

Performance and Outcome Measurement: Strategies for Target-Setting

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Deborah Rosenberg, PhD
Research Associate Professor
Division of Epidemiology and Biostatistics
University of IL at Chicago School of Public Health
drose@uic.edu

Develop a Framework for Target-Setting



Targets are short-term,
rather than long-term objectives

The expectation is that targets can be met
given appropriate programmatic effort
and resource allocation

Develop a Framework for Target-Setting



Define the Landscape

1. What factors mitigate for or against improving performance?
 2. Are current programs population-wide or designed for high risk groups?
 3. How much control / flexibility does the agency have over resource allocation?
 4. Apart from the health agency, what other activities, if any, are addressing particular issues?
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Develop a Framework for Target-Setting



Strategic choices:

How will targets be linked to effort?

- ◆ Targets will reflect past and current programmatic effort
 - or**
 - ◆ Targets will influence future programmatic effort
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Develop a Framework for Target-Setting



Strategic Choices

How will “success” or
“good performance” be defined?

- ◆ Meeting a target
 - or**
 - ◆ Making meaningful progress
toward a target
-

Develop a Framework for Target-Setting



Strategic Choices

Which types and sources of data will be used?

- | | |
|-----------------------|-------------------|
| ✓ Professional input | ✓ Community input |
| ✓ Population data | ✓ Program data |
| ✓ Current data | ✓ Trend data |
| ✓ National objectives | ✓ Cost data |
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Develop a Framework for Target-Setting



Example Logic statements

If data exist from all sources
and data from all sources agree,
then the target will be set as ...

If data exist from all sources
but data do not agree across all sources,
then the target will be set as ...

Develop a Framework for Target-Setting



Example Logic statements

If data exist from only some sources
and data from those sources agree,
then the target will be set as ...

If data exist from only some sources
but data from those sources do not agree,
then the target will be set as ...

Build an Analytic Strategy for Target-Setting



Incorporating Trend Data

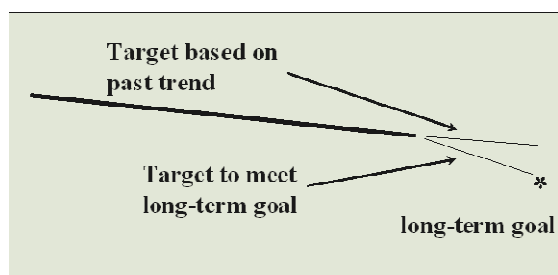
- Use the current level of an indicator
- Use the projected level of an indicator based on the continuation of the trend over time
- Use the projected level of an indicator based on **altering** the trend to meet a standard or goal

Build an Analytic Strategy for Target-Setting



Incorporating Trend Data

Targets might be set based on continuing the recent past trend, or the slope could be “forced” to accelerate the time at which an objective will be met

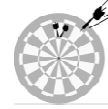


Build an Analytic Strategy for Target-Setting

Incorporating Trend Data

Forcing the slope of the
trend line to meet an objective

year	IM Rate
1990	9.2
1991	8.9
1992	8.8
1993	9.0
1994	8.7
1995	8.5
1996	8.5
1997	8.6
1998	8.4
1999	8.6
2000	8.4
2001	8.1
2002	7.9
2003	7.9
2004	7.7
2005	7.5
2006	7.6
2020	6.0



Build an Analytic Strategy for Target-Setting

Incorporating Trend Data

Since target-setting in MCH is carried out for many indicators, the analytic approach may vary depending on the pattern of current values, projected values, and distance from a longer term goal.

One indicator may currently be farther from a goal than another indicator, but may be improving more rapidly over time so that it's projected value is closer to its goal than the other indicator in the future



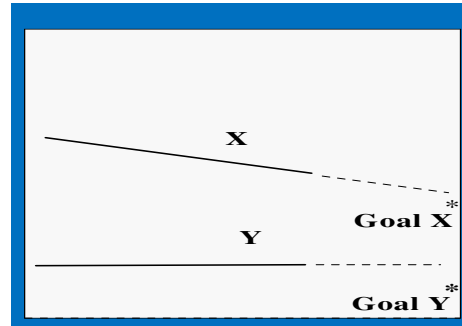
Build an Analytic Strategy for Target-Setting



Incorporating Trend Data

Two indicators with
different patterns
over time and
different distance
from long-term goals

**Assume being below
the goal is desirable**



Build an Analytic Strategy for Target-Setting

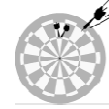


Incorporating Trend Data

Indicator	Current	Projected	Objective
Early PNC %	82.0	88.0	90.0
LBW %	5.7	5.7	5.0

Considering current values, early PNC % appears to be farther away from its objective; considering projected values, LBW % is farther away from its objective—early PNC % is improving over time, but LBW % is not.

Build an Analytic Strategy for Target-Setting



Incorporate Trend Data

A grid reflecting the intersection of trend data and distance to an objective: articulate a target-setting approach for indicators in each cell.

Trend	Standard / Goal		
	Surpassed	Close	Far
Improving			
No Change			
Deteriorating			

Build an Analytic Strategy for Target-Setting



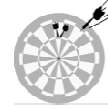
Example Logic Statements:

If trend data show improvement
and the current value is far from the goal
then targets will be set as ...
else if the current value is close to the goal
then targets will be set as ...
else if the current value meets the goal
then targets will be set as ...

If trend data show no change, then etc.

If trend data show deterioration, then etc.

Build an Analytic Strategy for Target-Setting



Statistical Testing

Could choose targets that reflect a statistically significant change from the current value of the indicator.

Statistical testing is sensitive to sample size, so this may not be appropriate

Build an Analytic Strategy for Target-Setting

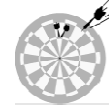


Stratification, Means, Medians, and "Pared" Means

Will group differences be used in target-setting?

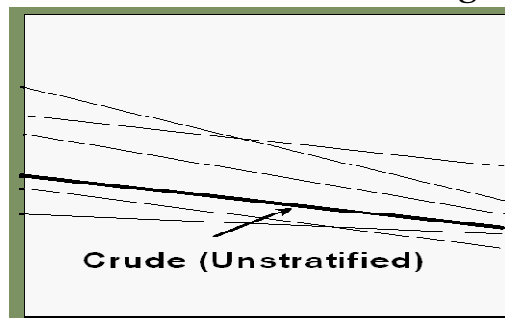
- Crude (unstratified)?
- Stratified by medical risk status?
- Stratified by geography?
- Stratified by race/ethnicity?
- Stratified by income?
- Stratified by income and geography?
 - Etc., etc., etc.?

Build an Analytic Strategy for Target-Setting



Stratification, Means, Medians, and "Pared" Means

One indicator with different patterns over time and
different current values across groups



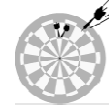
Build an Analytic Strategy for Target-Setting



Stratification, Means, Medians, and "Pared" Means

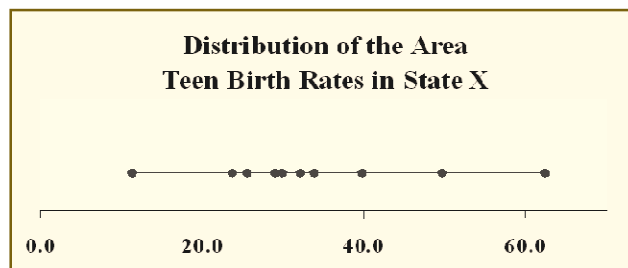
- Separate, stratum-specific targets
- Overall target based on stratum-specific targets
- Mean of stratum-specific values
- Median of stratum-specific values
- Pared means—overall mean, mean of the "best" 10%, 50%, 75% of the population

Build an Analytic Strategy for Target-Setting



Stratification, Means, Medians, and "Pared" Means

With many strata, the range in the indicator values and the shape of the distribution will influence the choice of targets.



Build an Analytic Strategy for Target-Setting



Stratification, Means, Medians, and "Pared" Means

With few strata, it may be reasonable to choose the value of the “best” stratum as the target if that stratum includes a large proportion of the population at risk.

Build an Analytic Strategy for Target-Setting



Example Logic Statements:

If current values vary across groups
then targets will be set as...

If trends over time vary across groups
then targets will be set as...

Build an Analytic Strategy for Target-Setting



If stratification is used, how will data
availability and small numbers be addressed?

- ◆ Collapsing strata?
 - ◆ Indirect standardization?
 - ◆ Synthetic estimation?
-

Build an Analytic Strategy for Target-Setting



Example Logic Statements

If numbers are small within strata
then multiple years of data will be combined...

or

then national rates will be applied to create SMRs...

If small area data is not available
then synthetic estimates may be used...

or

then a proxy variable will be used...

Example Approaches for Target-Setting



National Performance Measure 8

Birth rate (per 1,000) for teens aged 15-17 years.

Possible Targets
Crude, Unstratified Data

State	# Females 15-17	# Births	Teen Birth Rate per 1,000
X	16,556	622	37.6

Example Approaches for Target-Setting



National Performance Measure 8 Possible Targets

1. No Change =37.6 ←
2. % Decrease according to past trend
Assume an average annual decrease of 2%

$$\begin{aligned} \text{Target} &= (\% \text{ chge} \times \text{CurrVal}) + \text{CurrVal} \\ \text{Target} &= (-0.02 \times 37.6) + 37.6 \\ &= 36.8 \end{aligned}$$
←

Example Approaches for Target-Setting



National Performance Measure 8 Possible Targets

3. % Decrease to meet a long-term goal
Assume the goal is 30 per 1,000 in 5 years

$$\begin{aligned} &\frac{30.0 - 37.6}{5} = -0.04 \\ \text{Target} &= (-0.04 \times 37.6) + 37.6 \\ &= 36.1 \end{aligned}$$
←

Example Approaches for Target-Setting



National Performance Measure 8

Possible Targets

4. Statistically significant decrease:
Set a z-test to 1.96

$$\frac{\text{Target} - \text{Current Value}}{\sqrt{\frac{\text{Target} + \text{Current Value}}{\text{Population at Risk}} \times \text{Multiplier}}} \geq 1.96$$

$$\frac{\text{Target} - 37.6}{\sqrt{\frac{\text{Target} + 37.6}{16,556} \times 1,000}} \geq 1.96$$

Target = 33.5 ←

Example Approaches for Target-Setting



National Performance Measure 8

Possible Targets

Stratified by Area

County	#Females 15-17	#Births	Teen Birth Rate per 1,000
A	793	9	11.3
B	2,785	66	23.7
C	859	22	25.6
D	2,205	64	29.0
E	1,338	40	29.9
F	994	32	32.2
G	708	24	33.9
H	2,664	106	39.8
I	302	15	49.7
J	3,908	244	62.4
State	16,556	622	37.6

Example Approaches for Target-Setting



National Performance Measure 8

Possible Targets: Stratified by Area

Not Considering Sample Size (unweighted)

- | | | | |
|----|---------------------|------|---|
| 5. | Mean of the rates | 33.8 | ← |
| 6. | Median of the rates | 31.0 | ← |

Considering Sample Size (weighted)

- | | | | |
|----|----------------------------|------|---|
| 7. | Overall rate for Areas A-F | | |
| | 50% of female teens | 26.0 | ← |
| 8. | Overall rate for Areas A-I | | |
| | 75% of female teens | 29.9 | ← |

Example Approaches for Target-Setting



National Performance Measure 8

Possible Targets: Stratified by Area

8. Overall Rate for Areas A-I
Rate for 75% of Female Teens in State X

$$\frac{9 + 66 + 22 + 64 + 40 + 32 + 24 + 106 + 15}{793 + 2,785 + 859 + 2,205 + 1,338 + 994 + 708 + 2,664 + 302} = \frac{378}{12,648} \cong 29.9 \text{ per 1,000}$$



Example Approaches for Target-Setting



National Performance Measure 8

Possible Targets: Stratified by Poverty Status

10. Stratum-Specific and Weighted Overall Targets

$$\text{Target}_{\text{Poverty}} = (-0.10 \times 58.4) + 58.4 = 52.6$$

$$\text{Target}_{\text{No Poverty}} = (-0.02 \times 33.8) + 33.8 = 33.1$$

Then the overall target is the
weighted average of the
stratum specific targets:

$$\text{Target}_{\text{Overall}} = 0.15 \times 52.6 + 0.85 \times 33.1 = 36.0$$



Example Approaches for Target-Setting

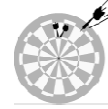


National Performance Measure 8

Which should be the annual target?

Unstratified:	1. No Change	37.6
	2. 2% decrease	36.8
	3. 4% decrease	36.1
	4. Statistical significance	33.5
Stratified by Area:	5. Mean of the rates	33.8
	6. Median of the rates	31.0
	7. Overall rate for "best" 50%	26.0
	8. Overall rate for "best" 75%	29.9
Stratified by Poverty:	9. Rate for "best" stratum	33.8
	10. Weighted Rate (10% & 2% change)	36.0

Final Comments on Target Setting



- Many different stratification schemes could be used. Each will give rise to another set of possible targets.
 - Other numerical approaches, such as regression modeling, can be used as well. (regression is an extension of a stratified approach)
 - The conceptual framework which was developed first must be brought to bear in making final choices for targets.
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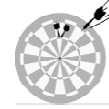
Final Comments on Target Setting



Each performance measure and outcome indicator may require a different approach.

Each may exhibit different patterns of change and disparity, both in magnitude and kind.

Final Comments on Target Setting



When setting targets for more than one indicator, the relative performance across indicators may influence the target setting process.

For example, you may want to set more challenging targets for indicators farther from a long term goal as an added incentive to make that issue a programmatic priority.

Final Comments on Target Setting

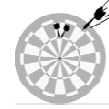


The target-setting process can inform priority-setting. For example, if you use trend data to identify when indicators will meet longer term standards, you can then compare across indicators

Example: Indicator #1 -- 2019
Indicator #2 -- 2012
Indicator #3 -- 2013

For this example, priority might be given to improving indicator #1 (assuming other factors have been taken into account)

Final Comments on Target Setting



Returning to the grid for developing target-setting strategies—a scoring scheme or index could be imposed on the cells of the grid to help inform priority-setting.

Trend	Standard / Goal		
	Surpassed	Close	Far
Improving			
No Change			
Deteriorating			

Final Comments on Target Setting



For short-term targets, we want to identify values that are attainable, but still challenge us to critically evaluate programmatic and budgetary decisions.