"What You Need To Know About USP Chapters <797> & <800>"

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Agenda - Three Areas of Concern for Oncologists

- Pharmacy Standards – two issues, many applications
  - Sterile Compounding (USP Chapter <797> etc)
  - Safe Handling of Hazardous Drugs (USP Chapter <800> etc)
- USP Chapter <797> PHARMACEUTICAL COMPOUNDING—STERILE PREPARATIONS
- USP Chapter <800> HAZARDOUS DRUGS—HANDLING IN HEALTHCARE SETTINGS

* - <800> does not replace <797> - they overlap

* - In USP's language "should" means a suggestion; "shall" or "must" means a requirement

California landscape

CA Sterile Compounding and Hazardous Drug Safety

- CA Board of Pharmacy – Website: http://www.pharmacy.ca.gov/
  - Effective Jan 1, 2017, CA BoP revised its regulations for ***pharmacies*** (CCR Sections 1735 and 1751)
  - Considered USP Chapters, and adopted its own CA regulations related to sterile compounding, sometimes with USP nomenclature
  - Board shall review formal revisions to USP not later than 90 days after the revision becomes official
  - Acknowledge Dec. 1, 2019 as the USP <800> enforcement date
- CA Bill 973 – Feb. 2019, going before Assembly July and August 2019
  - Amends Pharmacy Law to compounding definitions of the current version of USP National Formulary, plus allows for additional state standards
  - http://www.leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201920200AB973
- CA Bill AB1202 – occupational safety and health standards - hazardous drugs http://www.leginfo.ca.gov/pub/13-14/bill/asm/ab_1201-1250/ab_1202_bill_20131009_chaptered.pdf
- Meetings on June 17. 2014 and October 28, 2015 re drafts of regulations. Still in progress https://www.dir.ca.gov/dosh/doshreg/Antineoplastic-Drugs/

Self Assessment Forms

- In CA – Sterile Compounding Self Assessments **for those licensed by the CA Board of Pharmacy** due before July 1 of every odd-numbered year. **Useful for comparison and visible to anyone on the internet**
  - https://www.pharmacy.ca.gov/licensees/facility/self_assess.shtml

Why might these standards apply to oncology?

- Does the practice compound, mix, administer or handle sterile drugs?
- Does the practice compound mix, administer or handle hazardous drugs?
- Are we exempt from <797> and/or <800> based upon recent USP “clarifications”

Compounding – Eye of the Beholder

- Enforcement and Compliance driven by compounding activities and definition
  - Sterile Compounding
  - Reconstitution
  - Administration and Preparation under FDA approved manufacturer labeling

- FDA – compounded drugs are not FDA approved. Quality requirements differ depending upon setting. Outsourcing facilities must comply with current good manufacturing practice (CGMP) requirements. Traditional pharmacies that meet Section 503A of the Food, Drug and Cosmetic Act, are exempt from CGMP requirements, but are subject to quality standards in state law or policy. Regardless of site, other federal requirements apply, including the requirement that drugs not be prepared, packed, or held under insanitary conditions. (https://www.fda.gov/drugs/human-drug-compounding/compounding-and-fda-questions-and-answers)

- CA Definition of Hazardous drugs: CCR § 1735.1 (r)
  - All anti-neoplastic agents identified by the National Institute for Occupational Safety and Health (NIOSH) as meeting the criteria for a hazardous drug and
  - any other drugs, compounds, materials identified as hazardous by the pharmacist-in-charge

Who Oversees Physician Compounding? Are you sure?

- "State boards of medicine regulate the practice of medicine, but whether that regulation includes physicians' compounding activities can vary, and state compounding laws often do not specifically address nonpharmacist compounders" Newsletter of the National Association of Boards of Pharmacy, Innovations, March 2017

- https://nabp.pharmacy/wp-content/uploads/2016/07/Innovations_March__2017_Final.pdf

Not Going Away

- States Boards of Medicine and Pharmacy negotiating authority
  - Some states are switching authority over physician dispensing and mixing from Board of Medicine to Board of Pharmacy
  - Some states have Boards of Pharmacy inspectors getting involved in medical practice inspections
- Lawyers instigating employee lawsuits for illness (miscarriages) in practice mixing staff
  - States could be quiet and fermenting but may suddenly become active at any point in time.

Where might enforcement/compliance pressure come from?

- Federal/Governmental
  - State Boards of Health
  - State Occupational Safety/Health/Workforce Agencies
  - State Boards of Medicine
  - State Boards of Pharmacy
  - State Legislatures
  - U.S. OSHA
  - U.S. FDA
- Accreditors/Quality
  - Joint Commission and other accreditors
  - Clinical Trials
- Networks/Insurers
  - CMS
  - Private Payers
  - Regional networks
  - Accountable Care Organizations
- Public
  - Consumer Lobbies (Pew, Public Citizen, etc.)
  - Personal Injury/Class Action Law Firms
  - Staff Whistle Blowers
  - Competitors (PBMs, Specialty Pharmacies, Hospital Systems)

Safe Handling of Drugs (especially Hazardous)

At a minimum, your facility's health and safety management systems should include:

- Awareness and Tracking of hazardous drugs
- Engineering controls appropriate for utilization and volume
- Competent personnel (knowledge and testing)
- Safe work practices (formalized, tracked, and reportable)
- Proper use of appropriate Personal Protective Equipment (PPE)
- Policies for HD waste segregation and disposal.

- Are these formal, documented, universally understood, reportable, living?
- By which lens? Who may be watching? Asking? Challenging?

Part 1 – USP Chapters – A Threat Patients' Access to Oncology Care

What <797> and <800> are - and why we need to learn all about them

Download Your Own Chapter Copies Now

- Currently, these chapters can be downloaded as pdfs at no cost from the USP website (http://go.usp.org/l/323321/2019-05-31/2dfgwl) .
- These downloads are individually stamped and may not be shared with, or used by, others without copyright implications.
- Every medical practice or entity that mixes, stores, or handles drugs should have staff download their own copies of USP <797> and USP <800> immediately and read through them carefully.
- FAQs on these chapters may be downloaded at these sites: **CAUTION – FAQs and oral clarifications from USP have no official standing, and do not change the language that is written in the chapters,** which may be interpreted by any regulator, no matter what these FAQs say.
  - https://www.usp.org/frequently-asked-questions/pharmaceutical-compounding-sterile-preparations
  - https://www.usp.org/frequently-asked-questions/hazardous-drugs-handling-healthcare-settings

USP

- The **United States Pharmacopeial Convention** (USP) is the official compendium of drug facts for the USA
- As USA's compendium, USP drug data are recognized in federal law (Food Drug & Cosmetic Act or FDCA) as the scientific authority on identity, strength, quality, and purity of drug substances in the USA
- USP data regarding scientific drug characteristics of identity, strength, quality, and purity have served as the basis of federal prosecutions for charges of adulteration
- USP is a private, voluntary, not-for-profit, and purportedly scientific organization and **cannot write laws or regulations and has no enforcement powers**
- **USP aggressively markets to state boards of pharmacy their <797> and <800> chapters on pharmacy practice with mixed results. Increasing challenges to wholesale adoption of <800> and even the more established <797>**

December 1, 2019

- USP Chapters <797> and <800> become official
- Official may mean enforceable
- Some state regulatory agencies are already defining that date as enforcement date
- There is no one direction from which to consider
- Quality Assurance gaps between medical practice and pharmacy standards need to narrow, regardless of enforcement

What do Cancer Centers Have to Consider?

There are numerous factors that could drastically change the number and design of dedicated rooms needed, including:

- Whether all drugs are mixed and fully used within a 12-hour "Beyond Use Date" time frame;
- Whether all drugs are handled as hazardous;
- Whether drugs are handled and separated according to the definition of Hazardous Drugs found in USP 800;
- What the volume and handling requirements become for the hazardous drugs, nonhazardous drugs, and drugs being administered as defined in USP 797 and USP 800;
- Current and future staffing requirements;
- Local building codes that may be more stringent than the recommendations in USP 797 or USP 800;
- Available space in the facility;
- Current equipment compliance capability;
- The flexibility, financial capability, and appetite of the facility and physicians for compliance change.

Part 2 – ⟨797⟩ PHARMACEUTICAL COMPOUNDING — STERILE PREPARATIONS

What <797> is:

Best practice considerations for compounding STERILE PREPARATIONS

USP Chapter <797> is currently "live"

- Given the current state of oncology sterile compounding procedures, vast any audit/inspection based on <797> would be a challenge
- We practice safe medicine, but not in concordance to Pharmacy World standards
- Even the current (2008) version of <797> covers fine details of:
  - Physical facilities and fixtures;
  - Garbing/Gowning/Gloving;
  - Training and Competency;
  - Tracking, and Trending of Environmental Monitoring;
  - Cleaning and Disinfection – materials and practices;
  - Written Standard Operating Procedures that are strictly followed;
  - Faithfully executed Aseptic Technique;
  - Thoughtful and validated Beyond Use Dates;
  - Rigorous and thoroughly documented Quality Assurance Program; and
  - Many other explicit requirements.

Should we study <797> and comply?

- The Oncology community should study and thoroughly understand <797>.
- Although its concepts of "best practices" are purely opinion, its overarching thrust is safer patient care and better outcomes.
- The suggested practices in <797> are complex and expensive and cannot all be implemented at once.
- We should probably assess which parts to implement and adopt, then set priorities regarding which we will do in what order.
- **Drug preparations given by any non-oral route *ought to be sterile*. You wouldn't settle for less for yourself or your family member.**

Important Elements of Revised USP <797>

- 1.2 **Administration** - For the purposes of this chapter, administration means the direct application of a sterile medication to a single patient by injecting, infusing, or otherwise providing a sterile medication in its final form. Administration of medication is out of the scope of this chapter. Standard precautions such as the Centers for Disease Control and Prevention's (CDC's) safe injection practices apply to administration.
- 1.4 **Preparation Per Approved Labeling** - Compounding does not include mixing, reconstituting, or other such acts that are performed in accordance with directions contained in approved labeling provided by the product's manufacturer and other manufacturer directions consistent with that labeling [21 USC 353a (e)].
- Preparing a conventionally manufactured sterile product in accordance with the directions in the manufacturer's approved labeling is out of scope of this chapter only if:
- The product is prepared as a single dose for an individual patient, and
- The approved labeling includes information for the diluent, the resultant strength, the container closure system, and storage time.

Important Elements of Revised USP <797>

- **1.3 Immediate Use Compounded Sterile Products (CSPs)** -Compounding of CSPs for direct and immediate administration to a patient is not subject to the requirements for Category 1 or Category 2 CSPs when all of the following are met:
- Aseptic processes are followed and written procedures are in place to minimize the potential for contact with nonsterile surfaces, introduction of particulate matter or biological fluids, and mix-ups with other conventionally manufactured products or CSPs.
- The preparation is performed in accordance with evidence-based information for physical and chemical compatibility of the drugs (e.g., FDA-approved labeling, stability studies).
- The preparation involves not more than 3 different sterile products.
- Any unused starting component from a single-dose container must be discarded after preparation for the individual patient is complete. Single-dose containers must not be used for more than 1 patient.
- Administration begins within 4 hours following the start of preparation. If administration has not begun within 4 hours following the start of preparation, it must be promptly, appropriately, and safely discarded.
- Unless administered by the person who prepared it or administration is witnessed by the preparer, the CSP must be labeled with the names and amounts of all active ingredients, the name or initials of the person who prepared the preparation, and the exact 4-hour time period within which administration must begin.

CSP Categories

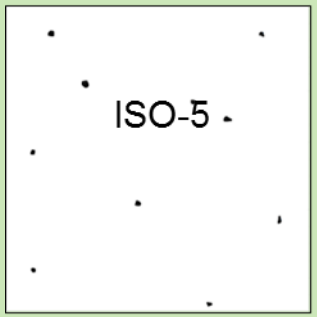
- Only two categories (i.e., no more high-, medium-, or low-risk)
- Category 1 - are those assigned a BUD of 12 hours or less at controlled room temperature or 24 hours or less when refrigerated if made in accordance with all of the applicable requirements for Category 1 CSPs in this chapter.
- Category 2 - those that may be assigned a BUD of greater than 12 hours at controlled room temperature or greater than 24 hours if refrigerated (see *14. Establishing Beyond-Use Dates*) if made in accordance with all of the applicable requirements for Category 2 CSPs in this chapter.
- STILL OPEN TO INTERPRETATION - Drugs mixed and placed in pumps for home patient use

⟨797⟩ - Sterility Threats = Touch and Particles

- The keys to preventing microbial contamination of sterile drugs are:
  - Human Touch (most important by FAR)
    - Only a sterile surface must ever touch a sterile surface
    - Only sterile gloves should be worn and they should be sanitized with sterile alcohol
    - If any sterile surface is touched by the operator the item is deemed contaminated
    - Human touch contamination is far more likely than airborne particles
  - Airborne Particles (important but much less important than touch)
    - The air surrounding the sterile surfaces in drug mixing must be nearly particle free
    - The "hood" must provide an ISO Class 5 work area (Direct Compounding Area or DCA)
    - The ("buffer") room surrounding the "hood" must be very low in particles (ISO Class 7)
    - The room through which the buffer room is entered must also be low in particles (ISO Class 7 if the buffer room is negative pressure; Class 8 if buffer room is positive pressure)

⟨797⟩ - ISO Class ratings are LOGARTHMIC

- Both <797> and <800> have requirements for Qualified Air
- It is critical to understand that ISO Class levels are LOGARTHMIC.
- ISO Class 5 has 100 (10^2) times fewer particles than ISO-7 and 1000 times (10^3) fewer particles than ISO-8.
- There IS no ISO Class 7.5. That would be non-sensical because the jumps are exponential ranges.



⟨797⟩ - Keeping Particles Out

- Humans are the primary source of particles in our qualified air spaces
- Humans can shed up to a 1 million particles per hour
- The reason why sterile compounding operators wear gowns is to prevent the particles they're shedding from reaching the air and the floors
- Paper sheds almost as fast as people
- Tearing open a cardboard box creates a "particle explosion"
- Every item that enters a cleanroom must be sanitized *just before transfer* – this doesn't mean a squirt of alcohol – this requires sterile alcohol plus **wiping** with non-shedding wipe(s)
- Floors should be thoroughly cleaned and disinfected at least daily

⟨797⟩ is a rigorous examination of aseptic compounding practices, including:

- Cleaning and disinfection of the compounding areas
- Personnel cleansing and their donning of garb
- Suggested topics for Standard Operating Procedures (SOPs)
- "Elements of Quality Control" and the need for a formal, effective Quality Assurance Program (QA)
- Checks and tests for the release of finished preparations
- Storage and assignment of Beyond-Use Dating (BUDs)
- Maintenance of Sterility and Stability of finished sterile preparations
- Adverse Event monitoring, tracking, and reporting

⟨797⟩ - Setting Priorities - Environment

- Maintaining the compounding environment:
  - Examples of adequate design features include seamless and rounded floor to wall junctions as well as readily accessible corners. (Why? – for easy cleaning)
  - Floors, walls, and ceilings should be constructed of smooth, hard surfaces that can be easily cleaned and which will stand up to harsh disinfectants
  - Ceilings and associated HEPA filter banks should be designed to protect sterile materials from contamination.
  - Cleanrooms should not contain unnecessary equipment, fixtures, or materials and personnel traffic should be minimized
  - Sinks and drains in aseptic processing areas should be avoided (biofilm)
  - Paper, cardboard, and packing materials should never be present in aseptic processing areas

⟨797⟩ - Setting Priorities - Training

- Staff Training:
  - Most oncology practices lack formal training for sterile compounding operators; training is generally on-the-job, modeled on "W1-D1-T1"
  - Formal training and annual competency demonstration should include at least:
    - Hand hygiene
    - Garbing
    - Cleaning and disinfection
    - Calculations, measuring, and mixing
    - Aseptic technique
    - Achieving and/or maintaining sterility and apyrogenicity
    - Use of equipment
    - Documentation of the compounding process (e.g., master formulation and compounding records)
    - Principles of high-efficiency particulate air (HEPA)-filtered unidirectional airflow within the ISO Class 5 area
    - Proper use of primary engineering controls (PECs)
    - Principles of movement of materials and personnel within the compounding area

⟨797⟩ - Setting Priorities - Competency

- Staff Competency Demonstrations:
  - Most oncology practices do not require competency demonstrations by their sterile compounding operators
  - Formal competency demonstrations should include at least:
    - Gowning without contamination (proven by lack of microbial growth)
    - Growth Media volume transfers, incubated without growth
      - The media transfers should mimic the most challenging and difficult compounding task the operator performs
      - The media transfers should be performed under operational (dynamic) conditions
    - Glove Fingertip Sampling – This tests the operator's ability to don sterile gloves without contaminating them. <797> suggests three uncontaminated glove donning demonstrations prior to mixing for patients

⟨797⟩ - Setting Priorities – C & D

- Cleaning and Disinfection
  - Most oncology practices do not have explicit, detailed processes for cleaning of the "hood" and the room in which it's situated
  - Fewer still have solid protocols for appropriate disinfection, which should include application of appropriate sporicidal agent
  - Effectiveness of cleaning and disinfection should be demonstrated with bioburden monitoring
- Outside Certification
  - Most oncology practices pay outside vendors to measure airflows, pressure differentials, total particle counts and perform viable air sampling to confirm that HEPA filters are working effectively
  - However, most lack the insights to evaluate the data and do not track and trend it

⟨797⟩ - Setting Priorities – SOPs

- Do you have a Procedure Manual for sterile compounding ops?
- If so, is it dusty? Or is it a "Living Document?"
- Outside inspectors (state or FDA) will observe processes in use watching closely for variances from WRITTEN procedures.
- Whenever a process is changed:
  - the Quality Governance Body should sign off on the change
  - the governing SOP should be edited and publicized to all staff
  - all affected staff should be retrained for the change
- At FDA, the joke is, "Healthcare professionals write SOP manuals on Post-it Notes."

⟨797⟩ - Setting Priorities – QA

- The most important words in <797> come just before the Appendices:

A provider of CSPs shall have in place a formal QA program intended to provide a mechanism for monitoring, evaluating, correcting, and improving the activities and processes described in this chapter. Emphasis in the QA program is placed on maintaining and improving the quality of systems and the provision of patient care. In addition, the QA program ensures that any plan aimed at correcting identified problems also includes appropriate follow-up to make certain that effective corrective actions were performed.

⟨797⟩ - What do we do?

- Learn what <797> says so you're ready to make your case
- Join your peers in ensuring state regulators do not enforce <797>
  - Make frequent contact with medical authority (members & admins)
  - Lobby state legislators and executives face-to-face in groups
  - Energize your state medical association/society
- While fighting back to ensure that we don't want it imposed upon us, keep in mind that following parts of it would be best for our patients
  - Gaining compliance with <797> will be a process, not an event
  - Routinely reevaluate the aseptic technique in use by staff
  - Formalize and improve your training
  - Take ownership of the quality – Form a "Quality Oversight Body" to actively examine and improve aseptic compounding quality

Part 3 – <800> HAZARDOUS DRUGS—HANDLING IN HEALTHCARE SETTINGS

What it is:

Bank-breaking, unscientific, overreaching rules for how you must ensure no humans are exposed to the drugs you buy, unpack, store, mix, administer and discard

Purpose for <800> and categorization of HD

- The stated purpose of USP <800> is eliminate or minimize exposure to healthcare workers whose duties require handling "hazardous drugs."
- USP not only appointed itself to speak for all hazardous drugs, it also anointed the "NIOSH List of Hazardous Drugs" as the list healthcare "must" look to
- The NIOSH List first appeared as an appendix to the 2004 NIOSH Alert, "*Preventing Occupational Exposures to Antineoplastic and Other Hazardous Drugs in Health Care Settings"* (The Alert was written by Edward Burroughs, Thomas Connor, Melissa McDiarmid, Kenneth Mead, Luci Power, and Laurence Reed. Among the contributors was Martha Polovich.) Red lettering denotes these individuals were on the USP HD Panel

NIOSH HD Groupings

- The NIOSH List is divided into three tables/groups:
  - Table 1. Group 1: Antineoplastic drugs, including those with the manufacturer's safe-handling guidance (MSHG)
  - Table 2. Group 2: Non-antineoplastic drugs that meet one or more of the NIOSH criteria for a hazardous drug, including those with the manufacturer's safe-handling guidance (MSHG)
  - Table 3. Group 3: Non-antineoplastic drugs that primarily have adverse reproductive effects

<800> Much Broader Than <797>

- <800>:
  - "…applies to all healthcare personnel who handle HD preparations and all entities that store, prepare, transport, or administer HDs." **Follow the words, not the FAQs or any other assurance of protection**
  - (e.g., pharmacies, hospitals, and other healthcare institutions, patient treatment clinics, physicians' practice facilities, or veterinarians' offices.)
  - "…pharmacists, pharmacy technicians, nurses, physicians, PAs, home healthcare workers, veterinarians and veterinary technicians."
  - Scope includes:
    - Receipt, Handling, Storage, Disposal, Humans Physically Present in the facility
    - **Everyone** in the vicinity (nurses, receptionists, billing staff, executives, patients, waiting room, couriers, cleaning crew, and even staff who **receive** and **unpack** drugs)
    - Not just sterile, but non-sterile drug forms such as topicals and orals

<800> Crushing Unfunded Mandate

Main Impact Areas:

- Physical Facilities and Equipment (& electrical energy)
  - requires single-pass air (summer air – chill it, adjust humidity – one pass - expel it)
  - requires negative-pressure PECs vented to the outside
  - negative-pressure SEC, hard walls, door, 12 or 30 ACPH (12 for C-SCA, 30 for Ante+Buffer)
- SOPs + HD Quality Assurance Program + "Designated Person"
- Training - required for all staff members
- Huge overhead increases from doubling the required disposable supplies – gowns, garb, gloves, etc. HD overhead items must be HD-ready thus cost more
- Surveillance
  - HDs in the Office Environment
  - Medical Conditions of your Personnel (including future)

Typical Current State in Chemotherapy Compounding Areas

- Wooden counters, drawers, shelves (wood->particles and cannot disinfect)
- Contains paper, cardboard, carpet, drapes, holes in walls, etc.
- The C-PEC is a usually BSC resting on a wooden counter
- Contains compressor-style refrigerator(s) (usually dust bunnies if you check)
- Open to unrestricted foot traffic
- Walls, flooring, ceilings are of inappropriate surface for cleaning/disinfection and not maintained by protocol
- Compounding performed by seasoned R.N. – main focus is on clinical aspects of the drug-patient combination – NOT on sterility/stability of CSP (Is an RN mixing drugs like a racehorse pulling a plow?)

<800> Conforming Physical Rooms

- For compliant ***rooms***, we can choose between two strategies:

ISO-7 Clean Room Complex (Ante + Buffer-Both ISO-7)

Versus

Containment Segregated Compounding Area (C-SCA – no air qualification)

- Choice depends on the BUD times we can afford to operate with:
  - If we can live with 12 Hour BUDs, we can use C-SCA approach (more affordable)
  - If we must give full BUDs, we must use a qualified air Anteroom* plus ISO-7 Buffer Room

(*If anteroom connects to HD buffer room it must be ISO-7. If it leads to a Non-HD buffer, it can be ISO-8)

<800> C-SCA Alternative

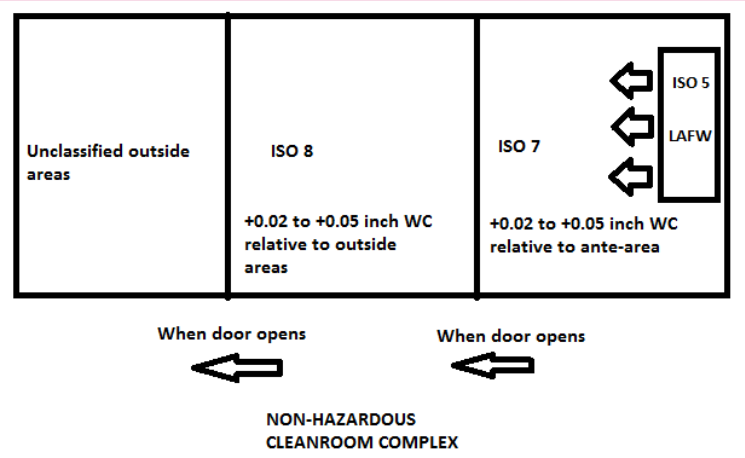
- C-SCA is a "Containment Segregated Compounding Area"
  - Less costly to build and operate than Ante + Buffer configuration
  - Acceptable for CSPs with BUDs ≤ 12 hours
  - C-SCA requires:
    - C-PEC ("Hood") vented to the outside
    - The air of the C-SCA must also vent to the outside
    - Solid walls and door must enclose the C-PEC
    - Negative pressure vs. adjacent spaces maintained in the range -0.01 to -0.03 inch WC
    - Minimum of 12 ACPH

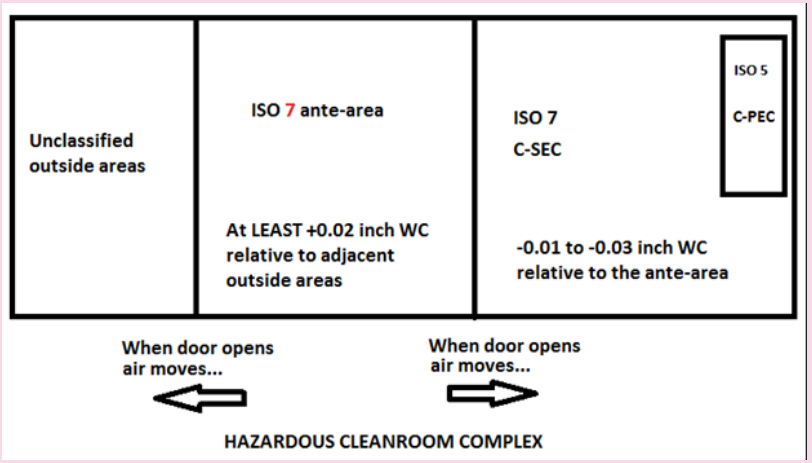
<800> - “Deactivation & Decontamination”

- For any aseptic compounding room, all surfaces (walls, ceilings, floors, equipment) must be smooth, hard, impermeable, and free of any cracks or crevices
- This is to (1) deny any places for particles to collect and (2) make for easy cleaning and disinfection
- For HD aseptic compounding rooms, the floors, walls, and ceilings must be:
  - Cleaned
  - Disinfected
  - Possible HDs DEACTIVATED
  - Possible HDs DECONTAMINATED

<800> - Construction Costs

- Many hospitals have paid > $1,000,000 for <800> compliance
- The room design and construction typically $80,000 to $250,000
- HVAC costs
  - Air Handler - at least 30 Air Changes per Hour (ACPH) for an Ante + Buffer setup (every 2 min). Sixty ACPH capacity is a good idea – might need spare capacity to hit minimum of 30
  - Air BALANCING is key and must be monitored regularly to ensure airflow directions are right





Minimum Designated Areas

- Receipt and unpacking of antineoplastic HDs
- Storage of HDs
- Nonsterile HD Compounding
- Sterile HD Compounding
- Non-HD Compounding
- Administration and Preparation of medication to a single patient

- Option: lower volume cancer centers with limited space may consider classifying all drug mixing, handling and storage that falls under <797> and <800> scope as HD, and apply HD protocols. This may create an option for a C-SCA and an entry/storage area that is also negative pressure for receipt and unpacking of drugs, rather than separate rooms for HD and non –HD drugs as well as an entry/storage area

<800> - Exhausted Outside

- Both the Biological Safety Cabinet (BSC or "hood") and the room it is in MUST be exhausted to the outdoors
- In existing multistory buildings (especially hospitals) it is very difficult to locate a pathway (called a "chase") for the ducts to reach directly to the outdoors
- **State Building Codes and Local Ordinances (NOT the USP chapters) often specify how much above the tallest roofline the exhaust duct must reach** (often as much as 10 feet)
- Although often scientifically absurd, codes and ordinances often specify a minimum distance between the exhaust that expels air with potential trace HD and the air intakes for other internal spaces
- Although <800> did not specify this, BSC user manuals and HVAC experts will always insist on a perpetually running fan to prevent backflow of exhaust

<800> - SOPs, QA, Designated Person

- As with <797>, observed operational behaviors must reflect SOPs
- As with <797>, an effective Quality Assurance program must exist for monitoring and improving the processes that pertain to HD handling
- <800> has a requirement that a "Designated Person" be in assigned the responsibility for every person, place or process that might affect HD handling and exposure
- Features of "Designated Person" include:
  - Qualified and trained in all aspects of HD handling
  - Oversees legal and regulatory compliance of the entity
  - Must understand risk prevention and the risks of non-compliance
  - Must oversee monitoring, testing, sampling and act appropriately on these results

<800> - Staff Training

- Personnel who handle HD must be trained based on their job functions
- Training must occur before employee independently handles HDs
- Effectiveness of training must be demonstrated for each employee
- Competency reassessed every 12 months
- Each employee trained for every new HD and every new or altered SOP
- Not enough to train your staff, you must demonstrate that you did
- Must demonstrate that training was effective
- Not enough to train initially, we must demonstrate that training has been reiterated regularly and staff know what they need to know to protect themselves and others from HD exposure

<800> - Overhead - Garbing

- The garb/gloves – 2 layers
  - Layer next to human to prevent particles from shedding to the clean environment
  - Outer Layer – to prevent human from exposure to HDs being handled – repellant materials
- The HD facing garb and gloves must present a seamless, uninterrupted, impermeable barrier preventing human contact with HDs, such as:
  - Tyvek coated gowns that tie in back
  - Goggles or faceplates or both
  - Gloves that have been tested to prevent HD permeation (Standard ASTM 6973) that are worn over the first set of gloves
  - Double shoe covers
  - All garb/gloves/booties disposed of as potentially trace contaminated

<800> - Overhead - CSTDs

- Closed System Transfer Devices (CSTD)
  - Should be used in **compounding** HDs
  - MUST be used in **administering** HDs
- Purpose – to CONTAIN the HD within the infusion fluids and prevent HD escape to contaminate the healthcare operator
- CSTD examples include:
  - PhaSeal (BD)
  - Equashield Closed System (includes syringes and connections)
  - ChemoClave (ICU Medical)
  - OnGuard (B.Braun)

<800> - Overhead – Site Maintenance

- Cleaning, Disinfection, Deactivation, and Decontamination fluids are expensive and sterilized versions are ten-fold more. Cleaning personnel must be extensively trained
- HD containers, liners, pickup, destruction, tracking
- Certification of hoods and rooms ($4,000 to 8,000 per visit)
  - HEPA leak testing
  - Total particle counting
  - Viable particle sampling (active sampling, impelled onto agar plates)
    - Microbiological laboratory incubation costs
    - Recertify on failure
  - Smoke pattern demonstration (video recording)
- HD Surface Contamination Surveillance Testing ("Wipe Studies")
  - Cost #1 is doing them in the first place
  - Cost #2 is remediating and doing them again if you find traces

<800> - Hazard Communication

- **There has been an OSHA (federal) regulation [29 CFR 1910.1200(g)] in place since 1994 that requires an effective program of Hazard Communication to all staff.**
  - When new personnel hire on each must be presented with a list of all hazardous substances they might contact in the workplace.
  - How do you know it is a hazardous substance? It will have an Safety Data Sheet (SDS)
  - The regulation requires that the employer make the SDS (formerly MSDS) readily available to each employee (MSDS.com – a subscription service)
  - Most oncology practices seem aware of the federal regulatory requirement
  - **OSHA does not appear to make routine inspections of physician offices or pharmacies, but do respond to "whistle-blower" complaints**
  - **OSHA has levied substantial fines against healthcare provider organizations in response to such complaints**
  - This requirement is a shared responsibility of Human Resources and Operational Leadership

<800> & Drug Administration

- HDs must be administered using protective devices and techniques (needle-less, closed systems)
- Appropriate PPE must be worn when administering HDs
- Used PPE must be disposed of in a waste container approved for trace-contaminated HD
- Equipment and packaging materials disposed likewise
- CSTDs must be used to administer antineoplastic HDs whenever the dosage form allows
- Eye protection when working at or above eye level

<800> - Medical Surveillance

- <800> says
  - our workers who handle HD should (not must) be enrolled in a medical surveillance program
  - we should involve assessment and documentation of symptom complaints, physical findings and lab values to "determine whether there is deviation from the expected norms.
  - We should perform an "Initial Baseline Assessment" of workers' health status and medical history before they begin their duties
  - Methods used to assess exposure history should include a review of:
    - Records of HDs handled, with quantities and dosage forms
    - Estimated number of HDs handled per week
    - Estimates of hours spent handling HDs per week and/or per month
    - Performance of a physical assessment and laboratory studies linked to target organs of commonly used HDs, such as a baseline complete blood count. Biological monitoring to determine blood or urine levels of specific HDs is not currently recommended in surveillance protocols, but may have a role in the follow-up of acute spills with a specific agent.

Where do we go from here?

This is important, complex, and to some degree, unavoidable

- Affects Patient Access by manipulating Site of Care
  - Costs patients and payers more
- Compliance will be a journey, not a weekend solution
- Question consultants, question 6 figure quotes, plan a path but use flexibility as much as possible.
- Compliance is not just facilities or checklists. It is culture, mindset, consistent processes, continuous quality improvement, training, competency, awareness.
- Compliance should not also be mindless. The emperor has no clothes. Call for the evidence, call for transparency, call for guidance to not be considered as law.
- Look, watch, listen, and reach out together.

Pharmacy Standards What can WE do?

- Read them (USP, CA BOP)
  - http://go.usp.org/l/323321/2019-05-31/2dfgwl
  - http://www.pharmacy.ca.gov/
- Understand the jargon, learn the acronyms
- Monitor state legislation – meet proactively with Legislators
- Call them Out – the emperor has no clothes!
- Question their science (until they produce some)
- Collaborate across professions and stakeholders
- Activate the “green” groups over the energy & co2 load

BUT STILL PREPARE YOUR TEAM AND YOUR PRACTICE – STRATEGIZE FOR BEST AND WORST CASE SCENARIOS

This is a Journey, and Whack-A-Mole across the country

- Watch the process in just one state
  - Nov 2017 – surprise practice inspections, citations, fines, cease orders
  - Dec – Jan 2018 – Board hearings, ad hoc coalition (MDs, DGH Consulting, payers, home infusion, home nursing) not hospitals
  - February2018 – BOP hearing – USP <797> "law of land" NO, rescind citations and fines until June 2018
  - Mar – June – Compounding amendment in legislation
  - July sign of relief followed by BOP focus on aseptic technique
  - October – BOP meeting – decision to remove USP <797> as the state regulation, replaced by regulations developed by BOP (will not be signed by governor into law until June 2019, if successful) (Willis Triplett, PharmD added to Task Force to develop BOP regulations)
  - Feb 2019 – legislation proposed the adds "using aseptic technique" to responsibilities
  - March 2019 – "using aseptic technique" removed
  - April 2019 – BOP proposes memorandums to BOM and BON to become their pharmacy oversight and inspection arm.

Reality of Pharmacy Standards

- Delays do not make AB1202 or <800> go away. OSHA requirements and <797> is real now before Dec. 1, 2019, as are lawyers on the prowl
- Review and Prepare now - Can plan implementation steps
  - Gaps
  - Processes and training
  - Any renovations need to have flexibility built in
  - Plan external ventilation and other more onerous <800> type requirements but hold until required
- Find good resources – despite limited supply
  - Consulting - Standards, SOPs, training, monitoring, implementation
  - Construction (clean room, oncology, and CA knowledgable)

Advocate for logic and <797> and <800> transformation

Tips

- Separate your non hazardous and hazardous mixing, as well as storage
  - Two or Three rooms where one is often now used. Subdividing is possible.
- No cardboard, wood, shedding fibers, cleanable ceilings walls and floors
- No makeup, fake nails, outside clothing
- No walkins or travel into/out of the space without appropriate PPE handling
- SOPs and enforcement and tracking
- Training and competency
- Look around every corner – anticipate
- Start early, no matter what the deadlines are
- Get good help (Consider staff mix and roles!!!!!)

Thank You, and Good Luck

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