1. Learning Objectives
- Know the risk factor for both communicable and non communicable diseases in displaced populations
- Understand effects of a communicable disease outbreak
- Know the common communicable diseases
- Understand the methods of prevention and control
- Know the tools for assessment surveillance and control
- Understand non communicable diseases issues in a displaced populations
- The basic services required
- Setting of priorities for diseases to be addressed
- Challenges in continuity

2. Transitions in displacement
- More displaced are now from middle income countries rather than predominantly low income countries as in past
  - These have different lifestyles and diets
  - Likely to be older
  - Fewer children
  - More educated
  - Higher expectations from health services
  - Less likely to live in camps
  - More likely in own apartments or shelters
  - Makes disease management more difficult

3. Disease burden is shifting
- Communicable diseases
  - Traditionally the threat to displaced populations
  - Diarrhea & Cholera
  - Measles
  - Meningitis
  - Malaria
  - Respiratory infections
  - Lice and scabies
  - Ebola
- Non-communicable diseases
  - Hypertension
  - Cardiovascular disease
  - Diabetes (type 2)
  - Respiratory infections
  - COPD/asthma
  - Injuries
  - Cancers
  - Mental Health
  - Substance abuse

4. As countries develop communicable disease drop
- The Epidemiological transition
  - Communicable disease
  - Non-communicable disease
  - ...plus the demographic transition

5. Populations are changing

6. Burden of disease for displaced populations

Parts to this discussion
- 1 Populations and disease transitions
- 2. Communicable diseases
- 3. Frameworks for thinking about communicable diseases
- 4. Communicable disease risks
- 5. Common communicable diseases in the displaced
- 6. Outbreaks communicable diseases
- 7. Other communicable diseases
- 8 Common diseases among the children
- 9. Non Communicable disease programs
- 10. Care to older and disabled populations
Differing approaches needed
implications for health services

Communicable diseases
- Many can be managed at PHC
- Reliance on medical auxiliaries
- Use of treatment algorithms
- Disease surveillance critical
  - Regular Epidemiological Bulletins
  - Use of Community Health Workers
- Appropriate laboratory & techs
- Appropriate meds more common
- May require special units

Non communicable diseases
- Demand for secondary/tertiary specialist care
- Clinician training needed
- May have access problems
- Treatment protocols needed
- Extensive laboratory services?
- Advanced meds expensive
- Household financial strain
- Compliance problems

Communicable diseases in disasters
- Communicable diseases are usually the major cause of death in a displaced population in low income countries
- Often in conjunction with malnutrition
- Less true in middle development countries
- Children under five have the worst mortality rates
- Many of these deaths occur in the emergency phase of a disaster.
- There exist multiple frameworks for understanding communicable disease

Public health actions for communicable diseases
- Prevention: identifying and reducing the risks of disease
- Establishing appropriate diagnostic criteria
- Ensuring access to correct treatment
- Collecting and disseminating adequate information
  - Surveillance
    - As appropriate: active, passive, sentinel site
  - Surveys
- Creating public awareness—providing reassurance reducing rumors and misinformation

The Communicable disease cycle
- Non-diseased state
- Risk and Exposure factors
- Biological manifestations
- Population susceptibility to the disease
- Clinical manifestations
- Progression of disease
- Death Chronic disease Cure

Thinking about communicable diseases in disasters
- Children under five have the worst mortality rates
- Many of these deaths occur in the emergency phase of a disaster.
The Communicable disease cycle

Non-diseased state

Risk and Exposure factors

Population susceptibility to the disease

Biological manifestations

Clinical manifestations

Public Health prevention measures

Some examples?

Data for disease control

- Surveillance systems need to be in place as early as possible in an emergency—these are as much part of disease control as routine information systems
- The nature of these systems will change as a response matures
  - Nature of diseases change
  - Availability of laboratory testing
  - Improvement of services

Public Health prevention measures

- Safe/adequate water
- Good sanitation
- Environment
- Vector control
- Adequate nutrition
- Access to food
- Shelter
- Immunization
- Access to health services

EXERCISE

How outbreaks develop

Agent
- Virulence
- Infections dose
- Drug susceptibility
- Mode of transmission
- Ability to adapt / change

Population
- Age
- Nutrition
- Previous exposure
- Physical condition

Environment
- Shelter
- Altitude
- Sanitation
- Food supply
- Water
- Pop density
- Basic services

Agent: Virulence, Infections dose, Drug susceptibility, Mode of transmission, Ability to adapt / change

Population: Age, Nutrition, Previous exposure, Physical condition

Environment: Shelter, Altitude, Sanitation, Food supply, Water, Pop density, Basic services

Disturbed equilibrium

4. Risk factors for communicable diseases

Communicable disease risks

- Overcrowding
- Physical exhaustion
- High level of malnutrition, food insecurity
- Low level of personal hygiene including lack of soap; inadequate water
- Inadequate quantity of water
- Poor water quality-outbreaks
- Poor sanitation
  - Latrines inadequate
  - Poor disposal of solid waste

Common in population displacement regardless of cause
More risk factors

- High percentage of children
- Lack of immunity
- Disruption of households
- Disruption of social structure
- Increased vector breeding
- Poor access to preventative or curative services
  Reduced access may take many forms

Risk mapping

- Climate change
- Long term,
- Short term-El Niño

5. Outbreaks of Communicable diseases

Key principles for transmission of disease

- Outbreaks unusual after natural disasters
- Most commonly occur with flooding and displacement
- Proven control measures may have decreased effectiveness in displaced populations with weak systems
- Many disasters occur where health systems are weak

Waterborne diseases pose threat in Pakistan as floods cause chaos

Effects of outbreaks on the population

- Often creates fear, panic, public disorder especially Ebola, cholera and meningitis
- May cause population movement—displacement increases individual risks and spread of disease
- Economic consequences, people neglecting agriculture and business
- Disruptive consequence of prolonged illness to society
  Cost of a funeral may exceed 1 year’s household income
  Child with measles may cost 1 month household income
3. Effects of outbreaks on the population

- Often creates fear and panic especially cholera and meningitis
- May cause population movement—displacement increases individual risks and spread of disease
- May cause loss of life
- Economic consequences, people neglecting gardens
- Disruptive consequence of prolonged illness especially the head of the household
  - Cost of a funeral may exceed 1 year's household income

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Average daily movement of SIM cards from cholera area immediately after outbreak (1 week period)

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Effects of an outbreak on the health system

- Cases overwhelm health system
- Other diseases go unattended
- Consequences worse if there are no community-based services in place
- System may collapse especially if already deteriorated
- With decentralization many peripheral area are weak
- Epidemics create panic and rumors and unrealistic demands on the health services
- Demands rapidly deplete supplies
- Loss of health workers—death or flight

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Impact of epidemic on health

- Shigella outbreaks overwhelm health system
- Ebola results in loss of health workers
- Ebola resulted in decreased household income in both infected and uninfected areas

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Sources of information in outbreaks

- Establishment of a surveillance system an immediate need
- In depth interviews (verbal autopsy) of families with deaths
- Case definition and common symptoms
- Using local names or descriptions
- From local facilities—collection of simple data
- Using a standard case definitions
- Reliance on community health workers for information
- Information from burial grounds or priests
- Age and sex of deceased
- Sometimes symptoms before death

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WHO EWARS System

Early Warning, Alert and Response System

Now deployed in larger emergencies (Rohingya)

Three components
- Data hub to collect and analyze data
- Forms can be designed and deployed to smartphones
- Analysis programs run, alerts created
- Mobile data collection using Smartphones
- Interoperability with national and international health information systems

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### EWARS
- Can set up case definitions
- Set Alert thresholds
- Determine who gets notifications
- For disease outbreaks
- Creates a line listing of individual cases and facilities
- Mapping capacities with epidemic curves
- Integrates laboratory surveillances
- Requires some access to mobile networks
- Can use solar chargers

### Pattern of a cholera outbreak
- Older children and adults develop severe diarrhoea and dehydration with or without death
- There is an increase in the number of persons with diarrhea, especially rice-water like stools
- Cases of severe, rapid-onset diarrhea, especially with vomiting
- Attack rates for clinical disease in an outbreak may run 1-5% (8% in Goma)
- Only 5-10% of persons may develop clinical disease
- Short-term immunity develops

### Communicable diseases in the displaced

<table>
<thead>
<tr>
<th>Diseases with major epidemic potential and consequences</th>
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<tbody>
<tr>
<td>Cholera</td>
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<tr>
<td>Meningococcal meningitis</td>
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<tr>
<td>Measles</td>
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<td>Shigella</td>
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<td>Ebola</td>
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<td>Potential</td>
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<td>Sexually transmitted diseases</td>
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<td>Scabies</td>
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<td>Lice</td>
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<tr>
<td>HIV</td>
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<tr>
<td>Various parasitic diseases</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Others in certain circumstances</th>
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<tbody>
<tr>
<td>Malaria</td>
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<tr>
<td>Louse-borne typhus</td>
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<tr>
<td>Yellow Fever</td>
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<tr>
<td>Trypanosomiasis</td>
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<tr>
<td>Leishmaniasis</td>
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<tr>
<td>Leptospirosis</td>
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<tr>
<td>Viral hemorrhagic fever</td>
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<tr>
<td>Relapsing fever</td>
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<tr>
<td>Typhoid</td>
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<tr>
<td>Hepatitis A &amp; E</td>
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</tbody>
</table>

### Expect Cholera
- Endemic to the area
- Population movements
- Conflict, displaced persons
- Poverty
- Some recent or potential outbreaks
  - Haiti, Zimbabwe, Yemen, South Sudan, Pakistan

### Cholera
- The most feared major outbreak (cholera-hysteria)
- Waterborne except where population concentrations are very high then person-to-person
- May result in major loss of life
  - If system is not prepared
  - If treatment is inadequate
- If cholera exists in the geographical area
  - Expect an outbreak among the displaced
- Seasonal variation—disease of the rainy season

- Cholera is present, but mixed in with AWD (cf. 0.21%)
- Difficult to supervise treatment
- OCV called off because of conflict
Epidemic 2010-2017/2018
- 810,000 infected
- Almost 10,000 died cfr 1.2%
- Immune naïveté to cholera
- Serotype Ogawa O1
- Risks increased by poor WASH and health infrastructure
- Cholera surveillance system, additional cholera treatment centers, many CHWs trained
- OPV 2.8 million doses in high risk areas.

South Sudan
- Cholera outbreak from June 2016 to Feb 2017
- 200,000 suspected cases, 436 deaths—cfr 2.2%
- 885,000 first round of OCV
- 500,000 second round

Rohingya
- Great concern about risks of cholera among Rohingya
- Cholera prone area
- Poor water and sanitation
- October/Nov 2017
  - 700,487 1st dose children >1 yr
  - 200,000 2nd doses children 1-4
- Extensive surveillance & clinics
- No cases reported to date

WHO Cholera kit
- Investigation kit-dx 10 cases
- Laboratory supplies
- 3 treatment kits (100 pers)
  - Community
  - Periphery (Health Ctr)
  - Central
- Hardware kit
- Shelter, stocks

Supplies are ordered using 3 major parameters: attack rate, population and urban/rural status.
Separate estimates for closed populations

Cholera Stockpile Calculator
Defining the type of cholera kit or module and how much of each kit or module to order
Cholera prevention

- Universal access to safe water and adequate sanitation
- Consider water treatment (in chlorination) were possible
- Disease surveillance and early warning systems in place
- Adequate diagnostic laboratories
- Rapid and effective rehydration with ORS and IV fluids
- Outpatient treatment and inpatient referral facilities
- Health promotion—handwashing, soap, food preparation
- Food safety laws enforced
- Immunization as pre-emptive
- Funeral precautions

Clinical management—1

- Main principle—prevention or management of dehydration
- Facility management
  - Mostly for careful management of seriously ill
  - “Quarantine effect” limited—but must not spread disease
- In non-refugee settings—most cholera can be handled as outpatients with ORS, especially at community centers
- When to set up a dedicated cholera unit? (CTU)
  - MSF rule—five new cases per day as threshold
  - Active case finding needed—use Community Health Workers

Clinical management—2

- Fluids
  - Rapid response with ORS (zero-mod dehydration)—80% in more stable situations
  - Low-osmolarity ORS/cereal-based-ORS preferred
  - Vigorous pushing of fluids required
  - In MSF refugee situations 75% required IV fluids (severe)
- Antibiotics
  - Not always needed—shorten excretion of vibrio and reduce stool volume
  - Doxycycline the usual drug as a single dose (azithromycin children, pregnancy) also chloramphenicol, erythromycin, CTM

Cholera treatment program

Facilities for cholera treatment

- develop a “vertical” program to deal with cholera
- special outpatient tents or clinics and staff
- in patient cholera unit —use cholera treatment kits
- Community education component

Control of infection

- Cleanliness in the facility (water requirements)
- Disposing of medical waste
- Preparing corpses

The cholera response—numbers

- Inpatient bed capacity
  - Attack rate ~5%; duration of outbreak ~1 mo; inpatient stay: 3 days
- Fluids
  - ORS: 10 liters/pt (Malawi: 14 l/pt)  IV fluids: 8 liters/pt
- Personnel
  - IV fluids: 1 hw/20 beds
  - Other tasks: 2 hw/20 beds
  - Medical officer, nurses, medical assistants, ward attendants
  - Health unit manager
- Other
  - Water, latrines, laundry, incinerator, morgue, solid waste disposal
Immunization

- When to immunize?
- Useful when other measures are in place are being started
- Most useful in endemic areas as pre-emptive
  - Killed whole cell vaccine “Dukoral”
  - Recombinant toxin sub unit “Shanchol”
- Cholera vaccines stockpile managed by GAVI
  - Provided 10 m doses in 2017
  - Single dose effectiveness in endemic area (so Sudan) 87.3%

Treatment

- Treatment with ciprofloxacin (3 da) or appropriate antibiotics
  - Others: ceftriaxone, azithromycin
- Demand may be great so priorities may have to be set
- Priorities
  - Children under 5, malnourished, recent measles
  - Older children and adults who are malnourished
  - Persons seriously ill
  - Older persons
- Case fatality rates may be 10%
- Prevention is the best treatment

Bacillary dysentery

- Usually Shigella, but can be other organisms
- Can be rapidly spreading infection of up 1/3rd of a population
- Transmission, water, food and person-to-person
  - Highly contagious, only small inoculum required
  - Outbreak can be explosive
  - Incubation period 1-3 days
  - Abdominal and rectal pains
  - Usually no major fluid loss
  - Very small inoculum needed

Meningitis

- Epidemic meningitis Neisseria meningitides (Group A most common among displaced populations)
  - Also Haemophilus influenzae and S. pneumococciiae
- Common in meningitis belt of Africa
  - Particularly in the dry dusty times epidemic will often break with the rains
  - Droplet spread
  - Increased transmission in crowded situations
  - Attack rates may be up to 1000/100,000

Meningitis is a septicemia before it is localized in the meninges.
- Case fatality rate may be 50% without treatment
  - 10% with treatment
**Meningitis epidemics**
- Outbreaks are episodic
- Hard to predict when they may occur—once started an outbreak is hard to stop until has run its course
- Treatment straightforward in epidemics
  - Chloramphenicol in oil (Tifomycin)
  - Ceftriaxone—newer treatment—single IM injection
- Epidemic follows classic epidemic curve
- Large numbers seldom show clinical disease
- Can create huge load on health system, and mass hysteria
- Mass chemoprophylaxis ineffective in emergencies

**Immunization campaigns**
- Should mass immunization be undertaken when cases appear?
- The decision made when—
  - Weekly incidence increases 2-4 fold
  - Alert threshold 5 cases/100,000 per week
  - 10-5 cases/100,000/week occur for 2 consecutive weeks
- A good manager has a contingency plan ready
- Immunizations should start in areas with clinical cases
- Immunization campaign can break an epidemic in 2-4 weeks if started early—preventing 70% of cases
- This is hard. If started late, only 23% cases may be prevented
- Inadequate campaigns waste of resources

**Meningitis immunization**
- Polysaccharide vaccine for A&C available for many years
- Increasingly this is part of EPI programs
- Recently a conjugate vaccine B made available—major advance
- New type A conjugate vaccine recently developed
  - Higher immune response
  - Reduces bacterial carriage in the throat
  - Protective effects on family members
  - Thermostable
  - Vaccine offers a hope of epidemic elimination

**Meningitis in Chad 1960-98**
- Number of cases of CHD in Chad from 1960 to 1998
  - 1960: 60
  - 1988: 88
  - 1970-74: 70-74
  - 1982: 82

**Spread of the 1998 epidemic**
Measles outbreaks in 4 Tanzanian camps

- Conflict in Burundi
- Measles outbreak in Burundi
- Refugee flight into Kibondo
- 4 camps set up=170,000
- Measles appears in 4 camps

Displacement and measles

- Often immunization coverage is low in displaced populations
- Overcrowding promotes spread
- Poor nutritional status increases risk of measles complications
- Measles makes poor nutrition worse
- Measles a major cause of weight loss — may take 3-4 months to recover
- Measles is often followed by other diseases
- Vitamin A deficiency associated with increased CFR and corneal changes which may lead to blindness

Measles

- A serious disease with high mortality
  - Particularly with ill or malnourished children
  - Death is usually due to respiratory conditions
- Case fatality rates may run to 50% in crises
- Highly infectious—a major risk in crowded settlements
- Low age of infection in developing countries
  - Risk begins at 5-6 months of age
  - >30% of children infected by age 1 year
- Effective EPI programs have reduced risks greatly

Measles outbreak-decision making

- Establish routine EPI Program
  - Adequate measles coverage?
    - YES
    - NO
  - Full immunization resources?
    - YES
    - NO
- Rapid roll-out of Full EPI Program
  - Measles only Program
  - NO
  - YES
**Measles outbreak-decision making**

- **Adequate measles coverage?**
  - **YES**
    - Establish routine EPI Program
  - **NO**
    - **Establish full immunization resources**
      - **YES**
        - **Establish full EPI Program**
        - **NO**
          - Measles only Program

Rohingya
- mass campaign using MR initially done for 136,000 children
- Facility based boPV + Vitamin A for 72,000
- When health facilities established, full facility based program established

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**Current recommendations**

- These may vary country to country
- Initial immunization at 9 months at earliest
- Repeat immunization at 15 or 18 months (countries vary)
- Priority immunization target: 6-59 months
- Immunize to 15 years if resources available.
- Vitamin A, 100,000 IU before 11 months
  - 200,000 IU 6 monthly 12 – 59 months

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**Other common diseases**

- Malaria
- Sexually transmitted diseases
- HIV
- Tuberculosis
- Childhood illnesses
  - Respiratory infections
  - Diarrhea
  - Complicated malaria

**Malaria**

- Malaria is common in many displaced populations
- In Africa malaria leading cause of death among refugees
- 4 species of *Plasmodium* common
  - "Benign"
    - *P. vivax* *P. malariae* *P. ovale*
    - *P. Knowlesi* (very limited)
  - "Malignant"
    - *P. falciparum*
Clinical malaria
Clinical considerations—
- Carried by Anopheline mosquitoes
  phenomenal vectorial capacity
- One of most common causes of fever in endemic areas
- Many persons self-treat—and that’s not all bad
- Repeated infections in childhood give partial immunity
  - Usually acquired age 3-5
  - Before this severe complications common—and can die
- Complicate malaria may cause
  - massive hemolysis, cerebral malaria, renal failure, ARDS
- Malaria—leading cause of death among African refugees

Sexually Transmitted diseases
This represents a major risk factor in many emergencies—
particularly with population displacement
- Risk for GBV and transactional/survival sex may be increased
- Pre-existing levels of STIs—including HIV determine risks
- Changes in sexual behavior with displacements
- Reduced access to health care—treatment outside formal clinics
- Existing services may be not functional
- Sexual health is a low program priority—but sex happens

Control of malaria
Assessing need for malaria control
- Is this a priority?
- What is known about malaria in this population? (surveys?)
- What are your options given your resources and priorities?
  - Status of the health services
  - Mosquito net programs
  - Availability of appropriate medicines-pharmacies, supply chain
- Population characteristics—who? from where? to where?
- Environmental status

Syphilis at ANC visits
Percentage of ANC attendees
positive for syphilis
Many not treated even if positive

Malarial control planning
- Health systems capacities
  - Human resources—skills and training
  - Facilities, equipment (lab) medical supplies
  - Referral services
  - Preparedness for outbreaks of malaria
- Ensure regular supply appropriate drugs
- Monitor drug sensitivity—shift drugs in a timely manner
- Establish mosquito control activities
- Surveillance— including outcome measures
**HIV exposure varies with countries**

- Some mediating factors in prevalence
  - HIV rates in population or origin or host populations
  - Degree of sexual interactions and STIs
  - Interaction with military or police
  - Availability (and continuity) of HIV/AIDS treatment
    - Interrupted by disasters (Haiti, EBV)
    - Unavailable—often forgotten in national planning
    - Limited VCT, laboratory services and data access

**Tuberculosis is often an important public health problem**

- TB is a post-emergency priority
- TB may be advanced at the time of first diagnosis
- TB treatment programs need security

**Containing STI/HIV in emergencies**

4 components of a program

1. Needs assessments and understanding the disease
   - Population based data—who is at risk?
2. Designing intervention package
   - Minimum Initial Service Package
3. Intervention and monitoring
   - Monitoring implementation and compliance
4. Outcome evaluations
   - Changes in knowledge and behavior

**TB risks in the displaced**

- The leading cause of preventable death among adults
- TB is a major risk to displaced populations—overcrowding
  - Tibetan refugees—more time in camps increased risk
- Health services damaged by disasters fail to diagnose TB and fail at treatment continuity
- National TB control programs overwhelmed in emergencies, cannot provide consistent supply of drugs
  - Treatment-completed ratios of <40% not uncommon
- Poor nutritional status of population predisposes
- Overcrowding increases risk of infection
- Control measures must concentrate on pulmonary TB

**Number of people living with HIV, 2016**

Africa-20-60% on ARVs

**Rate of new TB cases/1000 population 2016**

Percentage of new TB cases with MDR/RR-TB
Tuberculosis

Prevalence of pulmonary TB
- Situation urgent if prevalence >1% of the population
- In many displaced populations TB prevalence is >4%
- Tibetan refugees in central India: incidence 1,055/100,000 vs. 109/100,000 for India

Drug Resistance in TB—probability >0.5m new cases yearly
- Risk of drug resistant TB very high among displaced
- Partially or inadequately treated disease major hazard
- High defaulter rates; refugees repatriated
- Intermittent drug supplies, drugs being sold
- Low case detection rates

TB Treatment principles

One over-riding principle
**If TB cannot be treated correctly in a functional system—do not begin treatment**
Which means—often not in the emergency phase
Need prospect of at least 6 months of stability—ideally 12-15 months

Needed capacities for a TB program

The capacity to manage TB
- Trained and committed personnel with adequate supervision
- Laboratory resources—personnel and supplies consistently
- The capacity for uninterrupted treatment with DOTS
- Unimpeded access to patients—at least 6 months (12-15m)
- Capacity to treat/refer adverse reactions & complications
- Capacity to give chemoprophylaxis—children of TB mothers
- Consistent record keeping capacity
- One person and agency in charge of TB

More capacities needed

The capacity to monitor, supervise and evaluate the program
- Maintaining the TB register
- Treatment records
- Treatment completed ratio available
- The capacity to determine, relapse and cure
- The capability of monitoring quality of TB smears
- From the beginning—integrated with host country TB program

When to Start TB treatment
- During post-emergency when a population stabilized, with little influx or repatriation
- The health system functioning
- Community health workers
- Basic requirements for TB program assured including medicines
- Referral and lab facilities available
- Stability of organization certain
- One organization and person in charge

When to Stop TB treatment
- Loss of population stability
- Conflict develops
- Population becomes “open” with uncontrolled movements
- Essential health system capacities no longer present; loss capable human resources
- National program no longer supports
- Loss of organizational support
- Loss of political will

Communicable diseases are most common among children

- Measles
- Malaria
- Complicated by malnutrition
- Diarrhea
- Upper respiratory infections
- Lice and scabies
- Majority of child illnesses in emergencies are caused by one of 6 conditions
- The majority of deaths from communicable diseases are in children, most under age 5 and usually <2 years
- Implications for treatment programs
Approach to treating childhood illness in emergencies

- Treatment is a symptomatic approach
- Few laboratory facilities available
- Use of medical auxiliaries often with uncertain training & skills
- Difficult to stock a variety of medications
- Need for standard approaches with minimum subjective decisions

Diagnosis & treatment algorithms

- Systematic diagnosis and treatment algorithms developed for childhood illnesses, and some adult conditions
- Improves quality of treatment greatly
- But at a cost of increased time
- These have been brought together as the Integrated Management of Childhood illnesses or IMCI
- More basic model as community case management of childhood illness (CCM) for Community Health Workers

Managing child health

- Clinical care and immunization efforts closely linked
- Child health and nutritional monitoring intertwined
- Standard diagnostic and treatment algorithms are available and should always be used—reflecting host community standards
- Use of medical auxiliaries integral part of child health
- Nurses
- Medical assistants/clinical officers
- Community Health Workers—form an integral part of the community-health center continuity of care

9. Communicable diseases summary

In summary: 8 points

1. Pay attention to risk factors
2. Communicable diseases are common in displaced populations
3. Outbreaks may have a major effect on a population
4. A variety of control measures are available
5. Communicable diseases in children-standard approach
6. Prepare for common communicable disease in adults
7. Know principles for setting up a disease control program
8. Communicable diseases are uncommon in natural disasters

10. Non communicable diseases in displaced populations

Non communicable diseases

Life styles are changing worldwide

These affect displaced populations

There is no "official" list of NCDs in emergencies

Much population displacement now coming from middle income countries

Common prevalence in LMICS for 10,000 adults—
- 1500-3000 hypertensives
- 500-2000 diabetics
- 3-8 heart attacks every 90 days
- 4-16 strokes every 90 days
- ~75% NCD deaths in LMICs

Populations displaced by conflicts

1. The population which has people with NCDs
   - Compared with those affected by natural disasters
   - Refugees from conflicts have fewer assets
   - Are farther from their homes and support networks
   - Sons are more likely to be dead, daughters living elsewhere
   - Remain displaced longer
   - Often cannot legally work

Planning for NCD services

Things to consider
1. The population which has people with NCDs
   - The nature and extent of the NCDs
2. The health services available for the displaced
   - What can it realistically be expected to provide?
3. The skills of health providers who will manage NCDs for the displaced

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Demographic and health changes

1. The population which has people with NCDs
   - Populations may have differing NCD “profiles”
   - NCDs may be more prevalent in urban than rural dwellers
   - Urban displaced often older, more dependent on health care
   - The majority of urban refugees do not live in camps with established health services, so missed by refugee services
   - May have a limited social networks and be isolated
   - Financially may not affording private care

Special needs

- Many fleeing require assistance needs
- May have special needs—previous injuries, disabilities
- Perhaps have been receiving specialized care before for pre-existing illnesses
- Toxic exposure may be common
Needs of older persons

1. The population
   - Increasing life expectancy means more older persons are caught up in disasters
   - Frailty and lack of mobility to health facilities which themselves are not older-friendly
   - May be confused by displacement and, have limited literacy and hearing
   - Often multiple diseases and taking unaffordable medicines
   - Health status may be complicated by undernutrition

Planning care

2. The health services available for the displaced
   - What was the prevalence of previously diagnosed NCDs?
   - Knowing the most common barriers for current treatment
   - What was the level of care in location of origin?
   - What level of care is available in current location—and the resources required?
     - Human resources
     - Health care facilities and services
     - Medications and supplies
   - Methods for making decisions about priorities

What will the system look like?

- Ideal system—resources of the health system meets NCD care needs
- Health providers are adequately trained including PHC level

Adapting the health services

2. The health services available for the displaced
   - Ensure good PHC access
     - Integrate NCD care provide resources and referral pathways
     - Developing innovative protocols for treatment & surveillance
     - Reduce risks to health facility lifeline services and rapid restoration when happens (water, electricity, sanitation)
   - Access to medications and medicines important
   - Give a high priority to continuity of care
     - Electronic hospital and OPD records very helpful
Building capacity of providers

3. The skills of health providers - Need to develop new skills
- What are the common NCDs in this population?
- How have they been treated before the displacement?
- What are beliefs and expectations from this population?
- Learning how to manage NCDs with existing laboratory and medical resources
- Treatment schedules may be simplified or improvised;
- Created resources to promote continuity of care
- Identify various priority groups and subgroups for special care

The medicines for common NCDs...

Still a long way to go to include comprehensive list for NCDs
- Morphine has finally made the list
- Cardiovascular drugs
  - methyl dopa, 250 mg po
  - hydralazine, inj 20 mg
  - atenolol, tablets 50 mg tablet
  - Furosemide inj
  - HCTZ po
- No diabetes medicines
- Salbutamol inhalers
- Ukraine crisis has pushed development of NCD kit.
- Includes drugs for managing cardiovascular disease, insulin and glucometers to measure blood sugar levels for diabetes, and inhalers for asthma
- But insulin still a problem in some places

Other more active approaches

Cohort approach in Jordan among Palestinians
- All patients within a catchment area screened and those with hypertension and diabetes are registered
- Actively followed for treatment
  - Electronic recording of visits—Smartcards (Iraq)
  - Providing SMS messaging on disease
  - Tracking compliance and control
- Wellness component—integration of lifestyle programs

Pre-existing health services NE Japan

- In the three prefectures (5.7 million people) there were
  - 385 hospitals
  - 3981 clinics and doctor’s offices
- Health infrastructure lagged behind national averages before the disaster, per population with fewer---
  - Hospitals and clinics
  - Doctors
  - Specialized facilities
- Most services were directed toward NCDs

Looking forward

- More new approaches are needed
- Standardized treatments
- Electronic records systems with notifications
  - Shifting more responsibilities to patients (where possible)
- Cost effective treatment approaches for expensive conditions and procedures
- Lifestyle change programs
- Developing palliative care provisions where appropriate

Primary care services

Primary Care after the tsunami (main source of NCD care)
- Providers spontaneously organized emergency services
- Many municipal health departments inadequately functioning
- Some GPs were killed, some older ones decided to retire
- Many health workers lost houses and automobiles
- Some were diverted to work in evacuation centers
- Health records and prescriptions were lost
- Outpatient hospital services slow to resume
Primary care services
 Primary Care
 Spontaneously organized services
 Many municipal health departments inadequately functioning
 Some GPs were killed, some older ones decided to retire
 Many health workers lost houses and automobiles
 Some diverted to work in evacuation centers
 Health records were lost
 Difficulty with transport to hospitals
 Outpatient hospital services slow to resume

Care of the older persons
 Municipal facilities for the elderly and disabled
 74,000 elderly or disabled in Miyagi and Iwate
 Specialized evacuation centers established

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Disease patterns
 Surveillance system reported daily, but slow in starting
 HMIS worked in certain places, many evacuation centers use syndromic or event-based system
 Diseases
   Tsunami lung (Souhou haien) high case fatality rate
   Indian Ocean tsunami less—often unusual microbes
   Upper respiratory symptoms (?asbestos)
   Some diarrhea—increased when people were cooking for themselves
   Chemical burns from cleaning procedures
   CO poisoning
   Deep vein thrombosis—lack of activity and dehydration

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Prioritizing NCD support
Miyagi, Iwate, Fukushima

Priority 1
 Dialysis
 Diabetes Type 1
 Respiratory support
 Post-organ transplant
 Acute coronary care

Priority 2
 Diabetes Type 2
 Stable cardiac disease
 Asthma and COPD
 Neoplasm

Priority 3
 Hypertension
 Hypercholesterolemia
 Other NCDs

Other NCDs
 12,330
  119,000
  86,000
  463,000

Hypothermia was initially a problem because of unseasonably cold weather
Mental Health problems

- Mental health problems
- Tohoku had a higher than national average suicide rate
- More rapid deployment of mental health teams than after the Kobe earthquake
- Somatization reported from some evacuation center clinics
- Survivor guilt a major problem seen early and consistently
- Among military responders a substantial number of mental health and psychological problems
- Problems surfaced among health workers

Pediatric mental health

- Major needs for pediatric mental health providers
- Institution of school-based counselors
- Mental health surveys started among children
- From Hanshin-Awaji (Kobe) earthquake (1995) — there are still ex-students receiving care
- 236 orphans identified in Tohoku

Summary-1

Communicable diseases remain a challenge
- These change as populations change and as climate changes
- Rapid changes in drug sensitivities are common
- Children account for a large proportion of communicable diseases
- Diseases can move refugee ↔ hosts
- Most diseases are present in the community already

Summary-2

- Non communicable diseases increasingly common
- Often more difficult to manage than communicable disease
- Primary staff lack skills; specialists not easily available
- Essential medicines may be lacking
- Continuity, record keeping and compliance a problem
- Lack of consistent protocols
- Control of NCDs needs a major life-style change program component—always missing