Learning Objectives

At the end of this session all JHS employees who work in areas that handle hazardous drugs will understand the safety practices associated with handling hazardous drugs and will be able to:

- Define what are hazardous drugs and their classifications
- Discuss use of the equipment and supplies used when handling, transporting, administering, and disposing of hazardous drugs
- Discuss how to properly manage hazardous drug spills
- Discuss the safe administration of oral hazardous medications
Learning Objectives (continued)

- Identify and discuss appropriate application and removal of the Personal Protective Equipment (PPE) for each classification of hazardous drugs
- Identify routes of exposure to hazardous drugs
- List hazardous communication identifiers
- Define the “High Risk Exposure Alert Period”
- Ensure safe handling practice when handling hazardous drugs
- Discuss how to manage an exposure to a hazardous drug, including reporting and medical surveillance
Safe Handling of Hazardous Drug Policy

• To ensure a safe working environment and practice when handling hazardous drugs, refer to and comply with the JHS Administrative Policy # 400.034 on Safe Handling of Hazardous Drugs

• This policy includes principles for safe handling, preparation, transport, administration, disposal, and spill management of hazardous drugs
Definition of Hazardous Drugs

- Hazardous drugs are capable of causing harm to those individuals exposed.
- They have at least one of the following characteristics:
  - **Genotoxic** – can change DNA structure
  - **Carcinogenic** – can cause cancer in animals and/or humans
  - **Teratogenic** - can cause reproductive toxicity in humans
  - **Fertility Impairment** – can cause birth defects or prevent reproduction for men and women with occupational exposure to hazardous drugs
  - **Serious** toxicity at low doses – danger has been shown in experimental animal models and treated patients
Definition of Hazardous Drugs

- Hazardous drugs can be classified as anti-neoplastic, cytotoxic, biologic, antiviral, immunosuppressive, antibiotic, and/or hormone
- They are hazardous regardless of whether they are administered intravenously, by mouth, or by topical administration
Classification Of Hazardous Drugs

- **High Hazard Drugs**
  - Drugs that are carcinogenic or mutagenic or cause organ toxicity at low doses

- **Low Hazard Drugs**
  - Drugs where there is limited evidence of toxicity, but the mechanism of action or drug class has the potential to cause toxicity

- **Reproductive Hazard Drugs**
  - Medications that have the potential to impair fertility
High Hazardous Drugs

- These drugs are administered by specially trained nurses who work in a Oncology(Cancer) Unit
- These nurses have special training and must maintain a chemotherapy provider card from ONS or APHON
- The cards are good for 2 years and must be actively maintained to administer high hazardous drugs
- These specific nurses are also trained on how to use a special closed system transfer device, also known as Phaseal
Common Areas that Handle High Hazardous Drugs

- Hazardous drug administration is not limited to these areas:

  Jackson Memorial Hospital:
  - Chemotherapy Pharmacy
  - Adult Medical/Surgical Hematology/Oncology Unit
  - Pediatric Hematology/Oncology Unit
  - Women’s GYN/GYO
  - Pediatric Blood and Marrow Transplant Unit
  - Outpatient Infusion Center

Jackson North Medical Center
Jackson South Community Hospital
Required Personal Protective Equipment

- **High Hazard Drug Administration:**
  - Gloves (double gloving recommended)
  - Gown approved for use with hazardous drugs
  - Goggles approved for use with hazardous drug administration (if there is a risk of a splash)

- **Low Hazard Drug Administration:**
  - Gloves (single gloving recommended, double gloving with liquids, topical medication, and wear goggles if there is a potential for vomiting or spitting up. Wear respirator mask if there is a potential for drug inhalation)

- **Reproductive Drug Administration:**
  - Gloves (double gloving recommended)
  - Gown approved for use with hazardous drugs
  - NIOSH-approved respirator you have been fit-tested to use
  - Goggles approved for use with hazardous drugs administration (if there is risk of a splash)

- Refer to the JHS Hazardous Drug List in policy #400.034
Reproductive Definitions

1. **Reproductive Category Employees:**
   - Women and men who are trying to conceive under the direction of a physician; women who are pregnant, and women who are breastfeeding

2. **Reproductive Hazard Drug:**
   - A medication that has specific warnings for women and/or men who are trying to conceive under the direction of a physician, women who are pregnant, and women who are breastfeeding
Safe Handling Practices

- Wash hands for at least 20 seconds with soap and water prior to and after handling, preparing, administering, transporting, disposing of, or managing spills of hazardous drugs or waste.
- Wash hands before and after working in any area where hazardous drugs are handled, prepared, administered, or disposed.
- Do not eat, drink, chew gum, apply cosmetics or store food items in areas where hazardous drugs are stored, handled, prepared, administered, or disposed.

NO FOOD OR DRINK PERMITTED IN THIS AREA
Routes of Exposure of Hazardous Drugs

- Inhalation of aerosols and drug particles
- Absorption through direct contact with skin, eyes or mucous membranes (examples: nostrils, mouth, lips, eyelids)
- Injection through needle sticks
- Ingestion by swallowing
Some Symptoms Associated with Acute Exposure to Hazardous Drugs

• Lightheaded
• Dizzy
• Abdominal pain
• Headache
• Burning / watery eyes
• Hair loss

• Nausea and vomiting
• Local skin or mucous membrane reaction
• Metallic taste in mouth
• Scratchy throat

Key Point: People with allergies are more susceptible to experiencing reactions
Hazard Communication Identifiers

How do we communicate to others that a patient has received a hazardous drug so that we can all protect ourselves from a potential exposure?

- Intravenous drugs come from chemo pharmacy in a green bag with an orange label
- There are drug alerts in the medication Omnicell for hazard medications given by mouth or topically
- Door signage and an orange arm band for the patient is used during the “High Risk Exposure Alert” time frame
Hazard Communication: Identifiers

- Hazardous drugs are clearly identified and an orange label is noted on all IV drugs indicating that special handling is required.
- Specific supplies and PPE are utilized when handling and disposing of these drugs.
- All IV hazardous drugs will be placed in a green bag by pharmacy prior to delivery and will then be placed in a secondary zip-top bag for transport.

CAUTION!
HAZARDOUS DRUGS
SPECIAL HANDLING IS REQUIRED FOR TRANSPORTATION, PREPARATION, ADMINISTRATION, DISPOSAL, AND SPILLS MANAGEMENT
FOLLOW ESTABLISHED PROCEDURES WEAR ALL APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT
For Additional Information Consult: Administrative Policy & Procedure # 434
Hazard Communication: Identifiers

- **REGULATED HAZARDOUS DRUGS**
  - Require special waste disposal per Hazardous Waste Regulations, due to their toxicity:
    - Cyclophosphamide (Cytoxan)
    - Daunorubicin
    - Mechlorethamine
    - Melphalan
    - Mitomycin
    - Chlorambucil
  - These agents are **listed as hazardous waste** per the Environmental Protection Agency (EPA), the Resource Conservation and Recovery Act (RCRA) and hazardous materials per Department of Transportation (DOT)
  - A **black** dot placed on the green bag will indicate the need to dispose of these drugs into the black hazardous waste container
Hazard Communication:
Door Signage
“High Risk Exposure Alert”

• Signage in three languages (English, Spanish & Creole) shall be placed on the patient’s door when administration of a hazardous drug is to begin and shall remain on the door until 48 hours after administration has completed.

• In the event the patient is discharged before the 48 hour time period has expired, the signage will be left on the door until after the room is cleaned by Environmental Services.
Hazard Communication Door Signage

STOP ALL VISITORS
PLEASE SEE NURSING STAFF BEFORE ENTERING ROOM.
Safe handling practices enforced
All staff are to follow the established procedures and wear all appropriate personal protective equipment.

ATENCIÓN VISITANTES
POR FAVOR, VEAN AL PERSONAL DE ENFERMERÍA ANTES DE ENTRAR AL CUARTO.

TOMAMOS PRECAUCIONES PARA LA SEGURIDAD DEL PACIENTE
Todo el personal deberá seguir los procedimientos establecidos y usar todo el equipo de protección apropiado.

ATANSYON TOUT VIZITÈ YO
TANPRI WE AVEK ESTAF ENFIMYE YO AVAN KE-W ANTRE NAN.

NOU RANFOSE PRATIK SOU KI JAN NOU TRAYAY AN SEKIRITE:
Tout estal yo sipaze swiy tout pswesdi ke nou etalib e mete tout ekman pesonel nou dwotisyo.
Hazard Communication: Orange Arm Band High Risk Exposure Alert Period

- Nursing staff will place an Orange Arm Band on all patients who are receiving hazardous drugs, including intravenous, oral and topical doses, beginning with the initial dose.
- Nursing staff will date and time the arm band as soon as the last dose of hazardous drugs is completed, to reflect 48 hours post hazardous drug completion.
- This **48 hour** time frame is considered the **High Risk Exposure Alert Period**. Staff need to take special precautions when handling the patients’ body fluids, or any items that have come into contact with them, such as soiled linens.
Hazard Communication
High Risk Exposure Alert Period

• If the patient is receiving hazardous drugs on a daily basis, and the drug(s) will not be discontinued, do not put a date on the orange arm band
• The orange arm band will remain on the patient until the time of discharge
• Staff need to take special precautions when handling the patients body fluids, or any items that have come into contact with them, such as soiled linens, throughout the hospitalization period
Care of the Patient with an ORANGE ARM BAND

- During the time frame the patient is wearing an orange arm band:
  - Wear **gloves** approved for use with hazardous drugs if there is a risk of exposure to a patient’s body fluids
  - Wear a **gown** approved for use with hazardous drugs and /or **goggles** if there is a risk of contamination by direct contact or by splashing of a patient’s body fluids
Review: Personal Protective Equipment Approved for Use With Hazardous Drugs

- Gloves
- Gown
- Goggles/face shield
- Respirator
- Chemotherapy Emergency Spill Kit
- Closed system transfer device
Gloves

- Use gloves approved by the hospital for use with hazardous drugs
- Double gloving is recommended when handling high risk hazardous drugs, or if you are at reproductive risk
- Single gloving is recommended when handling low risk hazardous drugs
- Change gloves immediately after each patient use
- Do not wear gloves for more than 30 minutes before changing
- Inspect gloves for visible defects and if there is a tear replace them immediately

Refer to policy #400.034 for appropriate order number of products
Gowns

- Impervious (Poly-Coated) Gowns provide the best protection when administering hazardous drugs
- The impervious gowns should be:
  - Disposable
  - Knitted or elastic cuffs
  - Lint free
  - Low-Permeable fabric
  - Solid front with back closure
  - Poly-Coated
- Gown is for single use only. Do not remove/re-use

- Exception: One gown can be used when administering medications for multiple patients in the Outpatient Infusion Center, however outer gloves must be changed after each individual patient contact
- Remove the gown when the task is completed
Safety Goggles Approved for use with Hazardous Drugs

- Order Information -
  EYE PROTECTION
  AOSafety Goggles 287
  Order # 9911191
Use the N-95 respirator mask that you have been fit tested and certified to use
Eye, Facial and Respiratory Protection

• A plastic face shield or goggles are worn in situations where eyes, mouth, or nasal splashing may occur
• A NIOSH-approved respirator (N-95) is required if contact with aerosols or splashing is suspected
  – Note: Ensure that all impacted employees are fit-tested for the appropriate NIOSH-approved respirator
• During IV administration, if a Closed System Transfer Device is present (i.e. PhaSeal), the respirator and goggles are not required
Emergency Chemotherapy Spill Kit
Closed System Transfer Devices
Exposure to Hazardous Drugs

- In the event of exposure to skin, remove contaminated clothes and immediately wash skin with soap and water for at least 20 seconds
- Do not use products containing alcohol such as Purell
- In the event of eye exposure, immediately flush the eyes with water for at least 15 minutes, using a Plumbed Eyewash Station
- If a Plumbed Eyewash Station is not immediately available, use the personal eyewash bottle station, and then go immediately to the nearest Plumbed Eyewash Station
- Flush eyes for at least 15 minutes
Plumbed Eyewash Station

- Flush exposed eyes for at least 15 minutes
- The Eyewash Station is tested weekly and water lines are cleared of potential sediment by turning on the water and letting it flow for at least 3 minutes
Exposure to Hazardous Drugs

• Seek emergency treatment as indicated
• Report ALL exposures to the Occupational Health Services (OHS) immediately
  – Phone Number: 786-466-8381
    • Mon-Fri from 7:30 a.m.-4:00 p.m. Excluding holidays and weekends
    • Report to the E.R. after hours, on weekends and holidays
• Inform OHS by the next working day
• Document ALL actual and near miss exposures in Quantros
Oral/Liquid/Topical Hazardous Drug Exposure

- When administering oral hazardous drugs, you must wear a single pair of chemo gloves, if potential for vomiting or spitting up wear goggles for eye protection
- Discard all used PPE and medicine cups in the yellow bins
- Do not crush meds or open capsules
- If a hazardous drug is required to be altered or crushed, it must be performed by a Pharmacist
- Exception: Nurses administering Prograf sublingually, must wear an N-95 respirator and double glove
- Double glove for any hazardous oral liquid drugs, especially for feeding tube and if there is a potential for vomiting or spitting up, wear goggles for eye protection
- When administering topical drugs, wear double gloves wear goggles if liquid could splash and wear respirator mask if there is an inhalation potential
- Store topical medications in a special designated locked up place, not at the patient’s bedside
Step by Step Process for Oral/Liquid Hazardous Drug Administration

**Step One**

- Remove medication from the Omnicell and separate the hazardous drugs from the other medications
- A pop up menu will remind you it’s a hazardous drug
- Put the hazardous drug medication with a medication cup or medication syringe inside a plastic bag then seal it
- No gloves are needed
Step by Step Process for Oral/Topical/Liquid Hazardous Drug Administration

Step Two

- Wash Hands
- Scan Patient ID and check patient to make sure the patient has an orange band on
- Don chemo gloves
- Remove medication from plastic bag, scan it, and place the medication into the medication cup
- Administer hazardous drug by dropping it into the patient’s mouth
- Do not let anyone actually touch the medication
Step by Step Process for Oral/Liquid Hazardous Drug Administration

Step Three

- Place package insert inside the used medication cup and then roll off your gloves with the cup and package insert inside your gloves.
- Remember not to lie down the package insert because it will contaminate any surface it comes in contact with, with drug residue.
- For liquid medication, place syringe back into the plastic bag.
Step by Step Process for Oral/Topical/Liquid Hazardous Drug Administration

Step Four

• After rolling off the gloves, place the used gloves into the plastic bag used to transport the drug
• Seal the bag and then proceed to do hand hygiene
Step by Step Process for Oral/Topical/Liquid Hazardous Drug Administration

- **Step Five**
  - Place the plastic bag into the chemo waste container that is kept in a NON CLINICAL AREA, usually the dirty utility room
  - Always close the lid
  - Do hand hygiene

**REMEMBER**
- Do not put into regular trash, any waste from oral, topical, and liquid hazardous medications, they must be disposed of in the special chemo waste containers
Miscellaneous Administration Information

- SQ/Intra-Muscular Injections from the vial - double chemo gloves, gown, and goggles if liquid splash can occur
- Solution for irrigations - activity including bladder irrigations, HIPEC, limb perfusion you double chemo gloves, wear gown and goggles, use respirator mask
- Inhalation/Aerosol treatments - double chemo gloves, wear gown and goggles, use respirator mask
- Drugs and metabolites in body fluids or Drug contaminated waste - double chemo gloves, wear gown and goggles, use respirator mask
Hazardous Drug Disposal Bins

- Hazardous waste must be stored in containers that comply with the RCRA (Resource Conservation and Recovery Act) rules
- JHS provides two (2) types of hazardous drug disposal bins
- All used PPE and contaminated waste (dedicated IV bags and tubing, needles, sharps, medicine cups, etc.) must be disposed of in the appropriate hazardous drug disposal bin
Hazardous Drug Disposal Bins

• Always place sharps such as spinal needles that have been used to administer hazardous drugs in the yellow disposal bin, not in the red sharps disposal bin
• Disposal bins must be available in all areas where hazardous drugs are administered
• Keep the lid closed until ready to permanently seal for transport
Hazardous Waste Disposal Bins
BLACK DISPOSAL BINS

- The EPA has identified several drugs as hazardous waste, due to their toxicity. They require disposal in a separate bin (black)
- An EPA Compliance Documentation log (weekly container inspection) is required for each bin
- A label must be placed on the bin listing the date of initial usage. Maximum accumulation is 180 days at Jackson Health System

- Hazardous drugs that require disposal in the black bins:
  - Chlorambucil
  - Cyclophosphamide (Cytoxan)
  - Daunomycin
  - Mechlorethamine
  - Melphalan
  - Mitomycin
Hazardous Drug Information
Contamination of Linen

- Linen that is directly contaminated with a hazardous drug will need to be placed in a leak-proof plastic bag, which can be located in the Chemotherapy Drug Spill Kit
- The leak-proof plastic bag is tied off, double bagged and then disposed of in appropriate yellow or black hazardous waste bin
- Linen that is contaminated with body fluids of a patient who is wearing an orange arm band is placed in a regular soiled linen bag, tied off and disposed of with regular soiled linen
- Surfaces contaminated with body fluids need to be cleaned using a hospital-approved disinfectant, while wearing appropriate PPE
Spills

- Hazardous drug spills are a priority
- Personnel properly trained to manage spills can manage hazardous drug spills which are of a controllable nature
- A large spill is identified as a spill that the unit/department lacks the resources to respond to or to manage. (example: an industrial spill of bleach)
- For uncontrollable spills call a “CODE ORANGE”
- Jackson Memorial Hospital call 85-6123
- Jackson North Medical Center call 5555
- Jackson South Community Hospital call 7777
- The page operator will ask you the nature and amount of the spill
- Every attempt should be made to contain the spill and to keep it from spreading
- Refer to JHS Administrative Policy #400.034 Safe Handling of Hazardous Drugs
Spills Management

• Units administering hazardous drugs need to stock an appropriate number of Chemotherapy Drug Spill Kits to manage the maximum amount of a spill that could be encountered (1000 mL)

• In the event of a spill of a hazardous drug you should:
  – Notify the specific department personnel or supervisor in the area
  – Alert everyone in the immediate area to avoid direct contact with the spill, including patients, visitors, and staff
  – Use the Chemotherapy Drug Spill Kit(s) and the PPE included for containment of any hazardous drug.
  – Double gloving is required to clean a spill
  – Document any and all spills and near-misses of Hazardous Drugs in Quantros
Emergency Chemotherapy Spill Equipment Contents

- Impervious gown
- Two pair of LATEX gloves rated for chemotherapy use (Use nitrile gloves if you have a latex allergy)
- Protective eyewear
- Shoe coverings
- Spill towels (3)
- Poly bag (2) (Leak-proof plastic bag)
- Chemo absorbent pad (2)
- Chemotherapy Spill Sign
- Scoop with scraper (1)
- 1 Respirator N-95 (use the one you have been fit-tested for if available)
- Chemotherapy Spill Kit Box
Safe Removal of PPE when handling or performing a spills procedure

- Sequence for removal of PPE: remove the booties, outer pair of gloves, goggles, respirator, gown and then remove the second set of gloves. Dispose of items in the appropriate disposal bin.
- Booties - remove booties from back to front avoiding direct contact to potential hazardous drugs.
- Gloves - (first pair) grasp outside edge near wrist, peel away from hand, turning glove inside-out and hold in opposite gloved hand.
- Goggles - grasp straps with inner gloves or ungloved hands, lift away from face.
- Respirator - lift the bottom elastic over your head first, then lift off the top elastic and pull respirator away from body.
- Gown - unfasten ties, peel gown away from neck and shoulder, turn contaminated outside toward the inside, fold into a bundle, and discard.
- Gloves - (second pair, remove as in step one).
- Place PPE into zip-top or leak-proof plastic bag and dispose of in the appropriate hazardous waste bin.
- Wash hands with soap and water, for 20 seconds; do not use alcohol.
Step by step process removing PPEs

- Discard booties into first poly bag
Remove outer gloves and discard in first poly bag

- Gloves — (first pair) grasp outside edge near wrist, peel away from hand, turning glove inside-out and hold in opposite gloved hand and place in first poly bag and then seal the first bag
• **Seal** first poly bag and place into the second poly bag provided
Remove goggles

- Goggles- grasp straps (if applicable) with inner gloves or ungloved hands, lift away from face and place in second poly bag
- Do not remove by grasping the front of the goggles as this may cause an exposure
Remove respirator and discard in poly bag

- Respirator - lift the bottom elastic over your head first, then lift off the top elastic and pull respirator away from body into second poly bag
Gown - unfasten ties, peel gown away from neck and shoulder, turn contaminated outside toward the inside, fold into a bundle, and discard into second poly bag.
Seal second poly bag and place in appropriate waste container
Remove inner gloves and wash hands

- Remove gloves after transporting poly bag and placing it into the chemo waste container. Place gloves into chemo waste container, close the lid and perform hand hygiene.
Special Training for Safe Handling Practices

Transportation Services:

• A Chemotherapy Drug Spill Kit is required to accompany all patients who are transported off the unit who are receiving a hazardous drug, or who have received one in the last 48 hours.
• These patients will be identified by an orange arm band that will be placed on them at the time of drug initiation.
• A physician’s order is required for all patient transports off the unit while actively receiving a hazardous IV drug.
• The transporter will check for the presence of the orange arm band. If one is present the transporter will ask for the chemotherapy drug spill kit, and a respirator that they have been fit tested to use.
• The chemotherapy drug spill kit will be used by escort services to treat any hazardous drug spills, or to protect them from contact with bodily fluid and soiled linens of a patient who is wearing an orange arm band.
Hazardous Drug Medical Surveillance

• Program through Occupational Health Services
• Two Components:
  – Medical Surveillance questionnaire - MANDATORY in JEN
  – Laboratory testing and focused physical exam - VOLUNTARY
• Surveillance is performed annually. Collection of, responses to questionnaire, results of testing, and exam findings are confidential
• Refer to JHS Administrative Policy #400.034 Safe Handling of Hazardous Drugs
Summary

- Hazardous drugs can cause serious health effects in health care workers who do not wear appropriate PPE
- Lifetime exposure to hazardous drugs and other chemicals can cause serious health effects
- Employees can be exposed to these drugs through direct contact, ingestion, breaks in the skin, or through inhalation
- Hazardous drugs are used in many areas of the hospital
- All employees of the JHS have a right to know the nature and effect of the hazardous drugs they are exposed to, how to protect themselves, and the appropriate personnel protective equipment that is required
- The appropriate PPE required for the safe handling of hazardous drugs are available through JHS Materials Management
- Hazardous spills are managed by employees trained in the procedure by using a Chemotherapy Drug Spill Kit
- Information on safe handling of hazardous drugs can be found in the JHS Administrative Policy #400.034
- You can protect yourself by wearing the appropriate PPE, and by following established rules, guidelines, and procedures
Contact Information

- Environmental Health and Safety Department
  305-585-2903 (85-2903)

“Safe Handling of Hazardous Drugs”