Awareness of Nutritional Needs for Emergencies in the Community

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April 2014
Four Stages of Denial
Eric Holdeman, former director of emergency management for Seattle’s King County

ONE: It won’t happen.

TWO: If it does happen, it won’t happen to me.

THREE: If it does happen to me, it won’t be that bad.

FOUR: If it happens to me and it’s bad, there’s nothing I can do to stop it anyway!
What You Need to Know

- Overview of Complex Emergencies
- Risk Factors for Nutrition Related Conditions
- Clinical Clues of Nutritional Risk
- Minimizing Risks – Be Prepared
- Food Safety Basics
The America’s Hazards*

- Floods
- Hurricanes
- Earthquakes
- Tornadoes
- Ice Storms
- Wild Fires
- Landslides
- [Terrorist Attacks]

91% of Americans live in places at moderate-to-high risk for some type of disaster!
Natural Disasters and Extreme Weather

  - Persons diabetes*, heart disease, and physical disabilities were most affected due to lack of access to medicine and loss of routine medical care.

- **Hurricane Andrew (1992)**
  - 1/3 of residents in the high-impact area demonstrated high levels of Post-Traumatic Stress Disorder (PTSD)
Natural Disasters and Extreme Weather

- Flooding*
  - ↑ GI symptoms (gastroenteritis), acute respiratory infections (asthma), PTSD

- Carbon Monoxide - Hurricane Sandy (2012)
  - 263 exposures reported to Poison Centers and related to Hurricane Sandy
Natural Disasters and Extreme Weather

- **Extreme Heat and Cold**
  - 1993 Philadelphia heat wave
    - 26% ↑ in total mortality
    - 98% ↑ in cardiovascular deaths, particularly in older individuals

- **Blizzards / Ice Storms**
  - 1998 Maine ice storm
    - ↑ cardiovascular deaths due to heart disease
Natural Disasters and Extreme Weather

- **Earthquakes**
  - 3-fold up in deaths from myocardial infarction (MI), a doubling of frequency of strokes, and up BP
  - Deterioration of mental health, PTSD prevalent
  - Poor diet directly linked to down blood glucose control and up mortality in diabetic patients
Natural Disasters and Extreme Weather

Multiple Environmental Events – March 2011 Japan
Earthquake+Tussami+Nuclear Power Plant Explosions

- Over 6 weeks after quake, increase incidence in heart failure and pneumonia

IN THE US – American were asking about taking potassium iodide (KI)* in response to nuclear pollution from Japan

- KI should only be used on the advice of emergency management officials or public health officials

CDC: [http://emergency.cdc.gov/radiation/ki.asp](http://emergency.cdc.gov/radiation/ki.asp)
How Do We Address Preparedness?

Provide for adequate food, water and sanitation, shelter, clothing and essential health services:

✓ Available
✓ Accessible
✓ Acceptable
✓ Adaptable
Food Related Risk Conditions*

- **Food insufficiency** – inadequate amount of food intake due to lack of food.

- **Food insecurity** – inability to obtain nutritionally adequate and safe food; or the inability to obtain it in socially acceptable ways.

- **Malnutrition** – medical condition caused by an improper or insufficient diet characterized by inadequate consumption, poor absorption, or excessive loss of nutrients over a long period of time.
Resiliency

The capacity for communities and house-holds to prevent, mitigate, and recover from disasters and crisis.
Question 3: What Nutrients are Under consumed by the General Public and Present a Substantial Public Health Concern?

- For both adults and children: vitamin D, calcium, potassium, and dietary fiber.
How Prepared Are We?
Americans Currently At Risk ---- Dietary intakes in comparison to recommended intake levels or limits

Eat more of these:
- Whole grains: 15%
- Vegetables: 59%
- Fruits: 42%
- Milk: 52%
- Oils: 61%
- Fiber: 40%
- Potassium: 56%
- Vitamin D: 42%
- Calcium: 75%

Goal

Risk Factors for Nutrition Related Conditions in the Infants and Young Children

- Poverty
- Functional impairments
- Poor health
- High energy needs
- Non-breast fed infants*
How Prepared Are We?

Based on a review of nursing organization web sites ----

“Disaster planning in relation to infant nutrition is painfully absent.”

Karen H. Morin, DSN, RN
Professor and Director of Graduate Programs
University of Wisconsin-Milwaukee
Breastfeeding Rates
Where the Storms Made Landfall

Ever Breastfed

2005 National Immunization Survey,
http://cdc.gov/breastfeeding/data/NIS_data/images/map_1_2005.gif
Risk Factors for Nutrition Related Conditions in Older Persons

- Poverty
- Functional impairments/chronic disease(s)
- Social isolation and depression
- ↑ dependence on support systems for medical care
- Reduced ability to regulate energy intake
- Lacking access to nutritionally adequate diets

↓ food intake ➔ nutrient shortfalls
How Prepared Are We?

Seniors are at particular risk in hot weather. Less than half of people 65 and older abide by heat-emergency recommendations to stay hydrated.

*Because they didn’t consider themselves seniors!*

Scott Sheridan, Professor of Geography, Kent State University
Immediate Impact and Nutritional/health Consequences of Complex Emergencies

- Loss of safe water
- Loss of safe food supply
- Lack of access to special foods
- Loss of access to life-sustaining medical care (insulin, dialysis*, respiratory support)
- Loss of basic utilities

- ↑ risk of dehydration; GI conditions; Inability to prepare infant formulas
- Acute protein malnutrition
- Acute under nutrition due to loss of availability of pureed foods, tube feeding formulas, thickened liquids
- Deteriorating medical condition, renal toxicity, hyperglycemia, etc.
- Extremes of heat/cold; inability to preserve foods and meds; inability to prepare foods

Coping with Food and Water Shortages

- **Stock a 2-week supply of shelf stable food and water**
- **3 day supply for evacuation**
- Minimum adult ration: one well-balanced meal per day
- **Water should not be rationed; 1 gallon per person per day**
  - Individual needs vary
  - Children, nursing mothers, and ill people need more water
  - Very hot temperatures can double the amount of water needed
  - A medical emergency might require additional water
How to Spot Malnutrition

- Observe eating habits
- Look for physical symptoms
  - Poor wound healing
  - Edema
  - Easy bruising
  - Dental difficulties
  - Weight loss
  - Drug interactions
Problems Caused by Malnutrition

- Fatigue or depression
- Weak immune system, ↑ risk of infections
- Low Red Blood Count (anemia)
- Muscle weakness, ↑ risk of falls and fractures
- Digestive, pulmonary and heart problems

Another kind of “mal”nutrition would be getting too much sodium or sugar ….could destabilize congestive heart failure (CHF), or alter blood sugar control
Dehydration

**At risk:** infants and young children, older adults and people with chronic illnesses; and people living at high altitudes

**Causes:**
- Intense diarrhea, vomiting, fever or excessive sweating
- Inadequate intake of water during hot weather or exercise
Symptoms of Dehydration

- Dry, sticky mouth
- Sleepiness or tiredness (children are likely to be less active than usual)
- Thirst
- Decreased urine output
- Muscle weakness
- Headache
- Dizziness or lightheadedness
Symptoms of Severe Dehydration: A Medical Emergency!

- Extreme thirst
- Extreme fussiness or sleepiness in infants and children; irritability and confusion in adults
- Very dry mouth, skin and mucous membranes
- Lack of sweating; little or no urination (color of urine)
- Sunken eyes
- Shriveled and dry skin that lacks elasticity (skin test)
- In infants, sunken “soft spots” or fontanels on the head
- Low blood pressure; rapid heartbeat
- Fever
- Lethargic or comatose in most serious cases
Treatment for Dehydration

- Drink frequent small amounts of fluids, for infants (tsp or syringe).
- For infants and children, avoid using water as the primary replacement fluid.
- Drinking too much fluid at once can bring on more vomiting.
- Electrolyte solutions or freezer pops.
- Sports drinks, if high in sugar or sodium could worsen diarrhea in infants and children.
- IV fluids and hospitalization may be necessary for moderate to severe dehydration.
Coping with Food and Water Shortages

**Diabetics**

- should be familiar with the carbohydrate (CHO) counting diet plan and prepare their emergency supplies accordingly
- strive for 130 grams of CHO/day
- should keep a supply of sugar, honey, instant glucose or glucose tablets, sugared soda, and hard candies in case of low blood sugar reactions

*Diabetes Care, ADA Statement on Emergency and Disaster Preparedness, September 2007.*
Coping with Food and Water Shortages

Chronic Kidney Disease (CKD)

Emergency Meal Planning for Kidney Patients*

- 3 Day Emergency Grocery List and Meal Plan for patients on dialysis
- 3 Day Emergency Meal Plan for People with Diabetes and CKD

- If dialysis is interrupted: protein (40-50 gm/day) and fluid restrictions (16 oz/day) along with a low potassium (1500 mg/day), sodium (1500 mg/day)
- Limit high calcium and phosphorus foods and beverages
- Keep distilled water on hand

Coping with Food and Water Shortages

**Pulmonary / COPD/Asthma**

- Complications common after natural disasters*
  - Inhalation of airborne particles, smoke, overcrowding in shelters, aspiration of water and waterborne pathogens and/or direct trauma
  - Mold exposure

- Greatly increased caloric needs
  - CHO, fats, protein needs are balanced based on severity of symptoms; eat frequent and smaller meals
  - Commercial food supplements may be appropriate

*Do Not Ration Water!
Coping with Food and Water Shortages

Gastrointestinal (GI)

- Increase food intake to reduce *diarrhea*: broths, sports drinks, diluted juices, increase fiber
- Omit greasy, fatty or fried foods to help prevent *nausea and vomiting*
- *Loss of appetite*: frequent small meals, oral supplements or replacement drinks and calorie and protein dense foods
Food Safety in a Power Outage

- Keep the refrigerator and freezer doors closed as much as possible
- Refrigerators should be kept at 40°F or below for proper food storage
- The refrigerator will keep food cold for about 4 hours if it is unopened
- The freezer will keep cold for ~48 hours
- Consume perishable foods first, followed by foods from freezer
Next consume nonperishable, staple foods that do not require refrigeration, cooking, water or special preparation.

Choose salt-free crackers, whole grain cereals, and canned foods with high liquid content.

Vitamin mineral supplements, protein drinks, “power bars” or other fortified foods as meal extenders, if needed.

Unlike water, food can be rationed safely, except for children and pregnant women.
Food Safety in a Power Outage - 3

When power is restored –

- Check the temperature inside refrigerator and freezer
  If the freezer thermometer reads 40°F or below, or if the food still contains ice crystals, it is safe to refreeze or cook.
- If no thermometer - check each package of food to determine its safety. Refrigerated food should be safe as long as the power was out for no more than 4 hours.
- Discard any perishable food (such as meat, poultry, fish, eggs or leftovers) that has been above 40°F for 2 hours or more

You can’t rely on appearance or odor to know if the food is safe!
ARE YOU PREPARED?

NUTRITION EMERGENCY SUPPLY KIT

- Minimum 1 gallon water per person per day (keep unopened in original containers)
  - Recommend 3-day supply for evacuation
  - Recommend 7-day supply for sheltering in place
- 2-week supply of shelf-stable and ready-to-eat food items and 3-day supply for evacuation
- Infant formula preferably ready-to-feed formula
  - Recommend 3-day supply for evacuation
  - Recommend 7-day supply for sheltering in place
- 7-day supply of medications and/or medical foods
- Diet-appropriate foods for individuals with chronic illnesses such as diabetes, chronic kidney disease, and congestive heart failure
- Use a refrigerator and freezer thermometer
BE PREPARED!

● Thank you!

● Questions??

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