Approaches for Priority Setting

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Training Course in MCH Epidemiology

The Landscape for Summarizing Data

For an MCH needs assessment, we are interested in multiple risk factors and outcomes, in different populations, and across different spheres:

Population Groups	Domains		
	Health Status	Health Services	Health Systems
Women			
Infants			
Children			
Adolescents			
CSHCN			

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The Landscape for Summarizing Data

Many data sources may contribute indicators to each cell of the matrix of population groups and domains:

- Census data
- vital records data
- Medicaid data
- hospital discharge data,
- WIC data
- client tracking system / encounter data
- focus group and other qualitative data,
- national and/or local sample survey data

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The Landscape for Summarizing Data

And within and across data sources, multiple versions of an indicator can be selected for analysis

- Overall frequency of occurrence
- Overall rate of occurrence
- Subpopulation frequencies of occurrence
- Subpopulation rates of occurrence
- Geographic variation
- Time trend
- Combination of multiple related indicators
- Distance from a standard or goal

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The Landscape for Summarizing Data

In addition, when small areas or small numbers are an issue, there are special considerations for the types of indicator values that will be used:

- Direct estimate from local survey
- Direct estimate from "non-local" survey
- Direct estimate from local population data
- Directly standardized estimate
- Indirectly standardized estimate
- Combination of direct and indirect estimates
- Synthetic estimate

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The Landscape for Summarizing Data

Summarizing / analyzing quantitative data is part of a larger ongoing, iterative process of incorporating input from external stakeholders, analyzing that input, applying epidemiologic expertise to reconsidering the quantitative data.

This process differs from most epidemiologic research which focuses on testing one or only a few hypotheses.

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The Landscape for Summarizing Data

Needs Assessment / Surveillance:

- Most often univariate and bivariate analyses, including time trend analyses
- Prevalence and incidence / crude & adjusted
- Minimal statistical testing

v.

Research / hypothesis testing:

- Typically multivariable analyses, including regression modeling
- Measures of association—odds ratios, relative risks / prevalences
- Almost always statistical testing

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The Landscape for Summarizing Data

From the Alabama, 2005 Needs Assessment:

"Quantitative and qualitative methods were used in the Needs Assessment. Particular analytic techniques varied according to the data source. Only some analyses included formal statistical assessment in the form of p-values ... or confidence intervals ... .

Unless stated otherwise in the description of methods for particular findings, **neither confidence intervals nor statistical testing was performed**. Many analyses focused on general pictures and, if available, patterns over time or across groups, rather than statistical precision ... ."

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The Landscape for Summarizing Data

Needs assessment / Surveillance: Graphs and charts; fewer tables and brief narrative; presentation that facilitates cross-indicator comparisons

v.

Research / hypothesis testing: Tables and detailed narrative; fewer graphs and charts; presentation customized for the particular research question being addressed

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The Landscape for Summarizing Data

The process of summarizing data within and across many domains and population groups is daunting unless a well defined analysis plan is articulated and implemented.

Without a systematic approach, it is likely that data will not be successfully translated into the information needed by program planners, managers, and policy-makers.

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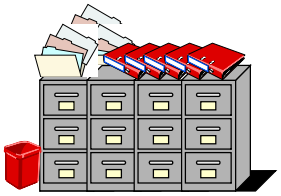
The Landscape for Summarizing Data

Data Rich



Information Poor

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Analysis Considerations

Criteria	Weight	LBW	Peri HIV	Smoking
Magnitude	2	Crude Rate? Adjusted Rate? Stratum-specific rates? Extent of Disparity?		
Trend	3	Average annual percent change: improvement, deterioration, no change? Crude? Stratified?		
Severity	3	Quality of life? Long-lasting consequences? Cost?		
Preventable	2	Efficacy? Success Rate? Cost?		
Goal	3	National Goal? Local Goal?		
Priority	1			
Acceptable	2			

How will we decide what data to use to fill in this table?

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Analysis Considerations

For example, thinking about magnitude:

Low incidence/prevalence
Moderate in some subgroups
Moderate in all groups
High in some subgroups
High in all groups

What will be the numeric definition of 'low', 'moderate', and 'high' for each indicator?

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Analysis Considerations

Will the overall level of indicators be reported, or will a long series of rates for combinations of demographic, geographic, and/or time strata be reported, or something in between?

By age, race/ethnicity, county, and year
By age, race/ethnicity, and county
By age, and race/ethnicity
By age
Overall for the state for one year

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Analysis Considerations

In order to make decisions about how to report indicators, it is important to ***begin by examining the data in its most <u>un</u>summarized form.***

If decisions about how much summarization, and on which variables, are made without first looking at the "raw" data, important differences and disparities might be overlooked.

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Analysis Considerations

For example, a decision might be made to present an indicator for children ages 0-17 stratified by race/ethnicity, when in fact, this indicator varies more by age than by race/ethnic groups.

Therefore, a more appropriate data summarization decision would be to present the data stratified by age and not by race/ethnicity. This would be clear if before any decisions, the data were examined in a variety of ways, e.g. single and multiple stratified analysis.

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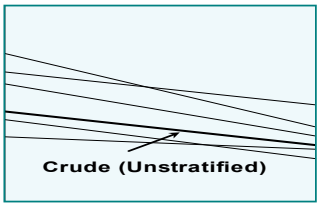
Analysis Considerations

Examining trend data may be important: Different patterns over time and different current values across groups



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Analysis Considerations

For maternal mortality in IL, both the black-white disparity and older maternal age are of concern, and there may be interaction between these two risk markers. Which reporting approach will best inform the prioritization process?

Race / Ethnicity	Relative Risk of Death >=35 v. 10-34
African-American	6.2
White	2.7

The effect of older age is present for all women, but is greatest among African-American women.

Maternal Age	Relative Risk of Death African-American v. White
>=35	4.3
10-34	3.1

The black-white disparity is wide in both age groups, and may be slightly wider among older women.

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Analysis Considerations

Choices about which data to include in an analysis are highly dependent on both the availability of data and on its quality.

As MCH professionals, we can all name many indicators that would enhance our ability to carry out a comprehensive needs assessment, but data for these indicators are not available.

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Analysis Considerations

For example, it would be very informative to report the incidence of child injury by type of injury and age. Since true incidence data are not readily available, however, hospitalization for injury or injury mortality are typically reported instead.

This imposes limitations on our analysis and on the prioritization process.

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Analysis Considerations

Reliance on proxy indicators might bias the prioritization process

$$\frac{\text{\# of children hospitalized due to injury}}{\text{\# of children hospitalized due to any cause}}$$

$$\frac{\text{\# of children hospitalized due to injury}}{\text{\# of children who are injured}}$$

$$\frac{\text{\# of children hospitalized due to injury}}{\text{\# of children in the population}}$$

$$\frac{\text{\# of child deaths due to injury}}{\text{\# of children hospitalized due to injury}}$$

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Analysis Considerations

Similarly, although it is well accepted that analyzing the content or quality of prenatal care is critical to understanding the effectiveness of this service, generally only measures of the quantity of prenatal care such as the timing of the first visit and the total number of visits, are available for analysis.

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Analysis Considerations

Sometimes we have to present more data than we would like because we need to use several less than optimal measures in an attempt to approximate the information that an indicator would provide if it were available.

Sometimes we use data of poor quality because no high quality alternative is available.

Perhaps most problematic, sometimes we mis-specify the questions we ask because of the constraints in the data.

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Analysis Considerations

The level and type of data summarization will differ depending on the purpose of analysis:

- Comprehensive state-wide needs assessment
- Community-based needs assessment
- Indicator-specific analysis
- Program evaluation

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Analysis Considerations

An epidemiologic perspective helps to weigh the advantages and disadvantages of different analytic strategies in order to choose the one that strikes the best balance between specificity and interpretability

Targeted	Reliable
Specific	Easy to Interpret
←←←←←←←←←→→→→→→→→→	
Unsummarized	Summarized

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Methods for Summarizing Data

Some analytic approaches used to summarize data for needs assessment and priority setting:

- Categorization—defining thresholds, benchmarking
- Ranking and Scoring
  - Integer ranking
  - Rescaling
  - z-scores and z-tests
- Index/composite variable construction
- Regression analysis

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Methods for Summarizing Data

Creating Meaningful Categories

Grouping indicator values into discrete categories alleviates the data burden by replacing many distinct values with a few summary ones.

In addition, giving intuitive labels to categorized indicator values aids in interpretation:

high, medium, low
above average, below average
excellent, good, fair, poor

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Methods for Summarizing Data

Even when seemingly continuous variables are of interest, they are often transformed into discrete ones by defining appropriate categories.

- discrete categories may better capture distinct clinical, developmental, or programmatic groupings
- original ordering of a continuous variable is not applicable to a particular public health issue.

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Methods for Summarizing Data

Categorization can be carried out for both individual and aggregate data.

Defining categories of necessity means loss of information.

PERSON (e.g., age)	PLACE	TIME
10,11,12,13...42,43, 44,45 +	Addresses	Days
10-14,15-17,18-19, 20-24,25-29,30-34, 35-39,40-44,45 +	Blocks orBlock Groups	Weeks
10-14,15-17,18-19, 20-29,30-34,35-39,40+	Census Tracts	Months
10-17,18-19,20-34, 35-39,40 +	Zip Codes	Seasons
10-19,20-34,35 +	Counties	One Year
10-19,20 +	Grps of Counties	Five Years
All ages combined	State	Ten Years

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Methods for Summarizing Data

Examples of continuous variables that might be categorized:

At the individual level:	At the aggregate level:
Birthweight	County Birthweight Rates
Maternal Age	County % < 18; % > 35
Income	County Median Income
Obesity / BMI	County % Obese

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Methods for Summarizing Data

1. Equal Counts: median, quartiles, quintiles
2. Equal Ranges: Instead of equal numbers of observations, equal portions of the range are used. If four categories are desired, the range is divided into four equal parts.
3. Naturally Occurring Breakpoints: clusters, standard deviation units
4. Conceptual Breakpoints: clinical, historical, cultural

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Methods for Summarizing Data

The observed distribution of the data will dictate the appropriateness of categories

For uniformly distributed values, there is no difference between obtaining equal counts or equal ranges, but for a skewed distribution, the categories defined by the range will be very different than those defined by equal sample size.

Conceptual breakpoints may not take account of sample size.

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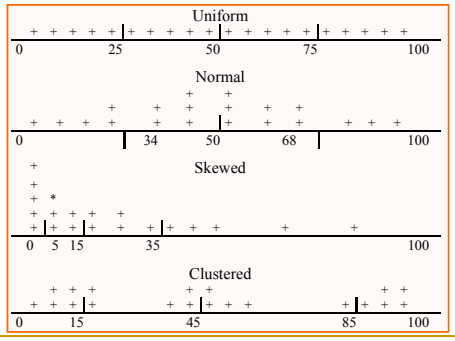
Methods for Summarizing Data



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Methods for Summarizing Data

Ranking and Scoring

Ranking and scoring methods, unlike categorization, do not reduce the number of distinct values, but the ordering and labeling that these methods apply adds information and meaning beyond what the original values could convey.

Each ranking / scoring approach has advantages and disadvantages, different balance between precision and meaning.

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Methods for Summarizing Data

Integer Ranking

Simple ranking assigns integers to the sorted values of an indicator.

For instance, if 10 areas are to be ranked according to the percent of children living in poverty, the integers 1 through 10 would be assigned.

By definition, the differences between the ranks are uniform: the distance between rank 2 and rank 4 is equal to the distance between all other values that are two ranks apart.

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Methods for Summarizing Data

Ranking with Percentile Rescaling

Translate the position of a value on one scale to exactly the same position on another.

For example, for an area poverty percent that is at the 25th percentile of all 10 counties, assign it the value of 2.5 along the range 0-10.

The percentile rescaled values are ranks in the same order as simple integer ranks, but the distances between them are not uniform; they mirror the relative distances in the original data.

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Methods for Summarizing Data

Calculate the location of values on a scale of 0-100 (percentile).

$$\text{Percentile} = \frac{\text{Original Value} - \text{Lowest Original Value}}{\text{Highest Original Value} - \text{Lowest Original Value}} \times 100$$

Then, if desired, translate the percentile to a new range.

$$\text{New Value} = [(\text{New Range}) \times \text{Percentile}] + \text{New Minimum}$$

Choosing a particular range may aid interpretation

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Methods for Summarizing Data

Ranking with **Z-scores and Z-tests**

z-scores are anchored by the mean and standard deviation of the original values, and rescaled such that the new mean is 0 and the new standard deviation is 1.

The distances between z-scores are not uniform—they correspond to points on the standard normal curve, with a theoretical range of approximately -3 to +3.

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Methods for Summarizing Data

Ranking with **Z-scores and Z-tests**

z-tests are separate statistical tests of the difference between each area indicator and a standard; they are not points on one curve.

Both the order of the data and the relative distances between the data points are "adjusted" according to the varying population sizes in the areas of interest.

The values are determined by the "standard" used for comparison; an external standard adds equivalence across indicators and within an indicator over time.

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Methods for Summarizing Data

Z-scores treat indicator values as though they were individuals.

Z-tests treat indicator values as summary statistics.

$$\text{z score} = \frac{X - \bar{X}}{\sqrt{\frac{\sum_{i=1}^{n}(X_i - \bar{X})^2}{n-1}}} \qquad \text{z test} = \frac{p - \text{standard}}{\sqrt{\frac{\text{standard}(1-\text{standard})}{n}}}$$

the mean is the mean of the indicators
n=# of indicators

the standard is the overall indicator value
n=# in pop. being tested

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Methods for Summarizing Data

Composite Measures

Handle collinearity while preserving information
Improve Interpretability—more informative
Avoid potential bias in single variables

At the individual level:	At the aggregate level:
pnc utilization	neighborhood resources
SES	County SES
age-education	Baby Friendly hospitals
birthweight-gestational age	city pollution
body mass index	county risk status
severity index	

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Example: Aggregate Data

Low Birthweight Rates for 10 Areas:

Area	# of Births	LBW %
A	336	4.17
B	3397	5.68
C	674	6.08
D	2013	6.41
E	185	6.49
F	546	6.96
G	1723	7.20
H	1200	7.75
I	699	8.44
J	114	21.05

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Example: Aggregate Data

Two possible ways to categorize area LBW rates.

	Method I		Method II	
Category	Area	Rate (%)	County	Rate (%)
1	A	4.17	A	4.17
	B	5.68		
			B	5.68
	C	6.08	C	6.08
2	D	6.41	D	6.41
	E	6.49	E	6.49
	F	6.96	F	6.96
3	G	7.20	G	7.20
	H	7.75	H	7.75
			I	8.44
	I	8.44		
4	J	21.05	J	21.05

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Example: Aggregate Data

Percentile Rescaling

As an illustration, the percentile position of Area H's low birthweight rate of 7.75 is:

$$\frac{7.75-4.17}{21.05-4.17} = \frac{3.58}{16.88} = 0.2121$$

And this percentile translated to a scale from 1 to 10 is:

$$[(10-1)\times 0.2121]+1 = 2.91$$

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Example: Aggregate Data

Mean of the 10 lbw rates:

$$\frac{4.17 + 5.68 + 6.08 + 6.41 + 6.49 + 6.96 + 7.20 + 7.75 + 8.44 + 21.05}{10} = 8.02$$

Standard deviation of the 10 lbw rates:

$$\sqrt{\frac{(4.17 - 8.02)^2 + (5.68 - 8.02)^2 + \ldots + (8.44 - 8.02)^2 + (21.05 - 8.02)^2}{9}} = 4.72$$

Overall lbw rate (weighted mean) of the 10 areas:

$$\frac{14 + 193 + 41 + 129 + 12 + 38 + 124 + 93 + 59 + 24}{336 + 3397 + 674 + 2013 + 185 + 546 + 1723 + 1200 + 699 + 114} = \frac{727}{10887} \times 100 = 6.68$$

Example: Aggregate Data

Approaches to Organizing 10 Low Birthweight Rates

Area	# LBW	LBW (%)	Rank	Rescaling	z-scores	z-tests
A	336	4.17	1	1.00	-0.82	-1.84
B	3397	5.68	2	1.80	-0.50	-2.33
C	674	6.08	3	2.02	-0.41	-0.62
D	2013	6.41	4	2.19	-0.34	-0.48
E	185	6.49	5	2.24	-0.32	-0.10
F	546	6.96	6	2.49	-0.23	0.26
G	1723	7.20	7	2.62	-0.17	0.87
H	1200	7.75	8	2.91	-0.06	1.49
I	699	8.44	9	3.28	0.09	1.87
J	114	21.05	10	10.00	2.76	6.15

Example: Aggregate Data

Composite Measures

Count of LBW births and the LBW rate:
Re-rank using the average of the ranks on the 2 variables

Current LBW rate and trend over time:
LBW rate below the median, rate decreasing
LBW rate above the median, rate decreasing
LBW rate below the median, rate constant or increasing
LBW rate above the median, rate constant or increasing

Methods for Summarizing Data

When choosing any of these approaches—categorization, ranking, rescaling, scoring, index construction—it is important to think about the advantages and disadvantages when the approach is extended to jointly assessing multiple indicators.

For example, integer ranking may be an appropriate approach for one indicator, while percentile rescaling may be a more reasonable approach for another. How will these two indicators be compared?

Methods for Summarizing Data

When comparing different indicators, as opposed to one indicator across different areas, ranking and scoring approaches can also be used, but have to be somewhat modified.

For example, rank according to distance from a goal or standard, but how will relative distance be quantified?

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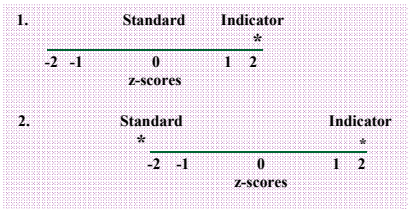
Methods for Summarizing Data

Without incorporating some external standard or benchmark, comparisons across many indicators and/or across time is difficult.



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Methods for Summarizing Data

Comparisons across indicators may be based on the intersection of trend data and the distance from a standard or longer-term goal.

Trend	Standard / Goal		
	Surpassed	Close	Far
Improving			
No Change			
Deteriorating			

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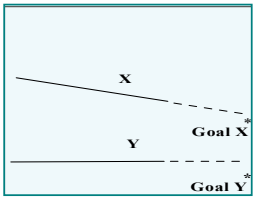
Methods for Summarizing Data

Different patterns over time and different distance from long-term goals



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Methods for Summarizing Data

Create Composite Variables that Combine Variables Across Indicators or Domains

- Combine across health status indicators, e.g. combine child fatality, child obesity, and child oral health to get a more global child health index
- Combine across health service indicators, e.g. utilization of well child care, acute care, and specialty services to get a more global service utilization index

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Methods for Summarizing Data

- Combine health status and health service variables for one indicator

  health status improving, services constant or increasing
  health status improving, services decreasing
  health status deteriorating, services constant or increasing
  health status deteriorating, services decreasing

to get a more global index of whether services are effective in addressing health status issue

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Methods for Summarizing Data

- Data quality: some indicators are based on high quality data; others are not
- Data availability: some domains have multiple measures; others only a few or none
- Conclusions about priority differ by population groups
- Conclusions about priority differ by geography
- Conclusions about priority differ by qualitative judgment

How will these issues be handled in the priority-setting process?

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Examples from the Field

Illinois Child Health Needs Assessment

1. Select indicators within four domains:
   - demographic risk indicators
   - child health status indicators
   - health service resources
   - health service utilization measures
2. Rank counties on each indicator according to percentiles of the observations.
3. Compute mean ranks for each area using indicators within a given domain.
4. Re-rank counties according to these multiple-indicator mean ranks.

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Examples from the Field

Connecticut Mat. & Infant Health Surv. Report,

1. Selected 6 indicators.
2. Statistically compare each indicator by town/health district to the statewide average.
3. Examine changes over time, using single years for large areas and two years combined for smaller areas.

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Examples from the Field

4. Identify "problem" areas--indicators significantly worse than the state and deteriorating over time; identify "improved" areas--indicators historically worse than the state, but improving over time.
5. Report significant disparities within an area—those in which one population group is significantly higher than the state value on an indicator while another population group is significantly lower than the state value.

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Examples from the Field

Health Status/Health Need Ranking of the Mass. Communities: A Methodology for Needs Assessment

1. Select indicators.
2. Assign scores to communities based on percentile rescaled values of each indicator.
3. Sum the scores across indicators to obtain a cumulative rank score.
4. Plot the distribution of the cumulative ranks.

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Examples from the Field

Massachusetts, *cont.*

5. If the distribution is approximately normal, categorize areas according to z-scores:

'lowest status/highest need'	> 2
'low status/high need'	1 to 2
'average'	1 to -1
'high status/low need'	-1 to -2
'highest status/lowest need'	< -2

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Examples from the Field

Rhode Island: Methodology for identifying communities in need of expanded WIC services *(Buechner, et al.)*

1. Select risk indicators and birth outcome indicators for each census tract in the state.
2. Use principal component analysis to combine census tract indicators into composite indices of MCH risk and adverse birth outcomes.
3. Use cluster analysis to define groups of census tracts according to their scores on these indices.

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Examples from the Field

4. Calculate WIC coverage rates for each group of census tracts:

# enrolled in WIC		
# of births in census tract group	×	% pregnant women income eligible

5. Analyze the variation in the coverage rates among census tract groups (ranging from 46% to 100%) in order to target outreach efforts.

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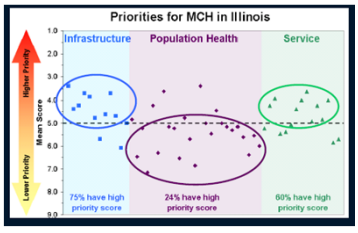
Examples from the Field

Excerpts: analysis and interpretation of q-sort results in IL
Presented in order to facilitate the priority setting process

Infrastructure: inter-agency collaboration, insurance coverage, integration of data systems

Population Health: health status outcomes, e.g. infant mortality

Service: family planning, mental health, prenatal care



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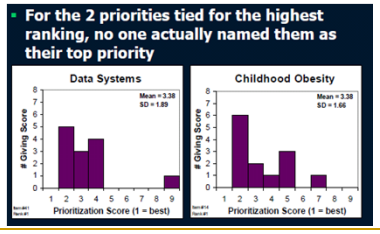
Examples from the Field

Not enough to show mean scores—
plot histograms of responses to identify consensus, disagreement, or other features of the distribution



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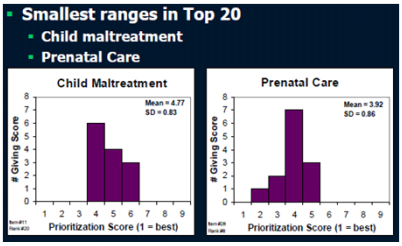
Examples from the Field

Agreement: the mean is a good representation



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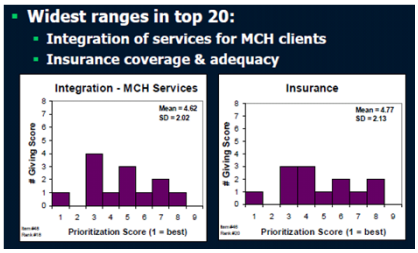
Examples from the Field

Disagreement: the mean does not represent consensus



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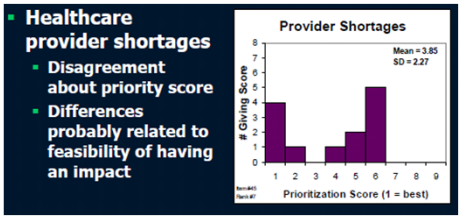
Examples from the Field

Interpretation about Split Opinion



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Examples from the Field

Illinois Breastfeeding Blueprint

http://www.ilbreastfeedingblueprint.org/filebin/pdf/HC1_booklet_web.pdf

- Organize data into sections:
  1. Individual level data
     —initiation, duration, exclusivity
  2. Hospital practices
  3. Summary: Patterns of breastfeeding, jointly considering initiation, duration and exclusivity
  4. Data Appendix

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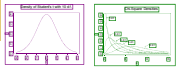

Examples from the Field

Examples of analytic decisions

- Use life table analysis for duration and exclusivity
- combine years in order to have enough sample size among Asians and Hispanics to crossclassify by income and race/ethnicity
- create a low income measure based on an algorithm using multiple variables
- Keep the narrative at a conversational level. For example, mostly use the syntax of "6 in 10" rather than 60%
- Do not include regression results in the main report

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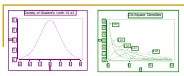

Examples from the Field

- For initiation, graphs and accompanying narrative
  - Overall trend in initiation over time
  - Trend over time in initiation by income level
  - Trend over time in initiation by race/ethnicity
  - Combined recent years, % initiation , by crossclassification of income and race/ethnicity (increased sample size)
  - Barriers to initiation

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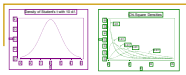

Examples from the Field

- For duration, graphs and accompanying narrative
  - Overall pattern of duration from birth to 12 weeks
  - Pattern of duration 0-12 weeks by income level
  - Pattern of duration 0-12 weeks by race/ethnicity
  - Combined recent years, % duration >=12 weeks, by crossclassification of income and race/ethnicity (increased sample size)
  - Barriers to duration

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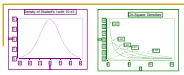

Examples from the Field

- For exclusivity, graphs and accompanying narrative
  - Overall pattern of exclusivity from birth to 12 weeks
  - Pattern of exclusivity 0-12 weeks by income level
  - Pattern of exclusivity 0-12 weeks by race/ethnicity
  - Combined recent years, % exclusive >=12 weeks, by crossclassification of income and race/ethnicity (increased sample size)
- Hospital Practices
  - Practices in IL hospitals
  - Comparison of Illinois to other states—nation rankings

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Examples from the Field

- Data Appendix
  - Description of data sources
  - Description of analytic decisions
  - Separate analysis of WIC clients
  - Separate analysis of Hispanic women using a proxy of acculturation
  - Regression analysis of the associations between hospital practices and duration and exclusivity

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Examples from the Field

Georgia 2010 Needs Assessment

- Review and analysis of quantitative data;
- Collection of current qualitative information on consumer and stakeholder views of the health care needs of women, children, infants, and children with special health care needs;
- Engagement of current and potential partners...through a day-long focus groups meeting specifically for representatives from statewide professional associations, advocacy organizations, academia, and service organizations;
- Focus group on the needs and health care priorities of infants and young children...with steering comm. of Early Childhood Comprehensive System (ECCS);

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Examples from the Field

- Needs assessment dialogues between the MCH Director and state agency leaders, resulting in new partnerships and activities;
- MCH program staff develops a list of 55 needs from the focus group themes, as well as others they thought were important but not addressed by the qualitative data
- Survey of physicians and District Health Directors and a separate survey of all public health agency staff (MCH and non-MCH) . Respondents were asked to select top 15 needs.
- Items ranked in the top 15 by at least 20% of the approximately 350 survey respondents moved on to the prioritization exercise in the next stage – 44 priorities met this criteria. “

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Examples from the Field

“The quantitative data analyzed for the 2010 Needs Assessment represents the single most comprehensive report of the state of the health of MCH populations currently available in Georgia. More than ten unique sources of quantitative data were analyzed as part of the 2010 Needs Assessment. Trends over time were presented for all data sources for a period of time for which data were available and accessible. Where possible, data were stratified by age, race/ethnicity, maternal educational attainment, and/or sex; and maps were included that displayed point estimates for each of the public health districts.”

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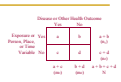
Summary



Two Approaches for Reducing the Data Burden

- directly by limiting the amount of data analyzed and reported—restricting the number of indicators or values reported
- indirectly by increasing the interpretability of the data--transforming the data in ways that make it easier for an audience to assimilate

Typically, both approaches are used in combination

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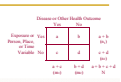
Summary



Developing an Analysis Plan		
Restricting the Amount of Data		Increasing Interpretability
Phase I: Variables	Phase II: Methods	Phase III: Presentation
Limit the number of outcome indicators Limit the number of person, place, time, and risk variables	Limit the amount of stratification Transform variables into: Discrete categories Ranks Scores Construct indices Build statistical models Use statistical testing	Text Tables Charts Graphs Maps

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