WHAT DO YOUR DATA TELL YOU? *

Much like in journalism, epidemiology answers the questions *what, when, where,* and *who*. To respond to these questions, epidemiology describes public health problems in their context of *time, place* and *person*.

1. ***What*** health or nutrition indicators represent public health problems among the population you serve?
2. ***When*** do the problems change (increase / decrease / remain the same)? *(Time)*
3. ***Where*** are the problems most serious? *(Place)*
4. ***Who*** is most at risk? *(Person)*

Answering these questions can help us make better-informed decisions, and ultimately lead to improved health status for WIC participants. Timely, accurate data – correctly interpreted – can help guide policy, determine priorities, plan interventions, target actions, monitor trends and evaluate progress toward achieving Program goals and objectives. So…

- ***What*** *are the health & nutrition problems facing the population you serve?*
  - Which health or nutrition indicators are high / highest? or low / lowest?
  - How do they compare to other WIC populations? to the general public? to our WIC objectives?
- ***When*** *do you see changes in the health & nutrition problems facing the population you serve?*
  - Have your health & nutrition indicators remained pretty stable, or have they changed over time?
  - Are they improving or worsening? How do they compare to last year? the year before? 10 years ago?
  - Do your indicators follow a pattern or *trend* of getting better or worse during certain times of the year? If so, why might that be?
- ***Where*** *do you see the most health & nutrition problems facing the population you serve?*
  - How do your indicators compare to other WIC regions? to state or national figures?
  - Are there variations in the data between clinic sites within your own WIC region?
- ***Who*** *is most at risk for these health & nutrition problems within the population you serve?*
  - Which age group(s) within your population is at highest risk for a given health or nutrition problem? For example, how does low birth weight change with the age of the mother?
  - Which racial/ethnic group(s) is most likely / least likely to breastfeed their infants?

How do your data compare?

How do your Local Agency's data compare to our WIC objectives, to national health objectives, or to the results of state or national data? Such comparisons can help determine whether a specific health or nutrition indicator represents a public health problem for the population you serve at a given time and/or place. For example, you can compare your data to:

1. Healthy People 2010 Objectives: used to monitor progress towards improving the health status of the nation. The 2010 objectives were established for the general population, but are also appropriate for low-income populations. http://www.healthypeople.gov/
2. Reference Populations: represents a standard against which another population can be compared. The reference population can be used to determine an individual's risk for a health problem, or to determine if a particular population is better or worse off compared to the reference population. The CDC's Growth Chart is one example of using a reference population to screen individuals to determine their risk for a health problem. That is, do they fall into the "healthy weight" or "problem" (underweight or overweight) category on the growth charts? Is their growth curve headed in the right direction? How did that recent bout of diarrhea impact an infant's growth curve? http://www.cdc.gov/GROWTHcharts/
3. US Population Surveys & Surveillance data: national "population-based" surveys such as the *National Health & Nutrition Examination Survey* (NHANES, http://www.cdc.gov/nchs/nhanes.htm), are representative of the U.S. population and can be compared to "program-based" data like our WIC data. (Remember: unlike national survey data, WIC data are *not representative* of the general population - or even of all low-income women and children in the nation or in a given state; they are only representative of the population served by our state's WIC program.)
4. Within-Program Comparisons: comparisons can be made among programs within the same surveillance system. For example, you can compare health indicators – or demographic variables such as age or race/ethnicity – from one geographic area (e.g. WIC region) to those of a larger geographic area of which it is a part (e.g. the state), or between similar geographic areas (e.g. between WIC regions). PNSS/PedNSS (*Pregnancy & Pediatric Nutrition Surveillance System*) data can also be compared in this way, since they represent similar populations across states. http://www.cdc.gov/pednss/

* Source: much of this information has been adapted from the CDC's Pediatric & Pregnancy Nutrition Surveillance System website: http://www.cdc.gov/pednss/

The following table offers some examples you can use for making comparisons between the process and outcome indicators WIC monitors and your own Local Agency's results. What other data could be used for comparison purposes?

WIC Process & Outcome Objectives	CT WIC 2010	Healthy People 2010	CDC Ref Pop Expected Rates	State PNSS / PedNSS	National PNSS / PedNSS	U.S. General Population
1st trimester enrollment [a, f]	≥ 50.0%	≥ 90.0%	---	31.3%	31.7%	83.7%
Maternal weight gain [b, g]	≥ 70.0%	---	---	32.2%	32.5%	---
Low birth weight [c, h]	≤ 6.0 %	≤ 5.0 %	---	7.1%	7.1%	7.8%
Breastfeeding initiation [d, i]	≥ 60.0%	---	---	64.6%	65.4%	70.1%
Anemia in children [e, j]	≤ 9.0 %	---	≤ 5.0 %	9.1%	15.0%	---

How is your data quality?

How do your Local Agency's data look to you? Do they *make sense?* (Remember: just because data are published doesn't mean they are correct!) Reviewing the data carefully helps us to identify errors in the data system itself, or to find incorrect formulas and calculations, transcription errors, etc.

Do you detect any *odd or unexpected patterns* or *unusual data distributions* in your data? Is there a logical or rational explanation for an unusual pattern or distribution? Are there any *biologically implausible values* (BIVs) in your data – like a pregnant woman who weighs 48 pounds at the beginning of her pregnancy or an infant who weighs 48 pounds at birth?

Do your *numbers tie out* (sort of like balancing your checkbook)? Are your totals for a given month the same from one report to the next? If not, do you know why? or does the difference mean there is an error somewhere? For example, you will see some figures in one of the monthly reports that calculate out to over 100% for many LAs - how can that be?! Since we don't yet know, with your help we can investigate until we find the answer.

Anything that *raises questions* should be discussed, investigated and explained somewhere in the data presentation, often in a footnote. This is where the Local Agency perspective is vital to understanding our data and to ensuring good data quality. We can make accurate, valid decisions and avoid drawing erroneous conclusions only to the extent we have good quality data.

Remember the old saying: *garbage in, garbage out!*

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[a] **CT WIC Process Objective 1:** Increase to 50% the rate of first trimester enrollment of pregnant women (among women on WIC at least 6 months during pregnancy).

[b] **CT WIC Outcome Objective 1:** At least 70% of pregnant women who participate in the WIC Program for a minimum of 6 months gain appropriate weight (gained at least 25 lbs. among women on WIC at least 6 months during pregnancy). Note: Excludes women with prepregnancy BMI > 26.1 and women who delivered preterm infants.

[c] **CT WIC Outcome Objective 2:** The incidence of low birth weight among infants whose mothers were on the WIC Program for at least six months during pregnancy does not exceed 6% (i.e. birth weight less than or equal to 5 lbs 8 oz - 2500 grams - among infants whose mothers were on WIC at least 6 months during pregnancy).

[d] **CT WIC Outcome Objective 3:** At least 60% of infants whose mothers were enrolled in the WIC Program prenatally breastfeed (i.e. infants ever breastfed whose mothers were enrolled in WIC prenatally for any length of time).

[e] **CT WIC Outcome Objective 4:** The prevalence of anemia among children enrolled in the WIC program for at least one year does not exceed 9% (i.e. children 2 - 4 years of age on WIC for at least 1 year who are currently anemic).

[f] **HP 2010 Objective 16-6:** Increase proportion of pregnant women who receive prenatal care in the first trimester to 90%.

[g] **HP 2010 Objective 16-10b:** Reduce low birthweight to 5%.

[h] **HP 2010 Objective 16-12** (developmental)**:** Increase the proportion of women who gain the recommended weight during pregnancy.

[i] **HP 2010 Objective 16-19a:** Increase the proportion of women who breastfeed their infants during the early postpartum period to 75%.

[j] **Reference Population Expected Rates (CDC Criteria for Anemia):** Age-, sex- and stage-of-pregnancy-specific hemoglobin and hematocrit cutoff values for anemia are based on the 5th percentile from NHANES III for both children and women. In the reference population, about 5% of the population is expected to fall below the 5th percentile for anemia due to normal biologic variation. Prevalence of anemia greater than the expected 5% may indicate that anemia is a health problem in the population. (Source: http://www.cdc.gov/pednss/pop-ups/reference_population_anemia.htm)