



Using Data...Inside and Out

USING DATA...*Inside and Out*

Observation #1: Have you noticed how clothing styles change through the years, displaying what seems new and “trendy” only to discover that the style was just reinvented in a different time with a different name? For example, the old “peddle pushers” (I’m really dating myself) became “capri pants” and “hip huggers” became “low rise”. The same is true for theories and philosophies that come and go, often restated or reframed in a new way so you think you are being sold something brilliantly discovered. The marketing profession has certainly caught on to this. So, have people who write management/leadership books. Books will sell when the buyer thinks they will learn something new. Just like the patterns you look for in data that suggest a relationship between variables, patterns exist in the relationship between a “process” that is needed and the social/scientific conditions that favor one process or another.



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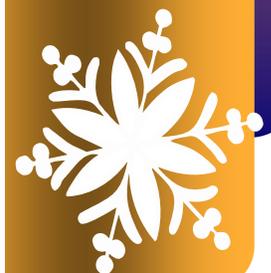
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Confused? Let’s compare the steps of four familiar types of process:

Scientific Process Problem Solving Medical Diagnosis Planning a Vacation

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| <p>Make observations State a hypothesis Design an experiment Gather data Analyze results Form conclusions</p> | <p>Make observations State the problem Analyze contributing factors Consider options Choose an option Make observations to see if it worked</p> | <p>Listen to subjective complaint Examine the patient (make observations) State a hypothesis (diagnosis) Consider treatment options Choose an option Make observations to see if it worked</p> | <p>Make observations about what you need (relaxing or adventure) Analyze your options Design your vacation Analyze your experience Make observations to see if it worked Select new traveling partners if needed</p> |
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USING DATA....*Inside and Out cont.*

See the similarities? Basically the same process but called something different. This brings us to **observation #2**: names for improving service. You will recognize the names for “improvement” process from early in the 20th century: quality control; chart audit, quality improvement, continuous quality improvement, total quality management, etc. Note that the basic steps in quality improvement (make observations, identify an issue, collect data, analyze, intervene, collect data, analyze...) are also the same as the lists above. Now it becomes a little easier to realize that instead of feeling overwhelmed at learning a new process, you can predict the steps because all “process” shares these likenesses. So, when they say “it’s as easy as planning a vacation”...it’s true.

Now, for **observation #3**: You can understand more about the science of epidemiology (*outside data and analysis*) by comparing its similarities to quality improvement (*inside data and analysis*). Applied epidemiology uses the same principles to study and interpret the health status and health care delivery systems of populations as quality improvement generally examines health data and delivery systems internally, or of the organization

Epidemiology (Macro)

Quality Improvement (Micro)

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| Make observations of a community health issue Engage the community Obtain resources Collect data Analyze data Interpret results Define the problem Program planning and implementation or; policy change Determine how the impact will be measured Collect data...and repeat | Make observations of an organizational issue Engage the organization Obtain resources Collect data Analyze data Interpret results Define the problem Program planning and implementation or; policy change Determine how the impact will be measured Collect data...and repeat |
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So, you can see that when you understand one process, you understand the other. One important difference however, is change takes longer to realize when implementing strategies/programs on a population level whereas the evidence from rapid cycle plan-do-check-act of quality improvement can be evaluated sooner.

Observation #4: Our final observation brings the process and outcomes of both epidemiology and quality improvement together. Patients/community members share a place both within the health care organization and in the community. They are counted in both places. Patients will benefit if the health care organization invests in public health, and public health can benefit from connections with health care organizations. This may seem elementary, but often the two systems operate independently of each other. I have observed this is less so in our Native communities, where the model of care incorporates community health into Tribal health centers and programs. In summary, the messages we can conclude from the observations can encourage us in the following ways:

- *To de-mystify and simplify a myriad processes to realize that when you can competently use one process, you can use them all;*
- *There is a benefit and value for health care organizations to extend themselves externally to participate in public health epidemiology practices and, for public health providers to extend themselves to the internal operations of health care organizations.*
- *We must advocate for health care financing and policy approaches that acknowledge that a patient has needs that follow them fluidly as they enter a health care organization and return to live in the community. This is the “holistic” view that American Indians have taught us that can lead to less fragmented care and reduced health disparity.*

Anne’s Epidemiology Terms

Epidemiologists are in the habit of counting... They count people who are sick within a specific population, people who are exposed to things that may cause them to get sick, or people who are healthy. Two words that are used a lot in epidemiology and help epidemiologists keep track of the kinds of people they count are **prevalence** and **incidence**.

Prevalence is the number or proportion of *existing* kinds of people in a specific population. Two examples of prevalence measures are listed on the next page.



Epidemiologist
Anne Trinh

Epidemiology Terms cont...

Prevalence is the number or proportion of *existing* kinds of people in a specific population. Two examples of prevalence measures are listed below.

In 2004, the age-adjusted total U.S. prevalence of diabetes in people aged 20 years or older who were American Indian or Alaska Native was 106 cases per every 100,000 people. The age-adjusted total U.S. prevalence for people aged 20 years or older who were White was only 44 cases per every 100,000 people.

~Centers for Disease Control and Prevention, January 2004

In 2003, the prevalence of HIV infection for the total U.S. population was estimated at 1 million (somewhere between 1,039,000 and 1,185,000).

~Centers for Disease Control and Prevention, 2003

Incidence is a measure of *newly counted* kinds of people in a specific population during a period of time (typically a year). It is often presented as a rate with the denominator being the total number of people in the population of interest, and the numerator being the number of people in the population of interest who are newly identified as having some characteristic that makes counting them interesting. Two examples of incidence rates are listed below.

In 2004, the age-adjusted incidence of liver and intrahepatic bile duct cancer for people of all ages in the United States who were American Indian or Alaska Native was 13 new cases per 100,000 people per year. The same rate for the all races population during the same time period was only 7 new cases per 100,000 people per year.

~ National Cancer Institute, Surveillance Epidemiology and End Results

In 2006, the estimated incidence of HIV infection for the total U.S. population was 56,300. This means that in 2006, in addition to the cases already identified, there were an additional 56,300 newly infected individuals.

~ Centers for Disease Control and Prevention, September 2004

Why do Immunizations Still Matter?

Before the mid 1950s, parents didn't look forward to summer—they waited in dread for the hot days, and kept their children indoors, away from swimming pools and crowds. What was happening, and what has changed since then?

Parents were afraid of polio, which infected 13,000 to 20,000 people, mostly children, each year—mostly during the summer months.¹ From 1943 to 1956 over 22,000 people died, and many thousands were left unable to walk without crutches or at all—and some were left paralyzed and unable to breathe on their own.²

In 1955 the Salk vaccine was introduced, and polio began to disappear from the United States. Today polio exists in the wild in



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only four countries. There were many other infectious diseases thought to be a part of childhood that most people never worry about anymore. Thanks to extensive public health campaigns, these illnesses are now very rare in America. In fact, the elimination of common and deadly infectious diseases is considered by many to be the greatest public health success story.

So, why should children keep getting immunized for diseases that aren't around anymore? Basically, if kids stop getting their shots, the diseases will come back. Many of these diseases are still common in other parts of the world. Because international travel is cheaper and more common than in the past, and since these diseases are usually very communicable (or in-

fectious), diseases can easily spread around the world in a matter of days.

An excellent example of this occurred in 2007. A child traveling from Japan to the United States for a sports competition infected six other people with measles, affecting three different states.³ Since most people are vaccinated, the outbreak could not spread through the whole population. This illustrates how important it is to stay up to date on vaccinations even if the diseases are not common in your community.

Currently, there is a Hib (Haemophilus influenzae type b) outbreak in Minnesota. One infant has died and four others have become ill; in three cases parents did not get their child the vaccine (one child had received the shots but had an immune deficiency; the other was

too young to have finished the series of shots). The last time Minnesota had a Hib death was in 1991, and this is the largest outbreak since 1992. Parents should check with their health care provider to be sure their children have received their primary Hib vaccination.⁴

Polio Disease- Questions and Answers. National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention. April 6, 2007. <http://www.cdc.gov/vaccines/vpd-vac/polio/dis-faqs.htm>

² DuBois, L.A. Polio: The Fight Continues. *Lens*. Vanderbilt Medical Center. April 2004. <http://www.mc.vanderbilt.edu/lens/article/?id=93>

³ Multistate Measles Outbreak Associated with an International Youth Sporting Event—Pennsylvania, Michigan, and Texas, August–September 2007. *Morbidity and Mortality Weekly Report*, Centers for Disease Control and Prevention. February 22, 2008; 57 (07): 169-173. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5707a1.htm>

⁴ DeNoon, D.J. Hib Outbreak Kills Unvaccinated Child. *WebMD Health News*. January 23, 2009. <http://children.webmd.com/vaccines/news/20090123/hib-outbreak->

Great Lakes Inter-Tribal Epidemiology Center Mission: To support Tribal communities in their efforts to improve health by assisting with data needs through: Partnership Development, Community Based Research, Education, and Technical Assistance.

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