



# Postdoc Data Project

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AAMC Great Group Postdoctorate Leaders Section Meeting  
*Collecting data and tracking postdocs*

October 2, 2008

**National Science Foundation (NSF)**  
**Division of Science Resources Statistics (SRS)**

**[www.nsf.gov/statistics](http://www.nsf.gov/statistics)**



# Impetus

- Postdocs are an important component of U.S. workforce and research enterprise
- Current NSF/SRS postdoc-related surveys have considerable coverage and content gaps
- Need better postdoc-related aggregate, descriptive, and longitudinal statistics
- Engaged in multi-year effort to increase quality and quantity of information on postdocs



# Identified Gaps

- Uniform postdoc definition
- Postdoc coverage
  - Employment sector (academic, government, nonprofit organizations, private industry)
  - Citizenship status and country of PhD
  - Degree type (PhD, PhD-equivalent degree)
- Postdoc data content
  - Population statistics
  - Postdoc quality and experience indicators
  - Pipeline issues and career transitions data
  - Institution data



# Goal

Develop a Comprehensive Integrated  
Postdoc Information Strategy

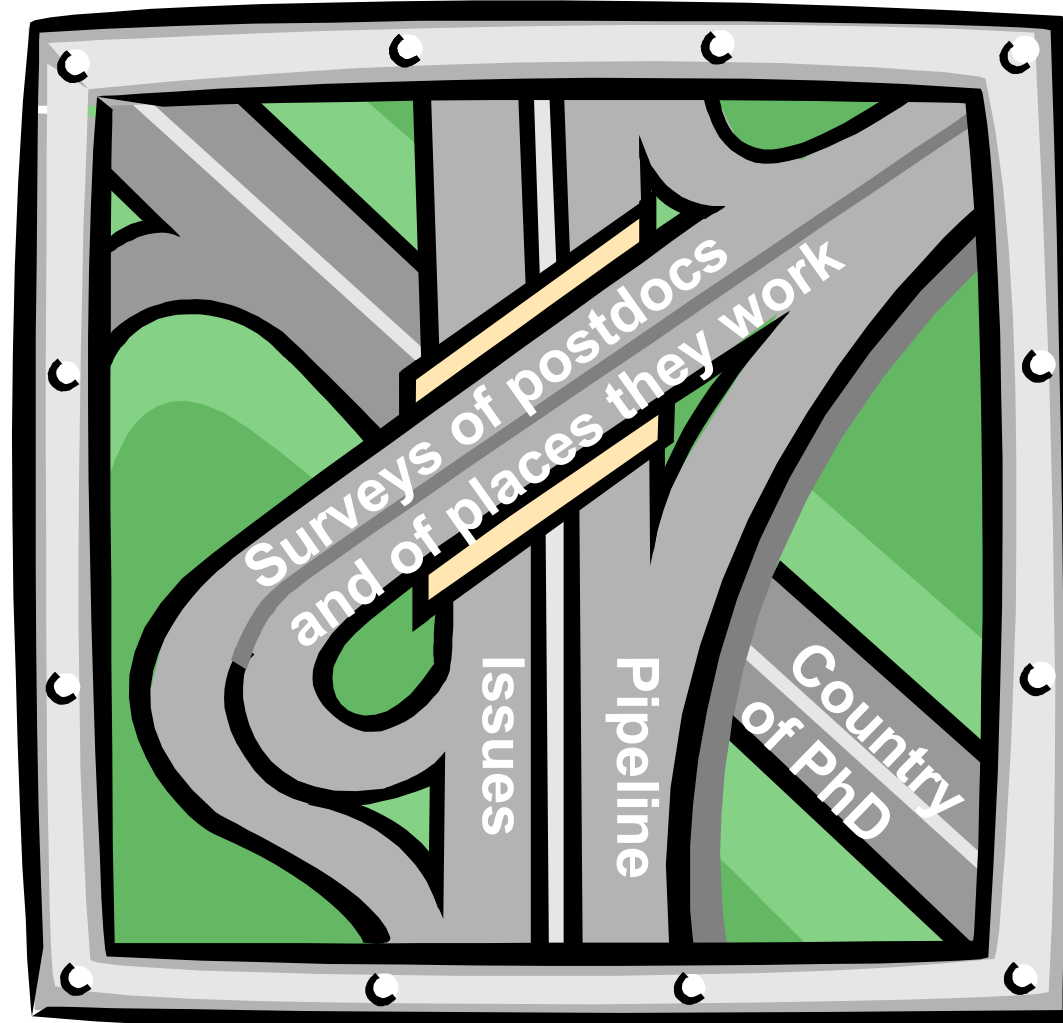


# Plan

- \*Design a survey for postdocs that gathers in-depth information on current and emerging issues
- \*Create the list of MD/PhD postdocs and temporary resident postdocs
- Provide the total count of postdocs in U.S. academic and nonacademic institutions
- Collect postdoc data from U.S. nonacademic institutions
- \*Improve SRS postdoc data collected from U.S. academic institutions

*"\*" Indicates where your input is needed!*

# *PDP: Multi-Phase, Multi-Path, Multi-Frame Multi-Dimensional Feasibility Project*





# Survey of Postdocs: If Life Were Easy

**U.S. PhD Degreed Postdocs**  
**Survey of Doctorate Recipients (SDR)**

**+**

**Non-U.S. PhD Degreed Postdocs**  
**Immigration Databases (Department of Homeland Security (DHS))**  
**Student and Exchange Visitor Information System (SEVIS)/**  
**CLAIMS3—H-1B specialty occupation worker**

**=**

**Postdoc Frame**



**Total Postdoc Count**



**Survey**



# Survey of Postdocs: Life Is NOT Easy

## Non-U.S. PhD Degreed Postdocs

Immigration Databases (Department of Homeland Security (DHS))  
Student and Exchange Visitor Information System (SEVIS)/  
CLAIMS3—H-1B specialty occupation worker

- Data not readily available
- Developing a mechanism to receive the immigration databases



# Overcoming Life's Difficulties

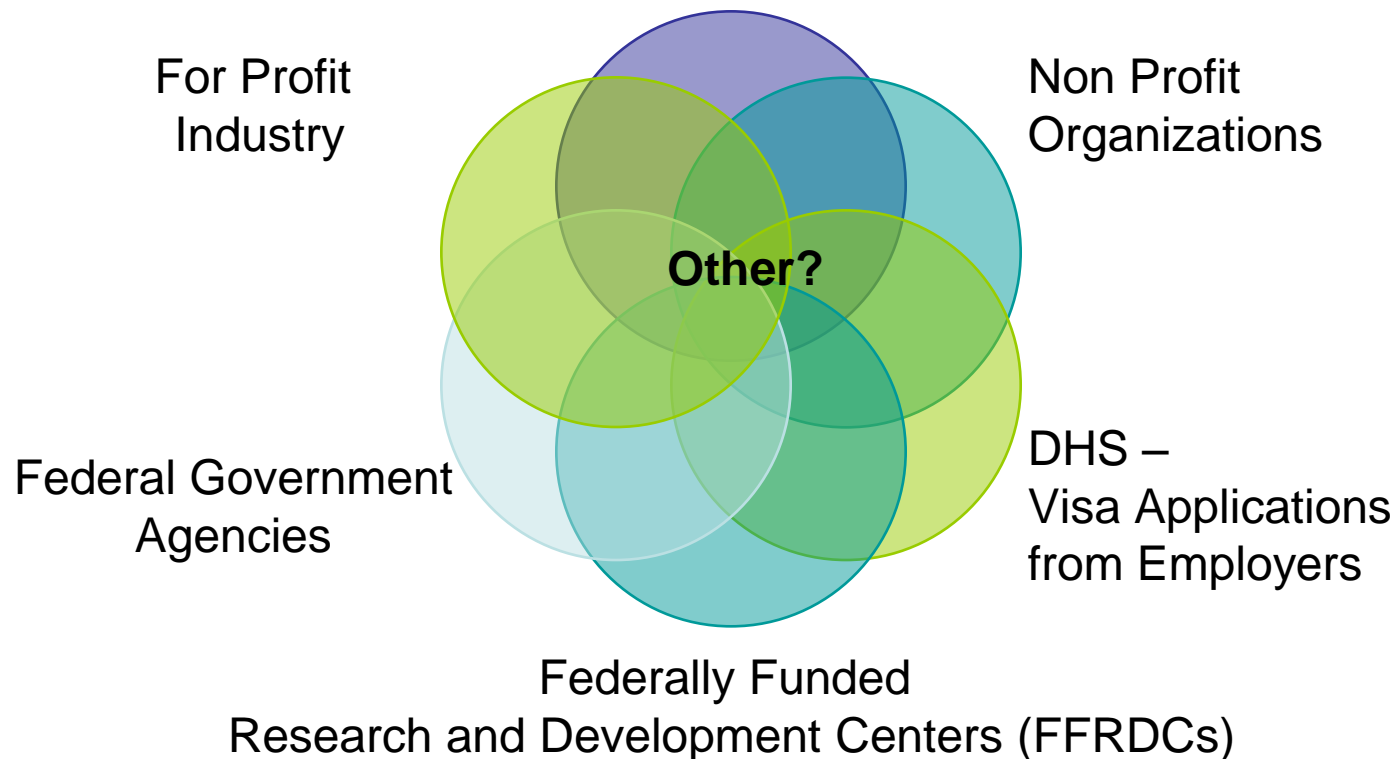
Implement a 2-stage survey of all institutions employing postdocs:

- First stage
  - Collect count data to augment current SRS academic institution-level survey collecting postdoc data
  - Request list of institution's postdocs to develop comprehensive list of postdocs
- Second stage
  - Survey the postdocs (using list obtained in the first stage)

# PDP: Life is Really Not Easy

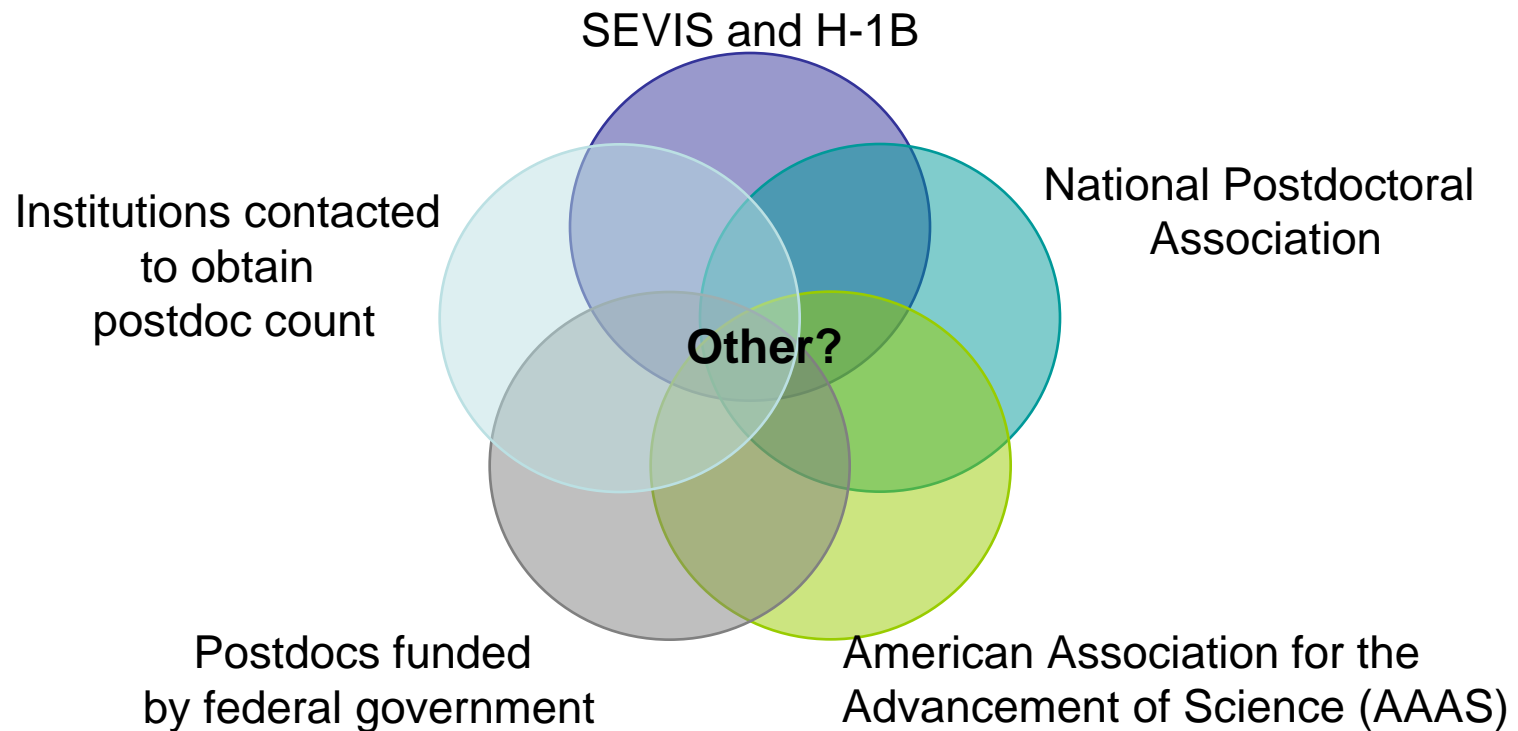
## *Collecting Count Data & Obtaining Lists of Postdocs*

Academic Institutions (SRS Survey)



# PDP: Life is Really Really Not Easy

## *Developing Comprehensive List to Survey Postdocs*





# Challenges

- Obtaining information considered proprietary
- Ensuring confidentiality and privacy
- Determining concepts and definitions that will ensure standardization within and across institutions
- Different labels/definitions for the same type of position pose a problem for sampling and data collection activities
- Allowing for different ways of maintaining, updating, accessing and retrieving postdoc data within and across institutions



## Challenges (cont.)

- Determining the right institutional respondent within and across institutions
- Getting past gatekeepers for the institution and for the knowledgeable person
- Tailoring contact and data collection methods (telephone, electronic mail, postal mail, Web/internet) to ensure response
- Using the best administration for the survey of postdocs – the institution administers it or NSF sends it directly to the postdoc

## Challenges (cont.)

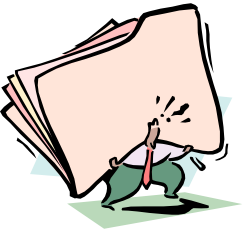


- Finding lists of postdocs who are foreign-PhD degreed and postdocs who are MD/PhD holders
- Receiving administrative lists with incomplete auxiliary data and contact information for sampling frame and data collection

## Challenges (cont.)



- Designing a postdoc survey that is not too long, not too short but just right
- Designing the survey of postdocs that can be merged with current SRS longitudinal survey (SDR)
- Building a system which can be merged with the current system
- Resource constraints (staff and dollars)



# Arsenal of Survey Research, Statistical and Operational Tools

- Administrative data file reviews
- Cognitive interviews
- Contact strategies
- Data Collection Modes/Methods
- Focus groups
- Literature reviews
- Outreach activities
- Quantitative studies
- Quick turnaround surveys
- Record-keeping studies
- Site Visits
- Workshops/Panels



# Closing the Identified Gaps

- Uniform postdoc definition



# Postdoc Definitions Research: Summary of Findings

	NAS	NSF/NIH 2007	GSS	SED 2008	SDR 2006	AAU	NPA	Sigma Xi	AAMC	FASEB	UCSF
Research Focus											
Training Focus											
Temporary											
PhD/Equivalent											
Supervised											
Full Time											
Publications											
Recent Degree											
Foreign PhD Equivalent											
Mentorship											
Clinical Fellows											

# Widening the focus



- Survey (not just screen) all those who possibly could be postdocs
- Have one survey that allows data comparisons of postdocs (by various definitions) and non\_postdocs among recent PhD recipients
- Adds additional dimension of being able to study those in other PhD research or “postdoc like” positions



# Closing the Identified Gaps

- Postdoc coverage
  - Employment sector (academic, government, nonprofit organizations, private industry)
  - Citizenship status and country of PhD
  - Degree type (PhD, PhD-equivalent degree)



# Plan

- \*Create the list of MD/PhD postdocs and temporary resident postdocs
- \*Improve SRS postdoc data collected from U.S. academic institutions
- Collect postdoc data from U.S. nonacademic institutions
- Provide the total count of postdocs in U.S. academic and nonacademic institutions

*"\*" Indicates where your input is needed!*



# Current SRS postdoc-related surveys

- **GSS, the Survey of Graduate Students and Postdoctorates in Science and Engineering**

An annual establishment survey of U.S. academic institutions at the department level that provides a major source of counts about postdocs

- **SED, the Survey of Earned Doctorates**

An annual census of newly granted research doctorates from U.S. institutions about their postgraduation plans at the time of graduation

- **SDR, the Survey of Doctorate Recipients**

A sample survey of research doctorates from the SED conducted biennially and as a longitudinal survey

- **NSCG, National Survey of College Graduates**

A sample survey designed to provide data on the number and characteristics of individuals with S&E degrees and/or employment in S&E occupations in the U.S.

## Postdoc Coverage in SRS Surveys

<b>Segment</b>	<b>GSS</b>	<b>SED</b>	<b>SDR</b>
<b>Type of PhD</b>			
Research PhD	X	X	X
PhD Equivalent Professional Degrees (MDs)	X		
<b>Country of PhD and Residency/Citizenship</b>			
U.S. PhD Degree, Citizen/Permanent Resident	X	X	X
U.S. PhD Degree, Temporary Visa	*	X	X
Foreign PhD Degree, Temporary Visa	*		
<b>Sector</b>			
Academic	X	X	X
Nonacademic		X	X
<b>Postdoc status</b>			
In postdoc	X		X
Plan to do postdoc		X	

\*Covered by GSS, but U.S. degree not separated from foreign degree for temporary residents.



# Improve SRS postdoc data from U.S. academic institutions

(Survey of Graduate Students and Postdoctorates in Science & Engineering (GSS))

Determine the most effective strategies for:

- Collecting postdoc data from the person most knowledgeable about postdocs
- Using a GSS postdoc definition that minimizes reporting errors
- Aligning GSS data requests with the data available in the institutions' record keeping systems



# Improve SRS postdoc data from U.S. academic institutions

(Survey of Graduate Students and Postdoctorates in Science & Engineering (GSS))

Determine the most effective strategies for:

- Collecting additional information about the postdoc
- Ensuring that all research centers/university affiliates with postdocs are included when providing postdoc data
- Needs a bullet on no double counting



# Findings

- New initiatives are developing in academic institutions for supporting and documenting postdocs
- Postdoc data records do not typically include information about foreign degrees or funding sources
- Typically two definitions exist for postdocs within an institution: a functional definition and a policy definition
- Discussions of institutional postdoc definitions should also include institutional postdoc policies



# Findings (cont'd)

- Knowledgeable person about postdocs usually not the GSS respondent providing the postdoc data
- A single individual often cannot provide all of the postdoc information
- Apparent split between individuals with
  - knowledge on the policies and definitions and
  - the assignment to provide actual data about postdocs



# Data Collection

## Establishment List Assessment Surveys (ELAS)

- Postdoc counts
- Key postdoc characteristics such as gender, race/ethnicity, funding source, and foreign-degree status
- Postdoc definitional elements
- Postdoc policies
- Respondent characteristics
- Whether the institution can provide lists of individual postdocs
- Relative ease/difficulty/willingness to provide list



## Data Collection (cont.)

### Postdoc List Assessment Surveys (PLAS)

- Postdoc definitional elements
- Postdoc policies (knowledge and impact of)
- Demographics
- Group memberships/associations
- Current job characteristics



<b>Potential Sources of Information</b>	<b>ELAS</b>	<b>PLAS</b>
• Academic Institutions – institutions not in GSS	✓	?
• Federal Government Agencies (employers)	✓	?
• Nonprofit Institutions	✓	?
• Federally Funded Research and Development Centers (FFRDCS)	<b>GSS</b>	?
• For-Profit Industry	<b>SDR</b>	<b>SDR</b>

ELAS – Establishment list assessment survey  
 PLAS – Postdoc list assessment survey  
 ✓ - In progress  
 ? – May not get information from that source  
 SDR – Survey of Doctorate Recipients



<b>Potential Sources of Information</b> (cont'd)	<b>ELAS</b>	<b>PLAS</b>
• Principal Investigators	?	?
• Federal Government Grants Databases	✓	NSF
• Student and Exchange Visitor Information System (SEVIS)	✓	?
• Labor Condition Application (LCA) /H-1B	✓	?
• American Association for the Advancement of Science (AAAS)	✓	✓
• American Veterinary Medical Association (AVMA)	✓	?
• American Association of Medical Colleges (AAMC)	✓	?
• National Postdoctoral Association (NPA)	✓	✓



# Findings

- Most establishments reported they could provide a list of postdocs
- Most common reason for not providing list – confidentiality concerns
- Human Resources office the most common office identified as having the list of postdocs
- Establishments can provide the postdoc data items of interest



# Identified Gaps

- Postdoc data content
  - Population statistics
  - Postdoc quality and experience indicators
  - Pipeline issues and career transitions data
  - Institution data



# Plan

- \*Design a survey for postdocs that gathers in-depth information on current and emerging issues

*"\*" Indicates where your input is needed!*



# Factors to Consider When Developing a Survey of Postdocs

- Multiple areas of uncertainty – obtaining the lists of postdocs, motivating response, and costs
- Content – postdoc community expressed need for broader coverage of postdoc current and emerging issues
- Sustainability – need to minimize the impact on other SRS surveys especially given the current uncertainties



# Methodology for Survey Development

**Step 1: Identify and prioritize topics**

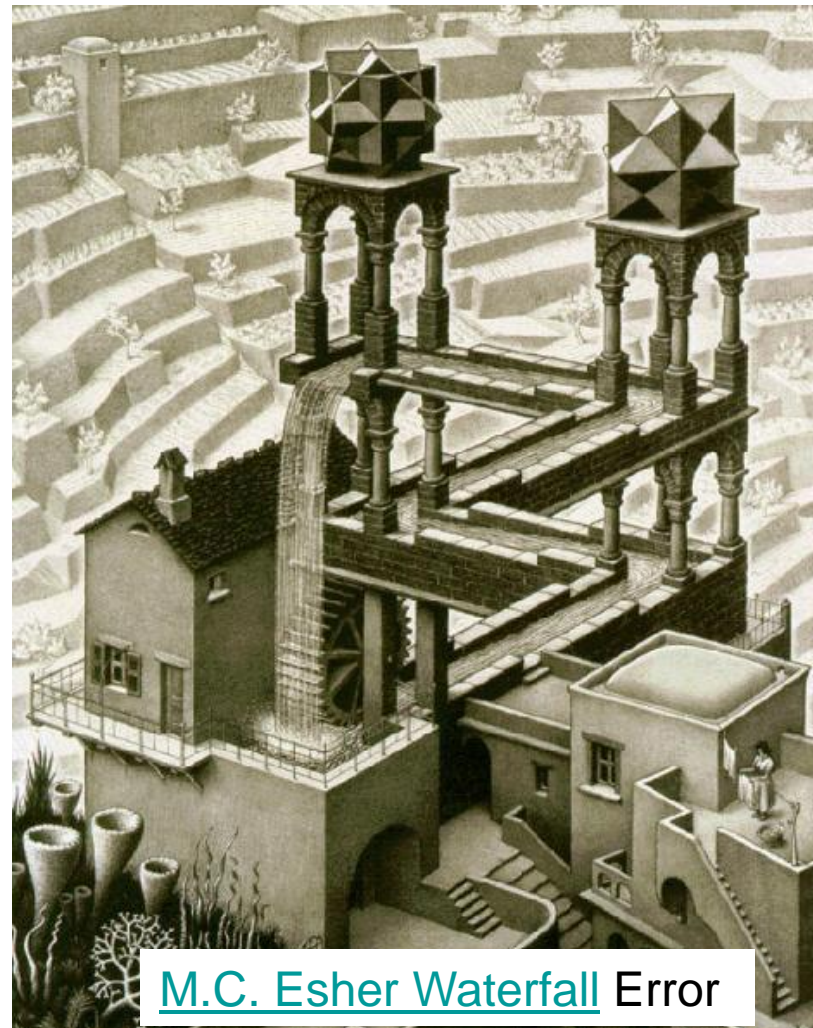
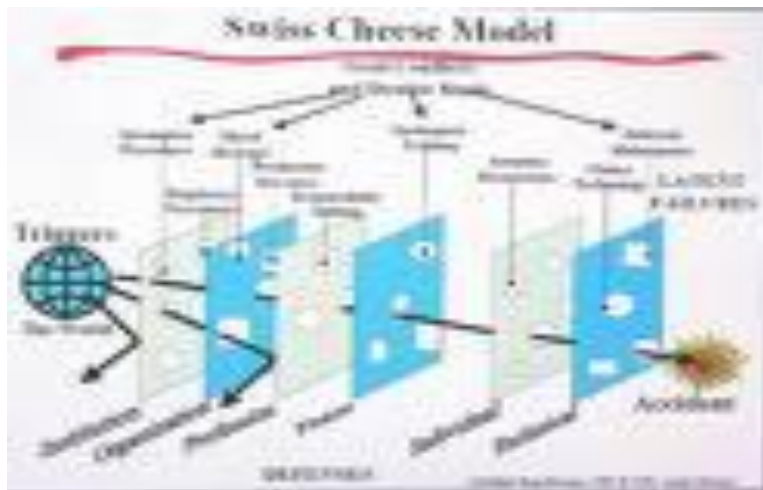
**Step 2: Obtain feedback from experts**

**Step 3: Testing with postdocs**

**Step 4: Implement pretest survey using comprehensive list of postdocs**

# The Postdoc Data Project

*We need your  
input!*



[M.C. Escher Waterfall](#) Error



# Uniform Postdoc Definition



# Your Thoughts on GSS Postdoc Definition

1. Holds a recent doctoral degree, generally awarded within the last 5 years, such as:

- PhD or equivalent (e.g., ScD or DEng) **or**
- First professional degree in a medical or related field (MD, DDS, DO, DVM) **or**
- Foreign equivalent to a U.S. doctoral degree

## **AND**

2. Has a limited-term appointment, generally no more than 5–7 years:

- Primarily for training in research or scholarship and
- Working under the supervision of a senior scholar in a unit affiliated with **your** institution



# Your Thoughts on GSS Postdoc Data Items (cont.)

**5** During fall 2008, how many postdoctoral researchers (postdocs) and doctorate-holding nonfaculty researchers in this organizational unit were in the categories below?

Postdocs by support and citizenship, and Doctorate-holding nonfaculty research staff (report individuals in whole numbers; enter "0" if zero)	Sex and selected degree field			
	Male 1	Female 2	Total <sup>1</sup> 3	Degree is an MD, DO, DDS, or DVM (cannot exceed column 3 count) 4
<b>Largest source of postdoctoral support</b> (report each postdoc only once by the largest source of support)				
Federal fellowship	A			
Federal traineeship	B			
Federal research grant	C			
Nonfederal source	D			
<b>Sum rows A-D<sup>1</sup></b>	E			
<b>Foreign nationals holding temporary visas</b> (count cannot exceed Row E totals)	F			
<b>Doctorate-holding nonfaculty researchers</b>	G			

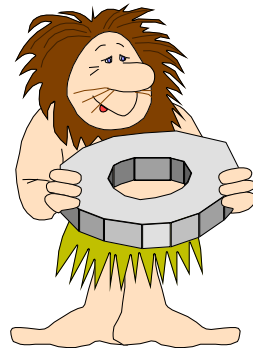
Draft: 2007 GSS



# Your Thoughts on GSS Postdoc Data Items (cont.)

- Methods to ensure that the following are included when providing postdocs counts:
  - research centers/other university affiliates with postdocs
  - postdocs doing research in clinical areas and those with appointments in residency training programs
- Request for separate counts for postdocs:
  - For U.S. PhDs and for PhDs from non-U.S. institutions
  - Race/ethnicity for permanent residents and for U.S. citizens

\*Create the list of MD/PhD postdocs  
& temporary resident postdocs



**Help!**



**\*Design a survey for postdocs that gathers in-depth information on current and emerging issues**



# Your Ithoughts on Topics for the Survey of Postdocs

- Variations in definitions and purposes of a postdoc
- Counts of postdocs by discipline
- Information on foreign-degreed postdocs (counts; where they train; future plans)



# Your Thoughts on Topics for the Survey of Postdocs (cont.)

- Goals and expectations
- Skills acquired during a postdoc: suitability for both career outcomes and more broadly for the scientific enterprise
- Transitions from postdoc to permanent professional and academic scientific careers
- Tracking careers over time



# Your Thoughts on Topics for the Survey of Postdocs (cont.)

- Types of support for postdocs: federal funds, institutional, private, self
- Benefits and compensation issues
- Quality of life issues such as health care access and financial independence and their influence on decisions to take/continue in postdoc positions
- Use of services provided by postdoc offices/postdoc associations



# Your Thoughts on Topics for the Survey of Postdocs (cont.)

- Determinants of successful postdoc experience
  - Balance of advisor needs for productivity and postdoc needs for career development
  - Mentoring experiences
  - Postdoc integration into broader organizational environment
  - Interweaving of postdoc work and family life