Module IV: Systems Development and Evaluation

Why is a “systems approach” important?

“The whole concept of public health is founded on the insight that health and illnesses have causes or conditions that go beyond the biology and behavior of the individual human being”--Midgley, 2006

We have had the opportunity to talk about programs and projects, but how do they fit into the larger context of the public health system? There are numerous interacting variables that need to be accounted for and multiple agencies and groups that bring different values and concerns.

Can systems thinking help us unravel, or strategically unravel, the complex web of mediating and moderating variables that come into play when an intervention is taken from its controlled experimental setting to large populations or communities?

Like program evaluation, systems evaluation is dependent upon clearly articulated and measurable objectives and available monitoring data. Measuring the impact of a system can take the form of:
- Comparison against target objectives
- An historical comparison of outputs of the system at two points in time
- A comparison of the outputs of the system against a different system

What is a system?

In its most basic form, a system is comprised of the following:
- Input
- Process
- Output
- Outcome

Using public health examples, inputs might be legislative authority, budget authority, staff, equipment, supplies, information and data systems, community support

Processes might include data collection, needs assessment, planning, policy and program development and coordination, and funding.

Outputs: services, training, technical assistance, coalitions, skills building

Outcomes: health status indicators
Example:
The best example of a system evaluation comes from evaluations of regionalized perinatal systems. The evaluation of these systems involved the following components:

- Outreach to clients, education of providers
- Access to and utilization of prenatal care
- Risk assessment of the woman and fetus
- Referral mechanism to appropriate hospital (high-risk birth to hospital with adequate services)
- Transport mechanism when indicated (is the mother living in a rural area and need air transport?)
- Level of care received in the hospital
- Follow-up services, referrals to other programs

In effect, all of these separate entities could be evaluated as individual programs, but the systems evaluation measures the interface between these programs and the overall outcome/impact of the system. If the outcome objective of the regionalized perinatal system is to decrease infant or perinatal mortality, then the system outcome evaluation would measure those indicators. The monitoring evaluation of the system would consider the individual components and look at the specifics surrounding, for example, the number of clients served, education hours, etc.