

# Briefing on O\*NET Survey Methods

Panel on Review of the O\*NET Program

Mike Weeks, RTI

Mike Penne, RTI

David W. Rivkin, National Center for O\*NET Development

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# O\*NET Data Collection Overview

- O\*NET Data Collection Team
- Establishment & Incumbent Data Collection
  - Mike Weeks (RTI)
- Analyst Data Collection
  - Dr. Suzanne Tsacoumis (HumRRO)

# O\*NET Data Collection Overview

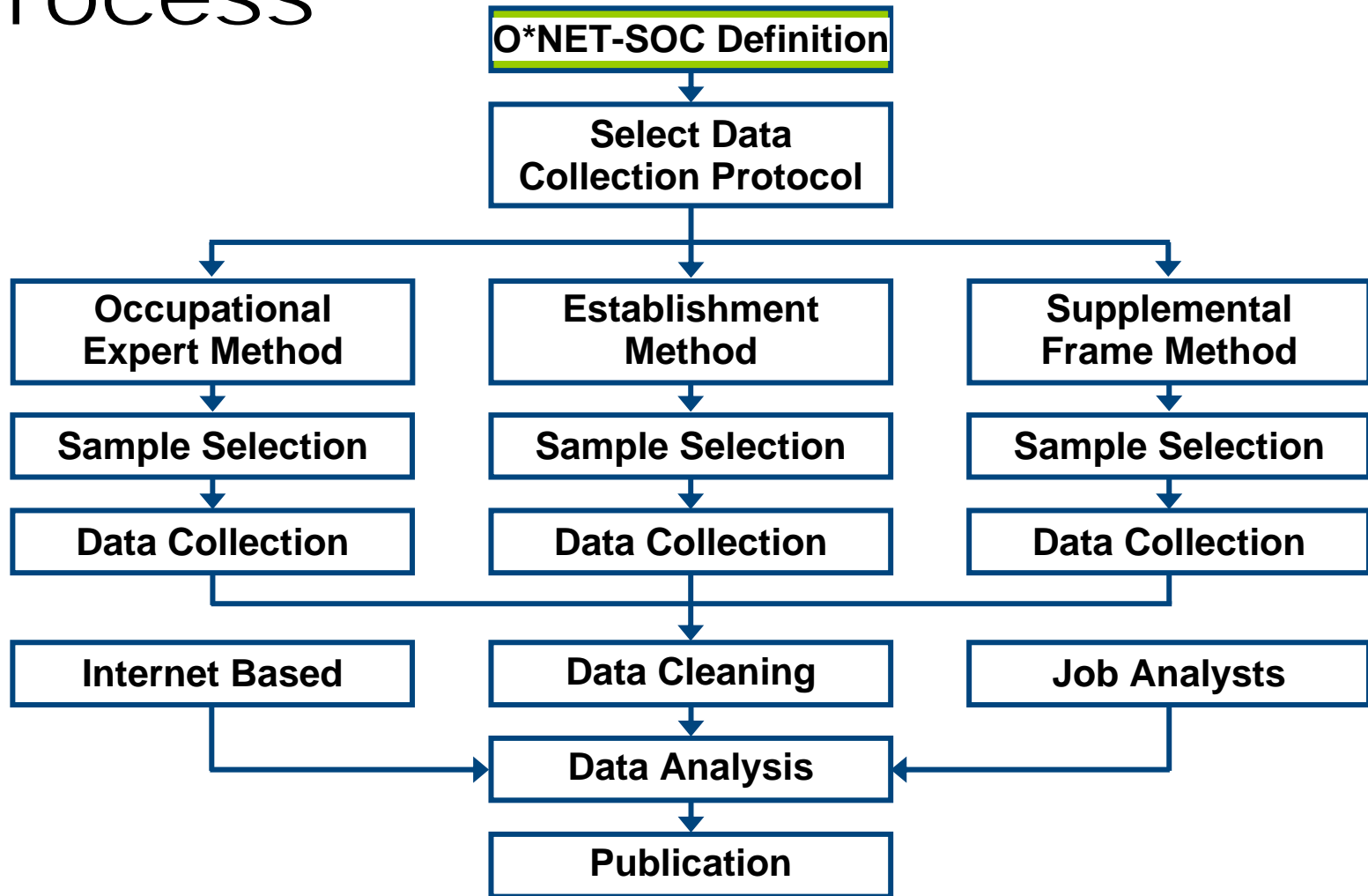
- Proven and effective methodology designed to collect and yield high quality occupational data
- Multi-method approach to provide flexibility within a framework of standardized procedures
  - Approved by Office of Management & Budget (OMB)
- Takes advantage of cross-organizational teams to perform the required work

# O\*NET Data Collection Team

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- U.S. Department of Labor, Employment & Training Administration
- National Center for O\*NET Development
  - North Carolina Employment Security
    - RTI: Establishment; occupational expert; data analyses
    - HumRRO: Analyst ratings; task analysis
    - NC State: Internet based data; data quality
    - MCNC: Database development; data quality

# O\*NET Data Collection: Overall Process



# Outline of Survey Methods Presentation

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- Brief overview of survey methods
- Strengths
- Weaknesses/constraints
- Improvements
- Response rates
- Questionnaire evaluation and pretesting

# BRIEF OVERVIEW OF SURVEY METHODS

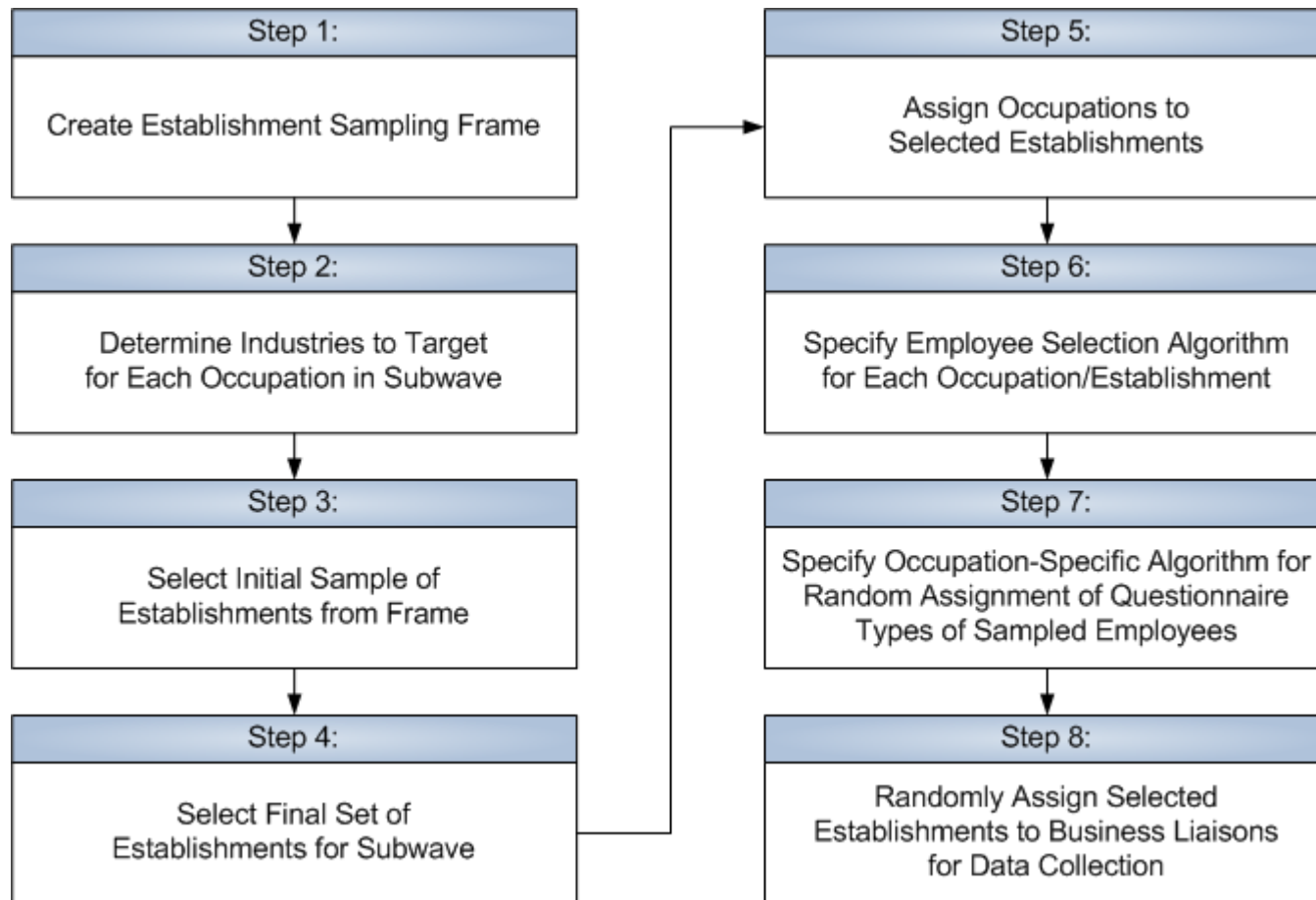
# Establishment Method (EM)

- Two-stage sample
  - Business establishments – POC
  - Job incumbents within business establishments
- Job incumbents complete one of three questionnaires (25 – 30 minutes)
- Incumbents can complete either paper questionnaire or Web questionnaire

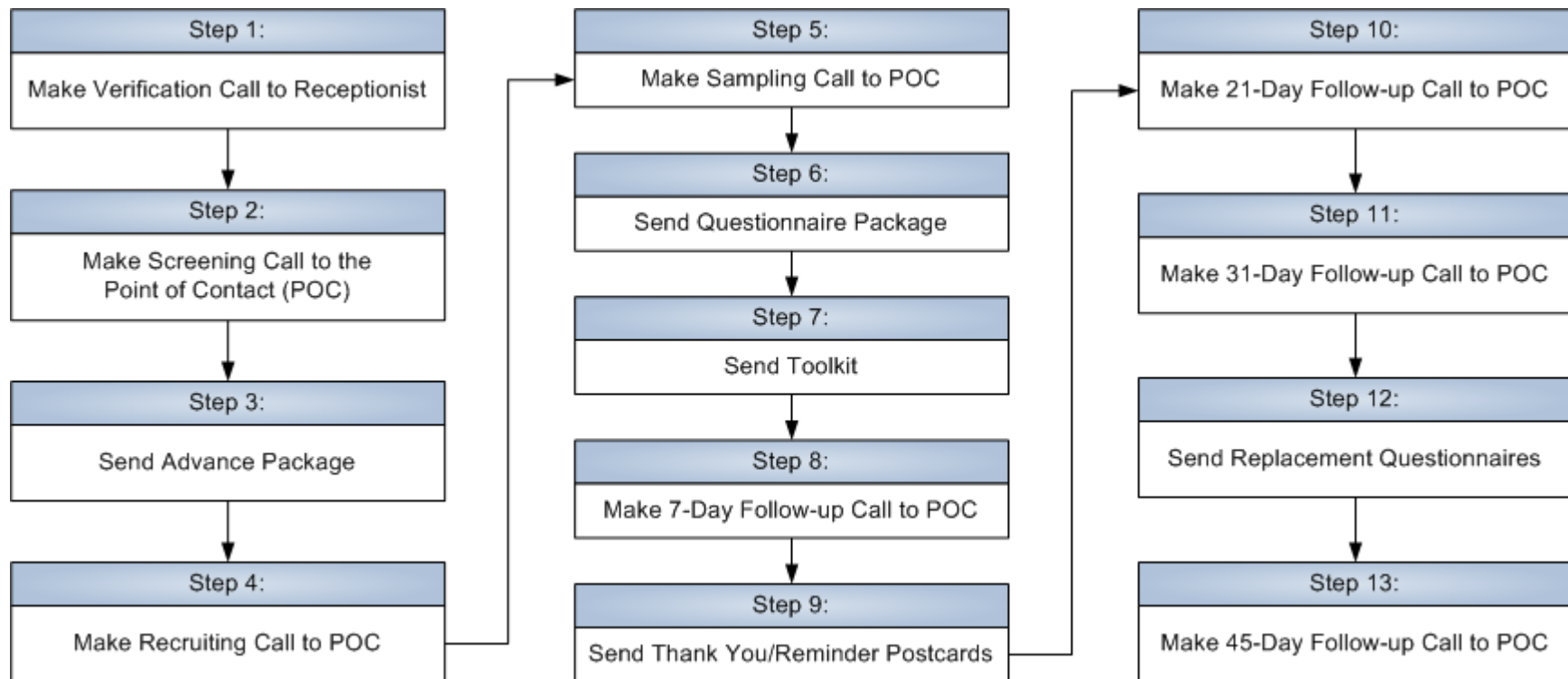
# Establishment Method *(Cont'd)*

- Incentives:
  - Establishment: Toolkit for Business
  - POC: clock, Certificate of Appreciation
  - Incumbent: \$10
- Continuous data collection since June 2001
  - 35,000+ participating establishments
  - 142,000+ participating incumbents

# Summary of Establishment Method Sample Selection Process



# Establishment Method Data Collection Protocol



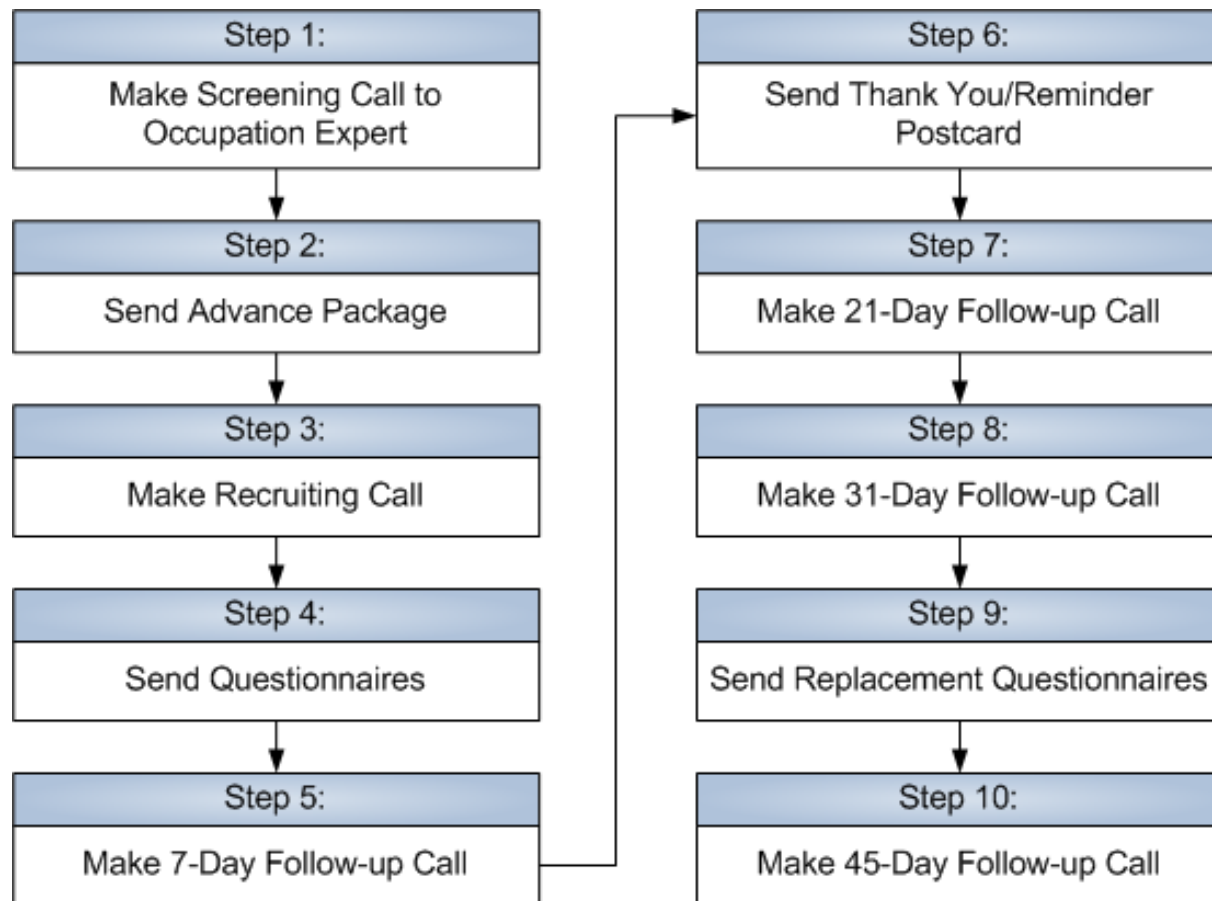
# Occupation Expert (OE) Method

- Used when EM would be challenging
  - Small employment size
  - Job incumbents difficult to contact (e.g., remote locations)
  - Occupations without OES employment data (e.g., new and emerging occupations)
- Data collected from experts in target occupation
  - Supervisors, trainers, others with extensive knowledge of occupation
- Identify appropriate source organizations (e.g. professional associations)
  - Good coverage of occupation
  - Can identify members who are occupation experts
  - Willing to provide lists of experts

# Occupation Expert Method *(Cont'd)*

- Select sample from membership lists
- Contact, screen, and survey OEs directly – no establishment or POC
- OEs complete all three domain questionnaires, background and task questionnaires
- OE incentives – clock, Certificate of Appreciation, \$40
- 2,029 respondents to date

# Occupation Expert Method Data Collection Protocol



# Other Data Collection Methods

- Standard EM method modified to complete occupations efficiently
  - Supplemental Frames Incumbent
    - Incumbents sampled from membership list
  - Supplemental Frame Establishment
    - Incumbents drawn from targeted sample of employers
  - Special Frame Establishment
    - Used in lieu of D & B frame
    - Good coverage necessary

# STRENGTHS

# Strengths

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- Multiple method approach
  - Establishment, OE, supplemental frames, analyst ratings, Web-based data collection
- Regular reviews by external experts (OMB, BLS, consultants)
- Good precision
  - Confidence intervals of 90% of estimates meet or exceed design targets
- Strong QC and QA at all stages
  - SOPs, statistical quality control checks, telephone monitoring, etc.

# Strengths *(Cont'd)*

- Numerous tests of procedures and methods evaluations
- Model-Aided Sampling for Establishment Method
  - Improves efficiency
  - Helps ensure representative sample (sample size quotas set for 3 domains: establishment size, geographic region, industry)
  - Reduces respondent burden
- Empirical data used to optimize EM sample, improving efficiency and reducing burden
  - Each wave divided into successive subwaves
  - Experience from previous updates, when available

# Strengths *(Cont'd)*

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- Limits placed on POC burden
  - No more than 5 occupations sampled
  - Limit of 8 incumbents per occupation and 20 incumbents per establishment
- Highly qualified Business Liaisons
  - Full time staff working in dedicated call center
  - Educational and work experience criteria higher than for typical telephone interviewer

# Strengths *(Cont'd)*

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- Web-based case management system used to control all sampling and data collection systems
  - Case management, BL contacts with establishments, questionnaire and informational mailings, questionnaire processing, inventory control, etc.
- Finely tuned procedures, systems and infrastructure capable of surveying multiple occupations simultaneously
  - Capability developed, tested, and enhanced over 11 years
- ID Profile available for use when asking POC if occupations are present
  - Helps ensure accuracy in matching employees to occupations

# WEAKNESSES/CONSTRAINTS

# Weaknesses/Constraints

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- O\*NET design changes constrained somewhat by budget resources & OMB requirements
- EM sample sizes preclude subdomain or subgroup analyses
  - Sample sizes are sufficient to meet stated precision goals of O\*NET design
  - Larger samples would have cost, burden, and timeliness implications

# Weaknesses/Constraints *(Cont'd)*

- OE Method sample design not probability based, so not possible to compute standard errors
  - OE Method the only feasible approach for some occupations
  - To compensate, extensive efforts made to identify representative source organizations and qualified experts

# IMPROVEMENTS

# Past Improvements

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- 1999 Pretest experiments
- Wave 1.1 experiment
- Point-of-Contact incentive experiment
- Experiments in weight trimming
- Experiments in Model-Aided Sampling
- Deviance analysis

# Past Improvements *(Cont'd)*

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- Suppression of estimates with low precision
- Dual-frame sampling for hard-to-find occupations
- Alternative levels of population coverage
- Analysis of unit and item nonresponse

# Potential Future Improvements

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- Implement measures to encourage increased use of Web questionnaire option by EM respondents (already implemented for OEs)
  - Pros: Faster retrieval of data, correct implementation of skip patterns, perceived reduction in respondent burden
  - Cons: None
- Spanish questionnaires for additional occupations
  - Pros: Reduction in nonresponse due to language barrier
  - Cons: Translation and printing costs vs. limited applicability

# Potential Future Improvements

*(Cont'd)*

- Investigate increased incentive for Web respondents and/or early responders
  - Pros: Potential higher response rates, faster retrieval of data
  - Cons: Increased cost? OMB approval required
- Complete, analyze, and publish more occupations per year
  - Pros: Increase timeliness of data availability
  - Cons: Cost, increased burden

# Potential Future Improvements

*(Cont'd)*

- More frequent processing of occupations
  - Pros: Increased timeliness of data availability
  - Cons: Cost

# RESPONSE RATES

# EM Establishment-Level Rates and Definitions

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- Business eligibility rate (79%)\*
  - Proportion of sampled establishments that were currently in operation at the sampling frame address
- Screening rate (93%)\*
  - Proportion of business-eligible establishments that told us whether or not they had any target occupations
- Occupation eligibility rate (43%)\*
  - Proportion of screened establishments that had one or more target occupations

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\*Excludes Wave 1.1 (June 2001 – May 2002) due to subsequent protocol changes.

# EM Establishment-Level Rates and Definitions *(Cont'd)*

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- Consent rate (62%)\*
  - Proportion of occupation-eligible establishments that participated in data collection
- Overall cooperation rate (75%)
  - Proportion of business-eligible establishments that had one or more target occupations and participated, or that did not have any target occupations and told us so

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\*Excludes Wave 1.1 (June 2001 – May 2002) due to subsequent protocol changes.

# Employee Response Rates

- Establishment Method response rate (65%)
  - Proportion of sampled employees who completed their questionnaire
- Occupation Expert Method response rate (81%)
  - Proportion of sampled and eligible OEs who completed the questionnaires

# Item-Level Response Rates

- Establishment Method item-level response rate = 98%\*
- Occupation Expert Method item-level response rate = 99%
- Response rate definition for both of above: Proportion of required questionnaire items that have a valid response

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\*Excludes 56 EM occupations from the first analysis cycle due to subsequent changes in data file structure.

# Post-Survey Weight Adjustments for EM Nonresponse and Coverage

- Nonresponse adjustments
  - Generalized Exponential Modeling Approach (GEMS)
    - Correlates include: Industry classification, Census region, establishment size, location type (HQ vs. branch), # of occupations asked about, urban vs. rural, time zone, quartile distribution of owner-occupied housing
  - Applied at both the establishment and employee levels
- Coverage adjustments
  - Employee weights ratio-adjusted to Occupation Employment Statistics (OES) Survey- provided industry employment estimates, by occupation

# QUESTIONNAIRE EVALUATION AND PRETESTING

# Questionnaire Evaluation

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- Instrument Revision Working Group charged with making changes to prototype questionnaires to reduce respondent burden
- Prototype questionnaires evaluated with cognitive methods (expert evaluation, expanded interviews, focus groups)
- Based on issues identified, Working Group revised content and format of questionnaires
- Questionnaires tested to evaluate revisions and completion times

# O\*NET Pretest

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- Pretest conducted over 7 month period in 1999-2000
- Data collected for 50 occupations across high-growth industries
- The data collection protocol was similar to current Establishment Method protocol
- Three methodological issues tested for effects on response rates:
  - Employee cash incentives
  - Establishment incentives
  - Number of occupations per establishment

# Selected Pretest Results

- Employee incentive: Seven treatments tested (variations of none, prepaid, postpaid, hybrid), ranging from \$0 to \$20
  - Result: The hybrid treatment (\$10 pre/\$10 post) had highest RR; however, prepaid \$10 treatment was most cost effective
- Establishment incentive: Effect of Job Analysis Toolkit
  - Result: Those receiving Toolkit responded at higher rate than those that did not (68% vs. 52%)
- Establishment burden: Effect of # of occupations asked about (controlled from one to four)
  - Result: Asking about multiple occupations did not appear to affect employer response rates