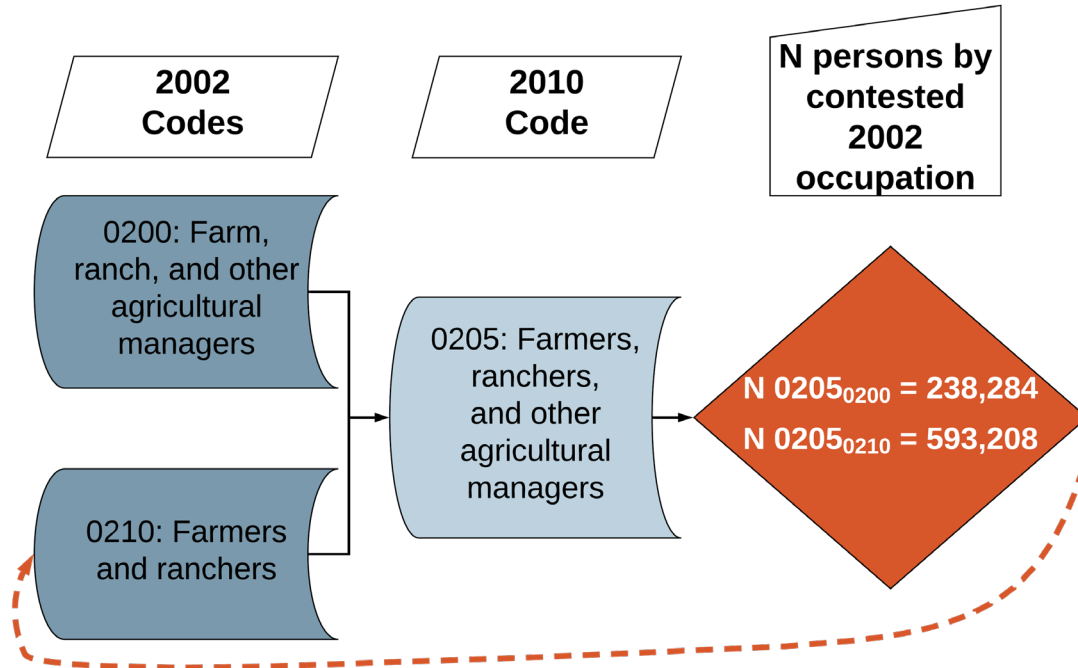
- Changing occupation coding schemes over time
 - 1950
 - 1960
 - 1970
 - 1980
 - 1990
 - 2000
 - 2018

Harmonized Occupations: More Detail over Time



0130: Human resources managers
0135: Compensation and benefits managers
0136: Human resources managers
0137: Training and development managers

Harmonized Occupations: Less Detail over Time



Detailed Occupations

- IPUMS Products: USA, CPS, ATUS
- Unharmonized: OCC, OCCSOC (USA only)
- Harmonized: OCC1950, OCC1990, OCC2010

Recent Health Care Occupations (OCC)

- Health Care Practitioners and Technical Occupations
 - 29 categories in 2000
 - 31 categories in 2017
- Health Care Support Occupations
 - 6 categories in 2000
 - 11 categories in 2017

NHIS: Coarse Occupational Coding Schemes

OCC: “Detailed occupation,” 2004-present

OCCUPN APPENDIX: OCCUPATION RECODE APPENDIX based on 4-digit Census codes (from the 2010 SOC)

Numeric listing of Response Values and Labels for OCCUPN1 (detailed occupation recode)

Column 1 Input Response Values	Column 2 Output Response Values	Column 3 Output Response Labels
		Healthcare Practitioners and Technical Occupations
3000, 3010, 3030, 3040, 3050, 3060, 3110, 3120, 3140, 3150, 3160, 3200, 3210, 3220, 3230, 3235, 3245, 3250, 3255, 3256, 3257, 3258, 3260	29	Health diagnosing and treating practitioners
3300, 3310, 3320, 3400, 3420, 3500, 3510, 3520, 3535 3540	30 31	Health technologists and technicians Other healthcare practitioners and technical occupations
3600	32	Healthcare Support Occupations Nursing, psychiatric, and home health aides
3610, 3620	33	Occupational and physical therapist assistants and aides
3630, 3640, 3645, 3646, 3647, 3648, 3649, 3655	34	Other healthcare support occupations

NHIS: Coarse Occupational Coding Schemes

OCC1995: Harmonized occupational codes from 1969-present

OCC	OCC1995
29 = Health diagnosing & treating practitioners	0222 = Health diagnosing occupations
30 = Health technologists & technicians	0301 = Health technologists and technicians
31 = Other healthcare practitioners & technical occupations	
32 = Nursing, psychiatric, and home health aides	0805 = Health service
33 = Occupational & physical therapist assistants and aides	0223 = Health assessment & treating occupations
34 = Other healthcare support occupations	0805 = Health service

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Occupation Dimensions Summary

	Granularity	
Comparability	Detailed	Coarse
Unharmonized	USA, CPS, ATUS	NHIS
Harmonized	USA, CPS	NHIS

Occupation vs. Industry

- Occupation – who provides direct care
- Industry – who works in a health care environment

- Example: social workers (occupation) who work in hospitals (industry)

Topics of Study Possible with IPUMS

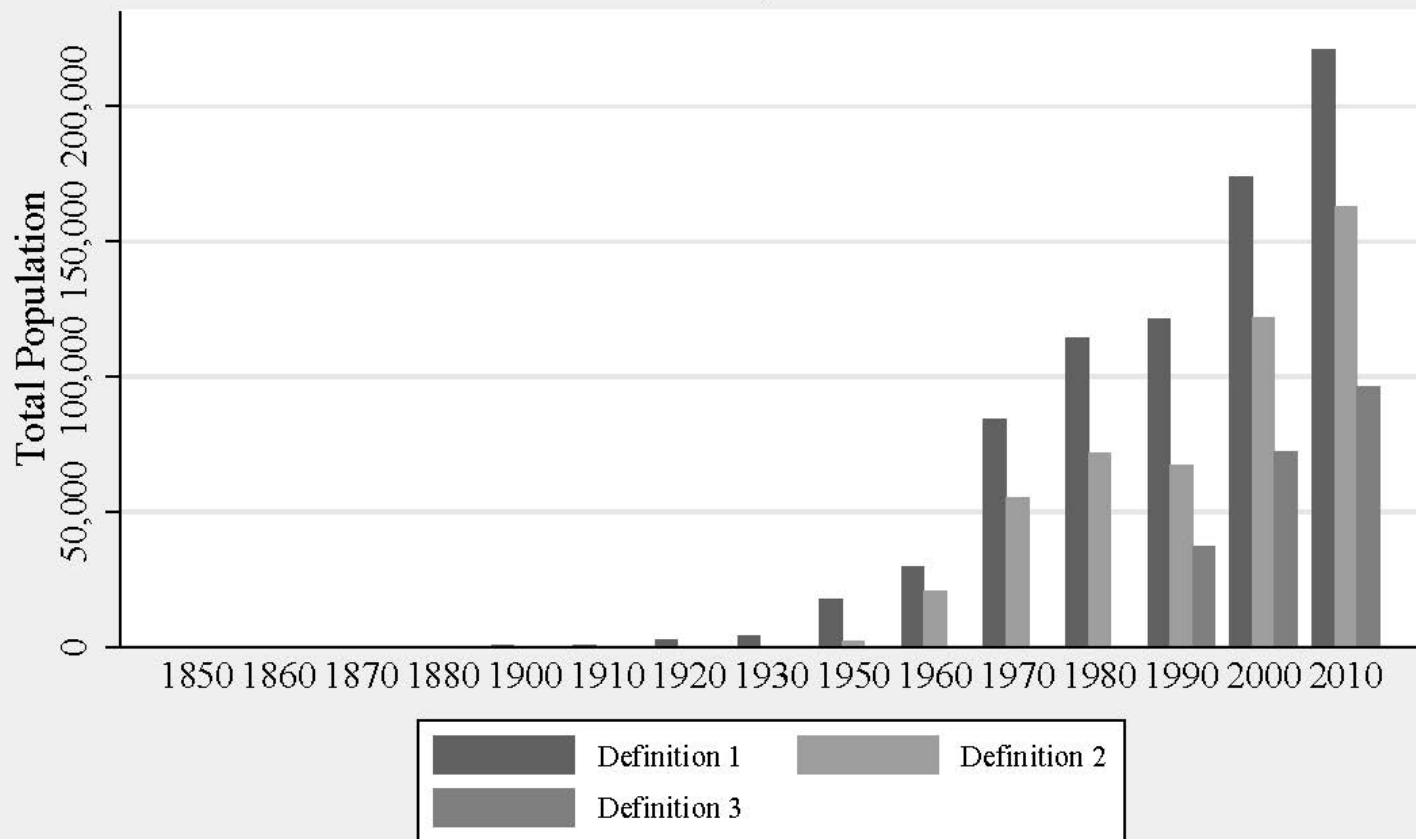
- Describe members of the health workforce
- Characterize the nature of jobs
- Depict activities outside of paid work
- Assess health behaviors and outcomes
- Describe aspects of health care delivery or financing

Characteristics of Health Workers

- Demographic characteristics
 - Sex, racial/ethnic, age breakdowns
- Income, educational attainment
- USA and CPS
- Example: Heggness et al. study that could be replicated for Health workforce

Biological and Medical Scientists by Year

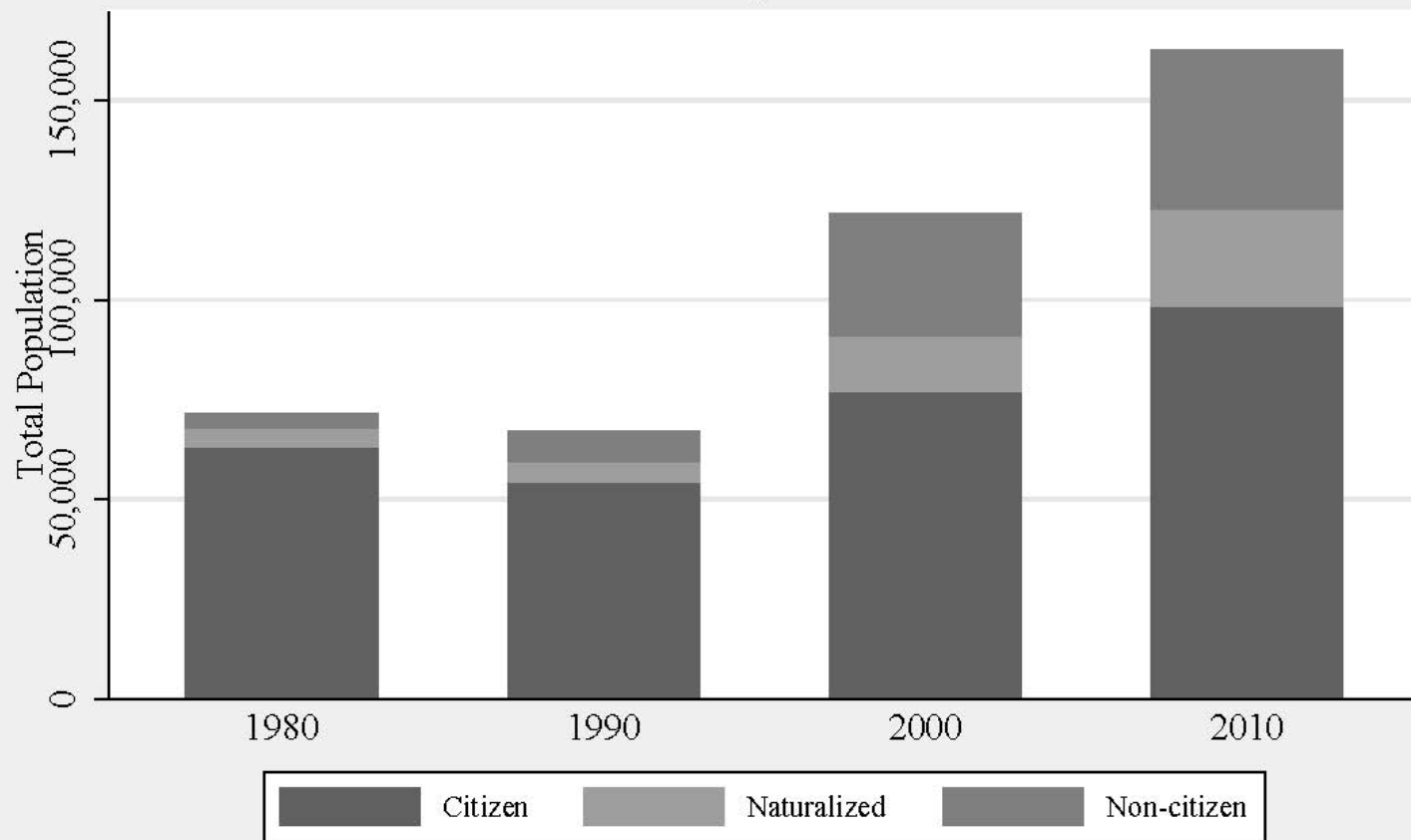
United States, 1850 to 2010



Source: Author's calculations, IPUMS decennial censuses and IPUMS ACS 2010 (ipums.org)

Biological and Medical Scientists by Citizenship Status and Year

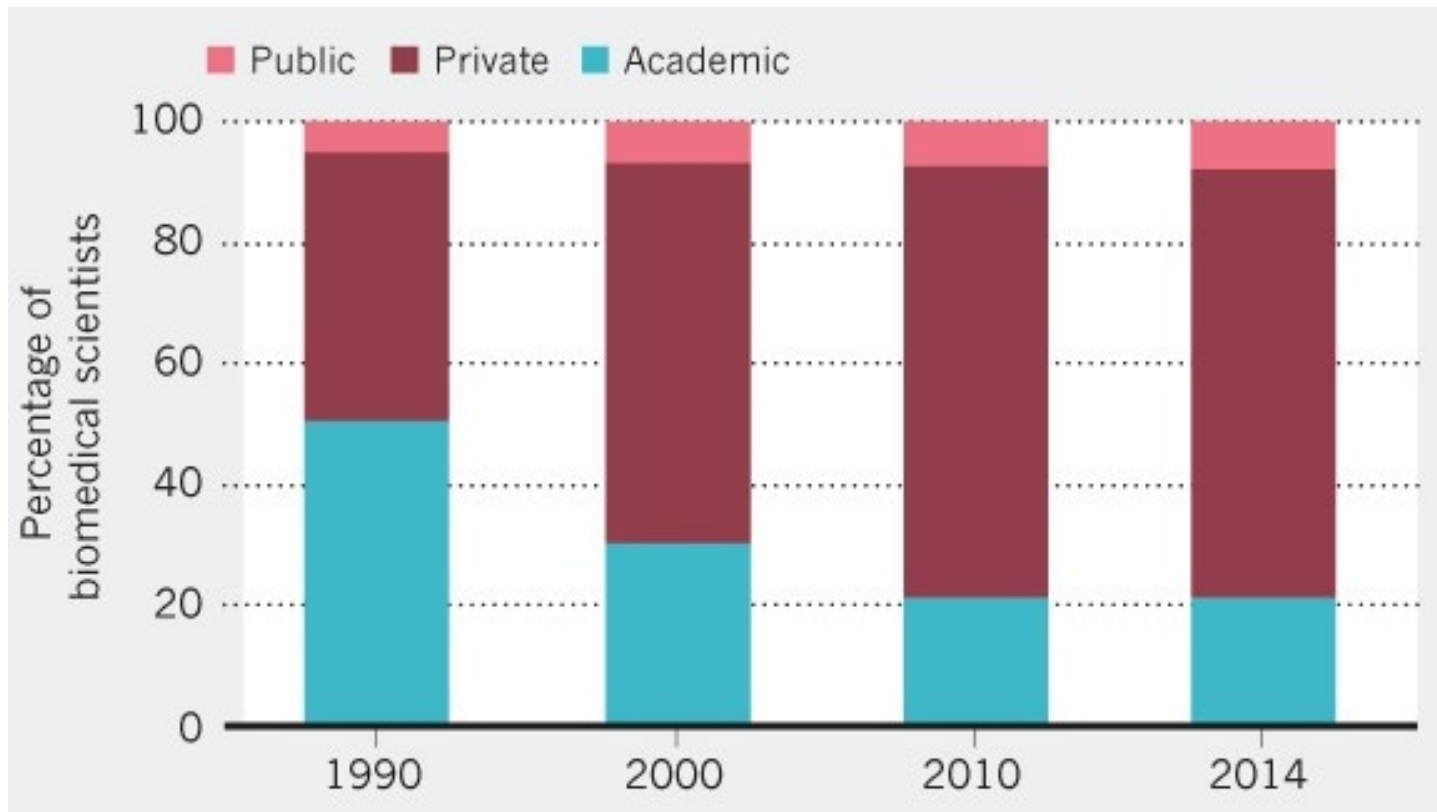
United States, 1980 to 2010



Source: Author's calculations, IPUMS decennial censuses and IPUMS ACS 2010 (ipums.org)

Attributes of Jobs Held by Health Workers

- If employed: work hours and wages (unions), commute to work, mode of transport
- If unemployed: looking for work, length of unemployment
- USA and CPS



Source: Heggness, Gunsalus, Pacas & McDowell 2017

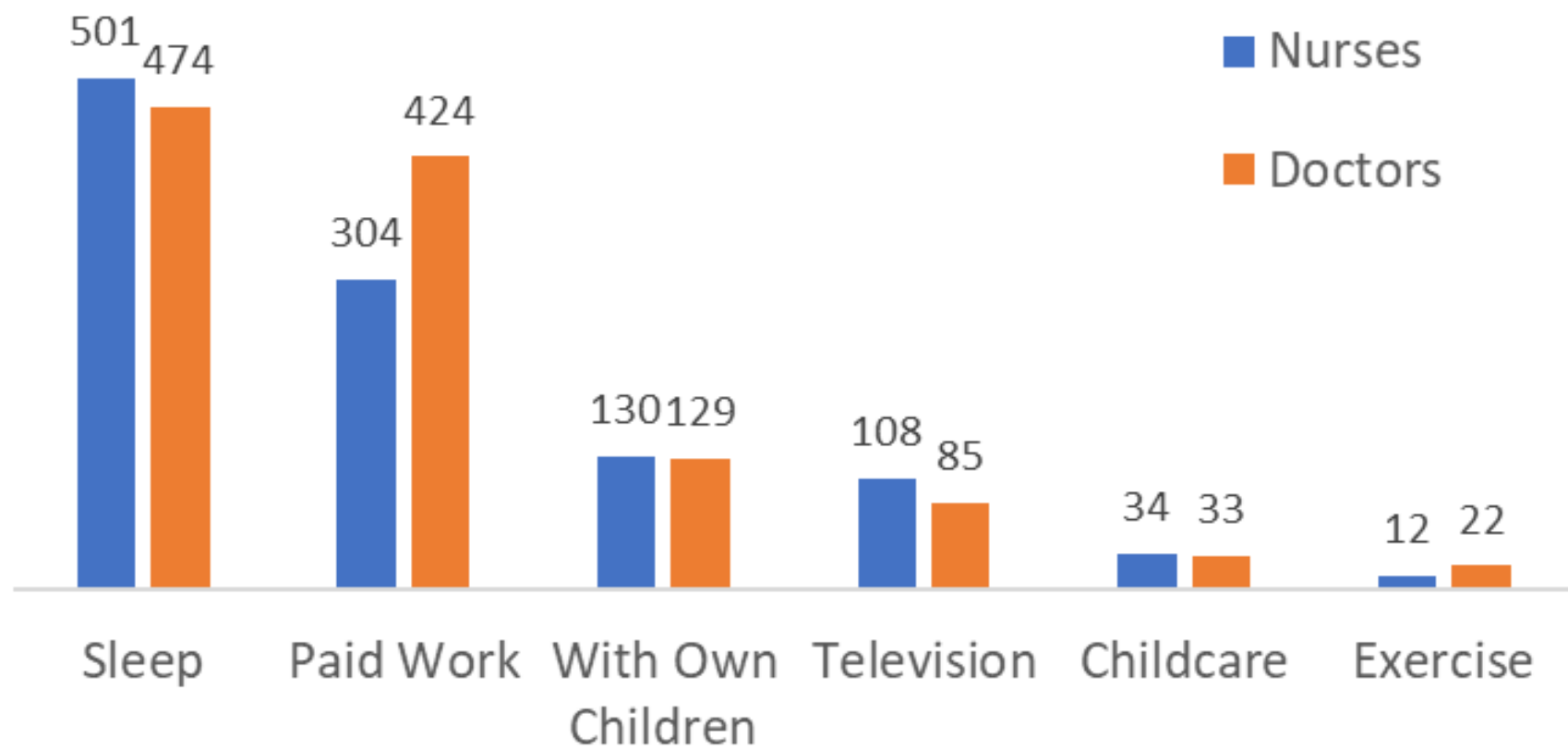
<https://www.nature.com/news/the-new-face-of-us-science-1.21229>

Activities Outside of Paid Work

- Sleep, Physical activity, Unpaid work, Caregiving, Volunteering, Sedentary behavior, Leisure

- ATUS

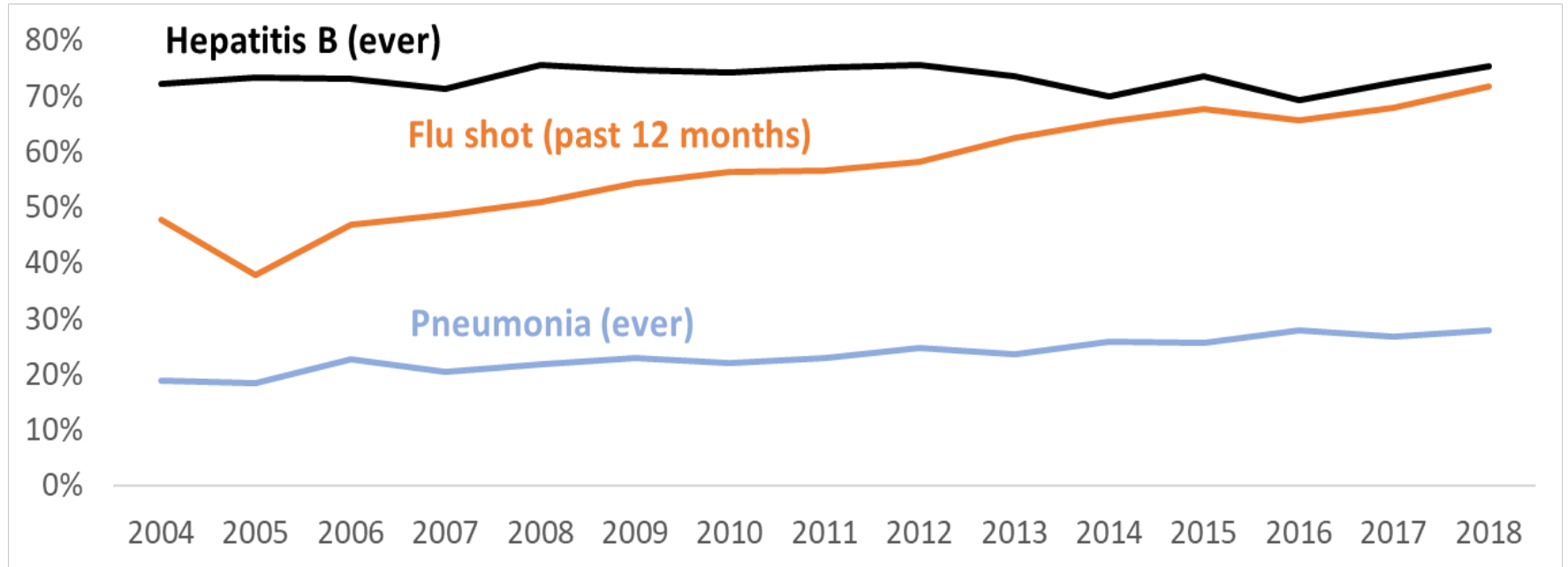
Daily Time Use of Nurses versus Doctors



Health Behaviors, Outcomes, and Utilization

- Health behaviors
- Occupational health
- Health outcomes (low back pain, mental health, etc.)
- Health care utilization (CAM, routine & acute care, etc.)
- ATUS and NHIS

Percentage of Health Workers with Selected Vaccinations, NHIS 2004-2018

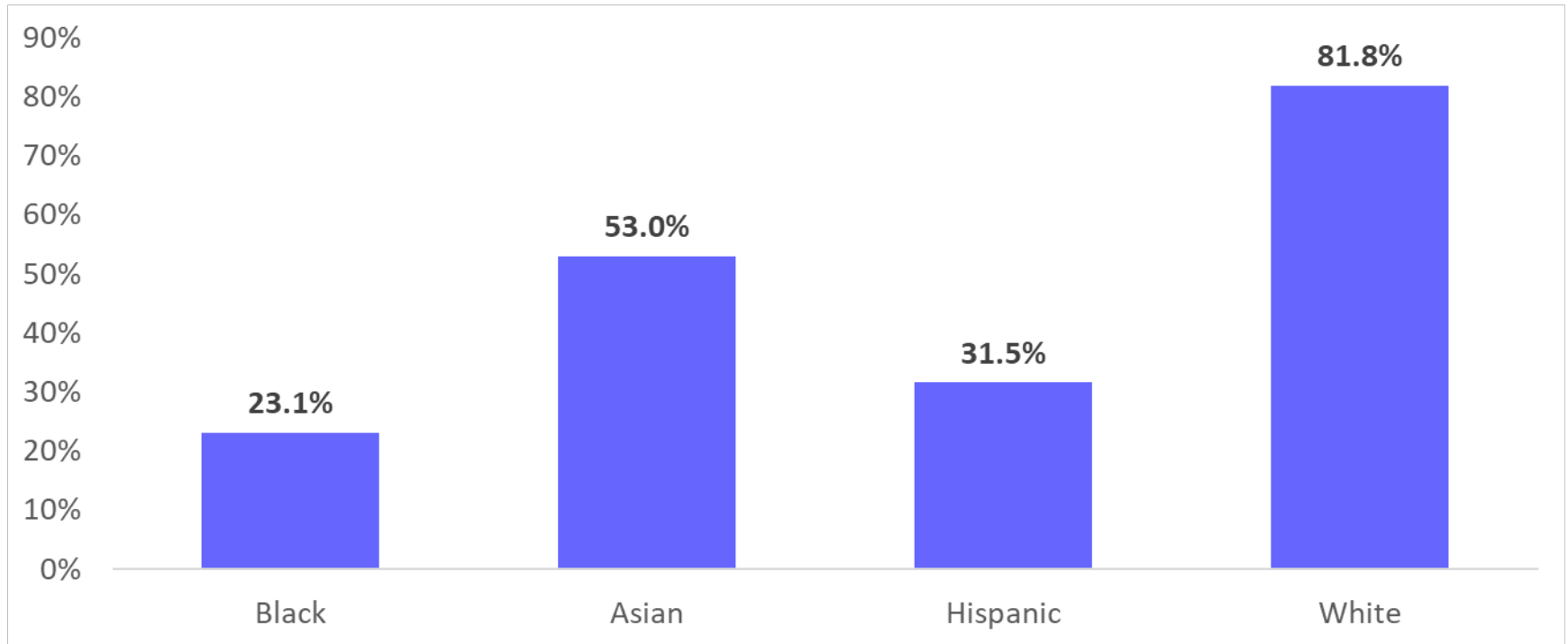


Note: “Health Workforce” defined as persons working in both Health Workforce associated occupations AND industries.

Consumer Perspectives on Treating Behaviors

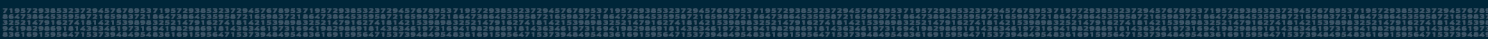
- Can indirectly identify type of usual source of care provider
 - Characteristics of providers from consumer's perspective (demographics, quality of/satisfaction with care, etc.)
 - Match provider to consumer
- MEPS

Share with usual source of care provider who has same race/ethnicity as self, 2017 MEPS

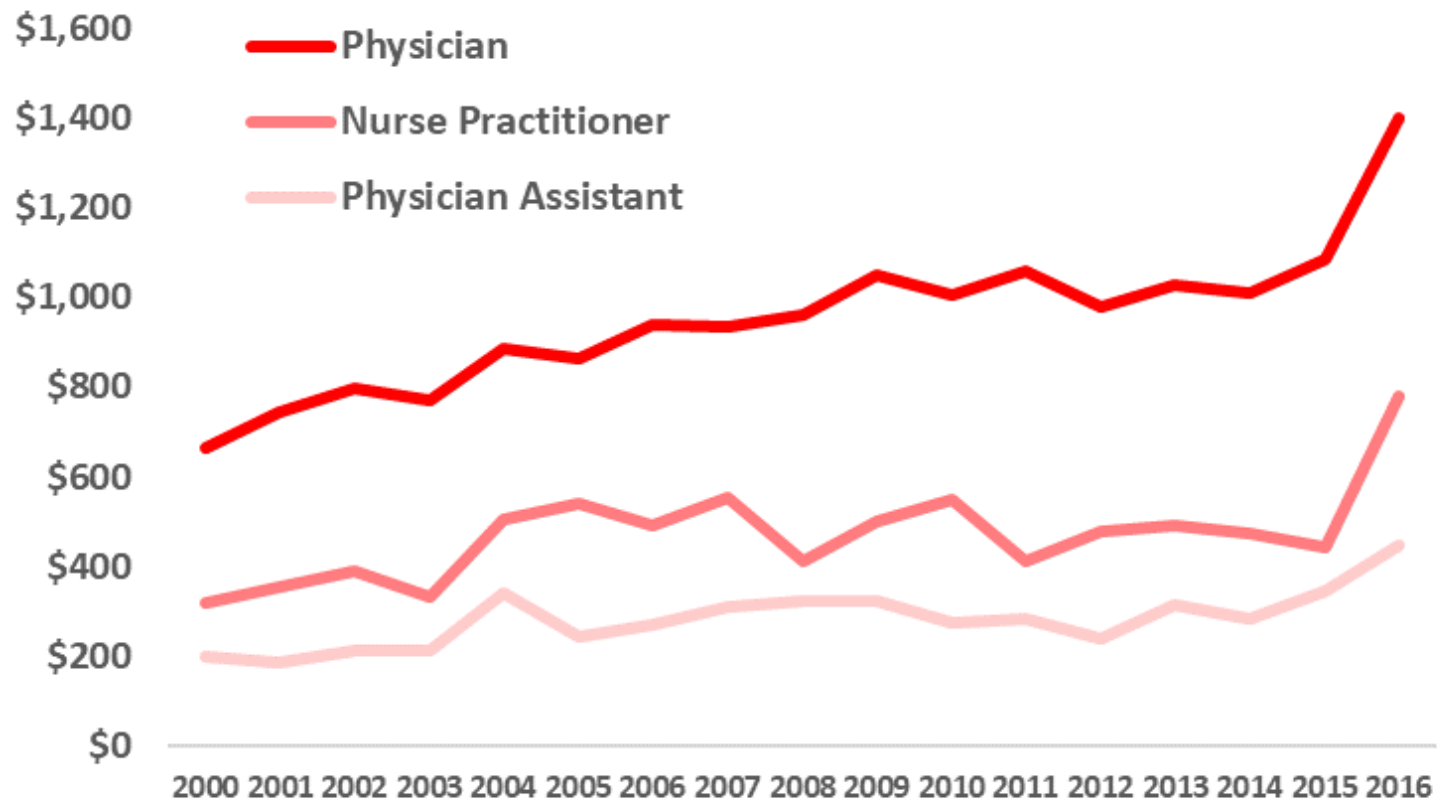


Health Care Expenditures

- For specific types of providers
 - By setting: office-based, outpatient, hospital, etc.
 - By title: physician, nurse practitioner, physician's assistant, chiropractor, optometrist, physical therapist, etc.
- By payer: self/family, private, Medicaid/SCHIP, Medicare, etc.
- MEPS

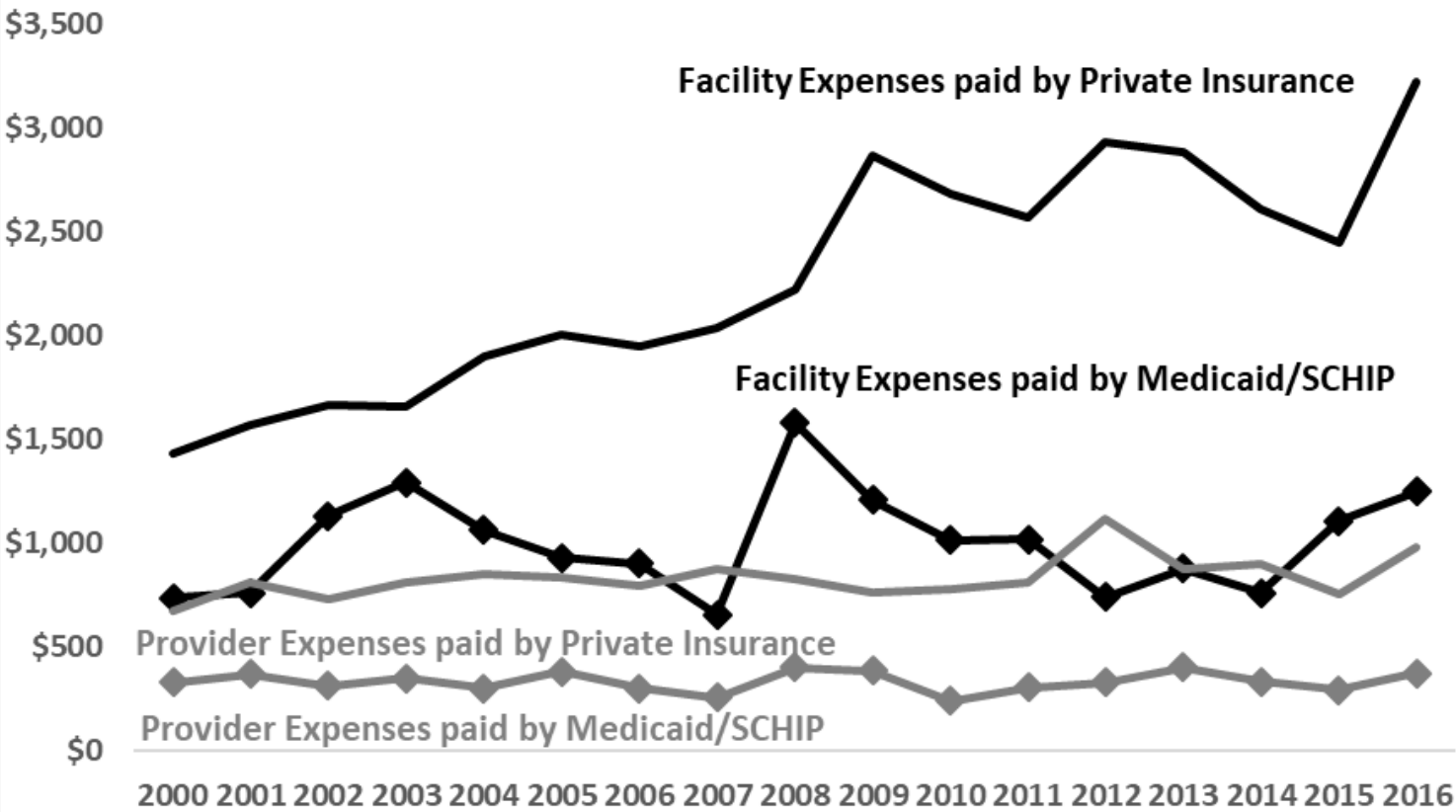


Average Expenditures for Office-Based Providers by Type, 2000-2016 (2009 dollars)



Note: For those with at least \$1 in expenditures. Source: IPUMS MEPS.

Private Insurance and Medicaid/SCHIP Expenditures on Outpatient Physicians by Facility vs. Provider, 2000-2016



Note: 2009 dollars for expenditures of \$1 or more, Source: IPUMS MEPS

2C. ANALYTIC CONSIDERATIONS

USA

NHGIS

CPS

ATUS

Health

SES

Housing

Work

Income

Poverty



USA

NHGIS

CPS

ATUS

Health

Fertility



Household
or Family



Health
insurance



Health
behaviors



Disability



Migration



Geography

- USA: PUMAs
- CPS: Best at state level, some counties
- ATUS: Best at national level, states and some counties
- NHIS & MEPS: Best at national level, has census region

1790

1960s

2000s

Present

USA



CPS

NHIS



MEPS

ATUS



Low
Freq

High
Freq

USA

Decennial

USA - ACS

CPS

ATUS

NHIS/MEPS

CPS - supplements

3. INTERNATIONAL DATA

IPUMS International



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DATA CART

YOUR DATA EXTRACT

0 VARIABLES
0 SAMPLES

ISCO88A

ADD TO CART

SELECT SAMPLES

Occupation, ISCO-1988, 3-digit

Group: [Work — PERSON](#)

IPUMS.ORG

PROFESSIONALS																	
211	Physicists, chemists and related professionals	X	.	X	X	.	X	.	.	X	X	X	X	X	X	X	211
212	Mathematicians, statisticians and related professionals	X	.	X	.	X	X	.	.	.	X	X	X	X	X	X	212
213	Computing professionals	X	X	X	X	.	.	.	.	X	X	X	X	X	X	.	213
214	Architects, engineers and related professionals	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	214
221	Life science professionals	X	X	X	X	X	X	.	.	X	X	X	X	X	X	X	221
222	Health professionals (except nursing)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	222
223	Nursing and midwifery professionals	X	.	X	X	.	.	.	.	X	X	.	X	X	X	X	223
231	College, university and higher education teaching professionals	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	231
232	Secondary education teaching professionals	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	232
233	Primary and pre-primary education teaching professionals	X	X	.	X	.	.	X	.	X	X	X	X	X	X	X	233
234	Special education teaching professionals	.	X	X	X	.	.	.	.	.	X	X	X	X	X	X	234
235	Other teaching professionals	X	X	X	X	X	X	.	X	X	X	X	X	X	X	.	235

Code	Label	armen	belaru	boliv	boliv	botsw	botsw	cambo	cambo	cambo	chile	costar	cuba	ecuad	egypt	elsalv	Code
		2011	2009	1992	2001	2001	2011	1998	2004	2008	1992	2000	2002	2001	2006	1992	
241	Business professionals	.	X	X	X	X	X	X	.	X	X	X	X	X	X	X	241
242	Legal professionals	X	X	X	X	X	X	.	.	X	X	X	X	X	X	X	242
243	Archivists, librarians and related information professionals	X	.	X	X	X	X	.	.	X	X	X	X	X	X	X	243
244	Social science and related professionals	X	X	X	X	X	X	.	.	.	X	X	X	X	X	X	244
245	Writers and creative or performing artists	X	.	X	X	.	X	X	.	X	X	X	X	X	X	X	245
246	Religious professionals	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	246
299	Professionals no elsewhere classified	X	X	.	X	X	X	.	X	X	X	.	X	.	.	.	299
TECHNICIANS AND ASSOCIATE PROFESSIONALS																	
311	Physical and engineering science technicians	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	311
312	Computer associate professionals	X	.	X	X	X	X	.	.	.	X	X	X	X	X	X	312
313	Optical and electronic equipment operators	X	.	X	X	X	X	X	.	X	X	X	X	X	X	X	313
314	Ship and aircraft controllers and technicians	X	.	X	X	.	.	X	.	X	X	X	X	X	X	X	314
315	Safety and quality inspectors	X	.	X	X	X	X	.	.	.	X	X	X	X	X	X	315
321	Life science technicians and related associate professionals	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	321
322	Modern health associate professionals (except nursing)	X	X	X	X	X	X	X	.	X	X	X	X	X	X	X	322
323	Nursing and midwifery associate professionals	X	X	X	X	X	X	X	X	X	X	.	X	X	X	X	323
324	Traditional medicine practitioners and faith healers	.	.	X	X	X	X	X	.	X	X	324

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Global Health Observatory data repository

[Data analysis](#)

By category

[By theme](#)

Welcome to Global Health Workforce Statistics

In this section:

- [Medical doctors](#)
- [Nursing and midwifery personnel](#)
- [Dentistry personnel](#)
- [Pharmaceutical personnel](#)
- [Environmental and Occupational Health and Hygiene Personnel](#)
- [Medical and Pathology Laboratory Personnel](#)
- [Physiotherapy personnel](#)
- [Traditional and Complementary Medicine personnel](#)
- [Community Health Workers](#)
- [Other data sources](#)

Resources

- Video tutorials: ipums.org/support/tutorials
- User forum: forum.ipums.org
- Data training exercises:
ipums.org/support/exercises
- Dedicated user support: ipums@umn.edu

