

MODULE III

PLANNING & TRIAGE



MODULE II

Preventive Medicine in Humanitarian Emergencies

Rapid Assessments



WHAT IS PREVENTIVE MEDICINE?

- Based in Public Health
- Focuses on health of groups **NOT** individuals
- Uses mathematical data
- Looks at underlying causes of disease

Preventive medicine is concerned with the overall health of a group —a community



**“The patient
with thousand
arms and legs”**

**The patient is
the community**



THE PREVENTIVE MEDICINE “PATIENT”

- Groups -- Not individual patients
- “Vital signs” = Disease rates

Rates = $\frac{\text{disease cases}}{\text{even number}}$ X people at risk

*Even number represents the size of the population:
Usually either 1000, 10,000 or 100,000*

RATES

They are used to easily compare the realities of different communities and to evaluate the success of interventions in a given population in the course of time

RATES - EXAMPLE

Children < 5 with diarrhea

Town A = 304 cases

Town B = 1054 cases

Which town has more diarrhea problems?

RATES: NUMERATOR AND DENOMINATOR

Town A: 1597 children < 5

$$\text{Rate} = 304/1597 \times 10,000 = 1904$$

Town B: 12,818 children < 5

$$\text{Rate} = 1054/12,818 \times 10,000 = 822$$

Rates of diarrhea per 10,000 children < 5

DEFINITIONS

It is critical to define precisely both numerator and denominator

NUMERATOR: uniform criterion to define a case, so as to ensure data can be compared

DENOMINATOR: define adequately the population at risk (usually age groups)

INCIDENCE AND PREVALENCE

- Incidence Rates = Attack rates

Number of *new* cases in a given time (day, week, month, year) per *n* population (1000, 10,000, 100,000)

- Prevalence Rates:

Is the *proportion* of cases of different diseases, present in a given population at a given time, and is expressed in percentages

MORTALITY RATES

Standards for assessing severity of a disaster and effectiveness of response:

- 1) Crude mortality rate (overall most important)
- 2) Under 5 mortality rate (early warning)

Death is the most severe of all health outcomes and should be measured and followed carefully

CRUDE MORTALITY RATE (CMR)

Total number of deaths in group X 10,000
Total number of people in group

Reported as [Deaths per 10,000 per day]
Goal is less than 1/10,000/day

CMR in age <5:

Number of deaths in <5 X 10,000 per day
Total <5 population

Goal is less than 2 /10000/day

**How can we get to know
the health status of a
given community?**

POPULATION EVALUATIONS

- Demographics
- Pre-disaster health conditions
- Health care system evaluation
- Mortality and morbidity surveillance
- Emergency needs assessments

DEMOGRAPHICS

- Counting people! Top priority
- Over flights or ground visual estimates
- Sampling
- Census (most accurate counting method)
- Population structure-male/female and age groups <5, 5-15 years and >15
- At risk groups: small children, pregnant and breast-feeding women, injured and elderly

PRE-DISASTER HEALTH CONDITIONS

Know your community before a disaster strikes

- Immunization rates
- Where are the most vulnerable children living?
- Are there vector-borne illnesses?
- What are the most prevalent diseases?
- What is the baseline malnutrition rate?

The local health agencies may be the best or the only source of information available!

CONDITION OF HEALTH CARE SYSTEM

- People: who is available to help?
- Places: in which conditions are the facilities?
- Things: emergency medications, oral rehydration packets, medical supplies
- Capabilities: cold chain, vaccines, is surgery or inpatient care possible?

Pre-disaster community planning is crucial!

NEEDS ASSESSMENT/COMMUNITY EVALUATION

Data !!!!

Not speculation!

EMERGENCY NEEDS ASSESSMENT

- Needs assessments look at both the **NEEDS** and **RESOURCES** of a community
- Emergency needs assessment looks at the basic resources needed to **IMPROVE SURVIVAL / SUSTAIN LIFE**
- **WHEN POSSIBLE:** Needs are best met by using local resources

PRIORITY 'NEEDS'

- Safe water
- Shelter
- Basic sanitation and hygiene
- Food
- Local environmental conditions
- Health needs

NEEDS: WATER

- Number one priority
- 3-4 liters/person/day to maintain life
- 15-20 liters/person/day: a better estimate- takes into account cooking and cleaning
- Although at first QUANTITY is more important than QUALITY, improving quality will do more to prevent disease than any other measure in most disaster scenarios

WATER PURIFICATION

- Cover and allow to stand
- Sand filtration
- Bulk chlorination
- Reverse osmosis (military supply): good water in large quantities, but usually arrives too late, is expensive, not sustainable
- If other procedures not available, boiling or chlorination by individual user (the least efficient method)

The most basic distribution system will need clean containers for transportation

NEEDS: SHELTER

- WHO recommends 3.5 to 4 m² per person (below roof space)
- For all needs: cooking, cleaning, sanitation, recreation, a camp should have 30 m² per person
- Must be acceptable to local community or may not be used

NEEDS: BASIC SANITATION

- Feces are a concentrated source of human pathogens
- Potential for explosive water-borne epidemics following disruption of basic sanitation services
- Keeping fecal matter away from water and food supply is critical

CONTROL OF HUMAN WASTE

- Defecation fields—likely impractical
- Latrines- portable or hand-dug
 - One per every 20 people
 - Must be acceptable to community
 - Between 6-50 meters from dwellings
 - Health education/specific assignments for maintenance
 - Make sure meet children's needs, or will not be used



NEEDS: NUTRITION

- Know the previous acute malnutrition rate to compare
- Identify community resources
- Need-1900 KCals/person/day minimum
- Food must be acceptable to community
- Malnutrition rate of children <5 years old: gold standard for assessing group status
- Nutritional surveys: use standard sampling techniques, such as random, simple or systematic; cluster or, if possible, a complete census

NEEDS: ENVIRONMENTAL CONDITIONS

- Contamination of air, water, land
- Chemical spills
- Floods
- Unsafe buildings
- Smoke
- Slope
- Water drainage
- Presence of vectors (insects)

NEEDS: HEALTH

- Crude mortality rate: includes age, sex and cause of death
- Under 5 mortality rate: sentinel population
- Morbidity—surveillance system to capture data—broken down by age and sex

Those who provide clinical care are the key to capturing this information

OTHER COMMUNITY NEEDS

- Security: prevent crime and violence
- Transportation: different kinds of vehicles
- Communications: radio, TV, internet for mass communication; radio/telephone/internet for coordination of relief efforts

***Know your community pre-disaster
capabilities/challenges!***

THE SURVEILLANCE CYCLE



Gather Data

Analyze

Act

SURVEILLANCE

- Ongoing
- Systematic
- Data collection
- Data analysis
- TAKE ACTION BASED ON ANALYSIS

HEALTH DATA MANAGEMENT SYSTEM

WHAT DATA ARE IMPORTANT?

- Deaths
- Significant morbidity or frequent illness in community
- Early warnings; e.g., a single case of cholera
- Other: Malnutrition, malaria, serious trauma

SURVEILLANCE BEGINS WITH YOU!

- The clinician who treats individual patients MUST capture the data
- Keeping a log-book of patients is crucial
- Break down patients by age group and sex
- Analyze at local level and share data quickly

***IT IS CRITICAL THAT THE INFORMATION OBTAINED
BE EFFECTIVELY USED***

PREVENTIVE MEDICINE

ROLES OF PEDIATRICIANS

- After a disaster, do not limit yourself to direct patient care
- Post disaster community evaluations:
 - Nutritional assessments
 - Needs of young children
- Provide help with disease surveillance:
 - Design system with children in mind
 - Assist with collection and analysis

PEDIATRICIANS: PRE-DISASTER

- Join disaster planning committees
- Provide input on children's specific needs
- Make sure that drills include children
- Understand your community's vulnerabilities and capacities to respond to emergencies
- Make sure you are integrated into specific disaster response plans

IN BRIEF

- Preventive medicine is critical for community disaster recovery
- Use data to evaluate post-disaster conditions
- Set response priorities according to public health needs
- Ensure that an ongoing effective surveillance system is in place

¡THANK YOU!