Trend Analysis Using PBHCl Data

Deborah Scharf, PhD* & Josh Breslau, PhD
RAND Corporation

*Deborah Scharf serves as the PBHCl Evaluation Project Director; dscharf@rand.org
Web Survey – Reminder!

• Web survey of PBHCI staff is live!
  – Links sent earlier this week
    • Not everyone will receive a link
  – Different versions for different kinds of staff
  – Between 1 and 1.5 hours to complete

• Please complete ASAP!

• Final evaluation report to be completed Sept 30, 2013
OVERVIEW

• Previous presentations covered use of PBHCI data to describe program performance

• Focus was on ‘static’ analysis
  – How many consumers have received X service?
  – Presented data from the first year of service

• This presentation covers TRENDS
  – Changes in service delivery over time

• Key for performance monitoring and QI
Caution!

- You may already familiar with common pitfalls of outcomes analysis (i.e., analysis of improvement in consumer health, such as before to after treatment)
  - Selective attrition
  - Need for control group

- Same concepts affect trend analysis
  - Including process analysis (i.e., analysis of services provided)

- Let’s review....
Selective Attrition: Overestimate Effects

Selectve Attrition:
Heaviest smokers got discouraged and didn’t return for follow-up

Baseline

100 smokers

Follow-up

25 smoking, 25 quit

Outcome

50% success rate

25% success rate w/ intent-to-treat sample

50 drop-outs, all smoking

25 smoking

25 quit
Without Control Group: Overestimate Effects

Selective Attrition:
Heaviest smokers got discouraged and didn’t return for follow-up

Baseline
- 100 consumers smoke

Follow-up
- 50 drop-outs, all smoking
- 25 smoking
- 25 quit

Outcome
- 50% success rate

Control Group
- 100 consumers smoke

Follow-up
- 80 smoking
- 20 quit

Outcome
- 20% success rate
Attrition is also a Problem for Trend Analysis

• We can deal with attrition by carefully defining who is eligible for a particular treatment or procedure in each period of time
  – Group of eligible consumers is different for each service
  – People leave the pool of eligible consumers
  – New people enter into the pool of eligible consumers

• Attrition is going to remain a problem because we don’t always know exactly when someone has left
Control Groups also Enhance Trend Analysis

• Population trends may account for trends in our data
  – Maybe smoking is decreasing among all SMI (not because of our treatment)
  – These concerns are secondary with respect to process measures (i.e., services you provide)

• For QI/Performance monitoring, OK if your clinic is ‘its own control’
  – You may not be concerned about what is happening elsewhere
  – For QI/Performance monitoring, monitor whether you are doing better or worse than before
WITH THESE CAUTIONS IN MIND...
Why Examine Trends?

1. Most programs have a ‘learning curve’
   – i.e. build up to full operating potential over time
   – If performance is averaged over time, this information is lost

2. Useful to know about performance Right Now
   – Are your services improving?
   – Are there emerging problems?

3. Helps illustrate relationship between program changes and performance
   – Changes in procedures; changes in staff
Type of Trend Analysis Depends on Type of Service

• One-Time (or very rare) Interventions
  – Tetanus Shot
    • Recommended every 10 years

• Regular Monitoring
  – Blood Pressure Measurement
  – Glucose or A1C
  – *All section H indicators!
Defining Time Intervals

• Trend analysis requires careful attention to TIME

• People enroll or become diagnosed at different points in time
  – They become eligible for services at different points in time

• Need to simplify by making clear decisions about who is eligible for services and when
Defining Time Intervals

• Choose a start date when a sufficient number of consumers have been enrolled to provide interesting results. For example,
  – Day when the 50th consumer was enrolled
  – Day when a service was initiated

• Choose a time period small enough to show change, but large enough to have a meaningful number of events
  – 1 month
  – 6 months
  – 1 year
TREND ANALYSIS FOR ONE-TIME INTERVENTIONS
**Trend Analysis for One-Time Intervention**

- **Question**: What proportion of eligible consumers received a tetanus shot?

- **Approach**:

  \[
  \frac{\text{Total }\# \text{ who received the intervention this time period}}{\text{Total }\# \text{ eligible for the intervention this time period}}
  \]

- **New people who enter the program or become eligible are added for each interval; those who drop-out or stop needing the service become ineligible**

- **Total consumers who got tetanus shot this year**

- **Total consumers who needed it this year**
Trend Analysis for One-Time Treatment

- Fast Rise, Consistent Performance
- Low Plateau
- Up and Down

Percent of Eligibles Receiving Service

Year 1 | Year 2 | Year 3 | Year 4 | Year 5
One-Time Intervention

• **Summary:**
  – These data show only the people who need the intervention in that time period
    • Not those who have already received it
  – **Pro:** Gives a better sense of what is currently happening
  – **Con:** May be affected by ‘hard to reach’ group
TREND ANALYSIS FOR HEALTH MONITORING
Trend Analysis for Monitoring Chronic Health Conditions

• Use this approach for your section H indicators

• All eligible consumers should get the service in each time period, regardless of whether they received it previously or not.

• New entrants and the newly eligible should be entered for each time period after becoming eligible.
Trend Analysis for Health Monitoring

• **Question**: What proportion of eligible consumers received required BP monitoring?

• **Approach**:

  Total # who received the intervention this time period  
  Total # eligible for the intervention this time period

• This is different from one-time treatment analysis because virtually everyone stays eligible to receive more services at each, new time period
Trend Analysis for Health Monitoring

Percent of Eligibles Receiving Services in the Time Period

- Consistent High Performer
- Low Plateau
- What happened?!
Poll Question

• Are you doing trend analysis as a part of your continuous quality improvement work?
  – Yes
  – No
POLL QUESTION

• Are you working with your evaluator to develop ways of using data (e.g., development of dashboards or trending models) that will be sustainable after the grant expires?
  – Yes
  – It’s on my “to do” list
  – No
Example

**SMOKING CESSATION AND THE 5 A’S**
Your Goal

- **Goal**: Increase number of PBHCl consumers who quit smoking

- **Strategy**: Engage more PBHCl consumers in smoking cessation treatment
Clinical Practice Guidelines Recommend Using the 5 A’s

- **Asking** all consumers about smoking at every visit
- **Advising** all smokers to quit
- **Assessing** smokers’ willingness to try to quit
- **Assisting** smokers to quit with treatment or referrals
- **Arranging** follow-up visits for those attempting to quit

Many opportunities to assess, modify and improve processes
ASKING About Smoking: Trend Analysis Design

• Who is eligible?
  – i.e., who should be asked about smoking?
  – e.g., all PBHCI clientele

• What time periods are meaningful?
  – How often should smoking be assessed?
  – What data do we have?
    • Is denominator visits or people? Both are OK!
  – How long was your “start-up” period?
  – When were program changes you might want to observe (e.g., CIHS staff trainings)?
Consumers ASKED About Tobacco Use

Happy CMHC Consumers ASKED Each Period

Percent

Time Since Grant Start

6 months 12 months 18 months 24 months
Considerations

• What was your target?

• How often was it met?

• When were rates at their best? At their worst?
  – What was going on?

• Repeat these questions with your staff!
  – Use their insights to improve procedures and performance

• What can you tell your funders?
But....

- Program attendance is still lower than desired
- Consider targeting another A
Clinical Practice Guidelines Recommend Using the 5 A’s

• Asking all patients about smoking at every visit

• Advising all tobacco users to quit

• Assessing smokers’ willingness to try to quit

• Assisting smokers to quit with treatment or referrals

• Arranging follow-up visits for those attempting to quit
ASSISTING To Quit: Analytic Design

• Who is eligible?
  – e.g., all PBHCI consumers who smoke and are contemplation or preparation stages of change

• What’s our most meaningful indicator?
  – Total participants? New group members?
  – How do you define a new group member?
    • Note that some people may rejoin after long gaps in attendance
ASSISTING To Quit: Analytic Design

• What time periods are meaningful?
  – How often is the program offered?
  – Can new members start at any time?
  – What data do we have?
  – How long was your “start-up” period
  – When were program changes you might want to observe (e.g., CIHS staff trainings)

• *Is there an established quality indicator that coincides with your program’s needs?
Consumers Receiving ASSISTANCE

% Eligible in Treatment

Months Since Project Start
Considerations

• What was your target?

• How often was it met?

• When were rates at their best? At their worst?
  – What was going on?

• Repeat these questions with your staff!
  – Their insights can help improve procedures and program performance

• Ideas for new analyses!
Poll Questions
QUESTIONS?
Thank You!

Feel free to follow up with any questions:

Aaron Surma (AaronS@thenationalcouncil.org)
Jeff Capobianco (JeffC@thenationalcouncil.org)
Deb Scharf (dscharf@rand.org)

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