



Accreditation of Medi-Cal, Healthy Kids  
and Healthy Families Program.

# New Uses for Not-So-Old Survey Data: Pooling Annual CAHPS Data via Cochran-Mantel- Haenszel Test, Comparing Actionable Sub- populations of Patients in a Large Urban Medicaid Health Plan

**Session: 4178.0**

**Section: Statistics**

**Topic: Statistical Applications of Survey Methods in  
Healthy Communities; Statistical Consulting in Public Health**

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**L.A. Care**



# Outline

- I. Learning Objectives.
- II. Background on L.A. Care Health Plan and CAHPS
- III. Description of the Problem: Small Annual Samples Insufficient to
- IV. Analyze Patient Sub-populations; Contracted Entities; and Programs.  
Example: Comparing Ratings of Quality of Services between Disabled and TANF Members
- V. Introduction to Cochran-Mantel-Haenszel (CMH) Test  
Applied Uses of CMH Analysis.
- VI. L.A. Care Uses of Pooling for CAHPS Analysis
- VII. Recap of Learning Objectives.



## I. Learning Objectives

1. Describe why pooling of conventional CAHPS data is necessary for causal analysis.
2. Discuss the types of questions and decisions that are difficult to pursue with single-year survey samples of patients.
3. Identify independent variables for which CAHPS surveys are typically underpowered.
4. Describe a step-by-step approach for appropriately pooling and testing archival survey data about health care quality.
5. Discuss the practices and caveats necessary in using pooled analysis on survey data.

## II. Background – L.A. Care Health Plan



Large, diverse membership in Los Angeles, California:

- Mostly Medicaid, urban, 2/3<sup>rd</sup> pediatric, often Spanish-speaking.
- Roughly **21%** of Medicaid managed care population in California.
- Roughly **2.1%** of Medicaid managed care population in the U.S.
- Roughly **1-in-14** L.A. County residents is an L.A. Care member.
- Mostly Medicaid, some S-CHIP, SNP, and special programs.
- Serves **10** distinct language concentrations ("threshold languages"): Spanish, English, Armenian, Korean, Cambodian, Chinese, Russian, Vietnamese, Farsi, Tagalog.
- Mostly urban and suburban; 1 semi-rural region in the high desert.

# Surveying Member Experience in Receiving Health Care



## CAHPS -- Consumer Assessment of Healthcare Providers & Systems®

- Survey developed for Agency for Healthcare Research & Quality (AHRQ).
  - 3 instruments: Adult (age 18+); Child (age 0-17); Child + Children w/Chronic Conditions (CCC) battery.
  - Child survey respondents are parents/guardians.
  - Three modes: (a) Mail only; (b) Mail + Phone; (c) mail/phone and Internet.
  - Two main languages: English and Spanish.
- Version discussed in this briefing: CAHPS 4.0H
  - AHRQ CAHPS 4.0 instrument with content and protocol extensions from NCQA.
  - "H" refers to NCQA Healthcare Effectiveness Data & Information Set (HEDIS®).

**CAHPS measures quality of service by surveying member opinions.**

**HEDIS measures quality of care by surveying medical records.**

### Notes:

CAHPS® is a registered trade name of the Agency for Health Research and Quality (AHRQ).

HEDIS® is a registered trade name of the National Committee on Quality Assurance (NCQA) a non-profit organization that uses HEDIS and CAHPS to score and accredit health plans.

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## II. Nature of the CAHPS Sample Size Problem

Sample sizes for CAHPS for the Overall Health Plan Rating are:

	<u>Mailed out</u>	<u>Completed</u>
Adult	1,755	28.4%
Child	2,145	36.8%

(Note: each mail out includes a 6% oversample for special populations under study).

Benefits of pooled analysis in an economic environment of tight resources (staff, budgets)

- Pooled analysis permits more precise identification of causes that drive performance up or down.
- Pooled analysis enable staff to focus actions on targets of opportunity: Improvements piggybacked on projects and processes that will be occurring anyway.



# Benefits of Pooled Analysis



In an economic environment of tight resources (staff, budgets)

- Pooled analysis permits more precise identification of causes that drive performance up or down.
- Pooled analysis helps actions focus on targets of opportunity: Improvements piggybacked on projects and processes that will be occurring anyway.
- Pooled analysis increase the power of your statistical test under study.

Pitfalls in using simple pooling across years:

- Artificially overstates the sample size and power of the sample.
- Doesn't test for years in which the relationship is inconsistent : Test for trend effects.
- Under estimates the total degrees of freedom of your test statistic.

## IV. Comparing Ratings of Quality of Services between Disabled and TANF Members (Cont.)



Note: Children aged 0-17.9: Parent is the survey respondent.

**(2007 - 2011)**

<u>Disabled</u>	<u>TANF</u>	<u>CMH</u>	<u>P-value</u>	<u>Measure</u>
90.0%	79.1%	1.93	0.1652	Communication: Doctor explained things well.
83.3%	79.1%	0.36	0.5458	Communication: Doctor listened.
90.0%	82.9%	1.13	0.2875	Communication: Doctor showed respect for what patient had to say.
73.3%	72.6%	0.07	0.7949	Communication: Doctor spent enough time with pat.
78.6%	72.6%	0.20	0.6581	Communication: Personal Dr. seemed informed and up to date about care received
10.5%	3.1%	0.96	0.3270	Shared Decision-making: Pros and cons of treatment choices.
0.0%	10.2%	2.37	0.1235	Shared Decision-making: Dr. discussed treatment choices.
57.9%	78.1%	3.01	0.0827	Health Ed.: Caregiver discussed how to prevent illness

Tests w/i rows: **Signif. lower** . **Signif. higher**. Data pooled 2007-2011. ( $\alpha=0.05$ ). CMH chi-square test of general association.

## IV. Comparing Ratings of Quality of Services between Disabled and TANF Members (Cont.)



- There was no statistically significant difference in patients' sharing in decision making and communication with their doctors.
- Patients fared similarly within both Disabled and TANF groups.
- There was not a statistically significant difference between ratings of Disabled and TANF patients.
- However, disabled patients reported "getting needed care" more favorably than TANF patients.

Note: Children aged 0-17.9: Parent is the survey respondent.

**(2007 - 2011)**

<u>Disabled</u>	<u>TANF</u>	<u>CMH</u>	<u>P-value</u>	<u>Measure</u>
86.2%	72.8%	4.73	0.0297	Got Needed Care: Specialist Appointments.
85.1%	75.5%	2.82	0.0929	Got Needed Care: Care, Tests, Treatment(S.F. Year 07).
83.3%	79.2%	0.27	0.6010	Got Urgent Care Quickly.
75.7%	80.4%	0.43	0.5110	Got Routine Care Quickly.

Tests w/i rows: **Signif. lower** . **Signif. higher**. Data pooled 2007-2011. Percents: Diff. of prop. test; averages: t-test; ( $\alpha=0.05$ ). GA=CMH chi-square test of general association.

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## V. Cochran-Mantel-Haenszel (CMH) Test -- Introduction

- Results in IV come from a multiway table stratified by sampling year.
- Estimates of the common relative risk and the Breslow-Day test for homogeneity of the odds ratios were generated.
- CMH test three alternative hypothesis:
  1. Nonzero Correlation
  2. Row Mean Scores Differ
  3. General Association



## CMH Test -- Step-By-Step



(In our  
L.A. Care  
variable.)

1. Pooling the data controlling for stratification variable  
(In our case year).
  2. Breslow-Day : Test for homogeneity of odds ratios by stratification variable.  
Test for constant variation and interpretation. Apply Tarone adjustment if necessary.
  3. Zelen's Exact Test– alternative test to Breslow-Day (Test for trends).
  4. Make sure cell counts are greater than 5 per cell.
- 
1. CMH test:
    1. Interpretation.
    2. Handling anomalous results.
  2. Validation: Examining the crosstab for each year to assure that association is consistent across strata.
  3. Calculate the degrees of freedom for the test.

## VI. L.A. Care Uses of Pooling for CAHPS Analysis



- Comparing contracted entities, to guide decisions regarding strategic relationships.
  - LA Care Provider Satisfaction Survey 2012: L.A. Care is currently using CMH analysis to compare 2010 and 2012 provider satisfaction results to refine and improve manage care processes.
- Case examples of pooling examples:
  - CAHPS 2008: L.A. Care was able to demonstrate statistically-significant differences between quality of care and quality improvement outcomes for small diverse groups within the manage care network. CMH analysis removes methodological caveats present for tests based on simple pooling.
  - CAHPS 2011: Revealed impact of providers' cultural competence on members' ratings of health plan services (CAHPS), and on members' reasons for not getting well-care appointments.
  - CAHPS 2011: In IV above, comparisons of quality of care measures between Disabled and TANF members were not statistically, supporting the claim that L.A. Care health services are performing approximately the same for both sub-populations.

## VI. L.A. Care Uses of Pooling for CAHPS Analysis (Cont.)



- Links to CAHPS pooled analyses used in APHA 2011 analyses.
  - [Thinking CAHPS: Using patient surveys to correlate providers' cultural competence with patients' health literacy, 2008-2010](#)
  - [Behavioral science underpinnings for addressing barriers to patient adherence on HEDIS well-care visit measures: Evidence from patient surveys, 2006-2010](#)
  - [Giving voice to older patients in a child-rich Medicaid health plan: Using CAHPS satisfaction surveys to identify areas for improvement in health services for older patients, 2008-2010](#)
  - [Using annual CAHPS surveys for root cause analysis: Problems with informational materials reported by Medicaid patients living with disabilities, 2008-2009](#)
  - [Analyzing access barriers: Issues reported on CAHPS by patients with disabilities in a large urban Medicaid health plan, 2008-2010](#)
  - [Gender differences in rating pharmacy services in a large urban Medicaid health plan, 2008-2010](#)
  - [Accommodating the many facets of difference: Patient assessments of providers' sensitivity to culture and other factors impacting the quality of clinical services in a large, diverse Medicaid health plan](#)
  - [Using CAHPS and HEDIS to identify access barriers: Assessing the quality of care and health services received by undocumented immigrant children in a large urban Medicaid health plan, 2008-2010](#)

## VII. Recap of Learning Objectives

1. Describe why pooling of conventional, agency-compliant CAHPS data is necessary for causal analysis.

Annual NCQA samples are sufficient for comparing whole health plans, but often insufficient for drilldowns for causal analysis, and targeting of demographic groups, product lines, and/or provider organizations within the a health plan.

2. Discuss the types of questions and decisions that are difficult to pursue with single-year survey samples of patients.

Demographic subgroups among patients -- examples:

- Ethnic groups and language groups.
- Geographical regions.
- Members living with disabilities.
- Members retained or lost to follow-up.

Decisions:

- Performance of contracted entities (health plans, provider groups).
- Program evaluations: go/no-go on continued funding.



## VII. Recap of Learning Objectives (Cont.)



3. Identify common independent variables for which surveys of patients are consistently underpowered.
  - Specialist access measures (particularly for pediatric populations).
  - Calls to health plan Member Services for information and literature.
  - Provider groups; community clinics; etc.
4. Describe a step-by-step approach for appropriately pooling and testing archival survey data about health care quality.
  - The \_\_ steps are summarized on slide #\_\_.
5. Discuss the interpretation, reporting, and caveats necessary in using pooled analysis on survey data.
  - Pooling compresses the “time” dimension.
  - Verify that the pooled story is consistent with the story seen in individual years’ crosstabs.
  - Vulnerable to periods of time when the patient population and policies are changing.
    - 2011: California moved disabled population from fee-for-service Medicaid to managed care.
    - 2013: Similar policy starting for Dual-eligible population.

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### **Mission Statement**

To provide access to quality health care for Los Angeles County's vulnerable and low income communities and residents and to support the safety net required to achieve that purpose.