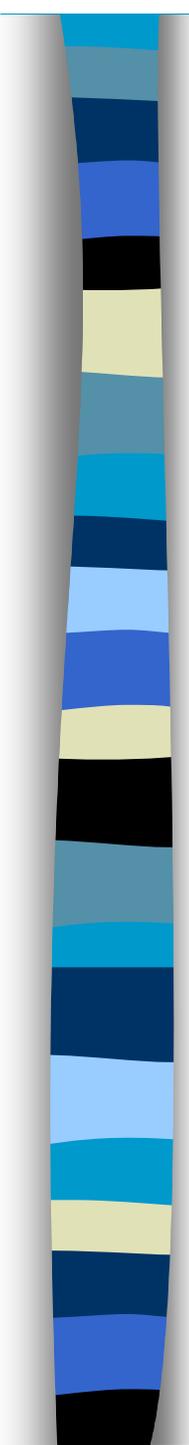


Adventures in Handwashing



- A review of studies on handwashing, foodborne illness, and the effectiveness of food worker training on handwashing behaviors



Many Foodborne Pathogens are Associated with Personal Hygiene

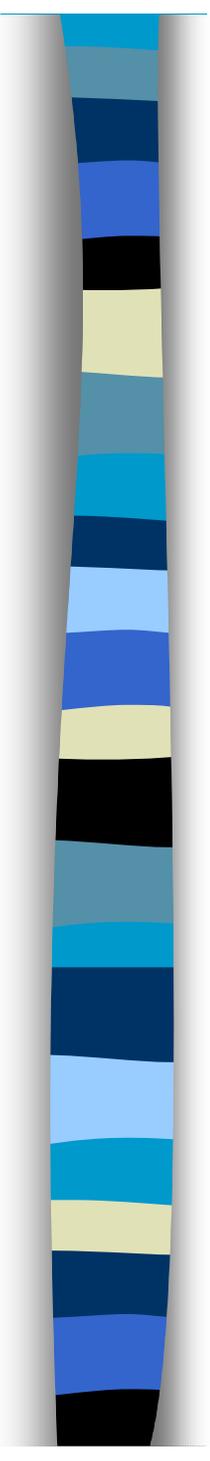
- Shigella (91%)**
- Hepatitis A (96%)**
- Norovirus (78%)**
- Giardia (100%)**



Norovirus is a Common Problem

**CDC estimates
that
noroviruses
cause
23 million cases
of acute
gastroenteritis
per year in the
US.**





Norovirus is Common in Foodborne Outbreaks

- Of 232 outbreaks of Norovirus between July 1997 and June 2000:
 - 57% were foodborne
 - 16% were spread person-to-person
 - 3% were waterborne.

Norovirus is Most Common in Facilities that Sell Retail Food

- Most common settings for Norovirus outbreaks:

Restaurants and Catered meals (36%)

Nursing homes (23%)

Schools (13%)

Vacation settings or
cruise ships (10%)



Poor Hygiene Affects Food

Poor Hygiene Infects People

Poor personal hygiene is the 3rd most commonly reported food preparation practice contributing to foodborne disease



It is Important to Keep Hands as Clean as Possible when Handling Food...

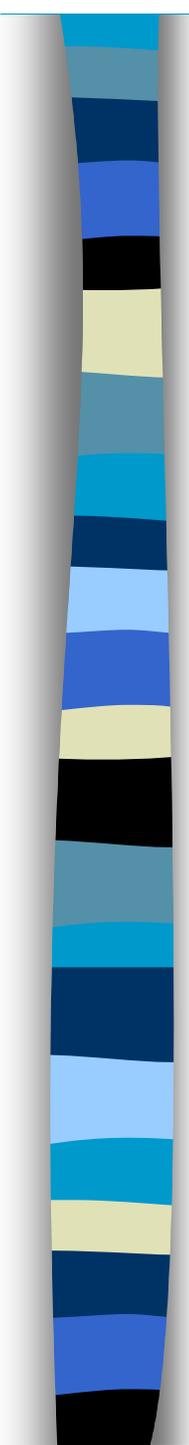


- ... but we can get so busy
- ...what about hand sanitizers?

Can Food Workers Avoid Handwashing when Busy?

The CDC recommended alcohol-based hand gel as a suitable alternative to handwashing for health care personnel in health care settings





The CDC Guidelines Applied only to Health Care Settings

- The CDC guidelines regarding hand sanitizers were **not** intended to apply to food establishments

Why are Hand Gels Used in Hospitals?

Common Hospital Pathogens are different to common foodborne pathogens



Why Aren't Hand Gels Used in Place of Handwashing in Restaurants?

- Fecal Pathogens Predominate in Food Service Settings.
- Alcohol has a low kill rate for these types of pathogens

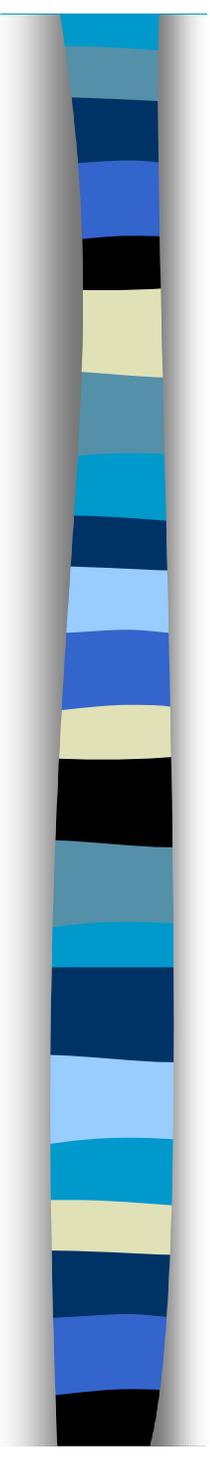


Handwashing is Effective on Foodborne Pathogens

Soap, friction and running water effectively remove the proteinaceous and fatty materials, and reduce pathogens of concern.



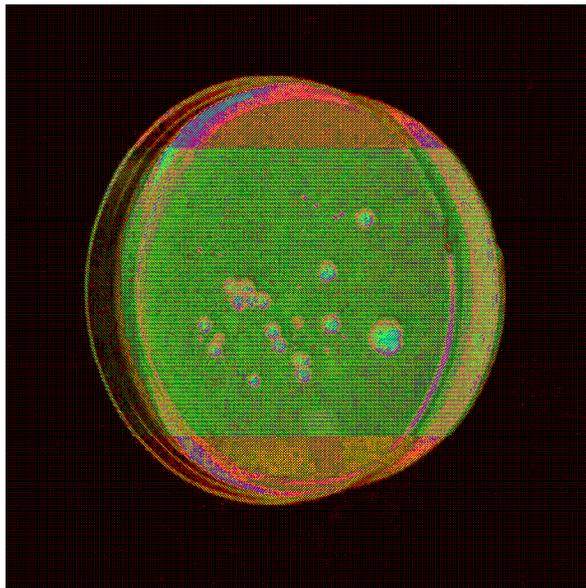
*Bare-hand contact is not allowed with RTE foods.



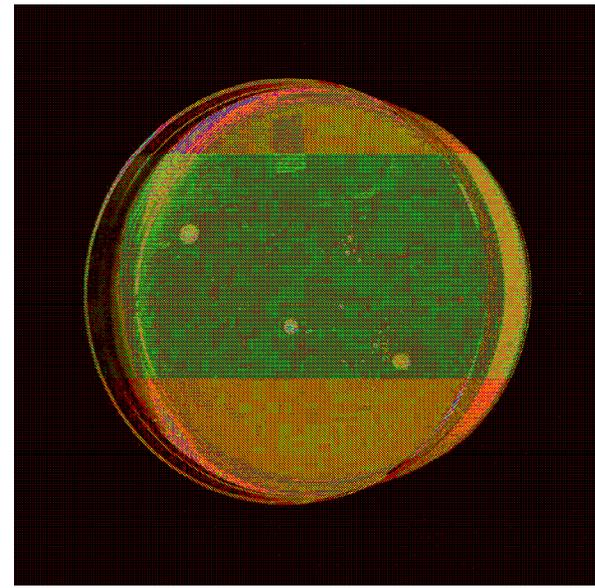
Washing Hands Correctly

- Wet your hands with clean running water and apply soap.
- Rub hands together to make a lather and scrub all surfaces for 15 seconds.
- Ensure fingernails are clean.
- Rinse hands well under running water.
(5 seconds)
- Dry your hands using a paper towel.

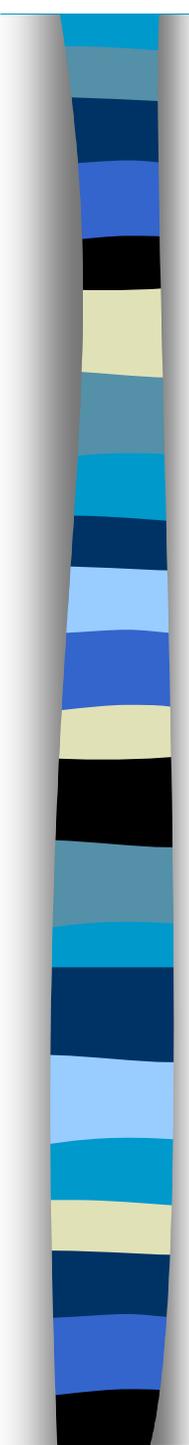
Handwashing *Reduces* Pathogens



Microorganisms from
Rinsed Hands



Microorganisms from
Hands Washed Correctly



So Why Aren't Trainings More Effective?

Current 'knowledge-based'
handwashing training programs
do not address barriers to
handwashing practices during
operations.

What Stops Employees from Washing Their Hands?

Lack of accountability

Lack of involvement of manager/coworkers

Workplace was not supportive of handwashing



What Stops Employees from Washing Their Hands?

Time pressure

Inadequate facilities

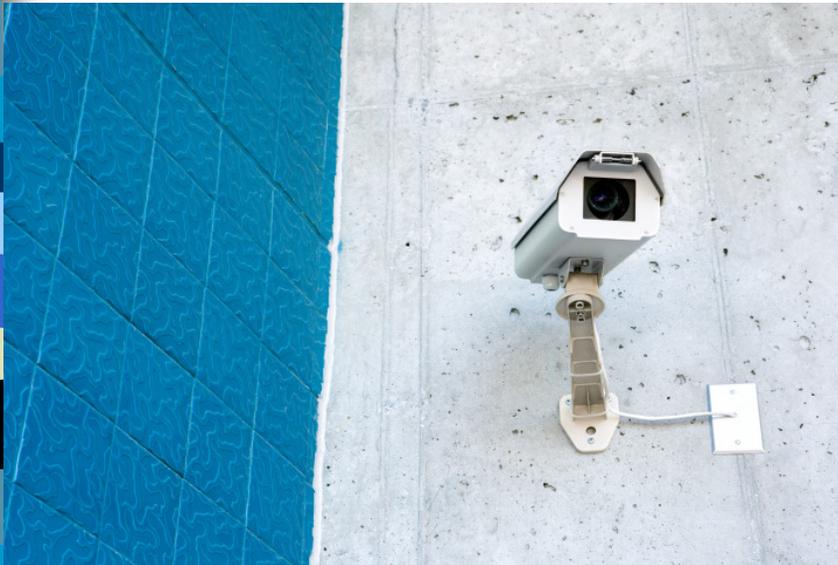
Inadequate supplies





Food Safety Practices at a Food Service

Observed 906 handwashing events by video camera at 10 different angles:



- 6.1% acceptable
- 93% unacceptable
- 78% paper towel use

Observed 787 Cross-contamination events



- 11% direct
- 89% indirect



Busy = Risky

Rush times:

- During the rush time there was less handwashing, and almost none.
- Handwash areas often turned into storage areas during rush times.
- Hours between 8-9 and 12-1 had the most cross-contamination

Bacterial Counts Were Done on Food Workers Hands

Bacterial populations on kitchen workers hands increased significantly after 1 hour and 1.5 hours.



Soap AND Sanitizer worked better.

Bacterial Counts Were Also Done on Food Workers Gloves

3. Bacterial populations on hands AND gloves increased after 1.5 and 2 hours.



4. Washing and Sanitizing every hour was effective in maintaining a low bacterial load on hands and gloves.



Is 'Passive' Training Adequate?

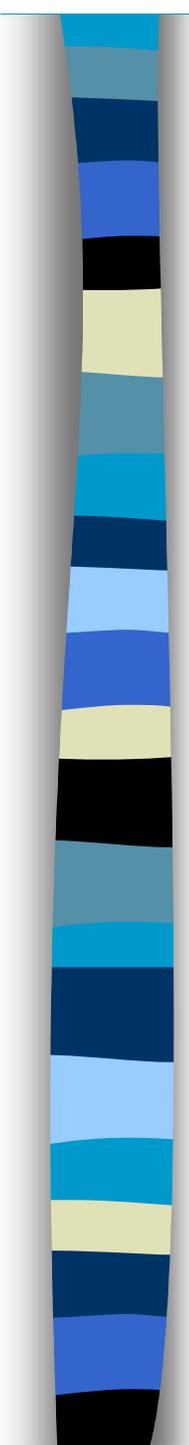


Interactive Training Works Better

Study Results:

Participants involved in the interactive training had better test performances both on the day of training and on the two-week retest.



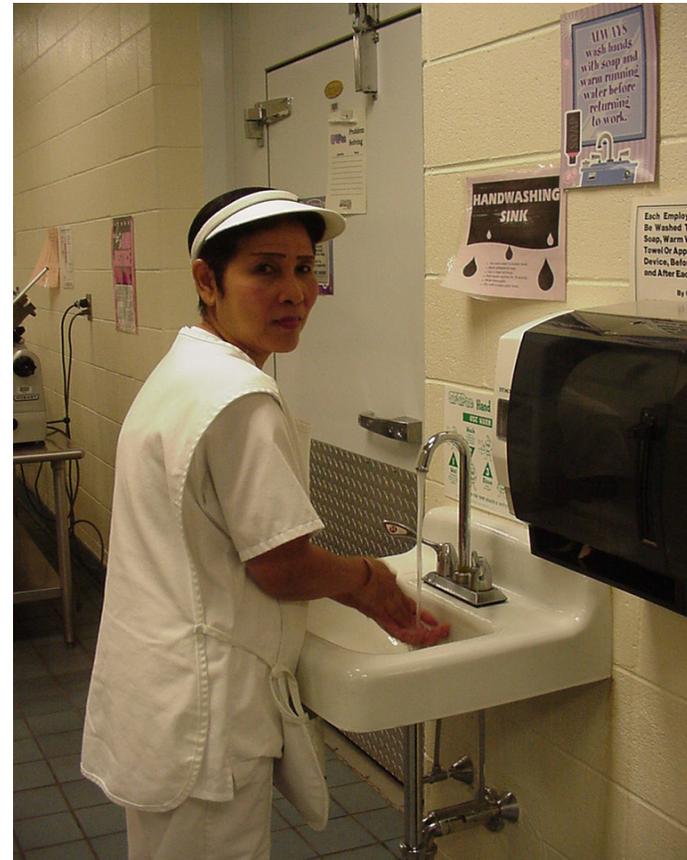


Recommendations for training programs

- Hands-on training program that orients new employees to correct handwashing practice
- More advanced education about foodborne illness

Recommendations for training programs

- Involvement of both managers and coworkers in the training

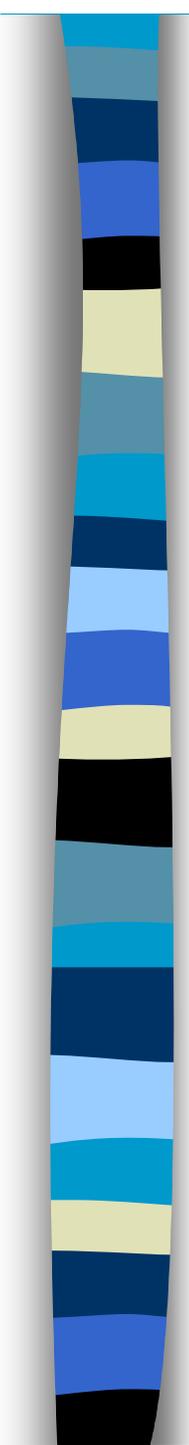


Recommendations for training programs

- Easily accessible handwashing facilities stocked with supplies

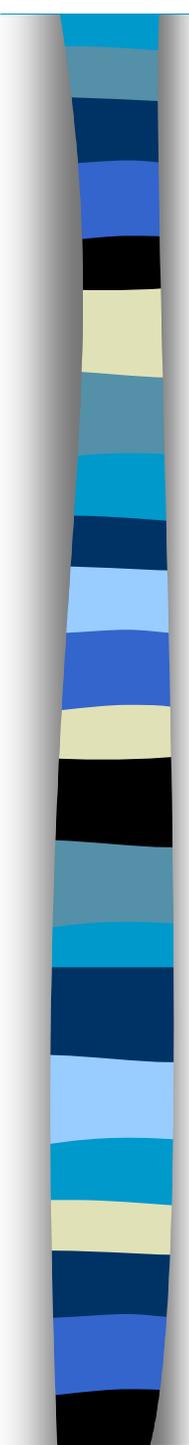
(hot and cold water, soap, paper towels)





Recommendations for training programs

- Continued handwashing training and support involving the food service industry, managers, and coworkers



Recommendations for training programs

- Involvement of health departments and inspectors in providing managers and food workers with advice and consultation on improvement of handwashing practices.

Thank you!

