

You are what you eat: Why food hygiene matters for child growth



WASH_H



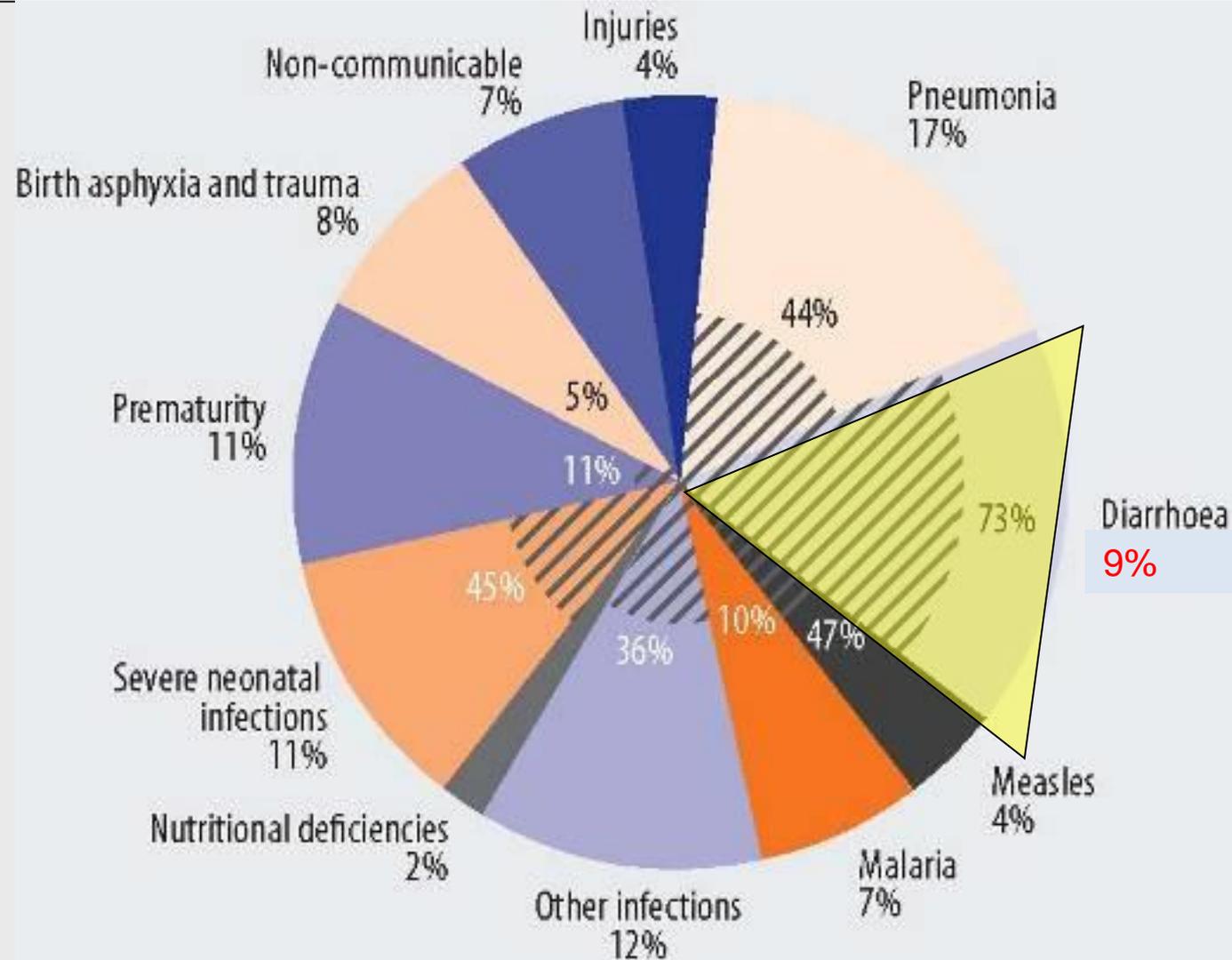
food hygiene

Percentage of Diarrheal Deaths Attributed to Undernutrition

Diarrhea: 9% of all
child deaths

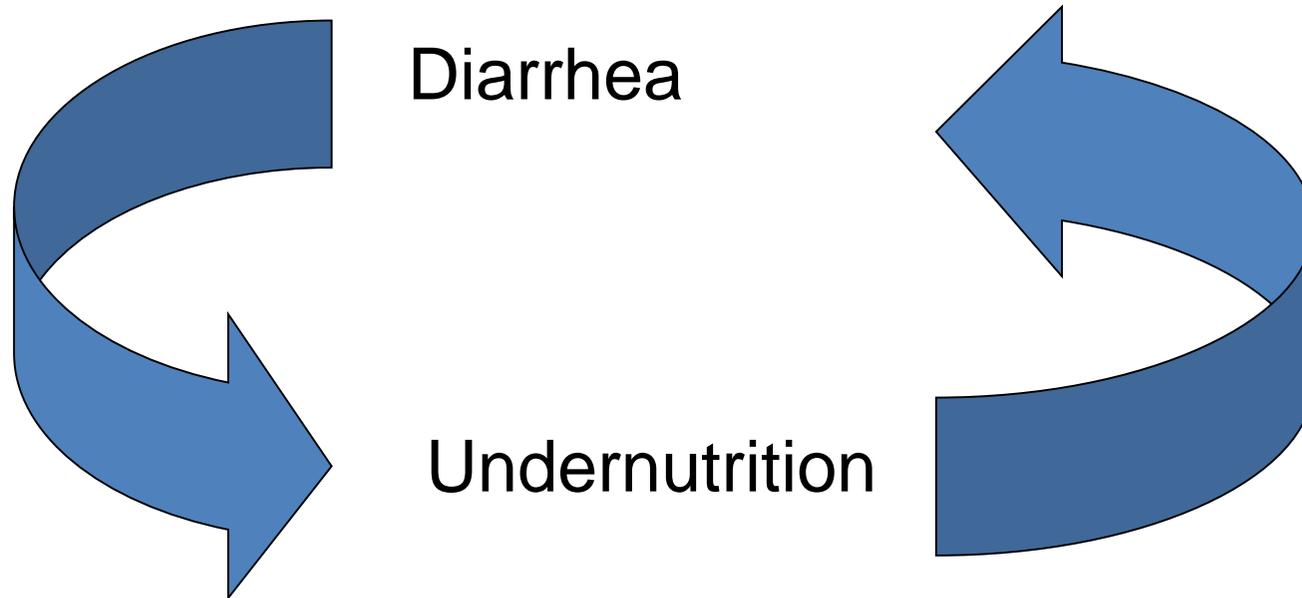
Undernutrition
contributed to **73%**
of these deaths

... underlying cause of
45% of child deaths
each year (Lancet,
2013).



Shaded area indicates contribution of
undernutrition to each cause of death

Connecting Diarrhea and Nutrition



- Children with diarrhea tend to eat less
- With diarrhea, nutrients from food are not well-absorbed
- Undernourished children are more susceptible to diarrhea

Stunting – *low height (or length) for age*

- Sign of chronic under-nutrition

165 million stunted children

¼ of ALL under-five children!!!

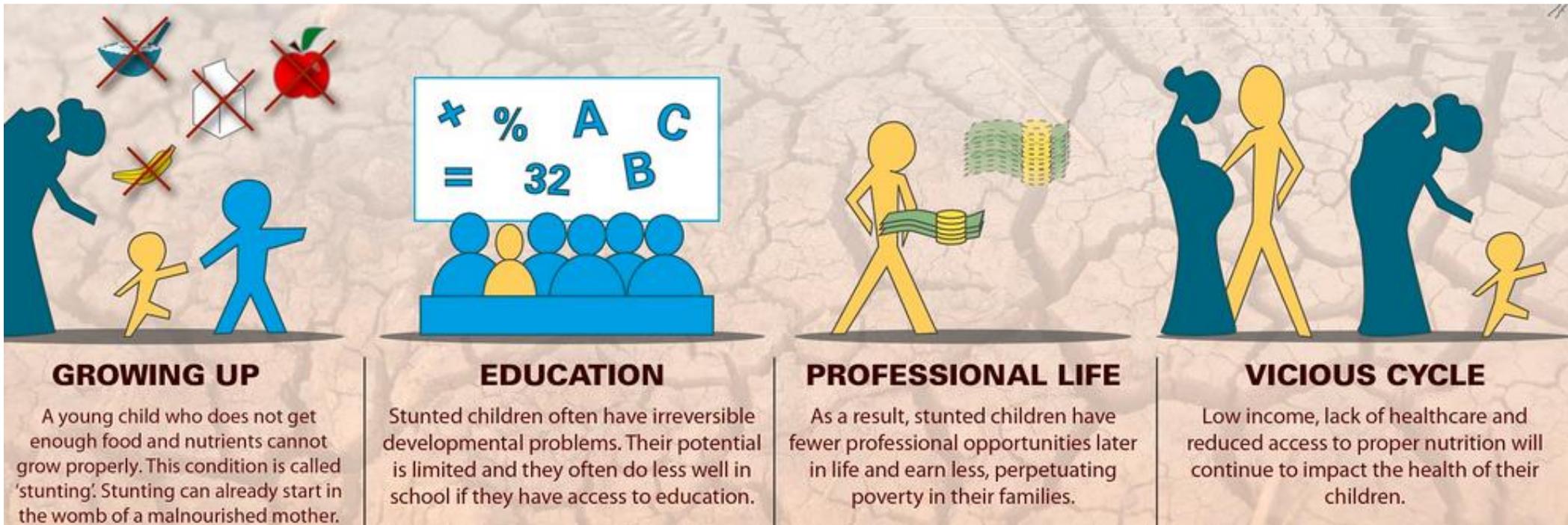
Over 90% stunted children live
in Africa and Asia



36% African children
56% Asian children
affected



Stunting has lifelong implications...
A stunted child will never learn or earn
as much as if they'd been properly nourished...
And the damage can't be un-done...



What is causing all this stunting?

- Cause #1: Malnourished Mother
- Cause #2: Poor Diet
(inadequate complementary feeding)
- Cause #3: Diarrhea
- Cause #4: ??Enteric Dysfunction???

Diarrhea is the most important infectious determinant of stunting

(Black et al. 2013).



Safe Feces Disposal



30% ++

Focus on WASH behaviors for Diarrhea Disease Reduction....

Handwashing



43%

Safe Storage & Treatment of Water

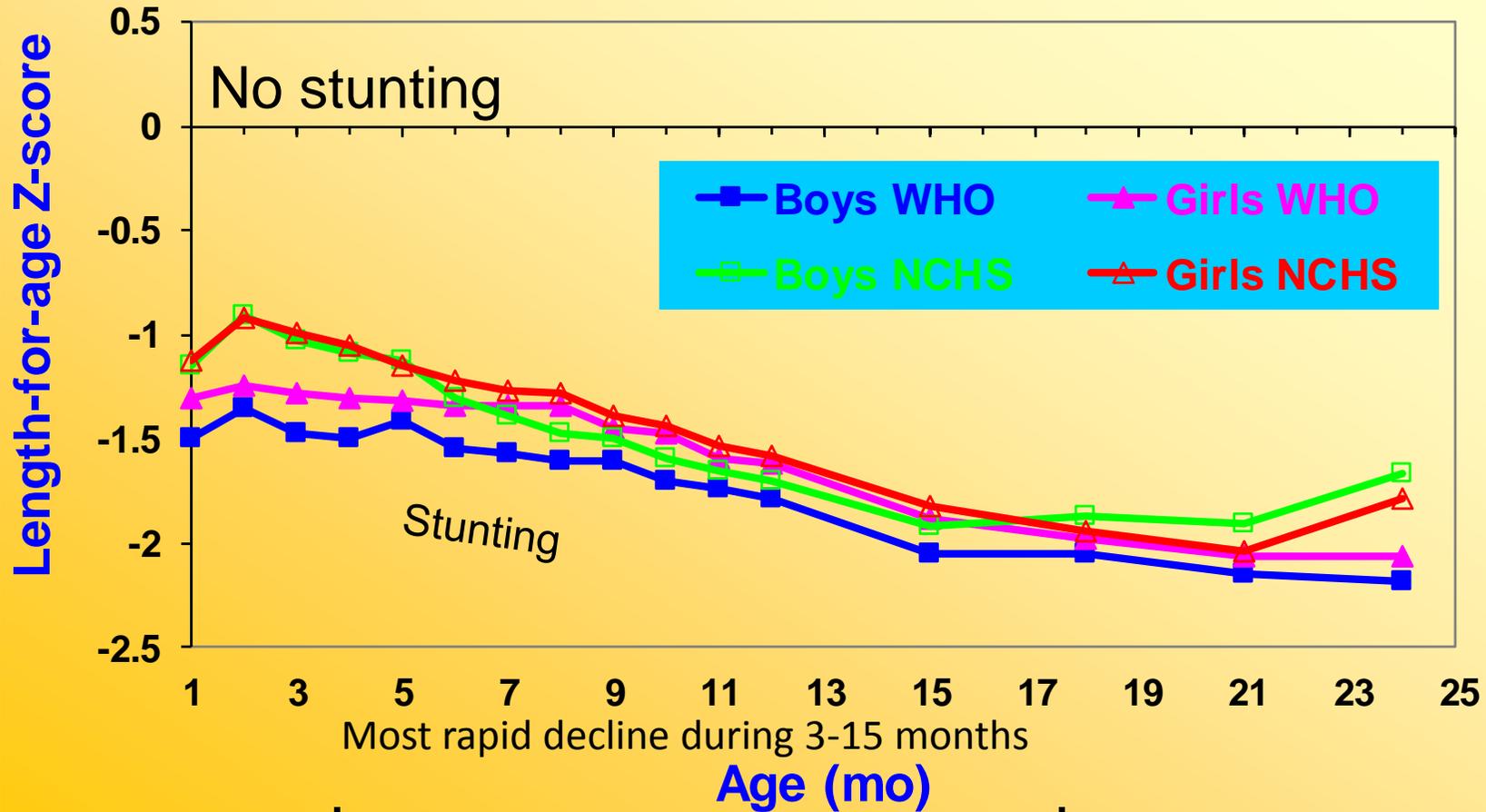


30-50%



*Add some?? Namely food hygiene,
safe disposal of INFANT feces,
ANIMAL/poultry feces
?'diaper' handling?'
?animal corralling?
?protective play spaces?*





{ "Normal"

KK Saha et al (ICDDR,B),
Food and Nutrition Bulletin 2009

Most damage occurs during complementary feeding period

What do we know about linkage between food hygiene, diarrhea, health and growth ??

Not much



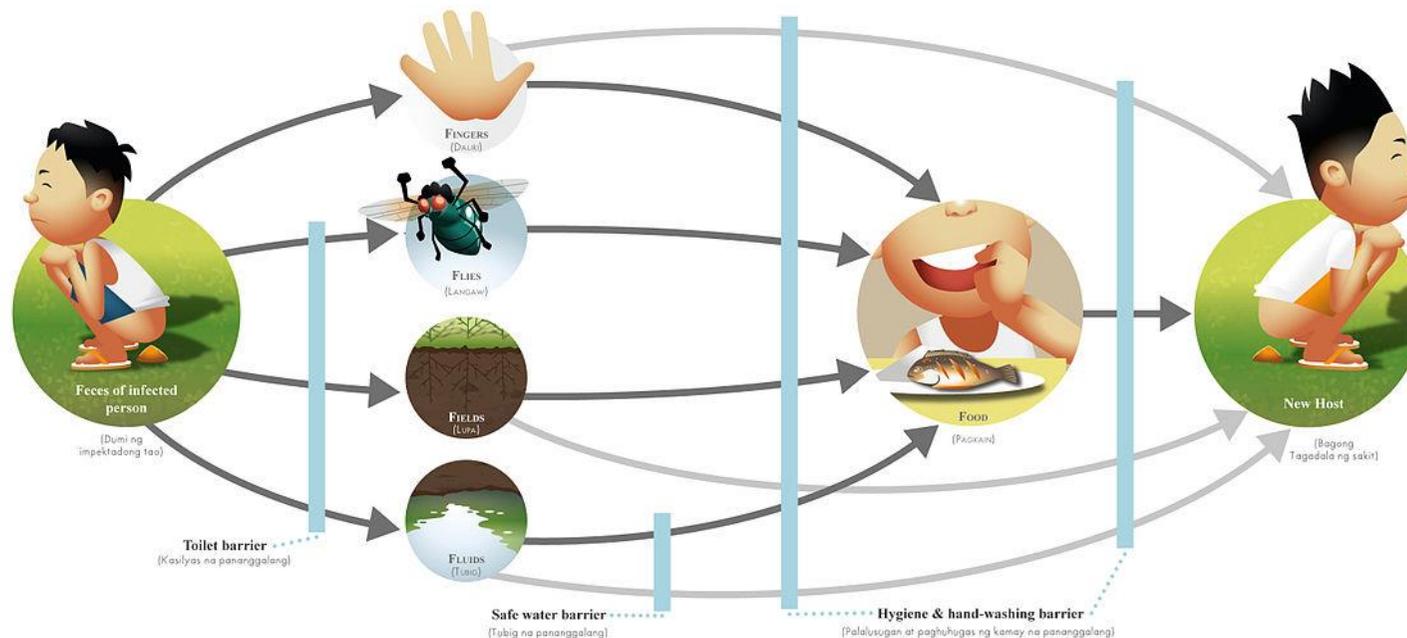
Emerging Evidence and Renewed Focus on Food Hygiene

- Food is among the most important factors in transmitting pathogens that cause diarrheal illness
(*Motarjemi et al. 2012*)
- An estimated **15%-70%** of DD among young children could be due to pathogens transmitted through food (*Motarjemi et al. 1993; Esrey and Feachem 1989*)
- Appropriate food hygiene practices have been shown to reduce the risk of diarrhea by **33%**
(Sheth et al. 2006).

There is some evidence identifying risk factors and associated behaviors.

However, little is known about practices

- * in low income settings,
- * of relative risk of practices or
- * about interventions that could mitigate the risks.



Biological plausibility and expert opinion.

What Causes Foodborne Diseases?

- A host of bacterial, viral and parasitic organisms 32/16
- Many pathogens causing diarrhea have human, domestic animal and household pests as RESERVOIRS
- Most are spread through fecal >> oral contamination
- *For parasites and viruses*, food serves as a vehicle for transmission to a new host
- *For bacteria*, food offers an opportunity to grow exponentially to infectious levels
- *With parasites and some bacteria* (e.g. salmonella) pathogen is present w/i food
- **Water** can also contaminate food during irrigation and food preparation

Literature Review on Effective Food Hygiene Interventions
for Households in Developing Countries

Monica Woldt and Gerald G. Moy

August 2015

Lit Review on Food Hygiene Interventions



<http://www.fantaproject.org/research/literature-review-on-effective-food-hygiene>

Peer-reviewed research demonstrates that food hygiene interventions can...

- improve knowledge regarding the relationship between food hygiene practices and diarrhea,
- increase the practice of key prioritized food hygiene behaviors,
- decrease levels of contamination of prepared food (including complementary food for children), and
- reduce the prevalence of diarrheal disease.

Several social and behavior change studies have shown that improved knowledge, attitude, and practices around food hygiene was associated with fewer child diarrheal episodes (Sheth et al.)

Food Hygiene Interventions: Key Methods and Approaches

- **Formative research** for program design
- **HACCP approach** to identify key problems and critical actions and test the application of the critical actions
- **Pretesting and monitoring/follow up**
- **SBC messages and/or materials** for the targeted audiences to influence behavior change
- **Repeated and/or intensive exposure** to messages and key practices
- **Interpersonal communication** with respected, influential change agents

Critical Food Hygiene Actions

- Cooking at adequate temperature and time
- Decreasing the time food is stored at ambient temperature
- Reheating at adequate temperature and time
- Use of clean utensils to avoid contamination
- Storage of food at sufficiently low or high temperatures to prevent bacterial multiplication
- Adequate handwashing to avoid contamination

Recommendations: Immediate

- Put into programming practice what is already known about food hygiene
- Use quality improvement approaches and operations research to build upon what is known in food hygiene and fill programming gaps
- Promote effective linkages between existing curative and preventive programs when diarrheal disease does occur

Source: *Improving Household Food Hygiene in a Development Context*, Monica Woldt, Gerald G. Moy, and Rebecca Egan, FANTA Project, 2015

Recommendations: Longer-term

- Conduct formative studies to inform program design
- Develop guidance on practical, feasible ways to ASSESS and ADDRESS food hygiene in developing country contexts
 - Be Comprehensive!
 - Include food hygiene components in policies, strategies, and programs
 - Address needed supplies, products and services

Source: *Improving Household Food Hygiene in a Development Context*,
Monica Woldt, Gerald G. Moy, and Rebecca Egan, FANTA Project, 2015

Recommendations: Longer-term

- Integrate an appropriate package of water, sanitation, and hygiene interventions into programs
- Target food hygiene interventions for vulnerable populations (Pregnant/Lactating Women, children < 2 years, PLHIV, TB patients, etc.)
- Develop and test indicators to assess the outcomes and impact of food hygiene interventions

Source: *Improving Household Food Hygiene in a Development Context*,
Monica Woldt, Gerald G. Moy, and Rebecca Egan, FANTA Project, 2015



The core messages of the WHO Five Keys to Safer Food are:

Five keys to safer food

Keep clean

- Wash your hands before handling food and often during food preparation
- Wash your hands after going to the toilet
- Wash and sanitize all surfaces and equipment used for food preparation
- Protect kitchen areas and food from insects, pests and other animals

Why?
While most microorganisms do not cause disease, dangerous microorganisms like bacteria, viruses, fungi, yeasts, and parasites can. These microorganisms are not visible. They can be found on hands, kitchen cloths and sponges, reusable cutting boards and utensils. Reusable cutting boards and utensils, especially, can transfer these to food and cause foodborne diseases.

Separate raw and cooked

- Separate raw meat, poultry and seafood from other foods
- Use separate equipment and utensils such as knives and cutting boards for handling raw foods
- Store food in containers to avoid contact between raw and prepared foods

Why?
Raw food, especially meat, poultry and seafood, and their juices, can contain dangerous microorganisms which may be transferred onto other food during food preparation and storage.

Cook thoroughly

- Cook food thoroughly especially meat, poultry, eggs and seafood
- Bring foods like soups and stews up boiling to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink. Ideally, use a thermometer
- Reheat cooked food thoroughly

Why?
Proper cooking kills almost all dangerous microorganisms. Studies have shown that cooking food to a temperature of 70°C can help ensure it is safe for consumption. Foods that require special attention include ground meats, offal, and large joints of meat and whole poultry.

Keep food at safe temperatures

- Do not leave cooked food at room temperature for more than 2 hours
- Refrigerate promptly all cooked and perishable food (preferably below 5°C)
- Keep cooked food piping hot (more than 60°C) prior to serving
- Do not store food too long even in the refrigerator
- Do not thaw frozen food at room temperature

Why?
Microorganisms can multiply very quickly if food is stored at room temperature. By heating at target temperatures, by holding at target temperatures, by cooling to 5°C or below 5°C, the same bacteria, 2°C or above 60°C, the same growth of microorganisms is slowed down or stopped. Some dangerous microorganisms still grow below 5°C.

Use safe water and raw materials

- Use safe water or treat it to make it safe
- Select fresh and wholesome foods
- Choose foods processed for safety, such as pasteurized milk
- Wash fruits and vegetables, especially if eaten raw
- Do not use food beyond its expiry date

Why?
Raw materials, including water and salt, may be contaminated with dangerous microorganisms and chemicals. Toxic microorganisms and chemicals can be transferred to ready-to-eat foods. Careful selection of raw materials and simple practices such as washing and peeling may reduce the risk.

Food Safety
World Health Organization

Knowledge = Prevention

- keep clean;
- separate raw and cooked;
- cook thoroughly;
- keep food at safe temperatures; and
- use safe water and raw materials.

use safe water and raw materials





keep clean!

cook thoroughly!!





Small Doable Actions for WASH Behavior Change

- People rarely move from current to ideal practices
- Make it possible!!
- Identify, promote and facilitate improved behaviors that...

- Have significant **positive impact** on health

- Are **feasible** from 'actor'

point of view in resource constrained settings

- Construct a continuum
- Integrate!!



ASSESSMENT AND NEGOTIATION

Father's/Mother's Name: _____ Name of the Village Health Team: _____
 Village: _____ Date of Visit: _____

1. Assess with the householder what they are doing now for each of the key behaviors and mark a check in the corner of the current practice.
2. Based on the current behavior, discuss the improved behaviors to the right of the current practice. During your discussion, ask...
 - What problem the family will face to change the current practice to the improved behavior?
 - Discuss if there is any one in the family who opposes to change the current behavior due to culture or other reason.
3. Circle one, two or three behavior/s that you agreed upon to practice.
4. Seal the agreement as a commitment and make an appointment to see the improvement behavior.
5. Finally, hand this card to them to put it securely on a wall or store in the family health card.

"It is all our responsibility to end open defecation, unhygienic practices and the diseases they bring!"

Disposal of feces

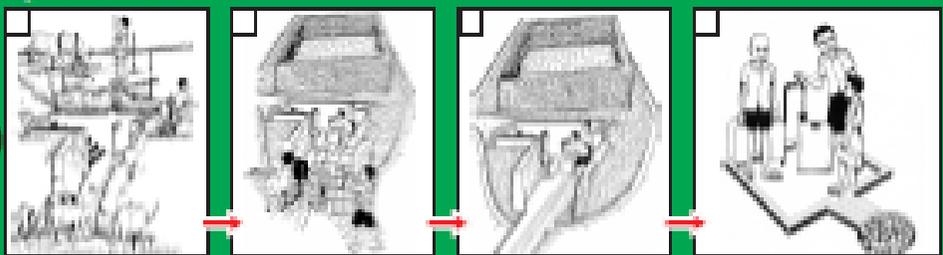
1 

2 

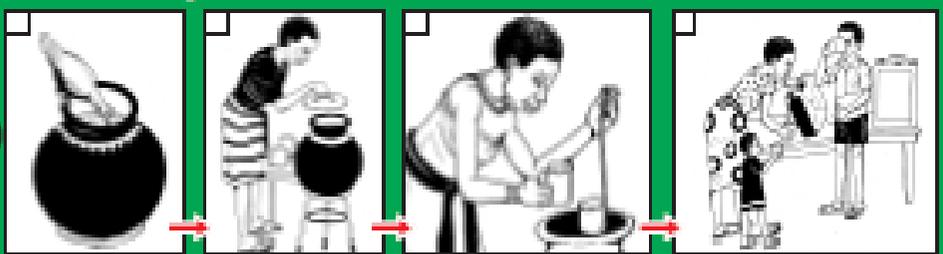
Washing hands with soap/ash after defecation

3 

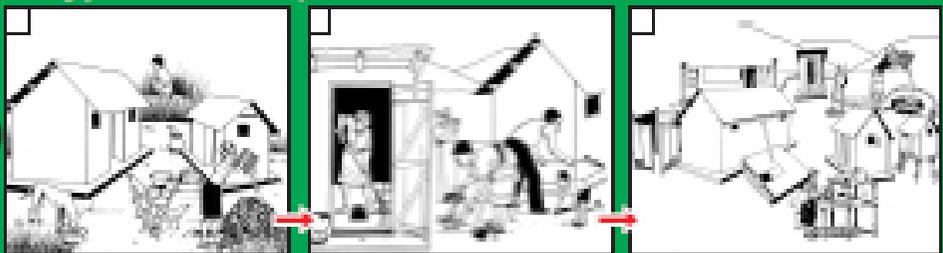
Keep Water source clean

4 

Safe water handling

5 

Cleaning your house and compound

6 

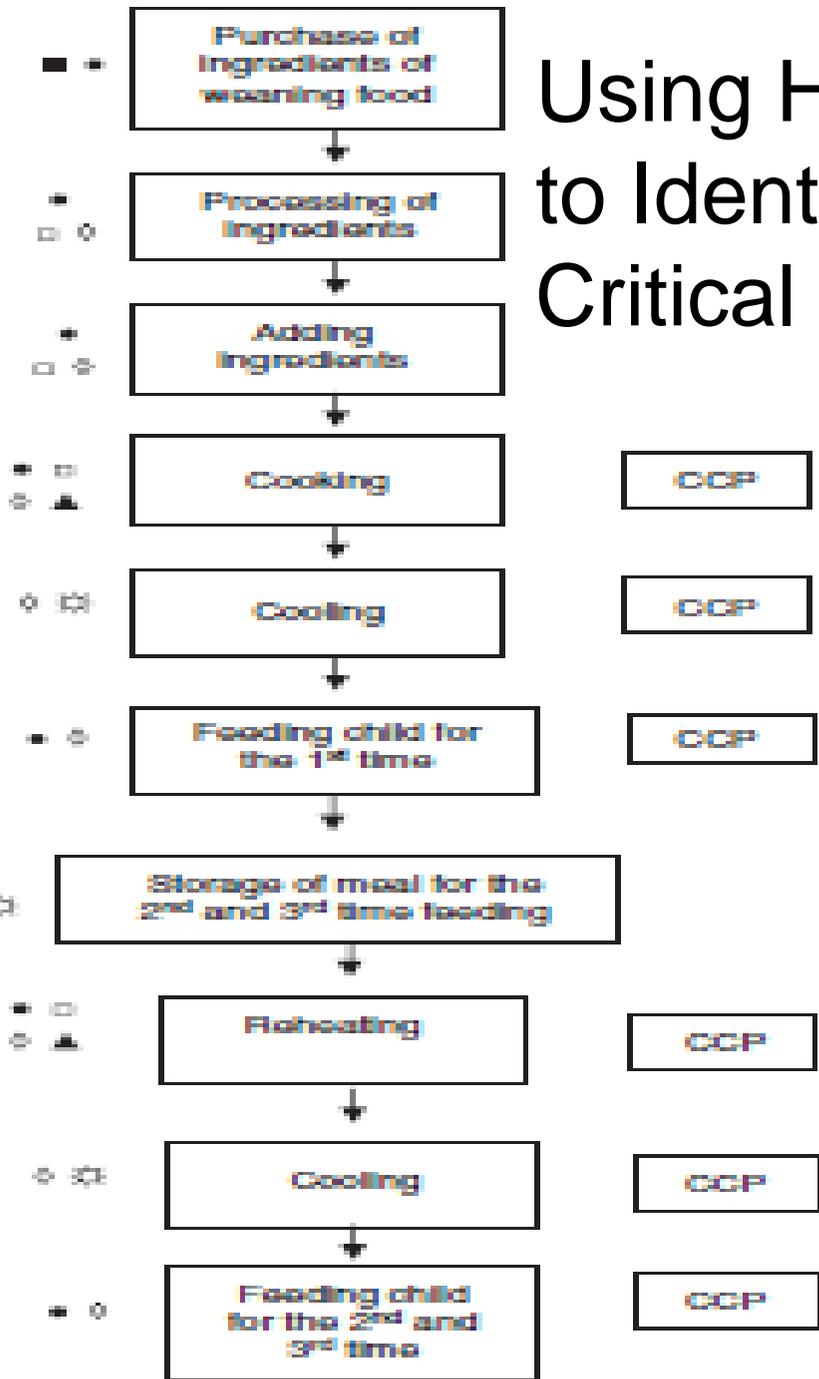
Keeping latrine clean

7 

Essential times for hand washing

8 

Using Hazard Analysis to Identify Critical Control Points



Legends

- Initial contamination and contamination
- Later contamination
- Utensils contamination
- Insufficient heating
- Uncovered food



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Small Doable Actions For Keeping Food Safe: Food Handling & Preparation

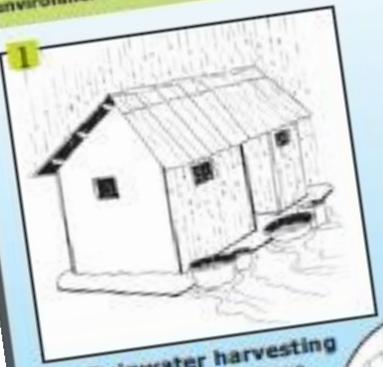
It is especially important to wash hands and food containers with soap and flowing water before handling food to minimise the risk of germs. Adhere to all personal hygiene practices like keeping fingernails short while handling food.



- ◆ Construct a tippy tap close to the kitchen to ensure hand washing with soap.
- ◆ Wash hands with soap before preparing food.
- ◆ Keep fingernails short and clean.
- ◆ Prepare raw meat or fish away from other raw foods. Don't allow juices to touch other foods.
- ◆ Wash area where food is prepared at least daily, with water and Jik, if available, otherwise soap.
- ◆ Wash raw vegetables and fruits under running water to remove germs, insects, and chemicals.
- ◆ Keep animals (such as chickens) away from food preparation area.
- ◆ Wash all the knives, cutting boards, and plates used after cutting fresh meat with soap and water.
- ◆ For utensils used to handle cooked and ready-to-eat food, wash with soap and water and store on shelf or wall.

RAINWATER HARVESTING OPTIONS

RAINWATER HARVESTING IS A SUPPLEMENTARY WATER SOURCE.
 It is a free and cheaper option and enables households to increase access to water.
 It reduces distance to the collection point. It is friendly to conservation of our environment.



1
 Rainwater harvesting without gutters
 This is not an effective option.



2
 Rainwater harvesting in a drum using one gutter



3
 Cut out iron sheets to make gutters and delivery pipes. Use wires to mount gutters onto the roof.



4
 Rainwater harvesting with a water jar



5
 Rainwater harvesting with a cistern

HOW TO MAKE

REQUIRED MATERIAL

Corrugated sheeting | Tarpaulin
 or safe closure to protect



6
 Plan everything before you start. Measure once, then measure again.



7
 Dig a large pit around the perimeter, from stones and mud.

wide and 1m deep. Dig a hole the size of your tarpaulin.

around the perimeter, from stones and mud.

Line pit with tarpaulin. Make a safe finish/fix the



8
 Make a cover for the pit by using iron sheets.



9
 Cut out iron sheets to make gutters and delivery pipe. Use wires to mount gutters onto the roof.



10
 Finally fix the delivery pipe from the gutter to the cistern to have a complete rainwater harvesting cistern.



11
 Make a DIPPER from a used 5 litre jerry can, a stick and strong nylon twine or nails.



12
 Always contain water from the cistern.

Make certain that children cannot get access to play in the water, to dirty it OR TO FALL IN!!
 Make certain no chickens or other animals' faeces can contaminate the tank!

