



# Getting the most out of your Local Data Spreadsheets

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## Presentation Objectives

- ▶ Articulate the topics and range of indicators included in the spreadsheets
- ▶ Evaluate data quality issues as they impact county indicator accuracy
- ▶ Understand and use the indicator rate tables
- ▶ Interpret comparative information on the rate tables
- ▶ Interpret the trend graphs
- ▶ Identify and describe disparities in rates and trends

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## Outline

- ▶ Presentation objectives
- ▶ Spreadsheet topics and indicators
- ▶ What is in your data spreadsheet?
- ▶ Steps for using your data spreadsheet
- ▶ Exercise – Investigating rates, trends and disparities in preterm birth

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## Spreadsheet Topics

- ▶ Asthma Hospitalizations
- ▶ Birth Interval
- ▶ Birth Weight
- ▶ Fetal Mortality
- ▶ Infant and Youth Mortality
- ▶ Injury Hospitalizations
- ▶ Mental Health Hospitalizations
- ▶ Prenatal Care
- ▶ Population Data
- ▶ Workbook B

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## Spreadsheet Indicators

- Birth Interval**
- ▶ Births to women age 15 to 44 and age 12 to 19 who already were mothers
  - ▶ Short Interval - Births within 24 months of a previous birth ages 15 to 44 and 12 to 19
- Birth Weight**
- ▶ Low <2500 grams
  - ▶ Very Low <1500 grams
  - ▶ Preterm Birth
- Infant and Youth Mortality**
- ▶ Neonatal Deaths - Birth to 27 days
  - ▶ Post-neonatal Deaths - 28 days to 365 days
  - ▶ Infant Deaths - Birth to 365 days
  - ▶ Child Deaths Age 1 - 14 years, 10 to 14 years, 15 to 19 years

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## Spreadsheet Indicators (cont.)

- Fertility**
- ▶ Overall Crude Births and Fertility
  - ▶ Fertility Ages 10 to 14, 15 to 17, 18 to 19, 15 to 19, 40 to 44, 45 to 49
- Asthma Hospitalizations**
- ▶ Asthma ages 0 to 24, 0 to 17, 18 to 24, 0 to 4, and 5 to 17
  - ▶ Asthma as secondary diagnosis Age 0 to 24
- Mental Health Hospitalizations**
- ▶ Mental Illness Ages 5 to 24, 5 to 14, 15 to 24, 15 to 19, and 20 to 24
  - ▶ Mental Illness as 2nd Diagnosis Age 5 to 24

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## Spreadsheet Indicators (cont.)

### Prenatal Care

- ▶ Prenatal Care Started - 1st Trimester; 3<sup>rd</sup> Trimester/None
- ▶ Adequacy of PNC – Inadequate; Average; Adequate; Adequate Plus
- ▶ Adequacy of Prenatal Care Utilization Index (Kotelchuck)

### Injury Hospitalizations

- ▶ Injury Ages 0 to 24, 0 to 14, 15 to 24
- ▶ Unintentional Injury Age 0 to 24
- ▶ Intentional Injury Age 0 to 24
- ▶ Motor Vehicle Ages 0 to 14, 15 to 24
- ▶ Assault Age 15 to 24

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## Spreadsheet Indicators (cont.)

### Population Data

- ▶ Numbers by sex and race/ethnicity
- ▶ All, Under 18 years, 18 to 64 years, 65 years & over, and in 5-year age intervals

### Workbook B

- ▶ Lists key MCAH indicators, the HP2010 objective, the local rate, and trends over time. Created for the 2010 Title V Needs Assessment

**County (+ Long Beach, Pasadena and Berkeley) and Regional spreadsheets for each indicator**

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## What is in your spreadsheet?

- ▶ Data Tabs
- ▶ Definition Tab
- ▶ Data Quality Tab
- ▶ Rate Tabs
- ▶ Graph Tabs

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## Spreadsheet – Data Tabs

- ▶ Data Tabs are a 2-tab set of 12 years of local jurisdiction and state data summarizing required and optional indicators
- ▶ Includes numerators with the appropriate denominators to calculate rates
- ▶ Data are the source for calculating rate and graph tabs for each indicator.

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## Spreadsheet – Definition Tab

- ▶ Only included for a few indicators where needed to provide more specific information on how they are calculated
  - For indicators using a population subset (e.g., births to mothers age 15 to 44, singleton births) where total reported will be less than the total for the source data (e.g., all births vs. singleton births)
  - For indicators requiring adding cases from multiple data sources, e.g., births and fetal deaths

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## Spreadsheet – Data Quality Tab

- ▶ Focuses on the last year in the 12-year trend
- ▶ Identifies key data quality issues that may impact reliability of information used in indicator calculation
- ▶ Review tab carefully to understand if underlying quality issues affect data to extent that validity of local statistics may be compromised
- ▶ LHJs with proportionally more exclusions may have distorted rates due to the smaller numbers of cases used - difficult to know if the county truly is an outlier or if results are affected by problem with underlying data
- ▶ If data quality is compromised, be extremely careful in reporting data

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## Data Quality (cont.)

- ▶ Data quality reports help counties:
  - assess the potential impact of data errors on the accuracy of indicators
  - give health department staff information to work with providers and hospitals to improve data quality.
- ▶ For rural counties, a few missing or unlikely values can result in misleading conclusions about quality and adequacy of prenatal care or the effectiveness of outreach
- ▶ Using statewide average to gauge problems may not be helpful for state as large and diverse as California

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## Improving Data Quality: a real example

- ▶ Improbable gestational age (GA) (missing; impossible - less than 18 weeks, more than 47 weeks) ranged from low of 3.7% (1992) to 6.9% (2003)
- ▶ Of records with improbable GA, 72% due to missing data in 1992 vs. 92% in 2004
- ▶ In 2005, after CHS training began for selected hospitals, statewide number of records with improbable GA dropped 64% compared to 2004, and number of cases fully missing gestational age dropped 80%

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## Spreadsheet – Rate Tab

Set to print on 3 pages:

- ▶ Page 1
  - Indicator and its risk factors
  - Rate table for total cases
  - Data sources
  - Recommendations for additional analyses
- ▶ Page 2
  - Rate tables for White Non-Hispanic and Hispanic All-Race
- ▶ Page 3
  - Rate tables for Non-Hispanic African-American and Asian populations

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## Spreadsheet – Rate Tab

- ▶ **Preterm Birth Risk Factors** - Young or old maternal age; low income; low maternal education level; race/ethnicity (Black, Puerto Rican, Southeast Asian); high parity; short interpregnancy interval; multiple gestation; unintended pregnancy; history of low birth weight; poor reproductive history; intrauterine growth retardation; preterm birth; prior preterm birth; late entry into prenatal care; lack of comprehensive prenatal care; low pre-pregnancy weight; tobacco use during pregnancy; alcohol/substance abuse during pregnancy; low pregnancy weight gain; placenta previa; premature rupture of the membrane; stress during pregnancy, strenuous exertion during pregnancy

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## Spreadsheet – Rate Tab

- Recommended Tables:** Can be analyzed using EpiBC  
*(now called CalBirthInfo or CBInfo)*
- ▶ Mother's race/ethnicity by birth weight
  - ▶ Mother's age (<18, 18-19, 20-34, 35+) by birth weight
  - ▶ Mother's education by birth weight
  - ▶ Geographic area (ZIP code, if available) by birth weight
  - ▶ Map of number and percent of low birth weight births by geographic area (ZIP code)
  - ▶ Parity by birth weight
  - ▶ Trimester prenatal care began by birth weight
  - ▶ Kessner index or APNCU index by birth weight

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## Comparing Rates

- ▶ Most public health reports compare percents or rates of occurrence of conditions, problems or outcomes among a number of groups
- ▶ These differences are used to identify and quantify disparities in health by age, geography, race/ethnicity or social class
- ▶ In order to be meaningful, statistical tests need to be applied to determine the likelihood that observed differences are not due to chance

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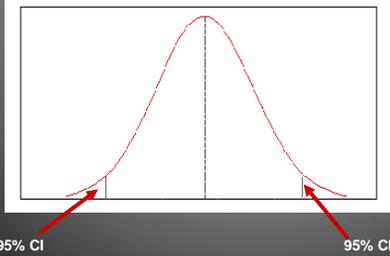
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## Normal Distribution – Can the Result Be Due to Chance?



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## Using Confidence Intervals (CI)

- ▶ A confidence interval is the range of values within which the "true" value is likely to fall
- ▶ Ninety-five percent is the most commonly used CI
- ▶ A 95% CI indicates that there is a 95% chance that the "true" value of the estimate (rate) is included in the interval
- ▶ When comparing indicator rates, if CIs don't overlap, then they are significantly different
- ▶ Example LBW: LHJ rate = 5.3 (CI 4.8 – 5.8)  
State rate = 6.1 (CI 6.0 – 6.2) } No overlap = Signif. different

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## Effects of Sample Size on the Confidence Interval

- ▶ The smaller the sample, the larger the confidence interval and the harder it is to establish if observed differences are statistically significance
- ▶ The larger the sample, the smaller the confidence interval

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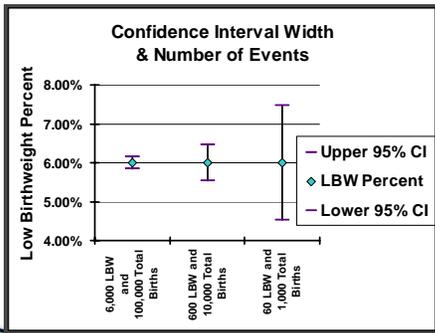
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## 95% Confidence Interval



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## Limitations of Rate Comparisons

- ▶ The numbers may be too small to ever get a stable rate with which to compare differences using CIs
- ▶ A rate difference may be significant but the actual increase in risk may be minimal
- ▶ A rate difference may be significant but the contribution of a small group to the total number of cases in terms of actual numbers may be minimal in a jurisdiction

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## Spreadsheet – Graph Tab

Summarizes results of trend tests for data on the Rate Tab – prints on 3 pages

- ▶ Page 1
  - Trend results for all data
- ▶ Page 2
  - Trend results for White Non-Hispanic and Hispanic All-Race
- ▶ Page 3
  - Trend results for Non-Hispanic African American and Asians

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## What can trend analysis tell us?

- ▶ Allows us to look at rates over a time period of 1997-2008 and see if there are significant upward or downward trends on key indicators (as oppose to the inaccurate eyeballing approach)
- ▶ Useful for identifying and monitoring trends in disparities among racial/ethnic groups
- ▶ Allows for comparisons with the statewide trends on key indicators for different racial/ethnic groups
- ▶ Useful for identifying whether a problem is affecting people across groups or disproportionately impacting subgroups
- ▶ Allows local health jurisdictions to track their progress toward reaching Healthy People 2010 and 2020 Goals

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## Graph tab – graphs and tables

### What do the trend graphs and tables tell us?

- ▶ If there are significant upward or downward trends (or no trends) in local rates over time
- ▶ If there are significant upward or downward trends (or no trends) in state rates over time
- ▶ If the local trend vs. state trend are significantly different
- ▶ If the local or state trend is curvilinear (as opposed to linear)
- \*\*NOTE: If a curvilinear trend, CANNOT test if local different from state
- ▶ Were average local rates at beginning of period (1997-1999) significantly different from average state rates
- ▶ Were average local rates at end of period (2006-2008) significantly different from average state rates
- ▶ All of the above for the group overall and for race/ethnic subgroups

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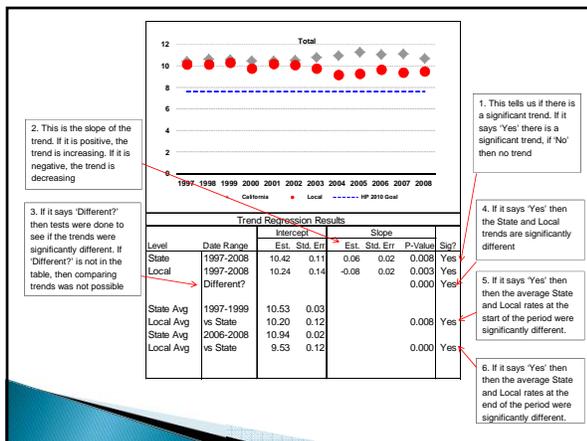
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## Resources

Resources for understanding your databooks on the FHOP website –

- ▶ *Do We Have a Linear Trend?*  
<http://fhop.ucsf.edu/fhop/docs/pdf/mcah/trend13b.pdf>
  
- ▶ *Linear Trend Explanations and Examples*  
[http://fhop.ucsf.edu/fhop/docs/pdf/trend\\_exampl.pdf](http://fhop.ucsf.edu/fhop/docs/pdf/trend_exampl.pdf)
  
- ▶ *Technical Guide for Using Title V 5-Year Needs Assessment Indicators Databooks 1994-2005*  
[http://fhop.ucsf.edu/fhop/docs/pdf/mcah/databook\\_2007.pdf](http://fhop.ucsf.edu/fhop/docs/pdf/mcah/databook_2007.pdf)

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## Steps for using your spreadsheet

1. Review Indicator Definition tab (if applicable) or review definition on rate tab
  - Definition
  - Numerator
  - Denominator
    - EXAMPLES – BIRTH INTERVAL & BIRTH WEIGHT
  
2. Review County Data
  - Note size of numerators and demoninators to get a sense of magnitude
    - EXAMPLE – PRETERM BIRTH

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## Steps for using your spreadsheet

3. Review Data Quality tab
  - Read about % of missing data for California – what are the range of values?
  - Compare % missing for LHJ to state %
    - Are you above the State?
    - Are you in the top quarter of the range?
    - EXAMPLE – BIRTH WEIGHT/PRETERM BIRTH

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## Steps for using your Spreadsheet

### 4. Review Rate tab

- How do your rates compare with the state overall
  - Is the LHJ higher or lower than the state?
  - If the confidence intervals DO NOT overlap, then they are significantly different
- How do rates compare with the state for specific race/ethnic groups?
  - Do the confidence intervals overlap?
  - Are there disparities?
- How do local rates compare for different groups (i.e. Hispanics vs. African American?)
  - Do the confidence intervals overlap?
  - Are there disparities?
- EXAMPLE – BIRTH WEIGHT/PRETERM BIRTH

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## Steps for using your Spreadsheet

### 5. Review your Graph Tab

- What is happening to the group over time on this indicator at local and state level? What is happening to subgroups?
  - Are things getting better, worse or staying the same?
  - Are local rates similar to or different than state rates at the beginning and end of time period?
  - Are local trends similar to or different than state trends?
  - Are there disparities?
  - EXAMPLE – BIRTH WEIGHT/PRETERM BIRTH
  
  - Resources for understanding your databooks on FHOP website - *Technical Guide for Using Title V 5-Year Needs Assessment Indicators Databooks 1994-2005* and *Trend Examples* available at [http://fhop.ucsf.edu/fhop/htm/ca\\_mcah/counties/resources.htm](http://fhop.ucsf.edu/fhop/htm/ca_mcah/counties/resources.htm)
6. Based on results of review of trend graphs, review recommendation on additional tables to run in CBInfo

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## Exercise

- ▶ The data spreadsheets include risk factors for each health indicator.
  - A. YES
  - B. NO
  - C. Not Sure
  
- ▶ For each indicator, I can find out the percent of missing and improbable values for my county, for other counties, and for the state in the data spreadsheets.
  - A. YES
  - B. NO
  - C. Not Sure

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## Exercise

Are these rates for teen births (15-19, out of 1,000 live births) significantly different?

- ▶ Hispanic rate = 89.9 (Lower C.L. 85.7– Upper C.L. 94.2)
- ▶ African American rate = 80.0 (Lower C.L. 69.4 – Upper C.L. 92.0)

- A. YES
- B. NO
- C. Not Sure

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## Exercise

▶ I can determine if there is an increasing or decreasing trend for an indicator by looking at the rates for my county across the years and seeing if they go up or down.

- A. YES
- B. NO
- C. Not Sure

▶ The data spreadsheets allow me compare my local rates to other Counties' rates.

- A. YES
- B. NO
- C. Not Sure

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## Exercise

▶ The data spreadsheets allow me to compare my local rates to the State's rates.

- A. YES
- B. NO
- C. Not Sure

▶ I can identify possible disparities between race/ethnic groups in my county by looking look at the rate tab and comparing rates and confidence intervals between groups.

- A. YES
- B. NO
- C. Not Sure

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## Exercise

The trend graphs can help me determine if African Americans in my county are doing better or worse than:

- A. Whites in my county
- B. African Americans in the state
- C. Both A and B

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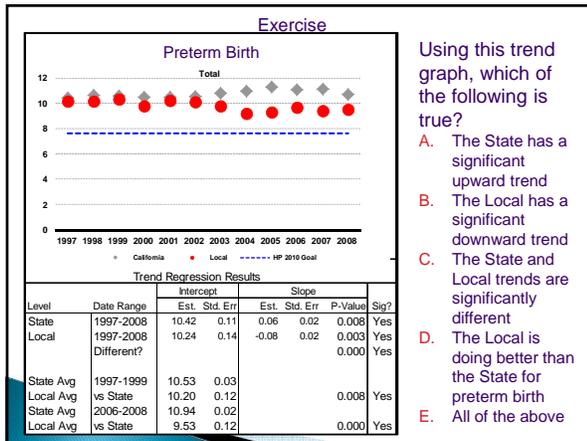
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Using this trend graph, which of the following is true?

- A. The State has a significant upward trend
- B. The Local has a significant downward trend
- C. The State and Local trends are significantly different
- D. The Local is doing better than the State for preterm birth
- E. All of the above

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## Exercise

Since I am never going to remember all of the information presented in today's webinar when I go to use my data spreadsheets, I should:

- A. Get a massage or meditate before using the spreadsheets so I can remain calm
- B. Bribe an epidemiologist to help me
- C. Use resources on FHOP's website (including the *Trend Examples* and *Technical Guide for using the Databooks*) and this slide show to guide me

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## Questions?



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## Contact Information

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