Beaumont Laboratory Safety Review for Student Orientation

December, 2019

Objectives

Upon review of this module, the MLS/Technologist student will be expected to:

- Locate Corporate Safety policies on the Beaumont intranet.
- Locate Laboratory Safety policies on the Beaumont intranet.
  - Bloodborne Pathogen Manual
  - Safety Manual
  - Chemical Hygiene Plan
- Explain recommended biohazard practices.
- Demonstrate correct use of PPE.
- Describe the **Michigan Right to Know Law** and the **Beaumont Hazard Communication Program.**
- Locate an SDS sheet given a particular chemical name.
- Locate chemical inventory and chemical hygiene practices in each laboratory section.
- Describe the **Emergency Management Plan** and associated reference tools.

Motivators for Safety

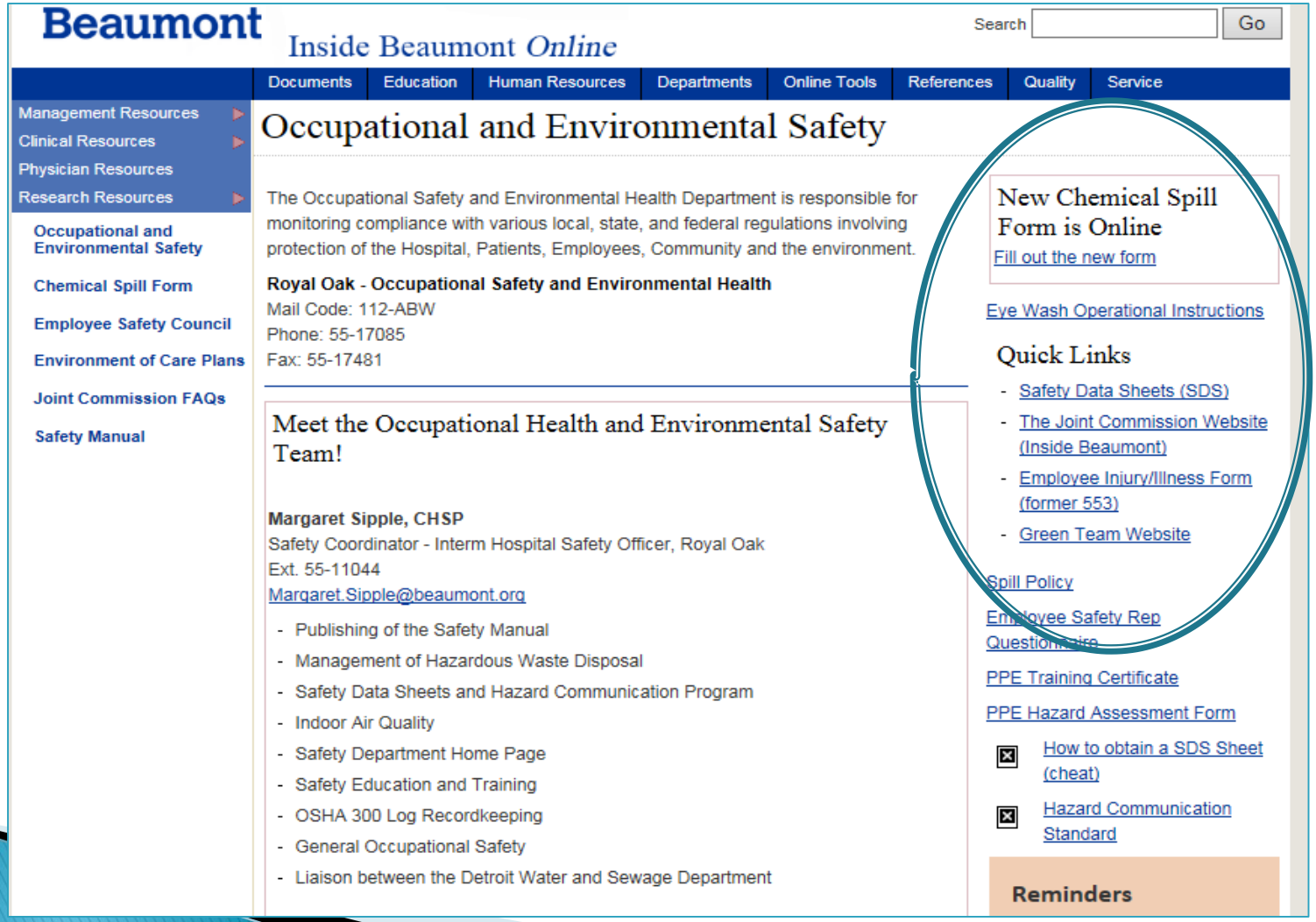
- Concerns for Staff and Visitors
- Compliance with regulatory & accrediting agencies
  - OSHA, EPA, DOT, DFA
  - CAP, Joint Commission
- Consequences of accidents
  - Loss of staff due to injury (or death)
  - Loss of equipment or facilities due to damage
  - Liability

Beaumont-specific Topics

- Corporate & Laboratory Safety webpages
- Laboratory Safety Manuals
- Biohazard Waste and Sharps Disposal
- Chemical Hazard Training
- Hospital Emergency Management
  - Emergency Alert Codes
- Mandatory Education Requirements

Corporate Safety Website

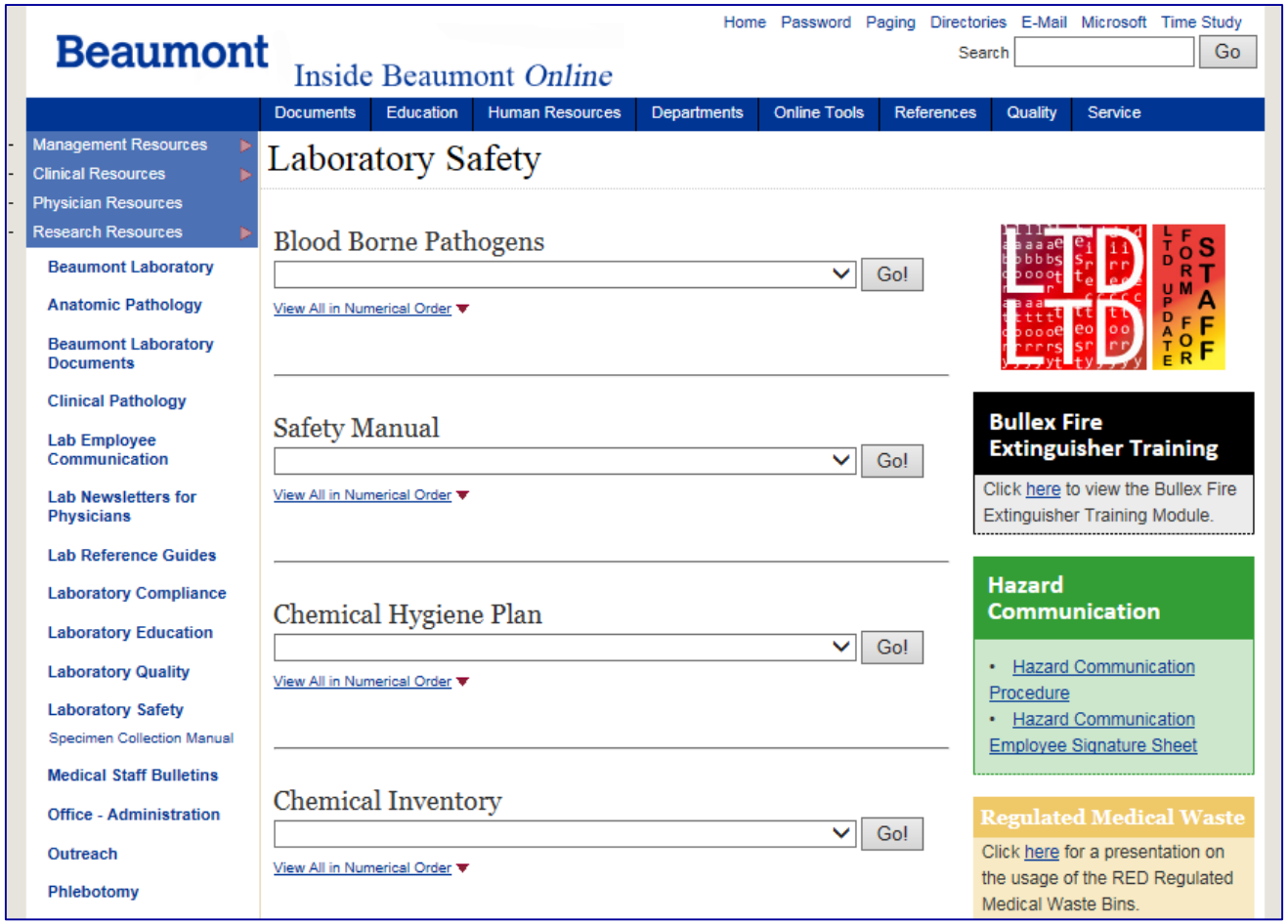
- Aka: Occupational and Environmental Safety



Laboratory Safety Website

Four major sections:

- Blood Borne Pathogens
- Safety Manual
- Chemical Hygiene Plan
- Chemical Inventory



Blood Borne Pathogens

- Infection Control Policies
- Clinical Pathology Specific Exposure Control Requirements
  - Chemistry / Hematology / Microbiology
- Clinical Pathology Glove Use Policy
- Personal Protective Measures Policy

Laboratory Safety Manual

- General Safety Topics:
  - Emergency Preparedness
  - Personnel Accidents
  - Electrical Safety in the Workplace
  - Fire Response and Evacuation
  - Fire Drills
  - Radiation Safety
  - Waste Disposal
  - Spill Clean-up
  - Personal Protective Measures
  - Use of Biosafety Level III Lab
  - Physical / Noise / Ergonomic Hazards

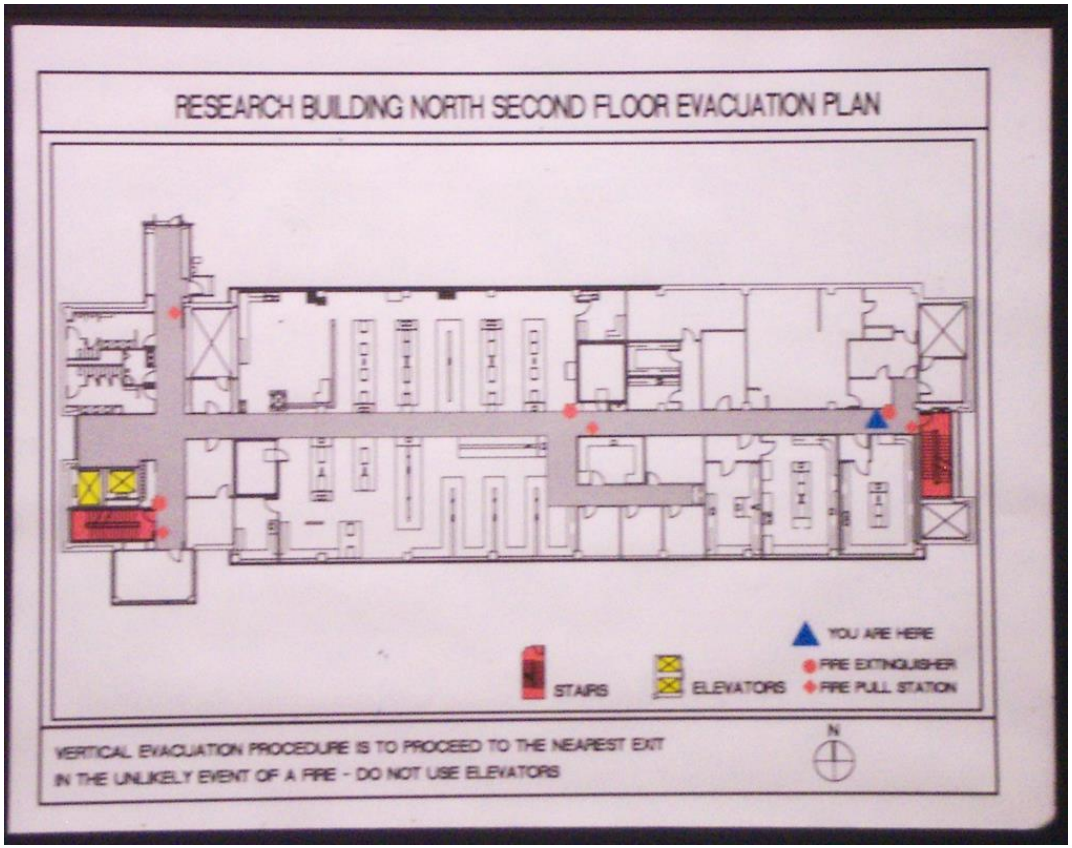
Chemical Hygiene Plan

- What is a chemical hygiene plan?
  - Documents used to communicate the risk of exposure to chemicals
  - Contains procedures and protocols for safe handling, clean-up, storage and disposal of chemicals used in the laboratory
- Includes Chemical Inventory listings of hazardous chemicals in each laboratory

Fire Safety

Fire Safety includes:

- Staff training in proper use of a fire extinguisher
- Fire Drills
- Inspections
- Posted Evacuation Plans → → →
- R.A.C.E.
- P.A.S.S.

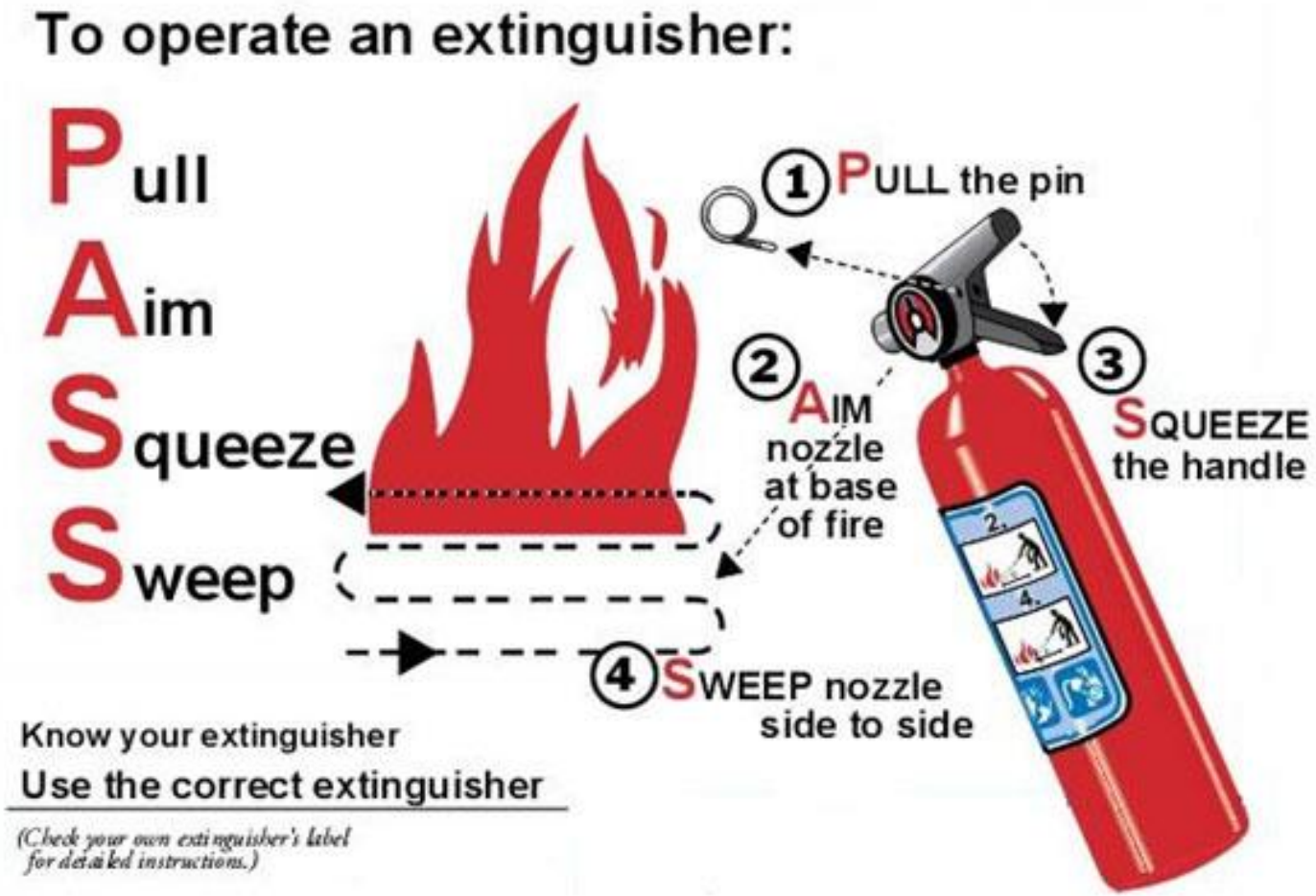


Fire Safety – R.A.C.E.

IF YOU DISCOVER A FIRE – REMEMBER:

- **RACE**
- **R - RESCUE** anyone in immediate danger
- **A** - Activate the **ALARM**
- **C – CONFINE or CONTAIN** the fire (close the door)
- **E - EXTINGUISH** small controllable fires/or **EVACUATE**

Fire Safety – P.A.S.S.



Hand Hygiene

Hand Hygiene – Why?

Why hand "hygiene"?

Hand "hygiene" includes the washing of hands with soap and water *or* the use of alcohol-based hand rub. Washing hands with soap and water is necessary when your hands are visibly soiled. At all other times, an alcohol-based hand rub is perfectly acceptable and has been approved by the Centers for Disease Control and Prevention (CDC).

Why should we do it?

Healthcare workers, visitors and patients should perform hand hygiene routinely to protect themselves from acquiring infectious organisms and to prevent the spread of germs to others. Basically, hand hygiene, performed properly will help prevent the spread of infection.

When should hand hygiene be performed?

Patients should cleanse their hands before eating, after toileting, before and after self-care such as wound dressing changes and suctioning.

Visitors should cleanse their hands before putting on gloves and after removing them, before and after any hands-on contact with the patient and when leaving the patient's room.

Healthcare workers should cleanse their hands before any hands-on contact with the patient, before and after wearing gloves, before and after blowing their nose, before eating or going on break, before and after going to the bathroom and after handling any potentially contaminated articles.

Hand Hygiene – Which product and how long?

How should hand hygiene be performed?

Alcohol-based hand rub

(Hands should not be visibly soiled!)

1. Apply sufficient amount of alcohol-based hand rub (about the size of a golf ball) into the palm.
2. Rub hands together, working the alcohol-based hand rub around the fingernails, rings and over all surfaces of both hands. Keep rubbing until all surfaces are dry.
3. When hands are dry, the job is done. Do not wipe off with a towel. You're done with hand hygiene!

Handwashing with soap and water

1. Make sure hand towel is available.
2. Wet hands under water. Apply one push of soap from the dispenser into palm of hand.
3. Lather and rub hands together, lathering around the fingernails, rings and over all surfaces of both hands for at least 15-20 seconds.
4. Rinse under running water.
5. Use paper towel to dry hands thoroughly.
6. Use same paper towel to turn off faucet.

Hand Hygiene – alcohol-based or water?

Alcohol-based hand rub or soap and water handwashing

Alcohol-based hand rubs reduce the number of germs on the hands and cause less skin irritation and dryness than washing hands with soap and water.

Studies show that hand hygiene practices help prevent the spread of infections.

Handwashing with soap and water is necessary when hands are visibly soiled or feel "sticky."

Alcohol-based hand rubs contain emollients (softening agents) to protect the skin from drying. Skin irritation may result when hands are washed with soap and water immediately after use of alcohol-based hand rub.

Hand Hygiene Policy

Beaumont

PolicyStat

Home | Title | Area | Document Contact | Key Words

Search documents by typing here | Search Documents | Printer Friendly | Email Copy

Viewing: Hand Hygiene

Table of Contents

I. PURPOSE AND OBJECTIVE:
II. POLICY STATEMENT:
III. DEFINITIONS:
IV. PROCEDURE:
V. REFERENCES (if applicable):

Current Status: *Active* **PolicyStat ID:** *6268912*

Beaumont

Origination:	*01/2018*
Effective:	*01/2018*
Last Approved:	*01/2018*
Last Revised:	*01/2018*
Next Review:	*11/2020*
Document Contact:	*Brianne Bachman: Supv Clinical Infection Prev*
Area:	*Infection Prevention and Epidemiology*
Key Words:	
Applicability:	*Beaumont All Sites*

Hand Hygiene

Document Type: Policy, Procedure

I. PURPOSE AND OBJECTIVE:

Hand hygiene is the first line of defense in preventing healthcare-associated infections and transmission of pathogens and antibiotic resistance in healthcare settings. Hand hygiene is part of the overall goal to reduce infections and promote patient safety.

Surveillance for hand hygiene is performed using both covert and overt observations. Observers monitor hand hygiene practices on all units using standard definitions and data collection methods. Compliance is monitored using Beaumont's Hand Hygiene Quality Standard; "Always foam in, and foam out if anything was touched." This is the minimum expectation. Additional hand washing is encouraged.

II. POLICY STATEMENT:

Hand hygiene includes washing hands with soap and water, or using an alcohol-based hand rub (ABHR). For routine decontamination of hands, ABHR's have been found to be superior to

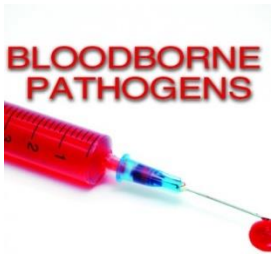
Help

Blood Borne Pathogen Infection Control

PPE: Personal Protective Equipment

CAP Accreditation Standard–
GEN.74100 – PPE Provision and Usage (BBP)

- *Appropriate PPE (gloves, gowns, masks, eye protectors, etc.") is provided and maintained.."*
  - Fluid resistant gowns that will NOT permit blood/infectious material to pass through
    - In addition, wear an apron if lots of blood
  - Gloves: Change with each patient contact
  - Employer must provide PPE for employees at no cost
  - Employer must ensure that employee uses PPE



CAP Accreditation Standard– –
GEN.74200 – PPE Instruction (BBP)

- *"Personnel are instructed in the proper use of personal protective clothing/equipment (e.g. gloves, gowns, masks, eye protectors, footwear) and records are maintained."*




Glove Use in Lab

- Nitrile
- Properly fitted
- Replace gloves immediately when to grossly contaminated
- Don't touch clean surfaces with contaminated gloves (e.g., door knobs, etc.)
- Don't wash or disinfect gloves for reuse
- Use of hypoallergenic gloves when needed
- Remove before leaving lab
- Decontaminate hands after glove removal
  - Need clean sink
  - Use soap and water for contaminated hands
- Not needed for closed-sample transport

Clinical Pathology Glove Policy

Beaumont HEALTH

Beaumont Laboratory
Grosse Pointe • Royal Oak • Troy

Effective Date: 12/20/2017
Supersedes: 10/13/2017
Related Documents:

CLINICAL PATHOLOGY GLOVE USE POLICY

BHS.SA.BBP.005.r04

Policy

In order to provide adequate protection from exposure to pathogens or hazardous chemicals in the Clinical Pathology laboratory, it is essential that personal protective equipment (PPE) be available and used properly. Gloves are an important item of PPE, which must be worn in prescribed circumstances and should be used according to the following guidelines. Specific directives regarding glove use can be found in other documents such as the Clinical Pathology Safety Manual and Chemical Hygiene Plan, or the hospital Infection Control Policy. This policy is intended to consolidate all these directives into a single source and add information about proper glove removal.

Glove Types

1. **Nitrile or vinyl**: Appropriate for handling specimens of blood or other body fluids and tissues, dry chemicals and dilute aqueous solutions.
2. **Chemical resistant neoprene**: Appropriate for handling concentrated acids, bases and most organic solvents.
3. **Household rubber**: Appropriate for use with strong cleaners or detergents including bleach solutions for decontaminating benchtops.

Glove Use

1. Always ensure that gloves fit properly. They should not be loose or extend beyond the fingertips.
2. Check gloves for obvious tears or punctures before and after putting them on.
3. Immediately replace gloves if they become torn or punctured during use.
4. DO NOT wash nitrile or vinyl gloves which become contaminated with blood or body fluids. Washing increases the permeability of these gloves and increases the risk of exposure.
5. DO wash chemical contamination off chemical resistant gloves before removal. These gloves are not affected by washing with ordinary soaps or detergents and water.
6. Dispose of nitrile or vinyl gloves in the proper biohazard containers after use and DO NOT reuse them.
7. Wash hands after removal of contaminated gloves.

Glove Doffing (Removal)

CLINICAL PATHOLOGY GLOVE USE POLICY

5. Gloves do not need to be worn when transporting specimens in bags or other types of sealed containers.

Glove Removal

1. Remove one glove by peeling it off the hand by the cuff so it becomes turned inside out.
2. Place it in the palm of the remaining gloved hand.
3. Remove the second glove by peeling it off the hand over the first glove so it becomes turned inside out with the other glove inside it.
4. Discard the gloves into a proper container.

Chemical Resistant Neoprene

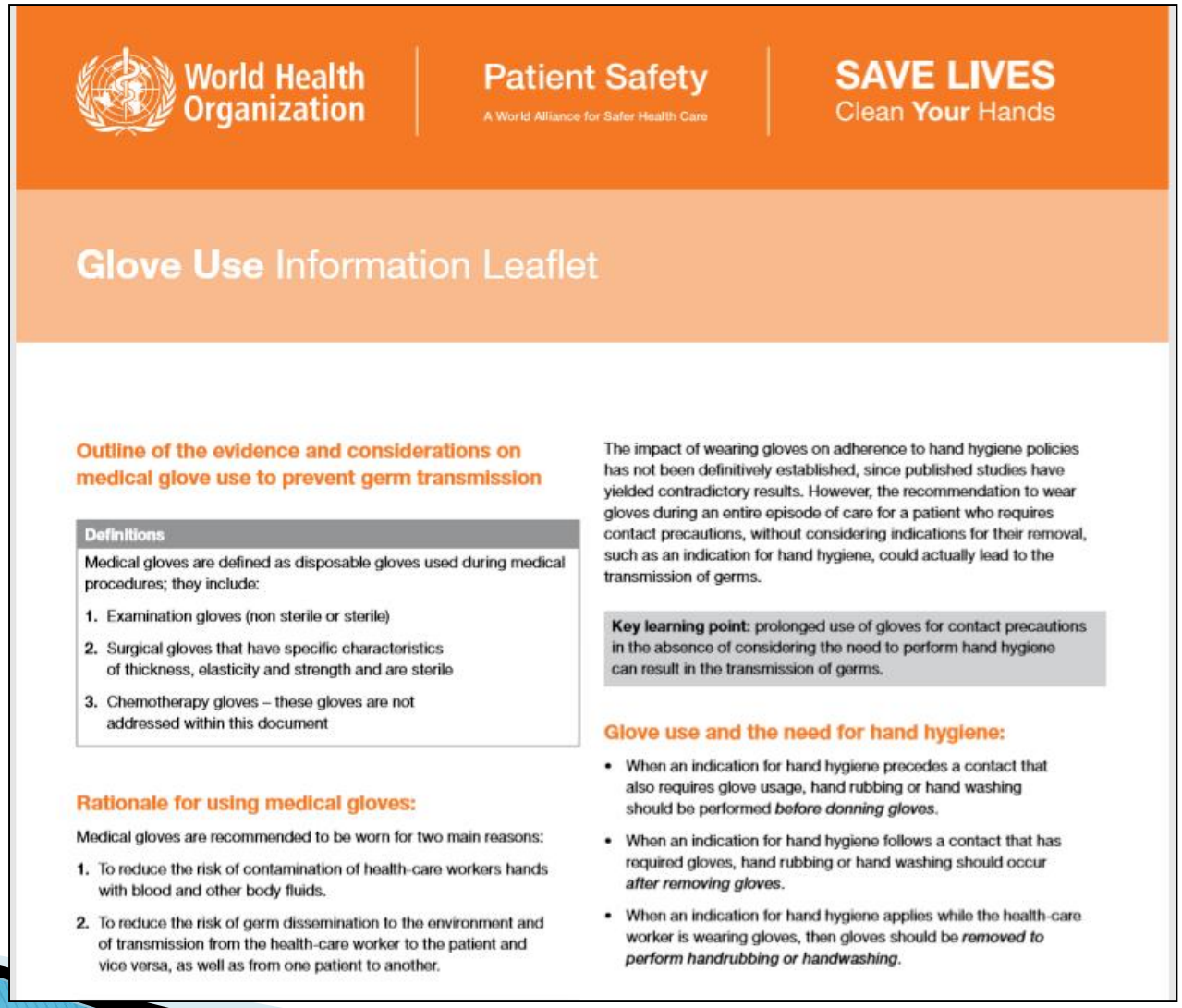
1. Rinse or wash any chemical contamination off the gloves.
2. Remove each glove by peeling the cuff down the hand until the glove can be pulled off by the fingertips.
3. Restore the gloves with the outside out.
4. Allow to dry before storing.

Authorized Reviewers

This procedure is monitored by the Beaumont Laboratory Safety Committee.
Laboratory Safety Officer
Chair, Pathology and Laboratory Medicine
Beaumont Laboratory Medical Directors, Grosse, Pointe, Royal Oak, Troy, W. Bloomfield, Farmington Hills
Medical/ Technical Director, Microbiology, R.O.

Glove Doffing

Infection Control Resources



World Health Organization | Patient Safety — A World Alliance for Safer Health Care | SAVE LIVES Clean Your Hands

Glove Use Information Leaflet

Outline of the evidence and considerations on medical glove use to prevent germ transmission

Definitions

Medical gloves are defined as disposable gloves used during medical procedures; they include:

1. Examination gloves (non sterile or sterile)
2. Surgical gloves that have specific characteristics of thickness, elasticity and strength and are sterile
3. Chemotherapy gloves – these gloves are not addressed within this document

Rationale for using medical gloves:

Medical gloves are recommended to be worn for two main reasons:

1. To reduce the risk of contamination of health-care workers hands with blood and other body fluids.
2. To reduce the risk of germ dissemination to the environment and of transmission from the health-care worker to the patient and vice versa, as well as from one patient to another.

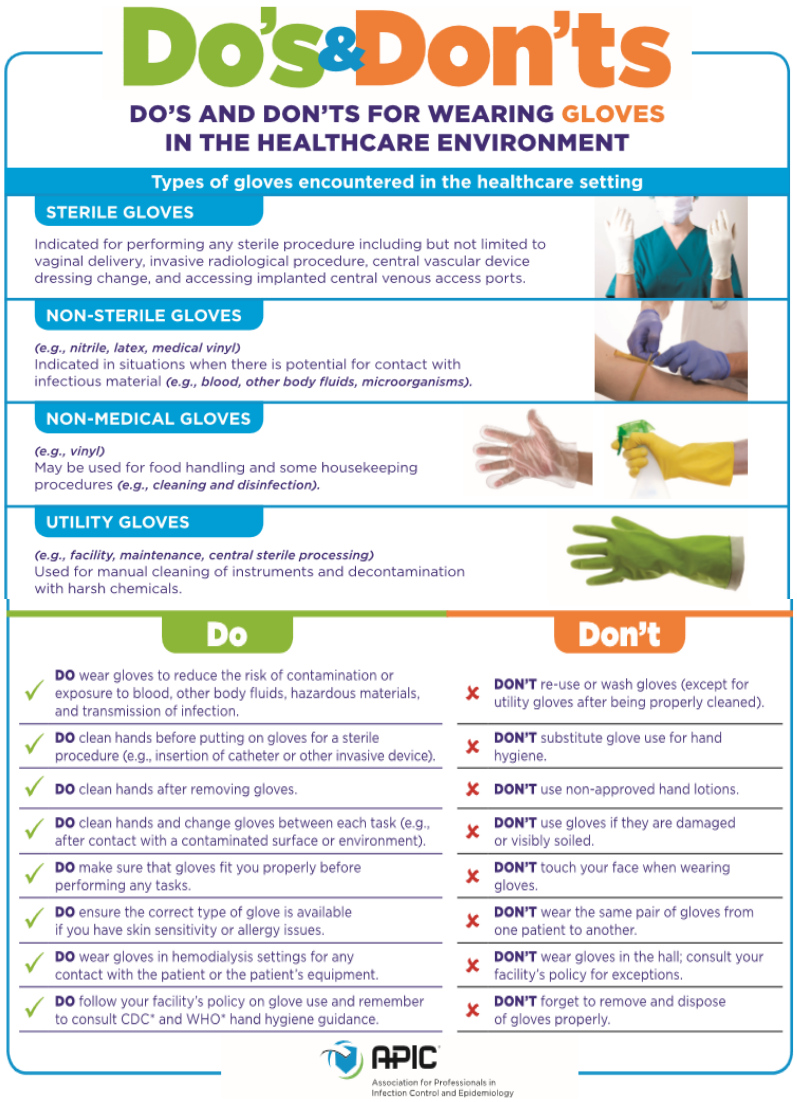
The impact of wearing gloves on adherence to hand hygiene policies has not been definitively established, since published studies have yielded contradictory results. However, the recommendation to wear gloves during an entire episode of care for a patient who requires contact precautions, without considering indications for their removal, such as an indication for hand hygiene, could actually lead to the transmission of germs.

Key learning point: prolonged use of gloves for contact precautions in the absence of considering the need to perform hand hygiene can result in the transmission of germs.

Glove use and the need for hand hygiene:

- When an indication for hand hygiene precedes a contact that also requires glove usage, hand rubbing or hand washing should be performed ***before donning gloves***.
- When an indication for hand hygiene follows a contact that has required gloves, hand rubbing or hand washing should occur ***after removing gloves***.
- When an indication for hand hygiene applies while the health-care worker is wearing gloves, then gloves should be ***removed to perform handrubbing or handwashing***.

Infection Control Resources



Do's & Don'ts

DO'S AND DON'TS FOR WEARING GLOVES IN THE HEALTHCARE ENVIRONMENT

Types of gloves encountered in the healthcare setting

STERILE GLOVES

Indicated for performing any sterile procedure including but not limited to vaginal delivery, invasive radiological procedure, central vascular device dressing change, and accessing implanted central venous access ports.

NON-STERILE GLOVES

(e.g., nitrile, latex, medical vinyl)
Indicated in situations when there is potential for contact with infectious material *(e.g., blood, other body fluids, microorganisms).*

NON-MEDICAL GLOVES

(e.g., vinyl)
May be used for food handling and some housekeeping procedures *(e.g., cleaning and disinfection).*

UTILITY GLOVES

(e.g., facility, maintenance, central sterile processing)
Used for manual cleaning of instruments and decontamination with harsh chemicals.

Do	Don't
✓ **DO** wear gloves to reduce the risk of contamination or exposure to blood, other body fluids, hazardous materials, and transmission of infection.	✗ **DON'T** re-use or wash gloves (except for utility gloves after being properly cleaned).
✓ **DO** clean hands before putting on gloves for a sterile procedure (e.g., insertion of catheter or other invasive device).	✗ **DON'T** substitute glove use for hand hygiene.
✓ **DO** clean hands after removing gloves.	✗ **DON'T** use non-approved hand lotions.
✓ **DO** clean hands and change gloves between each task (e.g., after contact with a contaminated surface or environment).	✗ **DON'T** use gloves if they are damaged or visibly soiled.
✓ **DO** make sure that gloves fit you properly before performing any tasks.	✗ **DON'T** touch your face when wearing gloves.
✓ **DO** ensure the correct type of glove is available if you have skin sensitivity or allergy issues.	✗ **DON'T** wear the same pair of gloves from one patient to another.
✓ **DO** wear gloves in hemodialysis settings for any contact with the patient or the patient's equipment.	✗ **DON'T** wear gloves in the hall; consult your facility's policy for exceptions.
✓ **DO** follow your facility's policy on glove use and remember to consult CDC* and WHO* hand hygiene guidance.	✗ **DON'T** forget to remove and dispose of gloves properly.

APIC
Association for Professionals in Infection Control and Epidemiology

- CDC
- OSHA
- APIC

PPE in Labs

- Gown, aprons, other protective clothing
  - Fluid resistant gown (apron, also, if needed)
    - White cloth lab coat NOT acceptable
  - **Wear only in lab**
  - Employer is responsible for buying, cleaning, laundering, disposing, replacing
    - No cost to employee
  - Other = surgical caps/hoods, shoe coverings/boots, etc.

CAP Accreditation Standard- -

GEN.76300 – PPE and Hazardous Materials (CHP – Chemical Hygiene Plan)

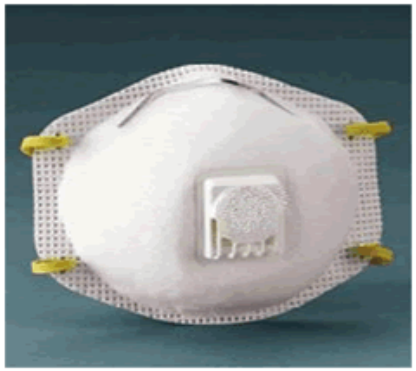
- *"Personnel use the proper personal protective devices when handling corrosive, flammable, biohazardous, and carcinogenic substances."*
  - *"Shoes or shoe covers must protect the entire foot in areas where splashing is expected."*
  - **Use chemical splash goggles with hazardous materials**
    - Eyeglasses, safety goggles, or face shields alone are not acceptable

PPE in Labs

- **Face shields**
  - Required when there is a possibility that splashes, spray, spatter, droplets, dust, hazardous material may get in the eyes
    - Blood, body fluids
  - Must cover eyes, nose, and mouth
  - Regular glasses NOT acceptable

CAP Accreditation Standard- - GEN.74900 (TB Exposure) PPE Provision and Usage

- Infectious agent exposure by aerosol or droplet:
  - **NIOSH approved (US) N-95 or higher filter respirator, or**
  - **Powered air-purifying respirator (PAPRS)**
    - With HEPA filters
  - **Accurate fit testing**
    - Training



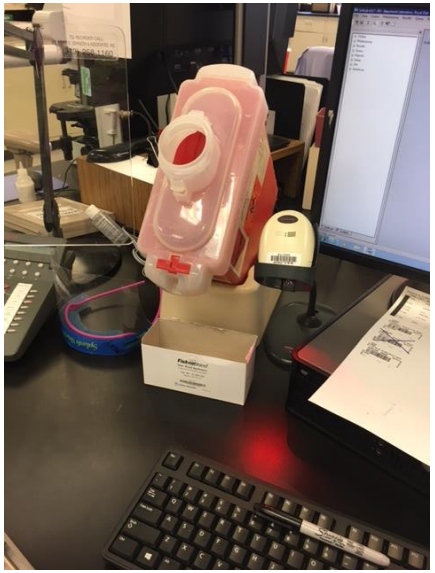
Footwear in Laboratory Areas

- Footwear = Dress Code
  - Not PPE under OSHA interpretation of the standard
  - Must meet safety needs of the work environment
  - Safety requirement for all hospital personnel
  - See Corporate HR policy 280 for more information
- Footwear Requirements
  - Fully Enclosed
    - No open toes/heel/weave/holes
  - Impermeable (All leather or plastic)
    - Non-absorbent, Easy to wipe off
      (i.e. no mesh on shoe tongue)
  - Slip Resistant
    - Non-slippery sole

Biohazard Waste Disposal

Laboratory "Sharps"

- Dispose into hard plastic, biohazard labeled containers <u>with</u> lids.
- Includes:
  - Needles/ syringes
  - Glass slides
  - Glass or hard plastic pipettes
  - Wooden Sticks



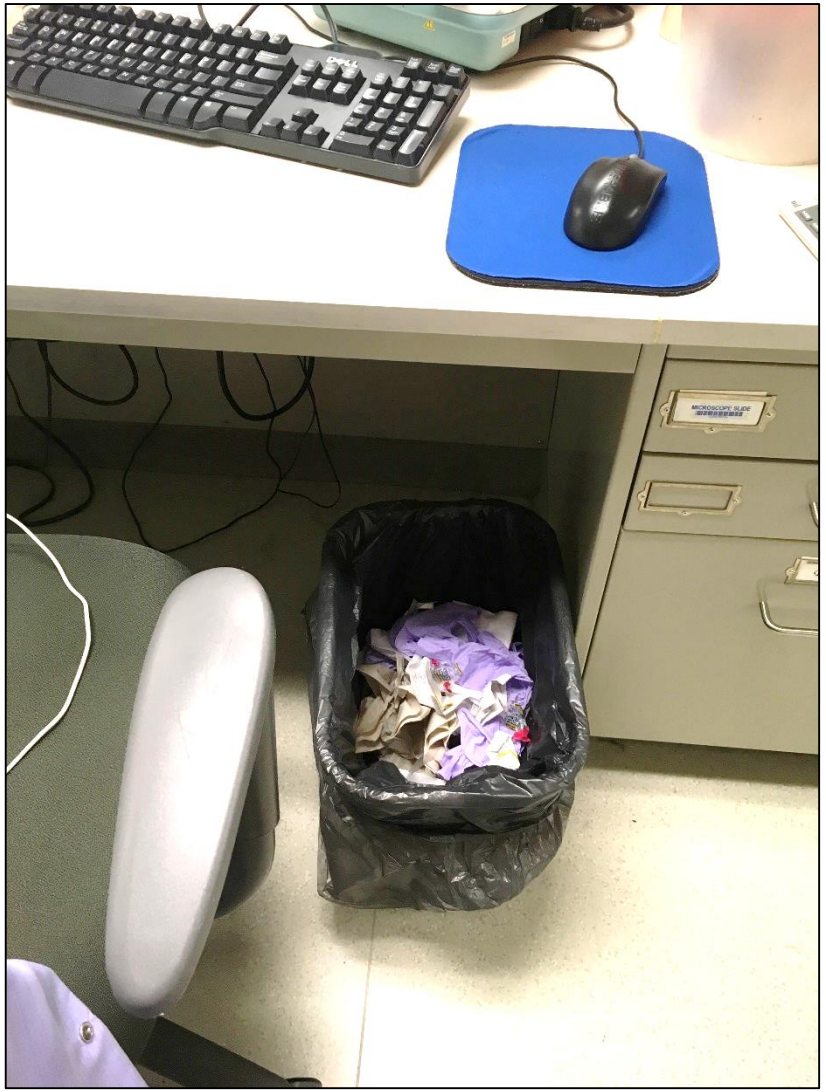
Biohazard, non-sharp waste

Visibly bloody or body fluid contaminated gauze, Kimwipes™ and/or soft plastic transfer pipettes.

Note:
Red / or
Orange Bag –
they are one in
the same

Regular Trash

- Non-visibly, bloody:
  - Gloves
  - Gauze
  - Kimwipes
  - Paper towels
  - Disposable lab coats



Workspace Decontamination

Disinfectant Wipes

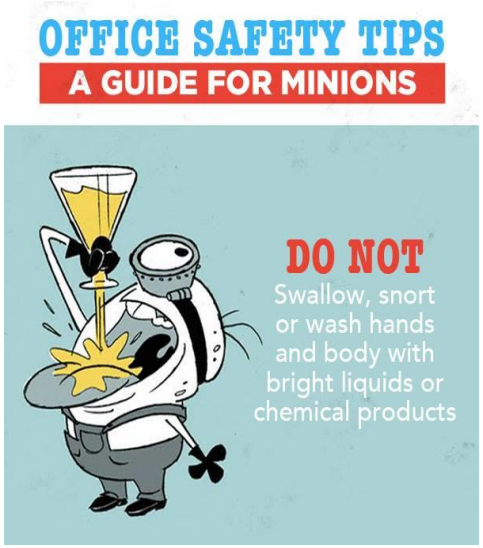
Dispatch® Bleach	Sani-Cloth® AF3	Sani-Cloth® HB	Sani-Cloth® Plus
			
WHITE TOP	GRAY TOP	GREEN TOP	RED TOP
• 1:10 Bleach • Kills *C. difficile*	• Alcohol-Free Quat	• Alcohol-Free Quat	• Low-Alcohol Quat
5 Min Contact Time	3 Min Contact Time	10 Min Contact Time	3 Min Contact Time

Housekeeping Disinfectant: Morning Mist

10 Minute Contact Time

Chemical Hygiene Plan & Hazard Communication Training

Topics to be Covered



- **Michigan Right to Know Law**
- **Hazard Communication Program**
- Safety Data Sheets (SDS)
- Labeling of Hazardous Chemicals
- SDS Availability Poster
- Labeling System of Hazardous Chemicals
- Chemical Inventory, Hygiene, Transport
- Spill PPE and Clean Up

Michigan Right to Know Law

- Chemical manufacturers must evaluate hazards of chemicals they produce
- Employees must be provided with information via a hazard communication program on the chemicals in their specific work area that pose either a physical or health hazard
- The program must include information on chemical labeling, location of safety data sheets (SDS's), and employee training on the proper use, handling and emergency equipment for spill clean-up, if needed

Beaumont Hazard Communication Program

- The Beaumont **Hazard Communication Program** requires employees receive training on:
  - Review of U.S. & Michigan Right to Know Laws
  - SDS Location
  - Chemical Labeling
  - Personal Protective Equipment (PPE)
  - Spills and Emergency Equipment
  - Department-Specific Chemicals

Beaumont Hazard Communication Program

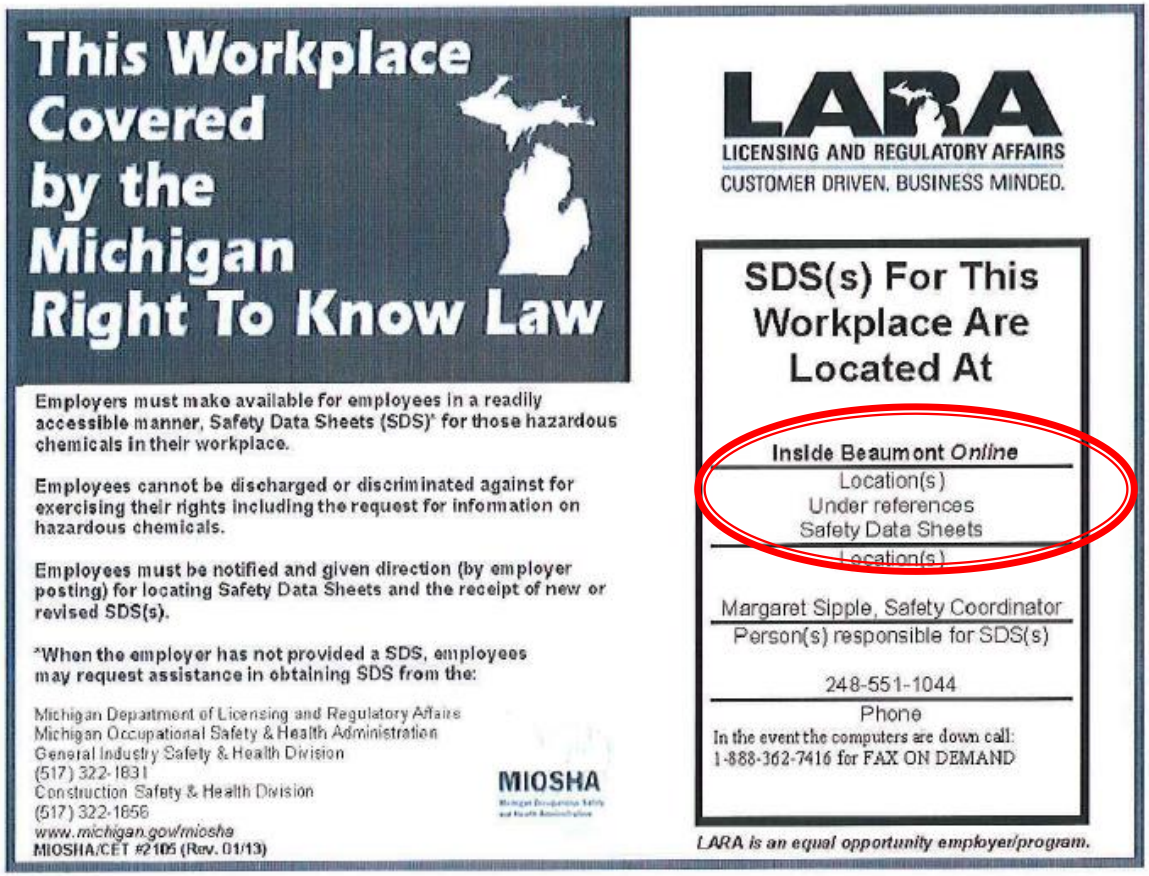
- **Employee responsibilities include:**
  - Obey all safety rules:
    - Proper handling, usage and storage
    - Proper labeling of secondary containers
  - Know critical information:
    - List of chemicals in your work area
    - Location of SDS, PPE, & First aid supplies
    - Location of Spill Kits & other emergency equipment
  - Inform Supervisor if:
    - Accident/spill
    - Missing labels on primary containers

Safety Data Sheets (SDS)

- These are manufacturer technical bulletins containing detailed information such as:
  - Chemical composition of a product
  - Physical and health hazards
  - Precautionary procedures for avoiding accidents
  - Emergency and first aid procedures in the event of an accident

SDS's contain much more information than the product labels!

SDS Availability Poster



This Workplace Covered by the Michigan Right To Know Law

Employers must make available for employees in a readily accessible manner, Safety Data Sheets (SDS)* for those hazardous chemicals in their workplace.

Employees cannot be discharged or discriminated against for exercising their rights including the request for information on hazardous chemicals.

Employees must be notified and given direction (by employer posting) for locating Safety Data Sheets and the receipt of new or revised SDS(s).

*When the employer has not provided a SDS, employees may request assistance in obtaining SDS from the:

Michigan Department of Licensing and Regulatory Affairs
Michigan Occupational Safety & Health Administration
General Industry Safety & Health Division
(517) 322-1831
Construction Safety & Health Division
(517) 322-1856
www.michigan.gov/miosha
MIOSHA/CET #2105 (Rev. 01/13)

MIOSHA

LARA
LICENSING AND REGULATORY AFFAIRS
CUSTOMER DRIVEN. BUSINESS MINDED.

SDS(s) For This Workplace Are Located At

Inside Beaumont *Online*
Location(s)
Under references
Safety Data Sheets
Location(s)

Margaret Sipple, Safety Coordinator
Person(s) responsible for SDS(s)

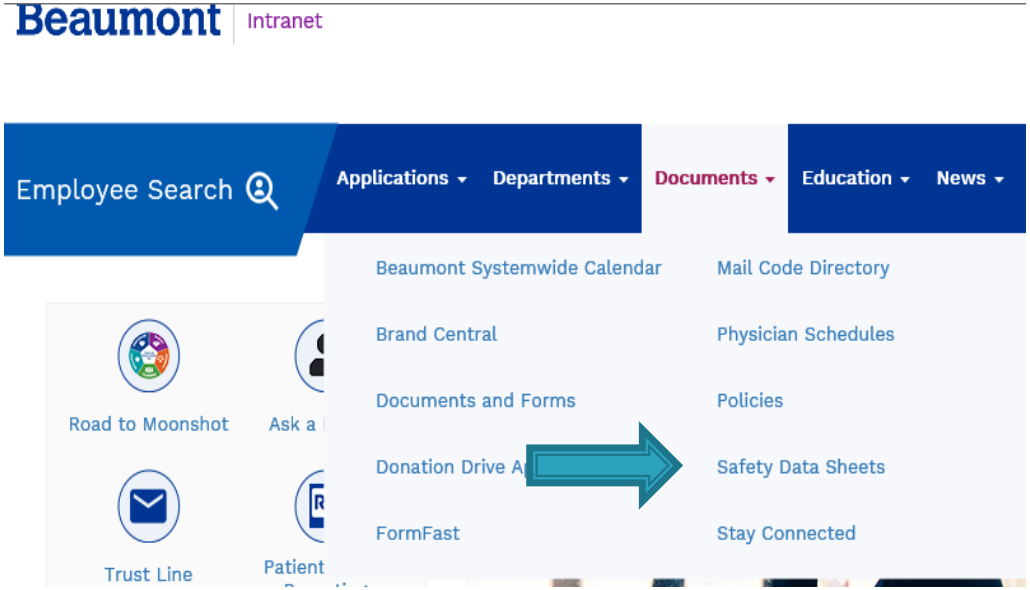
248-551-1044
Phone
In the event the computers are down call:
1-888-362-7416 for FAX ON DEMAND

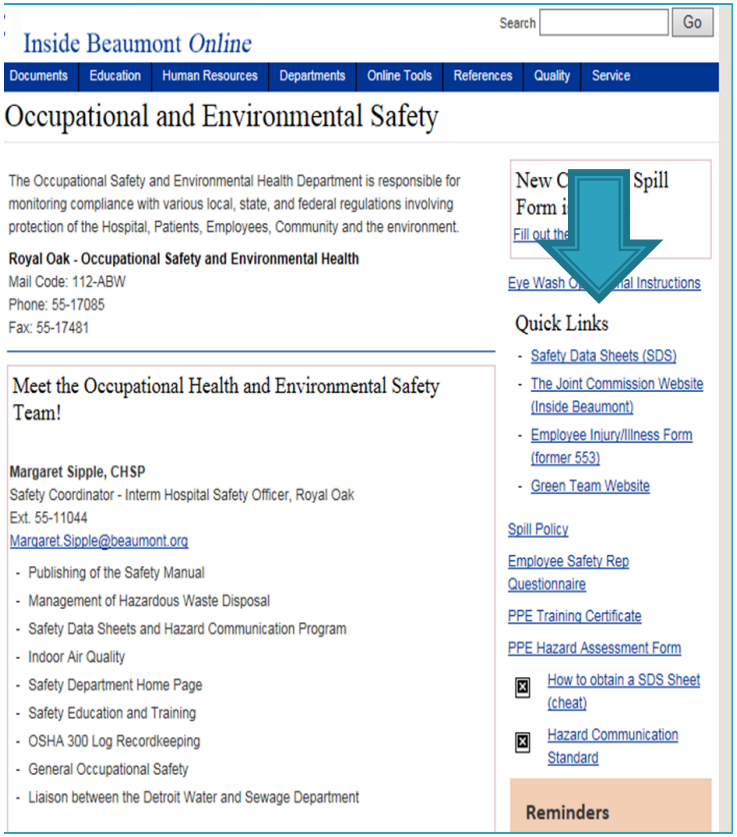
LARA is an equal opportunity employer/program.

The Michigan Right to Know Law also requires posters be displayed with guidelines on where to locate SDS for the workplace.

How do I find links to Safety Data Sheets (SDS)?

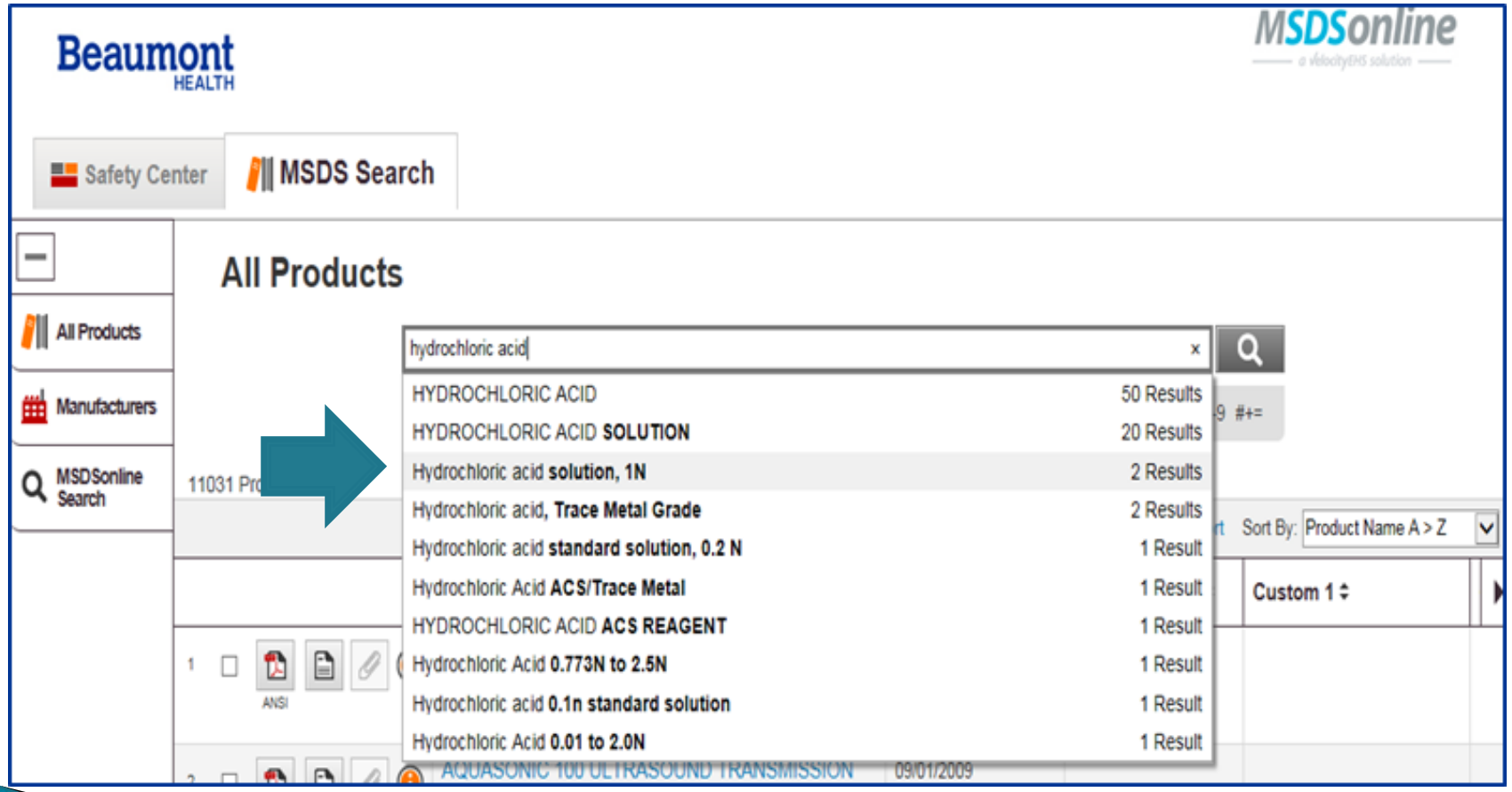
1. **Beaumont Intranet** > **Documents** > **SDS**
2. **Occupational & Environmental Safety** website > **Quick Links**



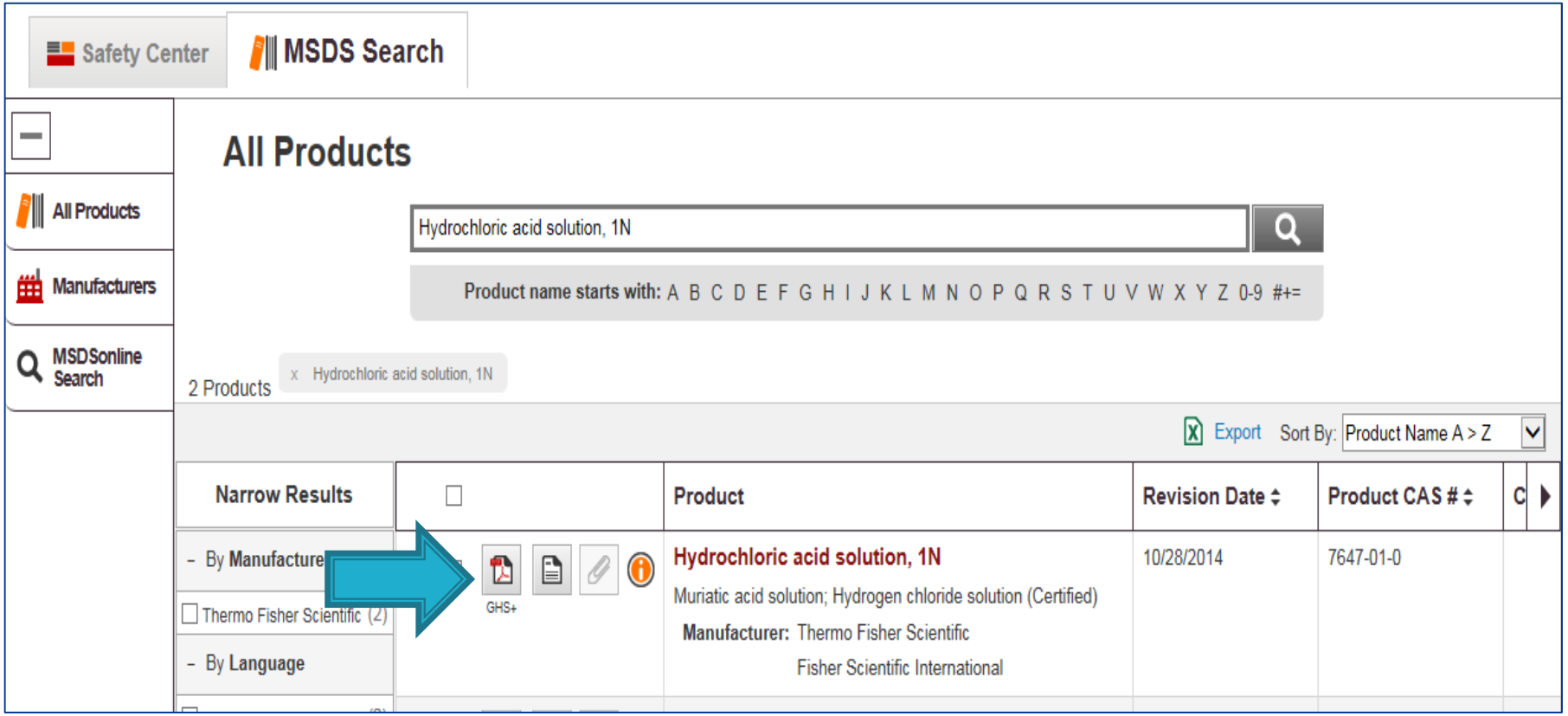


SDS Search:

1. Type key words from product name into Search bar



2. Click on PDF symbol to view SDS



3. Note the various sections and information provided

Fisher Chemical

SAFETY DATA SHEET

Creation Date 02-Mar-2009 Revision Date 25-Apr-2017 Revision Number 7

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identification

Product Description: Hydrochloric acid, 1M, (1N)
Cat No. : J/4320/15, J/4320/24, J/4320/17, J/4320/21
Synonyms Muriatic acid ; Hydrogen chloride ; HCl

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom
E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166
Chemtrec US: (800) 424-9300
Chemtrec EU: 001 (202) 483-7616

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Substances/mixtures corrosive to metal — Category 1 (H290)

Health hazards
Based on available data, the classification criteria are not met

Environmental hazards
Based on available data, the classification criteria are not met

SAFETY DATA SHEET

Hydrochloric acid, 1M, (1N) Revision Date 25-Apr-2017

Signal Word Warning

Hazard Statements
H290 - May be corrosive to metals

Precautionary Statements
P234 - Keep only in original container
P390 - Absorb spillage to prevent material damage

2.3. Other hazards

No information available

3. Note the various sections and information provided – cont.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.
Ingestion	Do not induce vomiting. Obtain medical attention.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons
No information available.

5.2. Special hazards arising from the substance or mixture

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.

Hazardous Combustion Products
Hydrogen chloride gas.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

6.2. Environmental precautions

Avoid release to the environment. See Section 12 for additional ecological information.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

3. Note the various sections and information provided – cont.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information

(a) acute toxicity;

Oral	Based on available data, the classification criteria are not met
Dermal	Based on available data, the classification criteria are not met
Inhalation	Based on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrochloric acid	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	1.68 mg/L (Rat) 1 h
Water	-		

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

Respiratory	No data available
Skin	No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity; No data available

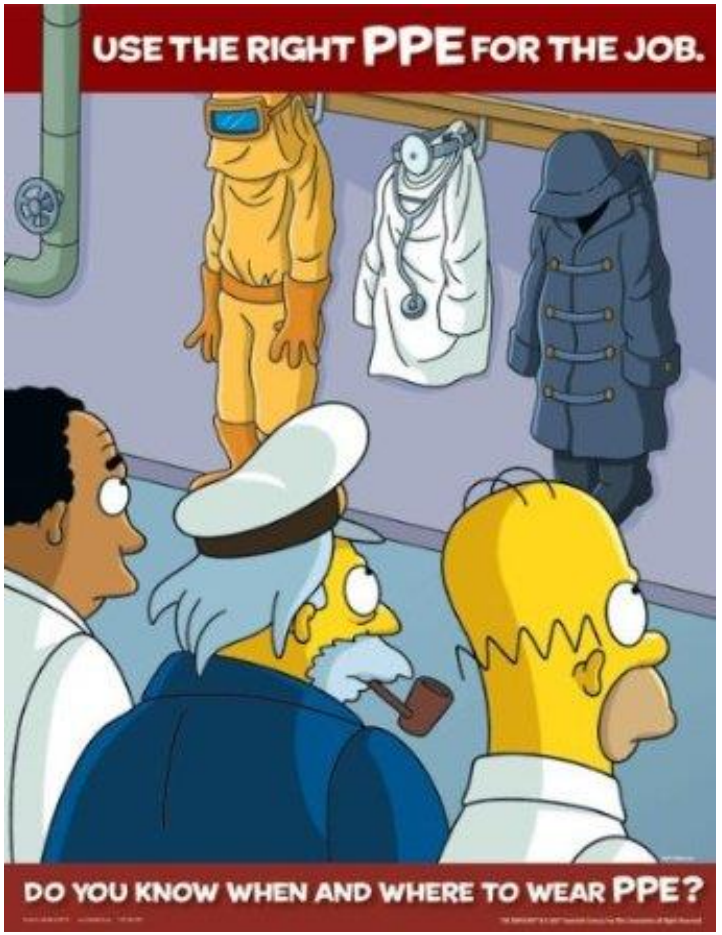
There are no known carcinogenic chemicals in this product

(g) reproductive toxicity; No data available

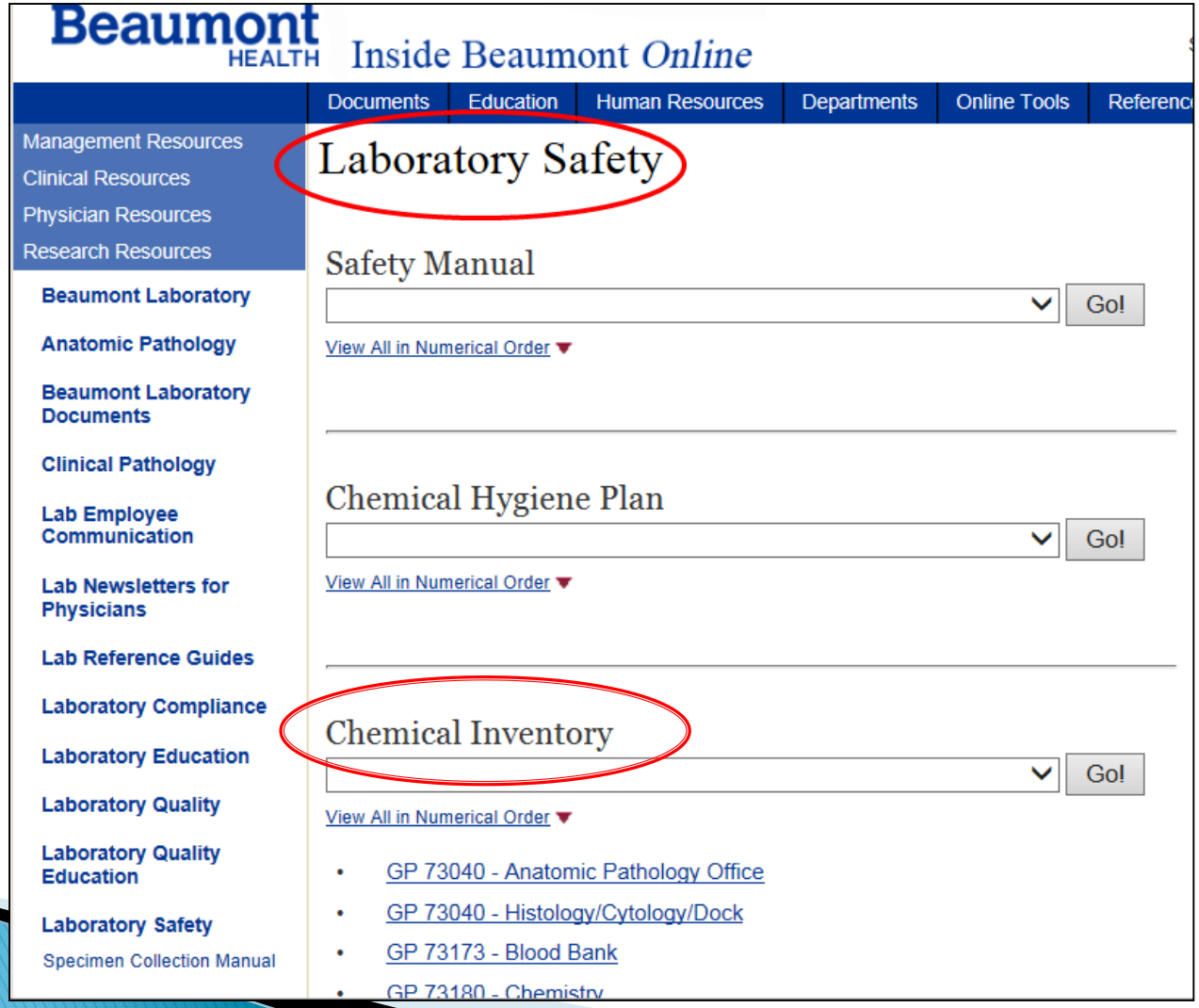
(h) STOT-single exposure; No data available

Personal Protective Equipment

- **Safety Data Sheets even provide information regarding the proper use of PPE such as:**
  - Gloves
  - Gowns
  - Eye and Face Protection
  - Respiratory Protection



How to Obtain a Lab Department-specific Chemical Inventory



Chemistry – Grosse Pointe example

CHEMICAL INVENTORY FORM

William Beaumont Hospital, Area: Grosse Pointe Chemistry RC: 73180 Extension: 1807 Verified by: Kathy Cousineau Date: 08/16/2017

CHEMICAL NAME	FORMULA/ COLOR INDEX NUMBER	Vendor Number	Manufacture/ Supplier Name	Quantity on Hand (L/g) monthly	Physical State	HAZARDS				Location	Disposal	PPE / Engineering Control	Target Organs	COMMENT (Storage or use requirement; Alternate names, spill kit used.)
						E	H	P	R					
VISTA REAGENTS														
Vista AMM Rgnt		K3119	SIEMENS	7 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		
Vista ALB Rgnt		K1013	SIEMENS	5 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		
Vista ALPI Rgnt		K2115	SIEMENS	7 BX	L	1,2,3,4	4	0	0	Frig12	H	G		
Vista ALTI(SGPT) Rgnt		K2143	SIEMENS	6 BX	L	1,2,3,4	4,6	0	0	Frig 12	H	G		
Vista AMY Rgnt		K3017	SIEMENS	2 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		
Vista AST(SGOT) Rgnt		K2041	SIEMENS	3 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		
B-HYDROXYBUTYRATE Rgnt		2440-058	STANBIO	4 BX	L	1,2,3,4	4	0	0	Frig 13	H	G		
TDM/B-HYDROXYBUTYRATE		2460-60s	STANBIO	4 BX	L	1,2,3,4	4	0	0	Frig 13	H	G		
Vista BUN Rgnt		K1021	SIEMENS	12 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		
Vista CA Rgnt		K1023	SIEMENS	12 BX	L	1,2,3,4	4	0	0	Frig 12	H	G		

(E) ROUTE OF ENTRY
1 – Inhalation
2 – Skin Absorption
3 – Ingestion
4 – Skin or Eye Contact

DISPOSAL
E – Evaporation in hood
H - Hazardous Waste
R - Recycle
S – Sink with normal effluent
T - Trash

(H) HEALTH HAZARDS
0 – No Health Hazard
1 – Toxic
2 – Highly Toxic
3 – Reproductive Toxin
4 – Irritant
5 – Corrosive
6 – Sensitizer
7 - Carcinogen

PHYSICAL STATE
G – Gas
L – Liquid
S – Solid

(P) PHYSICAL HAZARDS
0 – No Physical Hazard
1 – Combustible Liquid
2 – Compressed Gas
3 – Oxidizer
4 – Flammable Gas
5 – Explosive
6 – Flammable Liquid/Solid
7 – Pyrophoric
8 – Organic Peroxide
9 – Water Reactive
10 – Unstable (Reactive)

* Insoluble in water - absorbed with porous inert material.

(R) REACTIVITY
0 – Stable and not reactive with water
1 – Unstable if heated
2 – Violent chemical change
3 – Shock and heat may denotate
4 – May detonate

PPE/ENGINEERING CONTROL
D = Double or Thick Glove
F = Face Shield
G = Gloves, Gown, Goggles
H = Hood
M = Mask
R = Respirator
S = Splash Guard
T = Thermal Gloves

LOCATION
A = Acid Cabinet
B = Flammable Cabinet
C = Oxidizer Cabinet
D = Chemical/Dye Cabinet
E = Sink Cabinet
F = Fume Hood
G = Refrigerator (4° C)
H = Freezer (-20° C)
I = Freezer (-70° C)
J = Other location (specify)

SPILL KITS
A = Acid Kit
B = Caustic or Base Kit
S = Solvent Kit
Chlorine Control

TO = TARGET ORGAN
B - Blood
CNS – Central Nervous System
CV - Cardiovascular
E - Eyes
GI - Gastrointestinal
H - Heart
K - Kidney
L - Liver
Lu - Lung
MM – Mucous Membranes
NS – Autonomic Nervous System
R – Respiratory
Sk - Skin

Labeling System for Hazardous Chemicals

- **Labels are essential!**
- Inspect all labels for clarity and completeness
- **Labels should list product's ingredients and specify the chemical's physical and health hazards**
- A label is required when the chemical is transferred from a primary to secondary container

Global Harmonized System Pictograms

HCS Pictograms and Hazards

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases Under Pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

NFPA Hazard Identification

NFPA Rating Explanation Guide

HEALTH HAZARD

4 = Can be lethal
3 = Can cause serious or permanent injury
2 = Can cause temporary incapacitation or residual injury
1 = Can cause significant irritation
0 = No hazard

FLAMMABILITY HAZARD

4 = Will vaporize and readily burn at normal temperatures
3 = Can be ignited under almost all ambient temperatures
2 = Must be heated or high ambient temperature to burn
1 = Must be preheated before ignition can occur
0 = Will not burn

SPECIAL HAZARD

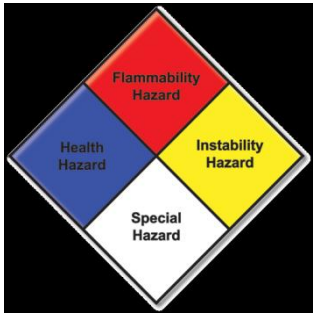
ALK = Alkaline
ACID = Acidic
COR = Corrosive
OX = Oxidizing
= Radioactive
= Reacts violently or explosively with water
= Reacts violently or explosively with water and oxidizing

INSTABILITY HAZARD

4 = May explode at normal temperatures and pressures
3 = May explode at high temperature or shock
2 = Violent chemical change at high temperatures or pressures
1 = Normally stable. High temperatures make unstable
0 = Stable

This chart for reference only - For complete specifications consult the NFPA 704 Standard

Example NFPA Hazard Identification



TRIETHYLENE GLYCOL

HEALTH HAZARD
4 Deadly
3 Extreme Danger
2 Hazardous
1 Slightly Hazardous
0 Normal Material

FIRE HAZARD
Flash Points
4 Below 73° F
3 Below 100° F
2 Below 200° F
1 Above 200°F
0 Will not burn

1 1 0

SPECIFIC HAZARD

Oxidizer	OX
Acid	ACID
Alkali	ALK
Corrosive	COR
Use NO Water	W
Radioactive	☢

REACTIVITY
4 May detonate
3 Shock and heat may detonate
2 Violent chemical change
1 Unstable if heated
0 Stable

WARNING

CAUSES IRRITATION. HARMFUL OR FATAL IF SWALLOWED. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. AVOID CONTACT WITH EYES, SKIN, CLOTHING. AVOID BREATHING VAPOR.

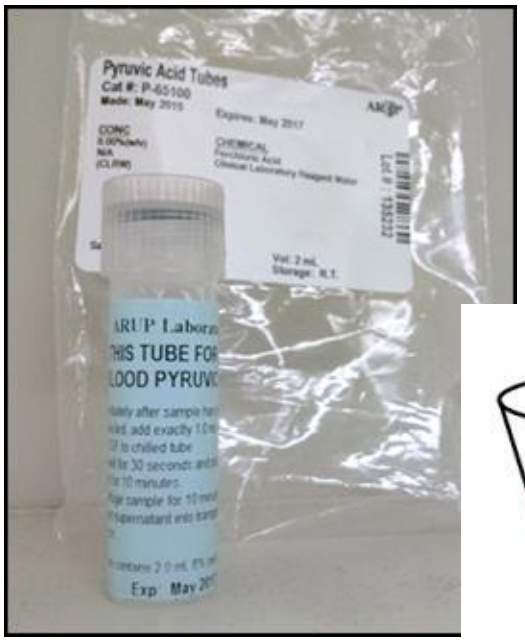
Employee Responsibility to:

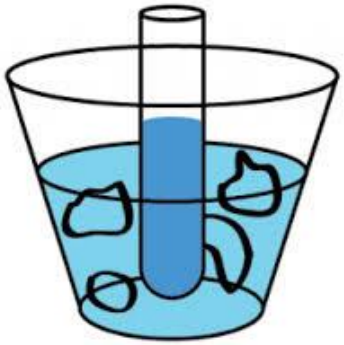
KNOW critical information:

- Location of SDS, PPE, & First aid supplies
- List of chemicals in your work area
- Proper handling & storage of chemicals
- Location of Spill Kits & other emergency equipment
- Spill Reporting process
  - online link via Occupational Health & Safety webpage
- Employee Health Injury Report process
  - online link via Employee Health & Safety webpage

Know the Proper Handling of Chemicals

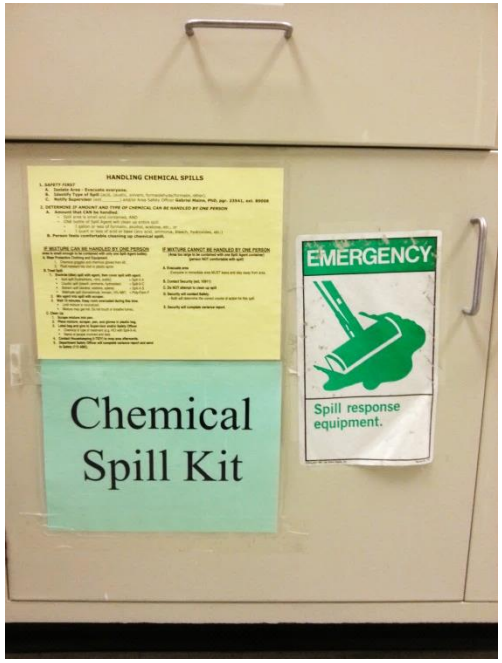
- **Always transport chemicals safely**
- Refer to procedures for specific instructions





Know the Location of Spill Kits in the Event of a Spill

- **Located in each specimen testing laboratory**
  - Review the exact location(s) at your campus.
- Directions are posted on the cabinet door that holds the spill kit.
- Also, refer to:
  - Policy 1550 – Spill Response Plan
  - Procedure SA.SM.011r01 – Spill Cleanup
- Use appropriate spill kit to:
  - Neutralize & contain the spread of spill
  - Clean up treated chemical
- Inform Supervisor
- Call Security



Know the Proper PPE for Spill Clean-up

- **Protective clothing and equipment include:**
  - Chemical goggles from kit that seal face
  - Heavy nitrile gloves from kit
  - Fluid resistant lab coat or plastic apron

Know the Proper Spill Neutralizing Agent

- Example:
  - Acid Spill Agent (Spill X-A)

- Use on the following acid spills:
  - Hydrochloric acid
  - Sulfuric acid
  - Nitric acid

**Ingredients: Magnesium Oxide, Sodium Carbonate, Sodium alkyl-naphthalenesulfonate*

Know the Proper Storage of Chemicals

- Always store chemicals in designated areas as determined by your Safety officer
- Chemicals should be stored based on their specific hazards

Boom Room

Acid Cabinet

Flammable Cabinet

Regular Cabinet / Supply Shelf

What should I do if I have questions about a product?

- Refer to the Safety Data Sheet
- Review section-specific protocols in the Chemical Hygiene Plan
- Ask your clinical instructor or lab manager about anything that is unclear

Spill Report Form

Inside Beaumont *Online*

Documents | Education | Human Resources | Departments | Online Tools | References | Quality | Service

Occupational and Environmental Safety

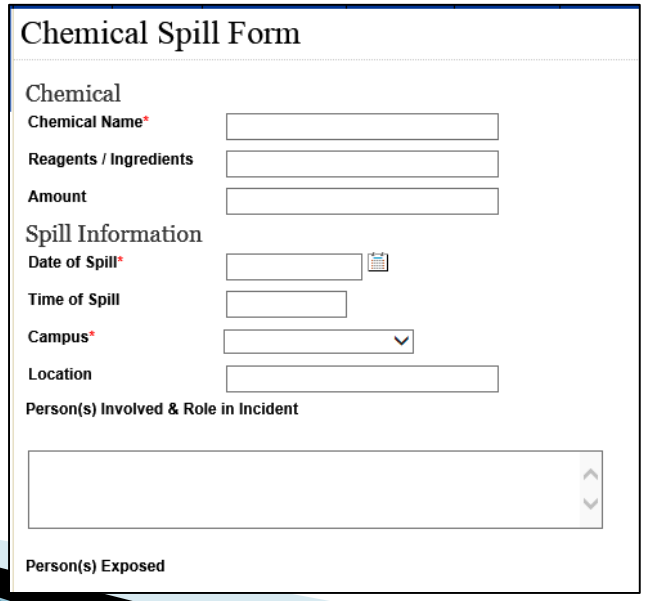
The Occupational Safety and Environmental Health Department is responsible for monitoring compliance with various local, state, and federal regulations involving protection of the Hospital, Patients, Employees, Community and the environment.

Royal Oak - Occupational Safety and Environmental Health
Mail Code: 112-ABW
Phone: 55-17085
Fax: 55-17481

New Chemical Spill Form is Online
Fill out the new form

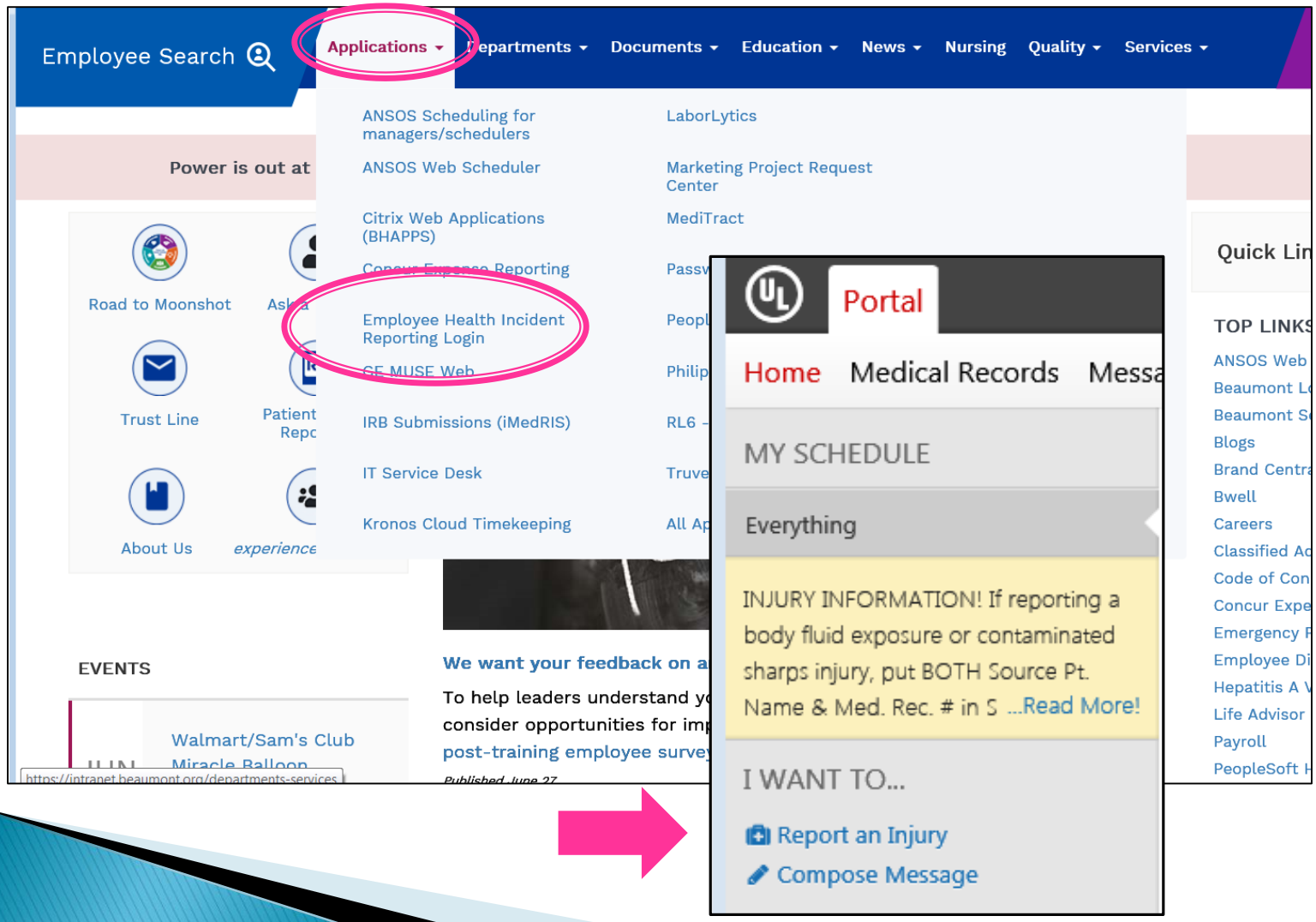
Eye Wash Operational Instructions

Quick Links



Employee Illness Injury Report:

Beaumont Intranet > Applications



Hospital Emergency Management Plan

Beaumont Emergency Codes

OVERHEAD ANNOUNCEMENT		DESCRIPTION	RESPONSE
	**CODE RED**	Fire	• **R**escue – **A**larm – **C**ontain – **E**vacuate/ **E**xtinguish • **P**ull – **A**im – **S**queeze – **S**weep • Do not use elevators • Return to department/assigned area
	**MEDICAL ALERT**	Medical emergency	• Call site medical number • Initiate BLS care if trained to do so
	**SEVERE WEATHER ALERT**	Tornado watch/warning; any type of severe weather	• Close curtains, move away from windows to protected area • Follow instructions for patient movement if announced
	**SECURITY STAT**	Physical management situation	• Protect self, visitors and patients from harm • Avoid location until All Clear is announced
	**CODE BLACK**	Bomb threat	• Search announced area/location • Report any unusual items immediately – do not disturb them • Evacuate as directed by Security
	**AMBER ALERT**	Missing child (patient or visitor)	• Secure all exits, conduct search for missing infant/child • Contact Security if sighted
	**EXTERNAL INCIDENT** **EXTERNAL INCIDENT - HAZMAT**	Hospital has been notified of large influx of casualties from a single incident. HAZMAT announced if patients require decontamination	• Return to department/assigned area • Initiate department specific mass casualty protocols • Avoid decontamination area unless properly trained

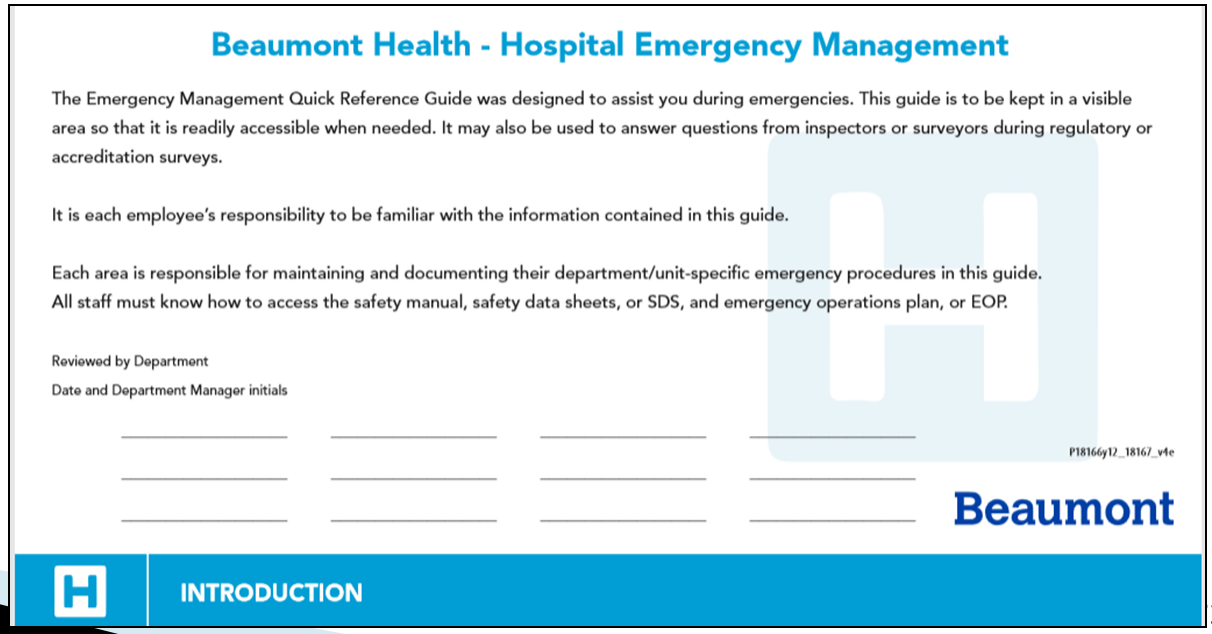
Emergency Codes – cont.

SECURITY ALERT +			
	**ACTIVE VIOLENCE/ SHOOTER**	Can include any type of violence/weapon	• Secure immediate area until All Clear given • If in affected area – **Run, Hide, Fight**
	**ELOPEMENT**	Missing patient under elopement precautions	• Call site Security number • Conduct search, notify Security if patient located
	**LOCKDOWN**	Situation requiring Security to temporarily limit the movement of staff, patients and visitors within the facility	• Full lockdown – all facility access points closed • Partial lockdown – controlled access to facility, entrance/exit from announced area only • Unit specific – no entrance/exit to unit
	**MISSING VULNERABLE ADULT**	Missing cognitively impaired adult (visitor only)	• Search work area for missing adult • Contact Security if sighted
FACILITY ALERT +			
	**SYSTEM/UTILITY FAILURE**	Failure of IT application or utility. Specific system or utility will be announced after Facility Alert	• Follow response procedure for announced system
	**CODE ORANGE**	Internal hazardous spill	• Prohibit anyone from entering area • Contact Security • All staff – avoid announced area of spill
	**EVACUATION**	Specific unit/area or full facility will be announced	• Leave immediate area if unsafe • Return to department or work area for further instructions
	**ALL CLEAR**	Previously announced incident has ended	• Return to normal operations

Emergency Management Quick Reference Guide

- Red, hard-copy wall guide posted in each department

- Includes room to add custom notes and review dates for your work area



Beaumont Health - Hospital Emergency Management

The Emergency Management Quick Reference Guide was designed to assist you during emergencies. This guide is to be kept in a visible area so that it is readily accessible when needed. It may also be used to answer questions from inspectors or surveyors during regulatory or accreditation surveys.

It is each employee's responsibility to be familiar with the information contained in this guide.

Each area is responsible for maintaining and documenting their department/unit-specific emergency procedures in this guide. All staff must know how to access the safety manual, safety data sheets, or SDS, and emergency operations plan, or EOP.

Reviewed by Department

Date and Department Manager initials

P18166y12_18167_v4e

Beaumont

INTRODUCTION

Emergency Management Quick Reference Guide

- Contains detailed response guidelines for each emergency code or situation

Active Violence/Shooter

DEFINITION:

- **Active shooter** – a person with a firearm is threatening or shooting people inside the building or on facility property
- **Active violence** – a person with a lethal weapon (non-firearm) is threatening or attacking people inside the building or on facility property

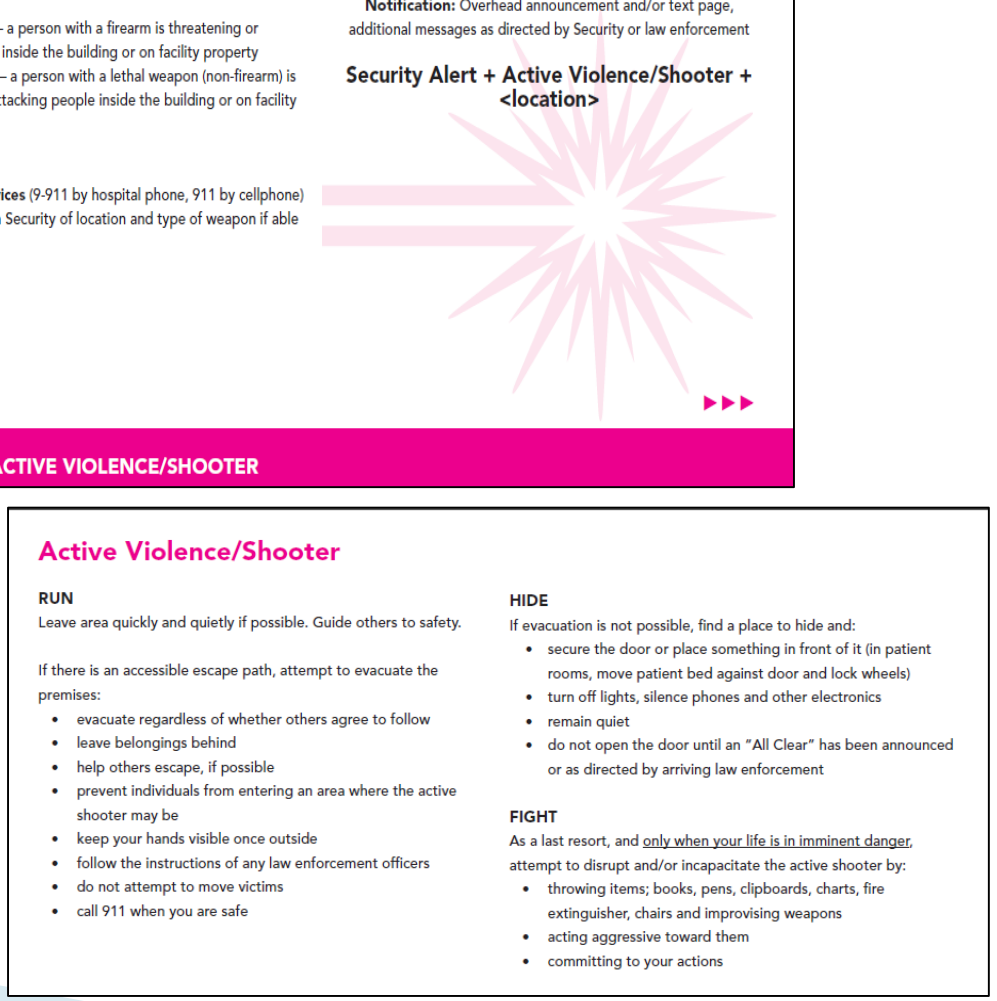
CALL/NOTIFY:

- **Emergency services** (9-911 by hospital phone, 911 by cellphone)
- **Security** - inform Security of location and type of weapon if able

Notification: Overhead announcement and/or text page, additional messages as directed by Security or law enforcement

Security Alert + Active Violence/Shooter + <location>

ACTIVE VIOLENCE/SHOOTER



Active Violence/Shooter

RUN

Leave area quickly and quietly if possible. Guide others to safety.

If there is an accessible escape path, attempt to evacuate the premises:

- evacuate regardless of whether others agree to follow
- leave belongings behind
- help others escape, if possible
- prevent individuals from entering an area where the active shooter may be
- keep your hands visible once outside
- follow the instructions of any law enforcement officers
- do not attempt to move victims
- call 911 when you are safe

HIDE

If evacuation is not possible, find a place to hide and:

- secure the door or place something in front of it (in patient rooms, move patient bed against door and lock wheels)
- turn off lights, silence phones and other electronics
- remain quiet
- do not open the door until an "All Clear" has been announced or as directed by arriving law enforcement

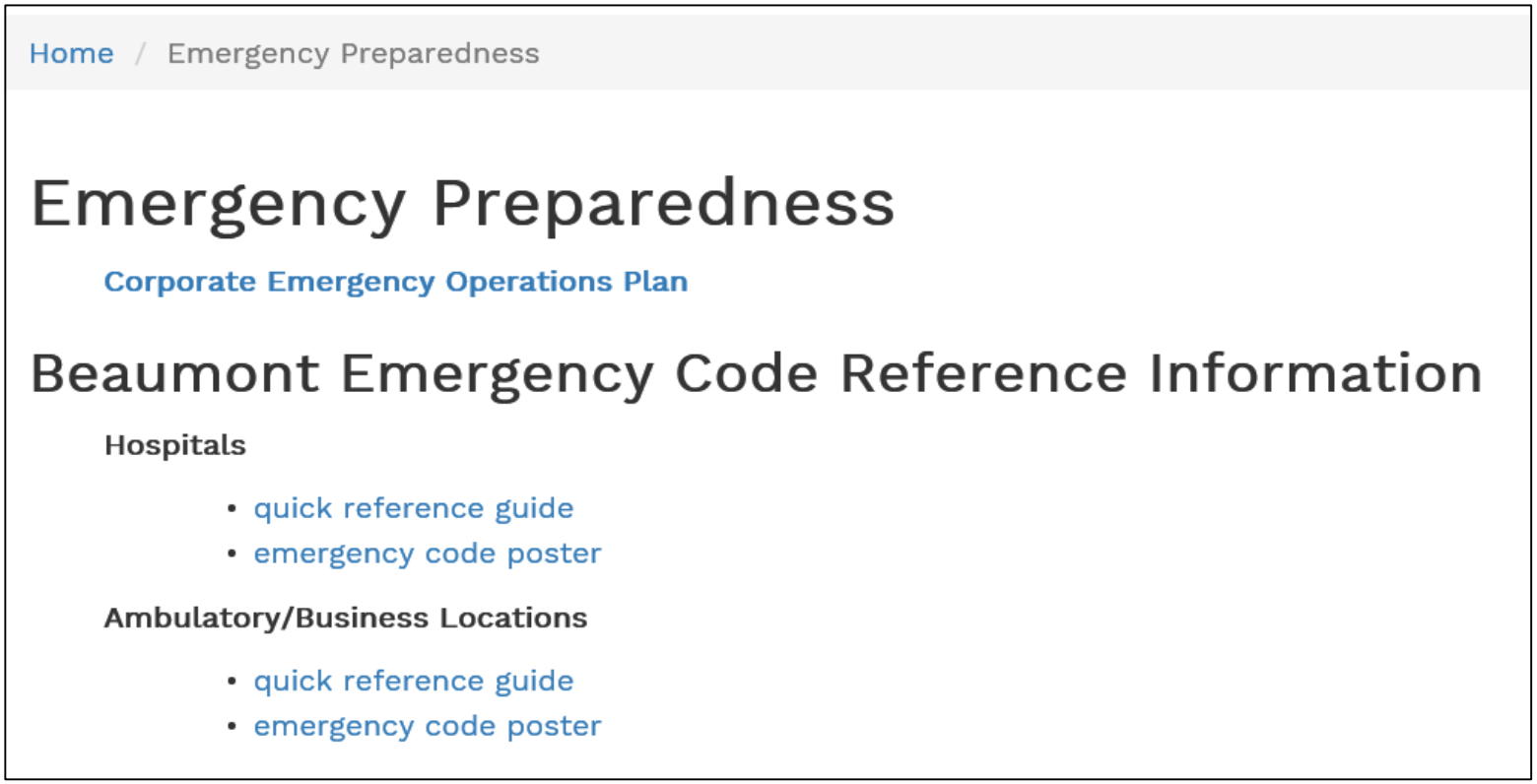
FIGHT

As a last resort, and only when your life is in imminent danger, attempt to disrupt and/or incapacitate the active shooter by:

- throwing items; books, pens, clipboards, charts, fire extinguisher, chairs and improvising weapons
- acting aggressive toward them
- committing to your actions

Emergency Management Quick Reference Guide

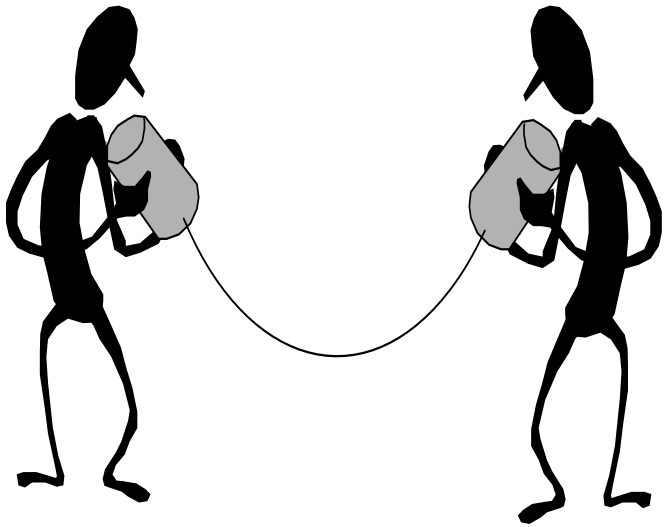
- Also available on **BH Intranet > Departments**



SUMMARY

You Have a Right To Be Safe!

- If you have a concern, talk with someone on-site:
  - Instructor / Program Director / Lab Manager
  - Lab Safety Officer
  - Pathologist
  - Lab Manager
  - Lab Compliance Officer
  - Institution Compliance Officer
  - Safety Department
- Outside *(if no one takes care of concern):*
  - OSHA, EPA, DOT
  - CAP, JC



NEXT STEPS:

1. On-line mandatory education in HealthStream™ LMS
   a) Corporate
   b) Laboratory-specific

2. Complete the **Laboratory Safety Training Checklist** with links to Beaumont Intranet resources
   (you must be using a Beaumont pc to complete)

3. ***Optional:*** Student safety reading assignments posted in SharePoint
   - Review topics that catch your attention that you would like to know more information about.

4. Due: **Monday of Week 2**

Additional Fun Review

- View the "**Use Your Safety Eyes!**" presentation in SharePoint to see if you can identify the various safety hazards. ☺