Advanced Programming

Esther Hing M.P.H.
National Center for Health Statistics

Session Highlights

- Compute state and national estimates
- Review & create estimates using the physician weight; link aggregated visit characteristic to a physician level file
- A simple linear regression predicting time spent with physician
- A simple logistic regression predicting visits with a primary diagnosis of hypertension
- Create combined year estimates

State and National Visit Estimates

- National weight (PATWT) used for the overall total
- State weight (PATWTST) used for state specific estimates
- State weights won't provide the correct total estimate
- Use national weight for total estimates

Why two visit weights?

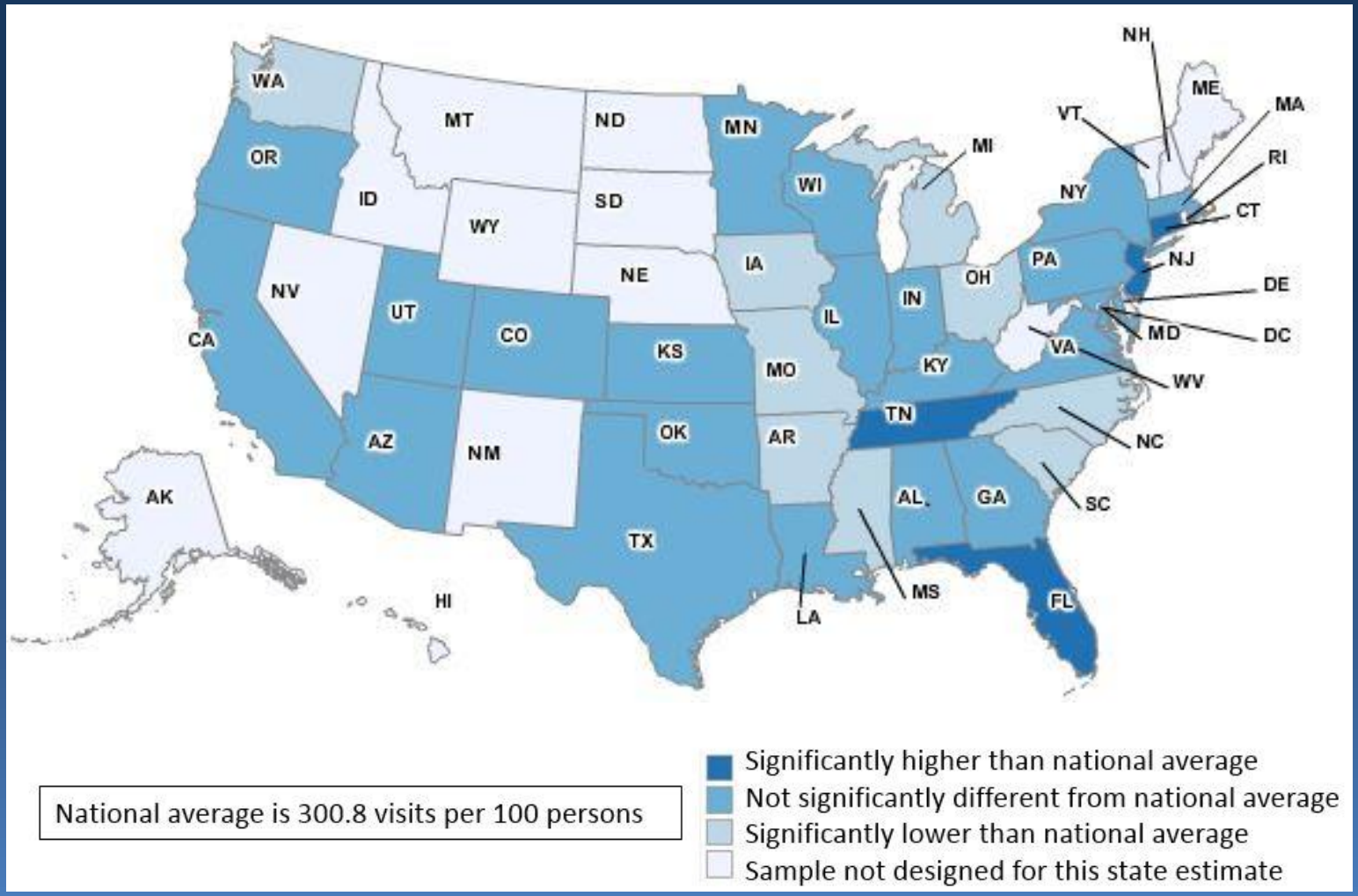
Non-response adjustments by state were applied only to visits in the 34 targeted states (state weight)

Non-response adjustments for all visits (national weight) were applied to the entire sample

NAMCS National and State Visit Estimates Exercises

- Double-click: My Computer\Local Disk C:\AHDATA
- Open “FINAL 2015 AH Advanced SAS Exercises” or “Final 2015 AH Advanced Stata Exercises”
- Look at first 2 exercises: exercise 1a through exercise 2d

Annual rate of physician office visits per 100 persons by selected states: 2012



Computing State Visit Rates

- Visit rate per 100 population indicates rate of ambulatory care use by a defined population
- State population estimates are found in page 28 of the 2012 PUF documentation
- Visit Rate= # of visits/state population*100
- Standard error (SE) of Rate=RSE (visits)*Rate
- SE of Rate assumes denominator is not subject to sampling error

Physician weight/characteristics in the 2012 PUF Documentation

- Selected physician and practice characteristics on PUF found on pages 68-95
- Selected physician estimates presented on pages 127
- See pages 40-41 for more details on use of physician-level weight

Provider weights released on NHAMCS Public Use File

- Hospital ED weight (EDWT) only on first ED visit record for department within sample hospital
- Hospital OPD weight (OPDWT) only on first OPD visit record for that department within sample hospital
- Survey design variables same for hospital departments as visits

Facility weights/characteristics in the 2011 PUF documentation

- Selected ED estimates presented on pages 127-128 of 2011 NHAMCS PUF documentation
- Selected OPD estimates presented on page 132 of 2011 NHAMCS PUF documentation
- See page 24 for more details on use of ED and OPD weight

NAMCS Visit Data→Physician-level Estimates

- Double-click: My Computer\Local Disk C:\AHDATA
- Open "FINAL 2015 AH Advanced SAS Exercises.sas" or "Final 2015 AH Advanced Stata Exercises.do"
- Exercise 3 shows how to generate physician estimates from visit data
- Exercise 4 links aggregated visit characteristic to physician estimates

Linear and Logistic Regression Examples

Exercise 5-Linear Regression Modeling Time Spent with Physician

Exercise 6-Logistic Regression Model Predicting Hypertension visits

Example of Multiple Year Estimates

Multiple years of data can improve reliability of estimates; necessary for rare estimates

Exercise 7 - Combining 2009, 2010 & 2011 ED estimates

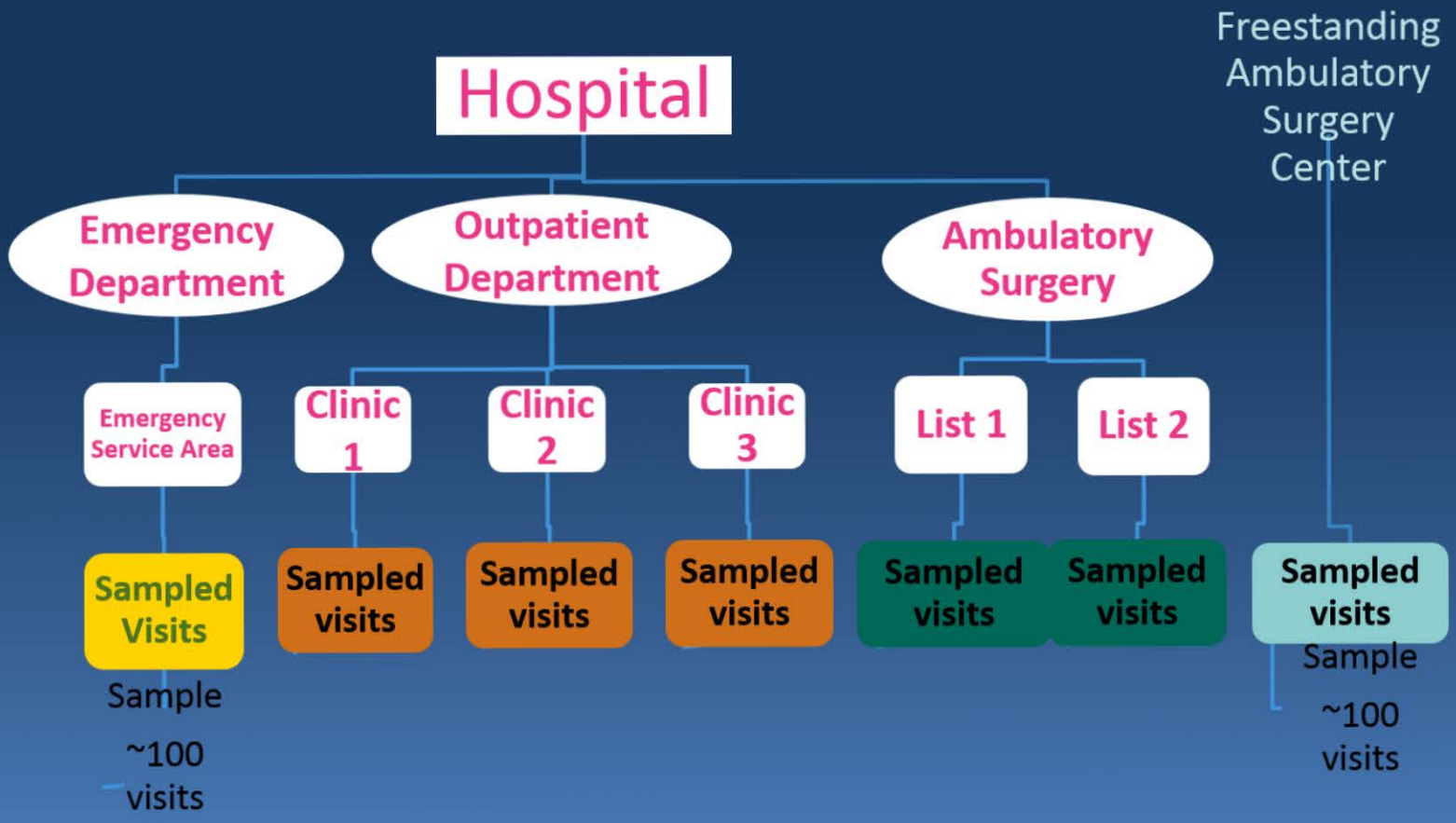
NHAMCS Estimates

NHAMCS researchers should use combined ED and OPD files when computing variances for emergency and/or outpatient department estimates. Including both files takes into account NHAMCS's complex sample design.

Stata subpopulation statement can be used to compute results for a subset of interest.

Include NOMCAR in the SURVEYFREQ statement so that records with missing data are included in SE computations. Without NOMCAR, these records are excluded by default and SEs are understated.

NHAMCS Sample Design



Checklist for NAMCS/NHAMCS Analyses[1]

YES	
	Is each estimate based on a sample of at least 30 unweighted records?
	Does each estimate of the weighted data have a relative standard error (RSE) <30 percent?
	Is the item nonresponse rate < 30%?
	Are the estimates rounded to the nearest 1,000?
	If using population rates (number of visits per population), did you provide the definition of the specific population?
	Did you make sure all of the records in the data files were included in the analysis to obtain the correct sample variance estimate?
	Are the correct table headings used for percentages (i.e., percentage distribution should add to 100%) or percentage of visits (used for items where more than one response may be recorded, e.g., providers seen)?
	Are estimates presented as numbers of visits rather than persons?
	When multiple years of data are used, were data collected consistently for the variable(s) for each year in the analysis? If no, then explain.
	If multiple years of data were combined, were average annual estimates presented?

[1]McCaig LF, Burt CW. Understanding and Interpreting the National Hospital Ambulatory Medical Care Survey: Key Questions and Answers. Ann Emerg Med. 2012 Oct 17. pii: S0196 0644(12)01195 X. doi: 10.1016/j.annemergmed.2012.07.010. [Epub ahead of print]

Need more help?

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

Call the Ambulatory and Hospital Care Statistics Branch at 301-458-4600 or see

Email: ehing@cdc.gov