

Safeguarding patients and avoiding medical errors in chemotherapy infusion suites

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Safety should be the primary goal of ambulatory centers. To ensure safety, there must be established processes, good communication, and careful treatment delivery. Treatment-related mistakes resulting in undertreatment, toxicities, hospitalization, or even death can occur when process is ignored, communication is poor, or treatment delivery is rushed. In addition, to achieve the best possible outcome, patients should be provided with detailed education on what to expect in terms of toxicity and side-effect prevention and management. Practice outcomes should be reviewed and scrutinized for safety and efficacy. This information can help provide practice-based evidence of quality care.

Providing safety to patients in chemotherapy infusion suites can be accomplished with a systematic approach, outlined here in some detail: spelling out tasks with specific policies and procedures; improving communication and patient and staff education; and ensuring staff safety, which leads to patient safety.

Policies and procedures

Clinic procedures should follow carefully written protocols. Without such protocols, costs can soar; profits may be lost; and results can be skewed, poor, or even dangerous. Most importantly, patients and staff are at risk for injury. Aside from the

common procedures mandated by government and state agencies, the following should be endorsed and followed by the entire staff and should be carefully documented:

- **Make sure that your drugs or supply items come from a reputable manufacturer.** Be wary of deals or items that undercut the average wholesale price or are not manufactured in the United States.
- **Administer only drugs that have been transported and secured** in the recommended controlled environment. If a drug has not been properly stored, do not use it. Administer only drugs delivered by your approved pharmacy staff. (Brown bagging—patients who buy their drugs from another pharmacy source and bring it to a center for administration—is highly discouraged for a number of safety reasons.)
- **Inspect all drugs for particulate matter or suspension problems** prior to administration. Maximize efficacy of every drug by delivering it properly prepared. Poorly prepared drugs such as octreotide (Sandostatin LAR) can increase site reactions and discomfort and inhibit absorption and distribution, leading to suboptimal results.
- **Develop a list of all drugs and detail their**

KEY POINTS

To ensure patient safety there must be established procedures and good communication.

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An experienced and credentialed staff must work in tandem, with multiple checks and balances.

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Staying proactive is the best way to prevent medical errors and improve patient care.

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Patients and staff need to be continuously educated and updated on new medications and procedures.

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Specific steps are provided throughout this article to illustrate the above points.

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preparation and which base solution should be used according to dosage, administration route, and time. Using standardization will help staff notice mistakes, control costs, and increase staff and patient confidence. (Many patients will notice and are uncomfortable with even the smallest changes as they are treated by different nurses or in different locations.)

- **Review all chemotherapy and narcotic drugs with a second clinician** prior to administration. This documented review should be compared with past drug dosage history for accuracy. Independent review in which two nurses review the order separately and with the prepared drug is ideal. (When two nurses review the drug together, it is more likely that mistakes will be overlooked because of peer pressure, urgency, and “leading or misleading” information.)

- **Design and implement teaching guidelines and demonstrations for patients.** Many patients are administering their own growth factors now. It is important they are given adequate teaching with demonstration so they use proper procedure. Patients with continuous infusion therapy such as fluorouracil via an ambulatory infusion pump should be shown how to stop the pump in case of pump or central line access problems.

- **Require department leaders to review all incidents** that injured (or could have injured) someone. Determine whether a change in procedures or any other action is needed.

- **Solicit feedback from employees and patients** in order to measure quality control.

Improving communication and monitoring

Educating both staff and patients is the best way to ensure safety. When safety is compromised, it is usually the result of miscommunication. Here are some specific steps you can take:

For staff

- **Preview drug orders in advance** to assure the drug plan and premedications are correct. A team approach increases the safety of the therapy for the patients when multiple people have reviewed the order against the national standard of care for the correct drug regimen, dosage, timing, and sequence. Even insurance approval improves, resulting in better reimbursement outcome.

- **Provide in writing the laboratory tests** that must be ordered and reviewed prior to the administration of each chemotherapy drug or drug regimen. There are simply too many drugs and drug combinations for nurses to remember all the details of each one.

- **Do not accept verbal or second-hand orders for chemotherapy.** A computer-generated or written order from a physician or another certified clinician should be your standard.

- **Confirm that the ordered drug dosage falls within normal dosing parameters.** Dosage mistakes can be fatal.

- **Know the chemotherapy agent and regimens, dosage, frequency, and potential side effects.** Chemotherapy mistakes cannot be undone. Chemotherapy nurses need to know the plan of care, not just how to give the drug. The chemotherapy nurse must also help encourage patients to adhere to premedication instructions. Patients should also be made aware that missing appointments can affect their outcome. The nurse, who is often the one to assess patients prior to administration of a treatment, must recognize abnormal symptoms.

- **Ensure that the treatment regimen follows national “Standard of Care” guidelines.** Administering unapproved drugs or combinations of drugs without adequate data to prove safety and efficacy is flirting with a poor outcome, litigation, and poor reimbursement.

For patients

- **Identify patients** with a set procedure. Have patients give you their name and birth date instead of offering it to them. They may not hear well or understand and may agree to incorrect information. Identify the patient each time a drug is administered to prevent the wrong drug delivered to the wrong patient.

- **Present information to patients both verbally and in writing.** Develop a fact sheet that stresses the importance of adhering to drug therapy. Ideally, include family members in the education session. Give patients a written schedule so they know when to return for treatment or an office visit. If patients do not come in as scheduled, be sure to call them to determine the reason. Document nonadherence; that is valuable information.

- **Develop an “adherence contract” for patients to sign.** Written literature with a patient’s signature may be useful.

- **Monitor patients** for potential toxic side effects during the nadir period.

- **Review height and weight** when performing a physical assessment prior to each treatment. (Since many chemotherapy agents are based on height and weight, incorrect measurements or data entry mistakes can result in medication errors.)

- **Use an assessment template** instead of free texting. Using templates with the national toxicity standard values and mandatory questions will improve documentation and identify new problems. This will also increase data to prove the best practice outcome.

Staff safety leads to patient safety

Although policies and procedures are important, there is another part of the safety equation: To offer quality care, staff must be properly supervised and provided with adequate equipment, leadership, practice guidelines, and support. Today, patients expect excellent service, hold-

Common (and avoidable) errors

Each of these incidents illustrates how easily things can go wrong—and how simple fixes could have prevented such errors.

- A physician verbally orders vincristine for a patient, but the nurse mistakenly translates the order as vinblastine.
- A novice nurse administers pemetrexed (Alimta) without first checking to make sure that the patient had received 7-day pretreatment medications of folic acid and vitamin B₁₂.
- A nurse administers carboplatin prior to paclitaxel instead of after paclitaxel, potentially increasing hematologic toxicities.
- A nurse not familiar with vinorelbine infuses it peripherally over 60 minutes (too slowly), increasing vein irritation.
- A pharmacist instructs a nurse to infuse etoposide over 20 minutes (too quickly), causing hypotension.
- Incorrect height and weight recorded on a patient chart results in suboptimal dosing because no one checked the data for accuracy.
- A patient refills his 5-day prednisone prescription (it had 10 refills) and takes it faithfully every day for 1 month.
- A nurse fails to follow the patient identification procedure and administers a growth factor to a patient who should have received B₁₂.
- A nurse is not familiar with cetuximab (Erbix) and administers it weekly for 6 weeks without monitoring for potential hypomagnesemia.
- Staff fails to schedule a patient for a monthly complete blood count test to monitor his polycythemia, which goes unchecked for 6 months.

ing staff to high standards. Here are ways you can increase both staff and patient safety:

- **Schedule enough staff** in the infusion center to handle emergencies. Nurses should not treat patients alone without a second clinician in the same area.
- **Before the first administration of a new drug**, schedule meetings for staff to learn about the drug, administration guidelines, and potential side effects.

- **Record staff attendance** at educational programs.
- **Only allow trained and certified personnel** to mix chemotherapy.
- **Follow safety guidelines** for use of equipment for personal protection from chemotherapy exposure.
- **Mix drugs without haste**, spillage, confusion, or interruption under laminar flow hoods with safety equipment.
- **Administer drugs in the recommended sequence** each time.

- **Standardize infusion rates** for each regimen and be diligent in administering all drugs following the recommended guidelines.

- **Be careful about prescribing multiple refills for oral chemotherapy agents.** Because many of these oral chemotherapy drugs are to be taken for a prescribed period with a rest week between cycles, there is the potential that the drug could be refilled and taken continuously without a break. Limiting the prescriptions to one cycle and scheduling the patient for an office visit prior to each cycle can help prevent serious oral medication issues.

- **Be proactive.** Encourage staff to report close calls. Incident reporting should be viewed by all as a way to prevent problems. Also, it's best to:

- Have emergency drugs and equipment available.
- Practice emergency response drills.
- Schedule a weekly or monthly staff meeting with pharmacy and infusion staff to share concerns and discuss infusion or medication issues. This builds teamwork and awareness.

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Conflicts of interest: Ms. Dohse has presented programs or worked as a professional speaker or as a consultant for sanofi-aventis, Amgen, Braun, and IMPAC.