

# **Training on Medical Waste Management**

**in Collaboration with  
Al-Essa Medical & Scientific Equipment Co. W.L.L**

## **Treatment, Transportation and Disposal**



**Kuwait University  
Health Science Center  
29 January – 1 February, 2012**







# Waste Handling

- **Use personal protective equipment (PPE) as dictated by the situation**
  - **Gloves**
  - **Shoes or boots with thick soles and good traction**
  - **Coveralls or aprons**
  - **Safety glasses**
  - **Face shields**
  - **Respirators**



# Waste Handling

## Handling Sharps Containers

- When 3/4<sup>th</sup> full, close and remove container
- Check all sides for any holes or protruding needles before lifting the container
- If there are holes in the container, carefully place the container inside a larger puncture-resistant container



# Transport Inside the Facility



- **Use fully enclosed, wheeled carts**
  - If not available, make sure all waste containers and bags are well sealed and secured to prevent spillage
- **Healthcare carts should only be used for Healthcare**
- **Carts should be cleaned and disinfected routinely**
- **Waste transporters should use gloves**

# Storage

- **Storage areas should be:**
  - Protected from water, wind, and rain
  - Protected from rodents, insects, and other animals
  - Located away from patients and the public
  - An enclosure that can be locked when not in use
  - Accessible only to authorized personnel
  - Kept clean, free at all times of debris and standing water
  - Disinfected weekly and whenever a spill occurs
- **Waste that can decompose and smell should not be stored longer than 2 days ( will vary by location)**





# Transport Outside the Facility

- **Healthcare should be packaged for transport outside the facility**
- **Packaging containers should be:**
  - **Rigid**
  - **Leak resistant**
  - **Resistant to tearing or bursting under normal use and handling**
  - **Sealed to prevent leakage**
  - **Labeled with the facility's name and address**

# Contingency Planning

- **Spill containment and cleanup procedures**
- **Exposure incident procedures**

# Contingency Planning

- **Spill Containment and Cleanup Procedures**
  - Determine nature and extent of spill
  - Evacuate and restrict access to spill area
  - If exposure occurred, provide medical attention
  - Put on appropriate personal protective equipment (e.g., coverall, gloves, boots, goggles, respirator)
  - Remove spilled material using appropriate tools (e.g., shovels for solids, absorbent material for liquids), place in proper container (e.g., bags, sharps container, etc.), and dispose of properly
  - Disinfect, rinse and clean the area
  - Remove and disinfect reusable protective equipment
  - Wash hands and all exposed skin thoroughly

# Contingency Planning

## Spill Clean-Up Kit

- Disposable gloves, face mask and safety glasses
- Small scoop or dust pan and brush, shovel
- Absorbent pads or powders
- Cleaning rags or paper towel
- Chlorine disinfectant (1:10 chlorine)
- Germicidal wipes
- Extra red bags
- Biohazard labels
- Aspirator bottle, spatula or mercury amalgam powder for mercury spills

# Contingency Procedures

- **Exposure Incident Procedures**
  - If injured, provide first-aid immediately
  - Clean up any spillage following proper procedures
  - Provide additional medical attention and prophylaxis if necessary
  - Reporting & record-keeping
    - Report incident to Waste Management Officer or Infection Control Officer
    - Maintain records for later evaluation

# Training and Public Education

- **Training of new staff**
- **Annual refresher seminar**
- **Public education**
  - **Posters, handouts and verbal instructions**
    - **Red bags/containers with the universal biohazard symbol means potentially infectious Healthcare**
    - **Do not place regular garbage into red bags or containers with the biohazard label**
    - **Do not open or handle Healthcare containers**
    - **Keep children away from Healthcare containers**
    - **Report any spills or accidents involving Healthcare immediately; avoid contact with spilled contents**



# Autoclave History

- **Papin, Denis, 1647–1712: Invented a steam digester (forerunner of the autoclave) in 1679.**
- **Tyndall, John, 1820-1893: Showed spores resistant to boiling and that vegetative offspring could be killed by repetitive heating.**
- **Pasteur, Louis, 1822-1895: Demonstrated inactivation of bacterial spores in cultures at 115-120 °C.**
- **von Bergmann, Ernst, 1836-1907: Invents the autoclave in 1880, or was it Charles Chamberland 1851-1908?**



# Current Autoclave Uses

- Composite Curing
- Bonding
- Glass Manufacturing
- Cement Manufacturing
- Vulcanizing
- Food Processing
- Glass Laminating
- Production
- Research & Development
- Sterilization
- Waste Treatment

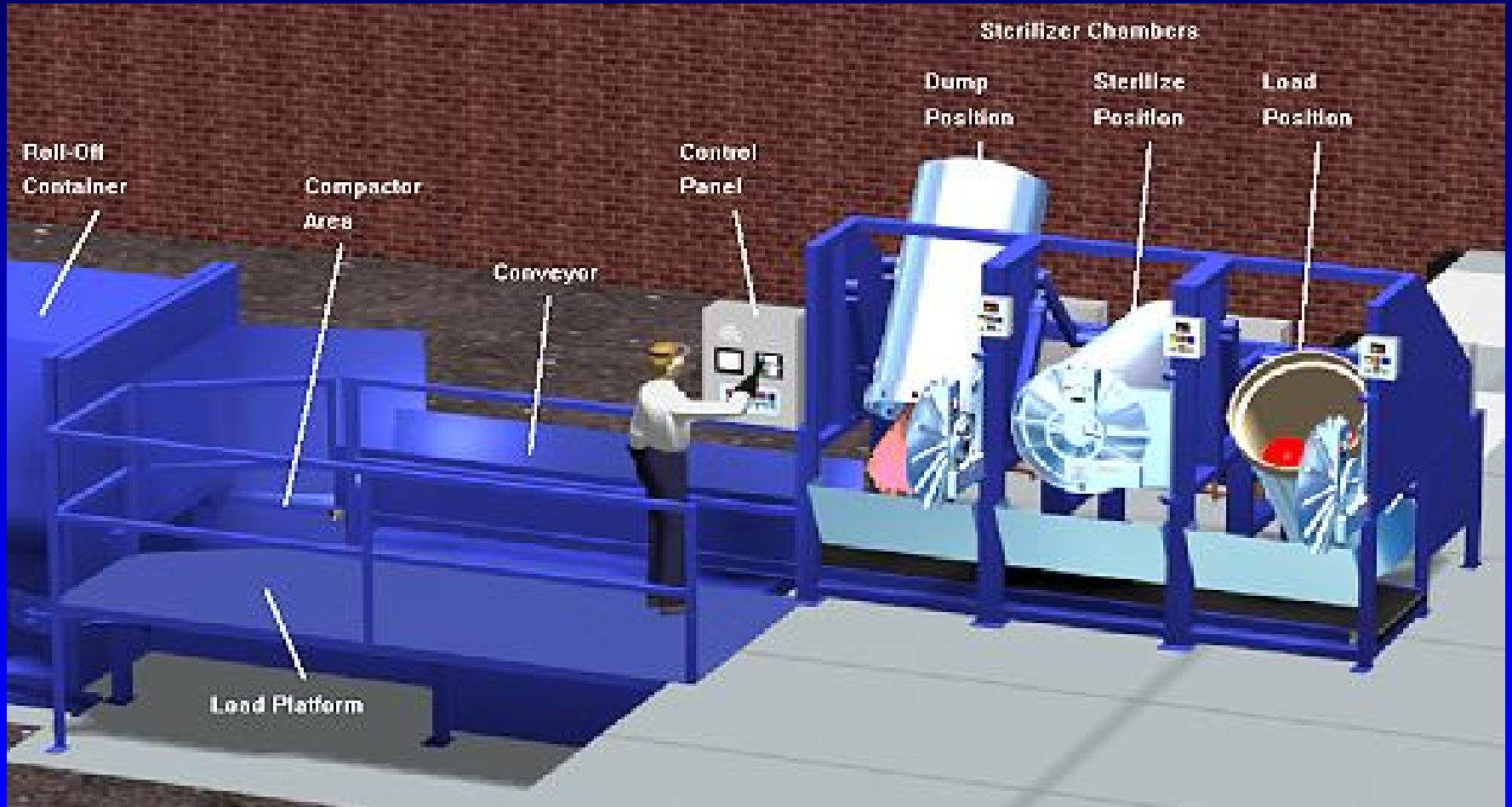


# Autoclave Facts

- Range in size from small cassettes to 96 TPD
- Commonly used to decontaminate RMW at approximately 121 °C and 16 psig for 40 min.
- Sterilization parameters developed in the 1800's are used today to treat RMW.
- Little research using these 100 year old parameters for the decontamination of RMW.

# San-i-Pak™

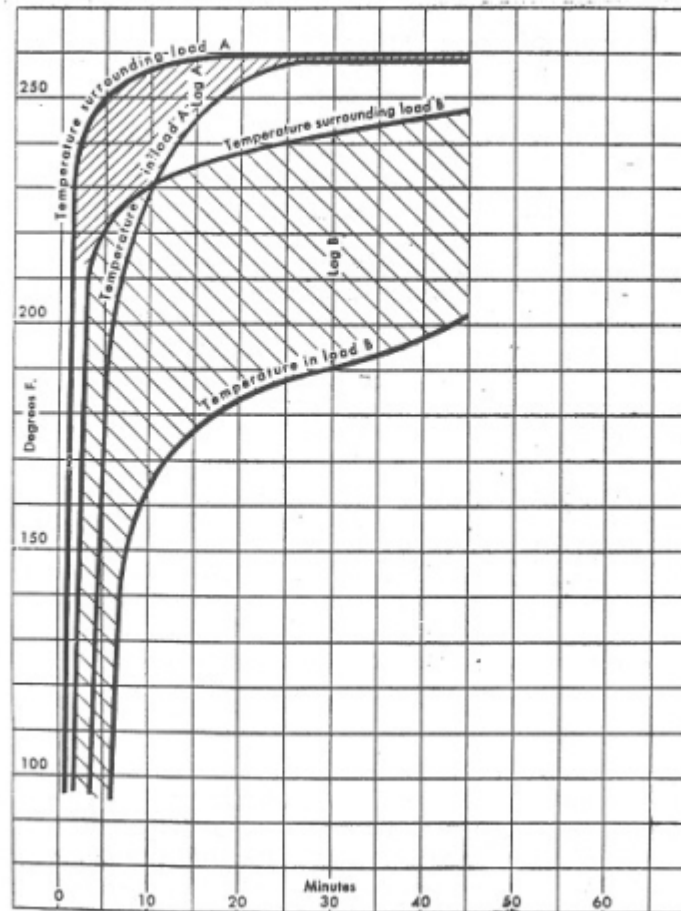
WORLD HEALTH SYSTEMS



# John J. Perkins – AMSCO (1956)

FIGURE 4-1

TEMPERATURE CURVES FOR STEAM STERILIZATION WITH AND WITHOUT COMPLETE REMOVAL OF AIR (71)

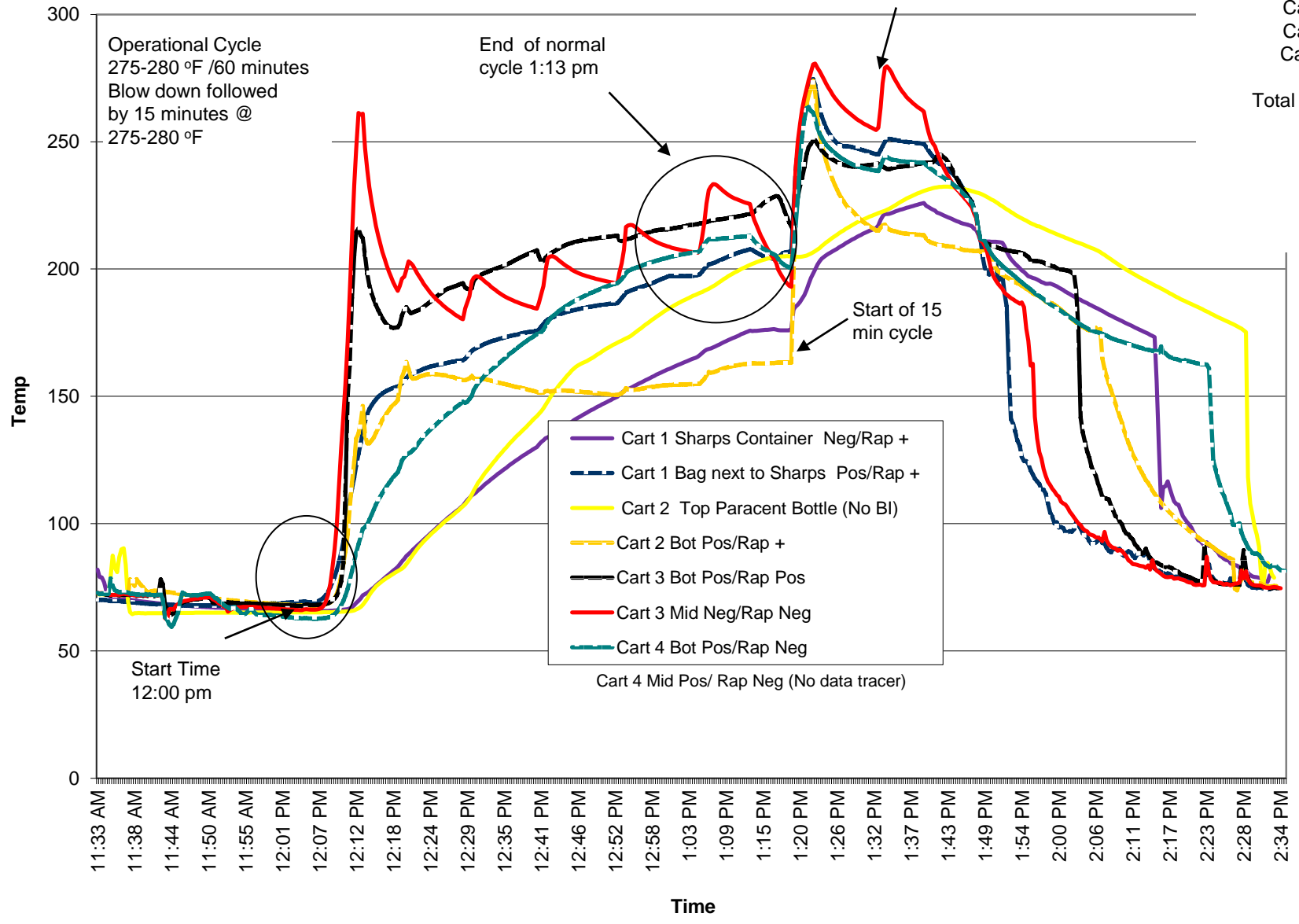


Courtesy of American Sterilizer Company, Erie, Pa.

# Mixed Waste Cart

Cart 1 111 lbs.  
Cart 2 111 lbs.  
Cart 3 115 lbs.  
Cart 4 117 lbs.

Total Weight 454 lbs.



# Commercial Bacterial Spore Indicators



Spore strips

3M ATTEST SCBI



BioCI ALLKIL

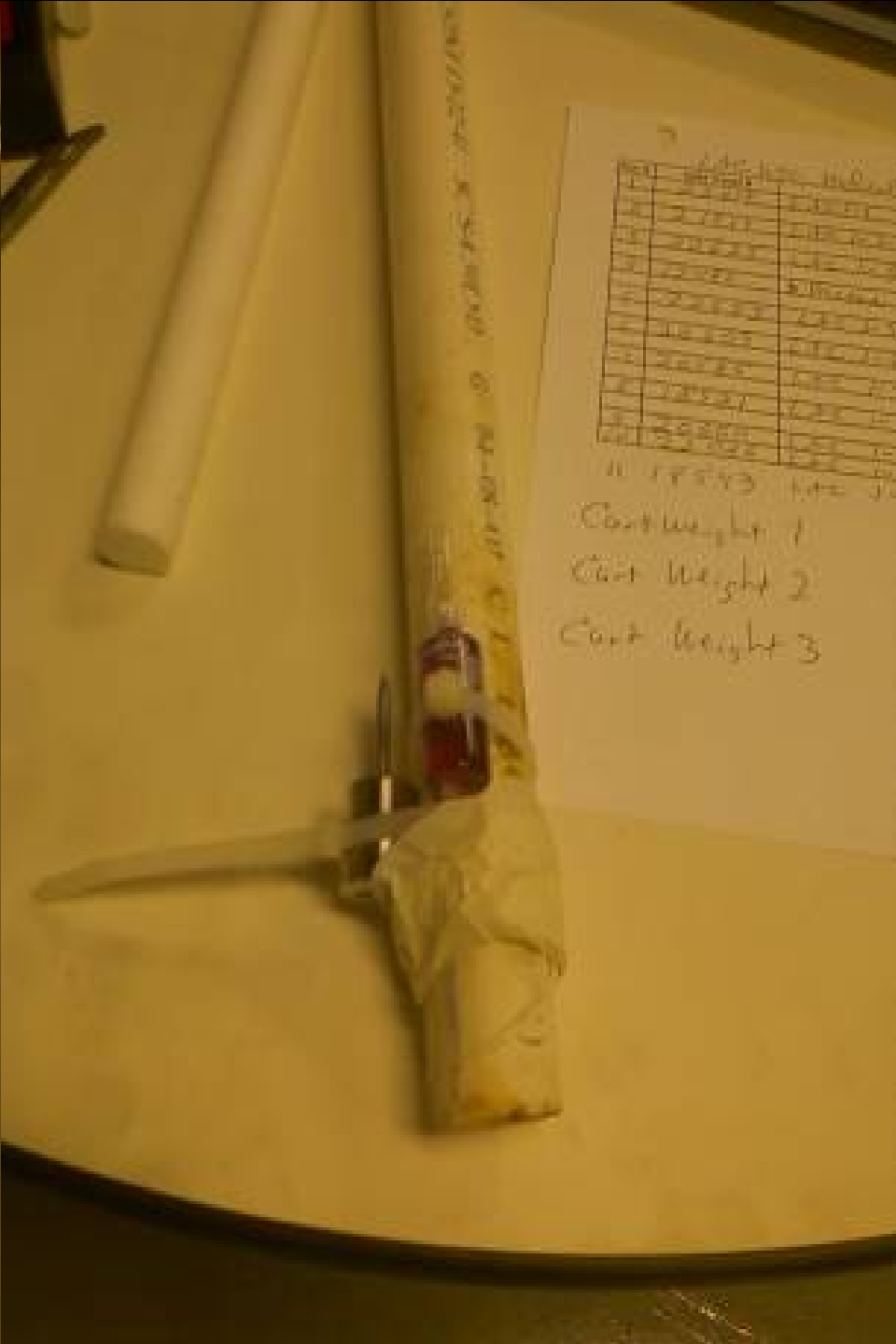


SterilAmp



# Mesa Labs - Data Tracer

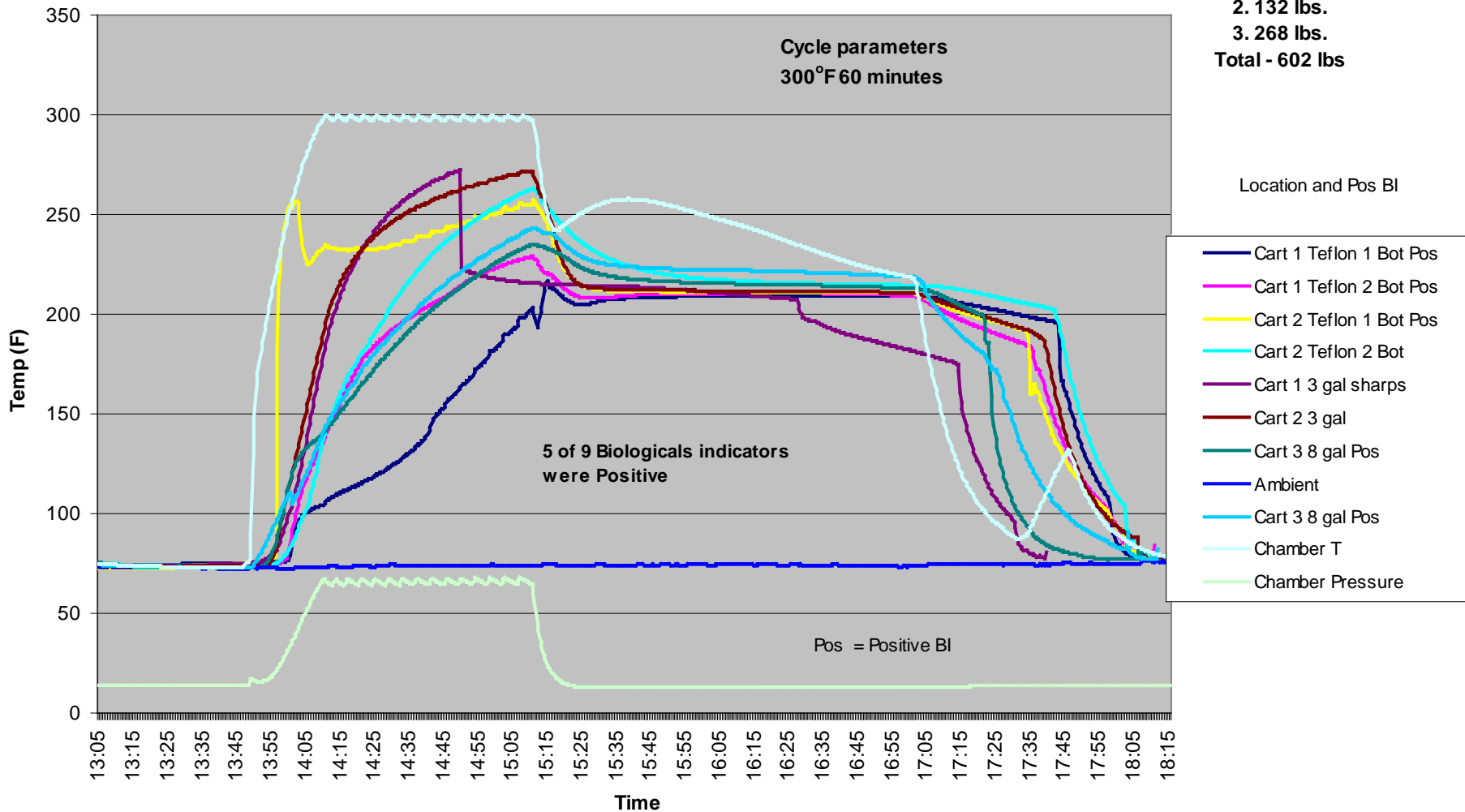




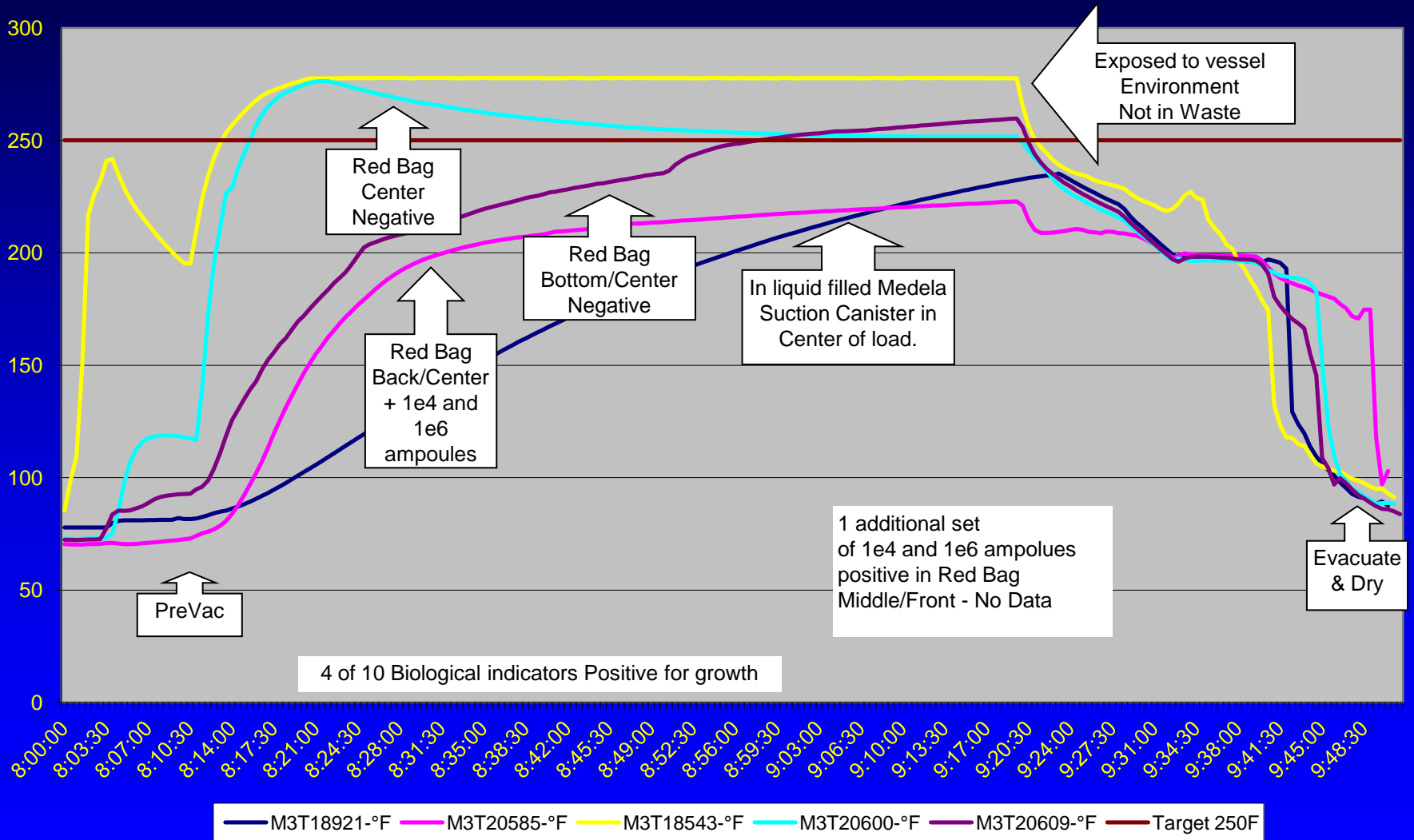


# LAC USC Med Center Run 1 Unit 2 Aug 21, 2008

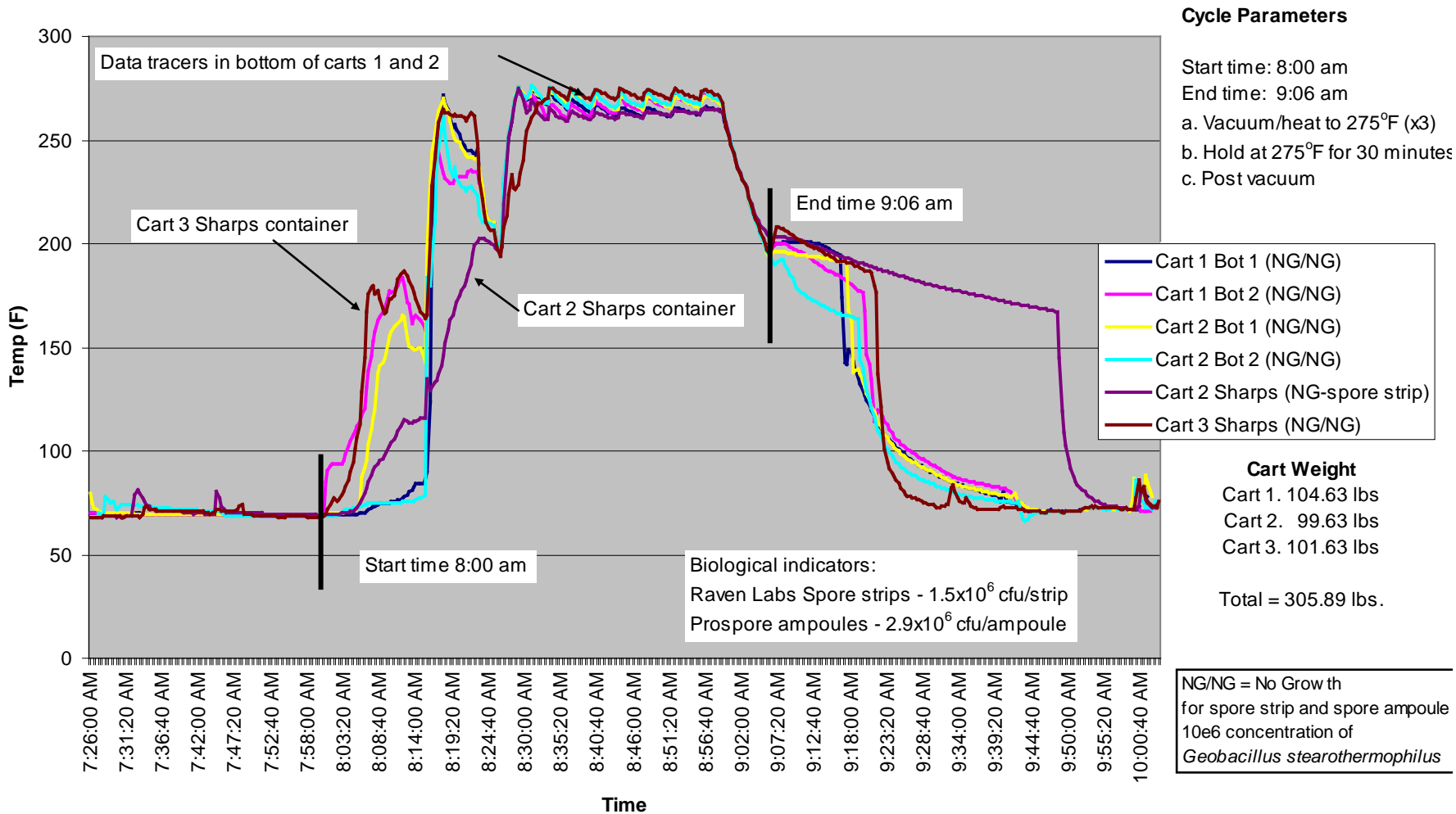
**Cart weight**  
1. 202 lbs.  
2. 132 lbs.  
3. 268 lbs.  
**Total - 602 lbs**



**DHMC 3000 2-21-07**  
**Approx 309 lbs 60 min Retention Time**  
**35psig 278F One PreVac**



# Provena Test 1 9/16/08



Waste Management  
is a Process  
Not a Technology.



**Shukran !**

## Transporting Biological Materials

Use secondary containers when moving biological materials from one room or building to another.

A secondary container must be leak-proof, lidded, and labeled with biohazard stickers.



# GUIDE TO INFECTION PREVENTION FOR OUTPATIENT SETTINGS: Minimum Expectations for Safe Care



National Center for Emerging and Zoonotic Infectious Diseases  
Division of Healthcare Quality Promotion



02/11/16

<http://www.cdc.gov/HAI/pdfs/guidelines/standatds-of-ambulatory-care-7-2011.pdf>

## Infection control standard precautions in health care

### Background

Standard precautions are meant to reduce the risk of transmission of bloodborne and other pathogens from both recognized and unrecognized sources. They are the basic level of infection control precautions which are to be used, as a minimum, in the care of all patients.

Hand hygiene is a major component of standard precautions and one of the most effective methods to prevent transmission of pathogens associated with health care. In addition to hand hygiene, the use of **personal protective equipment** should be guided by **risk assessment** and the extent of contact anticipated with blood and body fluids, or pathogens.

In addition to practices carried out by health workers when providing care, all individuals (including patients and visitors) should comply with infection control practices in health-care settings. The control of spread of pathogens from the source is key to avoid transmission. Among source control measures, **respiratory hygiene/cough etiquette**, developed during the severe acute respiratory syndrome (SARS) outbreak, is now considered as part of standard precautions.

Worldwide escalation of the use of standard precautions would reduce unnecessary risks associated with health care. Promotion of an **institutional safety climate** helps to improve conformity with recommended measures and thus subsequent risk reduction. Provision of adequate staff and supplies, together with leadership and education of health workers, patients, and visitors, is critical for an enhanced safety climate in health-care settings.

### Important advice

- Promotion of a safety climate is a cornerstone of prevention of transmission of pathogens in health care.
- Standard precautions should be the minimum level of precautions used when providing care for all patients.
- Risk assessment is critical. Assess all health-care activities to determine the personal protection that is indicated.
- Implement source control measures for all persons with respiratory symptoms through promotion of respiratory hygiene and cough etiquette.

### Checklist

#### Health policy

- Promote a safety climate.
- Develop policies which facilitate the implementation of infection control measures.

#### Hand hygiene

- Perform hand hygiene by means of hand rubbing or hand washing (see overleaf for detailed indications).
- Hands should always be washed with soap and water if hands are visibly soiled, or exposure to spore-forming organisms is proven or strongly suspected, or after using the restroom. For other indications, if resources permit, perform hand rubbing with an alcohol-based preparation.
- Ensure availability of hand-washing facilities with clean running water.
- Ensure availability of hand hygiene products (clean water, soap, single use clean towels, alcohol-based hand rub). Alcohol-based hand rubs should ideally be available at the point of care.

#### Personal protective equipment (PPE)

- ASSESS THE RISK of exposure to body substances or contaminated surfaces BEFORE any health-care activity. **Make this a routine!**
- Select PPE based on the assessment of risk:
  - clean non-sterile gloves.
  - clean, non-sterile fluid-resistant gown.
  - mask and eye protection or a face shield.

#### Respiratory hygiene and cough etiquette

- Education of health workers, patients and visitors.
- Use of source control measures.
- Hand hygiene after contact with respiratory secretions.
- Spatial separation of persons with acute febrile respiratory symptoms.



# Health-care facility recommendations for standard precautions

## KEY ELEMENTS AT A GLANCE

### 1. Hand hygiene<sup>1</sup>

#### Summary technique:

- Hand washing (40–60 sec): wet hands and apply soap; rub all surfaces; rinse hands and dry thoroughly with a single use towel; use towel to turn off faucet.
- Hand rubbing (20–30 sec): apply enough product to cover all areas of the hands; rub hands until dry.

#### Summary indications:

- Before and after any direct patient contact and between patients, whether or not gloves are worn.
- Immediately after gloves are removed.
- Before handling an invasive device.
- After touching blood, body fluids, secretions, excretions, non-intact skin, and contaminated items, even if gloves are worn.
- During patient care, when moving from a contaminated to a clean body site of the patient.
- After contact with inanimate objects in the immediate vicinity of the patient.

### 2. Gloves

- Wear when touching blood, body fluids, secretions, excretions, mucous membranes, nonintact skin.
- Change between tasks and procedures on the same patient after contact with potentially infectious material.
- Remove after use, before touching non-contaminated items and surfaces, and before going to another patient. Perform hand hygiene immediately after removal.

### 3. Facial protection (eyes, nose, and mouth)

- Wear a surgical or procedure mask and eye protection (face shield, goggles) to protect mucous membranes of the eyes, nose, and mouth during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.

### 4. Gown

- Wear to protect skin and prevent soiling of clothing during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, or excretions.
- Remove soiled gown as soon as possible, and perform hand hygiene.

### 5. Prevention of needle stick injuries<sup>2</sup>

#### Use care when:

- handling needles, scalpels, and other sharp instruments or devices
- cleaning used instruments
- disposing of used needles.

### 6. Respiratory hygiene and cough etiquette

#### Persons with respiratory symptoms should apply source control measures:

- cover their nose and mouth when coughing/sneezing with tissue or mask, dispose of used tissues and masks, and perform hand hygiene after contact with respiratory secretions.

#### Health care facilities should:

- place acute febrile respiratory symptomatic patients at least 1 metre (3 feet) away from others in common waiting areas, if possible.
- post visual alerts at the entrance to health-care facilities instructing persons with respiratory symptoms to practise respiratory hygiene/cough etiquette.
- consider making hand hygiene resources, tissues and masks available in common areas and areas used for the evaluation of patients with respiratory illnesses.

### 7. Environmental cleaning

- Use adequate procedures for the routine cleaning and disinfection of environmental and other frequently touched surfaces.

### 8. Linens

#### Handle, transport, and process used linen in a manner which:

- prevents skin and mucous membrane exposures and contamination of clothing.
- avoids transfer of pathogens to other patients and or the environment.

### 9. Waste disposal

- Ensure safe waste management.
- Treat waste contaminated with blood, body fluids, secretions and excretions as clinical waste, in accordance with local regulations.
- Human tissues and laboratory waste that is directly associated with specimen processing should also be treated as clinical waste.
- Discard single use items properly.

### 10. Patient care equipment

- Handle equipment soiled with blood, body fluids, secretions, and excretions in a manner that prevents skin and mucous membrane exposures, contamination of clothing, and transfer of pathogens to other patients or the environment.
- Clean, disinfect, and reprocess reusable equipment appropriately before use with another patient.

<sup>1</sup> For more details, see: WHO Guidelines on Hand Hygiene in Health Care (Advanced draft), at: [http://www.who.int/patientsafety/information\\_centre/ghhad\\_download/en/index.html](http://www.who.int/patientsafety/information_centre/ghhad_download/en/index.html).

<sup>2</sup> The SIGN Alliance at: [http://www.who.int/injection\\_safety/sign/en/](http://www.who.int/injection_safety/sign/en/)