



Substance Abuse Prevention Program Outcome Data Part II

PreventionIdaho.net Interpreting Your Outcomes Data

(updated 11/20/2009)



Subtitled...

Don't Panic!

AND

Don't Call the Newspapers!



In the Company of Statistics

- Benjamin Disraeli is credited with the statement "There are three kinds of lies: lies, damn lies, and statistics."
- Books like *How to Lie with Statistics* show how we can easily we can manipulate numbers for our own purposes.
- Goal is to accurately understand and represent your program's impact on the lives of your participants



Presentation Goals & Objectives

- At the end of this presentation you should understand:
 - How outcome data are summarized.
 - Some cautions on what the numbers tell us
 - How the data can be used in your own program.
 - Why you should wait and get more data before celebrating or worrying.



Outcome Statistics

- PI.net will produce summary statistics on survey data entered into the system.
 - Pre-test and post-test averages
- These data are averaged into subscale scores. In most cases, the subscales were created by the author of the survey.
- A beneficial change from pre- to post-test averages is a positive outcome.
- No change from pre- to post-test is a neutral outcome.
- A change in which the post-test scores move in the wrong direction is a negative outcome.



PI.Net provides some quality control

- PI.net has some data screening capabilities.
 - PI.net:
 - CAN ignore surveys that have too many blank responses (i.e., too little data).
 - CAN provide tools that might suggest biased data.
 - CANNOT identify data that are incorrect, obviously biased or have been misentered.



What do the Numbers Tell Me?

- The numbers are directly tied to your survey tool.
- Before interpreting the numbers, look at your survey, its subscales, and definitions.
- Use the paper survey as a guide for interpreting the individual items.

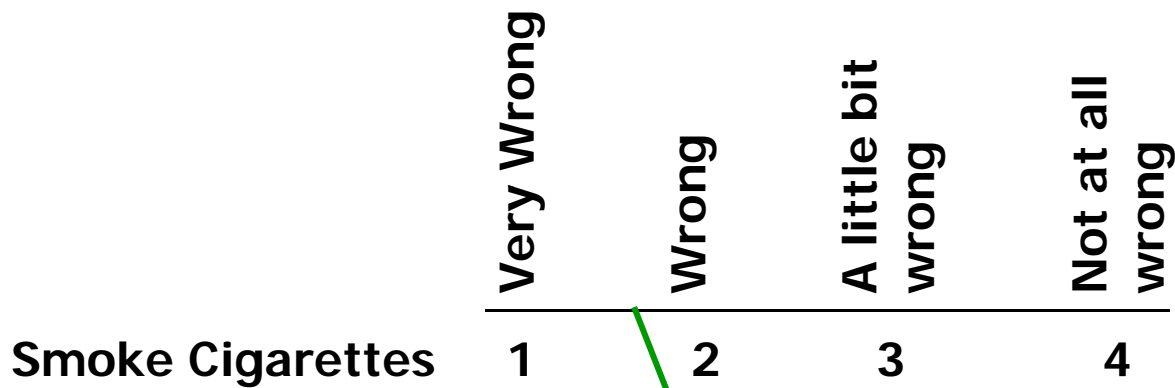


SAMHSA "Standard 16" Example

- The Standard 16 Survey asks: "How wrong do you think it is for someone your age to smoke cigarettes?"

Subscale 6: Perceived wrongness - Smoke cigarettes			Scale Interpretation: ("Lower" scores are better). Click on the title to the left to view summary data for individual survey items.
N (# of surveys)	734	743	Survey(s) excluded
Average Scores	1.66	1.56	Percent change: -6.1 %

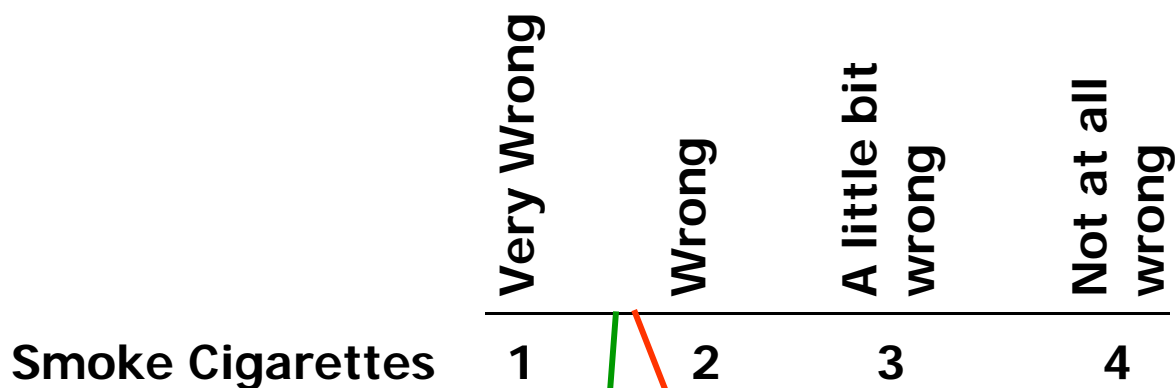
What do the Numbers Say?



The Pre average (1.66) shows that the majority of respondents believe that cigarette use is wrong. This can be encouraging news.

What do the Numbers Say?

(cont)



The Post average (1.56) shows that after attending a prevention program, participants report a stronger sense that smoking is wrong for kids their age.

The Pre average (1.66) shows that the majority of respondents believe that cigarette use is wrong. This can be encouraging news.

What do the Numbers Say? (cont.)



- Although small, these values show a change.
- Because the average is already close to the low end of the scale, larger changes are not likely.
 - This is called a floor effect.
- Low pre-test ratings show that participants may already know the dangers of smoking.



A Deeper Look At Survey Findings

- PI.Net has the ability to “drill down” to see responses to individual items
- To drill down, click on the Subscale name

Survey Item Details for Parenting Program #19

Survey: Parenting Survey

Report generated on: 10/21/2005 on 12:58 PM (EST)

Subscale: Subscale 1: General child management

Pre-test and Post-test Outcomes on Individual Survey Items

Item	Pre-test			Post-test			Item Description
	N (# of surveys)	Average	Median	N (# of surveys)	Average	Median	
1	5	1	1	5	1	1	In the course of a day, how often do you know where this child is?
2	4*	1	1	4*	1	1	How often do you know who this child is with when he or she is away from home?
3	5	2.6	2	5	2.2	2	How often do you give up when you ask this child to do something and he or she doesn't do it? (Reverse scored)
4	5	1.8	2	5	1.8	2	Once a discipline has been decided, how often can he or she get out of it? (Reverse scored)



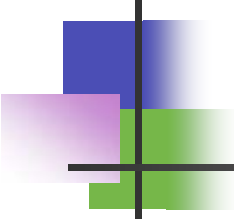
A Deeper Look At Survey Findings, cont.

- Averages and Medians
 - Both are ways to look at the middle of group
 - Average – mathematical middle of group
 - Median – the “middle” score
 - Not as vulnerable to extreme scores
 - If Average and Median are close
 - Average is probably good representation of group, so use it to understand group
 - If Average and Median are fairly different
 - Average is probably being affected by outliers
 - Median is probably better representation of group
 - So use Median just like you would say “average”



Did My Program Produce the Change?

- The change between pre- and post- survey data **could** be the result of your program.
- But we can't really tell from this data because of:
 - External influences
 - Low numbers of respondents.
 - Survey characteristics.
 - Participant characteristics.
 - Lack of control groups.
- All may influence the participants towards or away from your program's goals.



Did My Program Produce the Change?, cont.

- Considerations in interpreting the data
 - External influences
 - Low numbers of participants
 - Outliers and low numbers
 - Influences of the survey itself
 - Participant characteristics
 - Lack of control groups



External influences

- Prevention occurs in complex context of other influences
 - Positive influences beyond your program
 - Parents, teachers, other mentors and guides
 - Other substance abuse prevention initiatives
 - Reaction to local events or experience
 - e.g., tragic SA related accident, new personal experiences with negative SA effects on somebody's life
 - Changes in social reference groups
 - The world at large



External influences, cont

- Negative influences beyond your program
 - TV and movies, other poor role models
 - Advertising outspends prevention 1000 to 1
 - (made up statistic, probably too low)
 - Peers, desire to fit in and other negative social influences
 - Declining social structure, values
 - Changes in social reference groups
 - The world at large



Low numbers of participants

- May have only surveyed a special portion of group
 - Straight A students
 - Students in detention
 - Neither group's survey responses really represent the program's impact on the group as a whole
- With low numbers of participants, a single "outlier" can change the average significantly



Outliers and low numbers

- For example, consider the average income for 10 people
 - The first 9 people each make \$10,000
 - Average = $\$90,000 \div 9 = \$10,000$
 - The 10th person makes \$110,000
 - Average = $\$200,000 \div 10 = \$20,000$
 - Average (\$20,000) no longer reflects the “middle” of the group
 - Due to an outlier – one who is very different than the rest
 - It takes about 30 or more observations to have a stable average that resists the influence of a single, extreme outlier



Survey influences

- The survey itself can cause change by emphasizing the lessons of the program.
- “Social desirability bias” - A general human tendency to respond in social desirable ways.
- Demand characteristics” - The human tendency to respond differently while being watched.



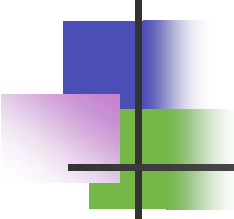
Participant Characteristics

- Self-report data tends to misrepresent actual use & behavior
- Participants may not take survey seriously
 - We used to make funny patterns on the bubble sheet
- Participants may use survey to make statement, cry for help, show boredom, etc.
- Maturation during the program
 - The participants themselves may change internally as they mature
 - Can be both positive and negative.
 - May get your program's message about smoking, but are learning to question authority



Lack of Control Groups

- In an controlled experiment, participants are assigned to a treatment or control group.
 - Control group is given an unrelated task.
 - Control group also completes pre and post-test
 - Differences between the two groups at the end are attributed to the treatment.
- Without a control group, it's very hard to claim the prevention program alone was responsible



What Can I Learn from the Survey Data?

- Changes in knowledge, beliefs & attitudes
 - That may be due to your program.
 - For example, the Standard 16 can show
 - The perceptions your participants have about substance use.
 - About how harmful substance use can be
 - About their perceptions how those around them feel about substance use
 - The self-reported ATOD of your participants.



What Can I Learn from the Survey Data (cont.)?

- You can't confidently conclude that your program caused the change
- But you hope to see that values change in the expected direction and not the opposite.
- What happens if the numbers go the wrong direction?



How to interpret the direction of the change

- CAVEAT: Interpreting changes from the pre- to post-test scores are difficult for many reasons
 - Prevention happens in the real world, where there are many powerful, conflicting influences
 - Evidence-based program (EBP) surveys vary in quality and may or may not be valid survey instruments



How to interpret the direction of the change, cont.

- EBP surveys vary in design goals and may not be designed to measure the substance abuse prevention aspect of the program
- Low numbers make scores vulnerable to outliers
- Brand new EBPs in first year may not be fully implemented
- Changes to EBP delivery may reduce its effectiveness
- Pilot data are always questionable



What if the scores improve?

- It could reflect a genuine beneficial effect of your prevention program
 - This is what we all hope for
- So why shouldn't I celebrate?
 - Celebration is pre-mature
 - Any or all of the influences mentioned above could drive scores downward next time
- Can I at least feel good about my work?
 - Yes, and keep up the good work.
 - But don't call the newspapers until more solid results are in.



What if the pre- and post-test scores don't change?

- This is a likely outcome, and in many cases, a positive finding
 - Survey may not measure substance abuse prevention aspects of the program
 - May be due to low number of participants
 - May be due to external forces mentioned earlier
 - At least you didn't document harm



What if the pre- and post-test scores don't change?, cont.

- May also reflect some room for improvement
 - May need to refine message or delivery
 - Modifications to EBP may have reduced effectiveness
 - May not be right program for participants
 - Survey administration may have skewed findings



What if the pre- and post-test scores don't change?, cont.

- What should I do?
 - Examine delivery, any adaptations that may reduce prevention message
 - Look for patterns related to individual staff or program locations
 - Look for insight in individual survey items
 - Adopt a wait-and-see approach & gather more data (esp. w/ a low number of participants)
 - Ask your Benchmark Regional Manager for assistance
 - Call your Evidence-based Program vendor



What if the pre- and post-test scores don't change?, cont.

- Should I take comfort in a neutral result?
 - No, but don't worry (too much) either.
 - View this as feedback that can help you better understand and refine your efforts
 - And remember – your program may indeed be beneficial, but the survey just doesn't reflect the impact on the lives of your participants.
 - And work with your Benchmark Regional Manager and program vendor



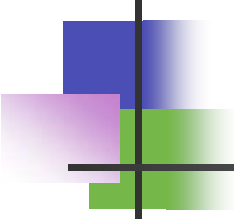
What if the pre- and post-test scores GO DOWN?

- DON'T PANIC!
 - Some of the surveys may not be valid or reliable measures
 - External forces may drive the results, or wash out the beneficial impact of your program
 - Prevention happens in a very complex environment.
 - It's possible that things may have been even worse for your participants without your program



What if the pre- and post-test scores go down?, cont.

- What should I do?
 - Examine delivery, any adaptations that may reduce prevention message
 - Look for patterns related to individual staff or program locations
 - Look for insight in individual survey items
 - Ask your Benchmark Regional Manager for assistance
 - Call your Best Practice Vendor
- DO NOT abandon your efforts!



What if the pre- and post-test scores go down?, cont.

- What should I do?, cont.
 - View this as feedback that can help you better understand and refine your efforts
 - Take the results seriously, but also with a grain of salt
 - First year, low number of surveys, all the other influences
 - Take opportunity to improve your program
 - Your Benchmark Regional Manager and program vendor are there to help you



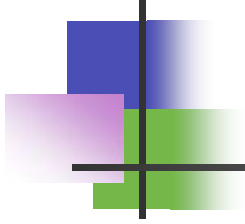
Will my funding be cut if I have neutral or negative results?

- No
 - At least not right away.
 - BUT – repeated negative results over time may indicate a real problem that needs to be addressed.
 - The goal is to improve the lives of the people in your program.
 - We need you!



Will my funding be cut if I have neutral or negative results?, cont.

- CALL US – we're here to help
- We'll work with you to:
 - Understand the reason for non-positive results
 - Improve your prevention program
 - Find a way to help you meet your ultimate goal – to make a positive change in the world.
- After all, that's why we're all doing this – to make a difference.



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- “It’s a rare person who labors on behalf of others to improve the world. They are to be honored.” - jg

THANK YOU