Chapter 3: Preventing Medical Errors

2 CE Hours – state required

By: Valerie Wohl

Learning objectives

- Discuss the rationale for studying medical errors and strategies for prevention.
- Explain the meaning of “error” according to the Institute of Medicine’s (IOM) definition.
- Explain the concept of root-cause analysis and describe how it can be used to identify and prevent medical error.
- List the most common sources of medical error, and the most effective steps in preventing them from occurring.
- Identify some common behaviors and situations that create high risk potential.
- Identify and correct unsafe conditions rooted in behavioral, procedural, and/or environmental characteristics that potentially threaten patient safety in your practice.
- Describe your responsibilities in regard to the law for reporting medical error.
- Revise forms and documents to help individuals identify themselves as individuals or members of populations at greater risk, according to age, genetic or medical profiles, cultural characteristics, or personal habits.

Preventing medical error in health care

A particularly shocking and influential investigation into areas of potential risk in medical treatment, published in 1999 by the Institute of Medicine’s (IOM) Committee on Quality of Healthcare in America, concluded that between 44,000 and 98,000 hospital deaths per year were the result of medical error1. The report, called To Err is Human, suggests some part of the problem, in cases of medical error, is the way we think about the issue, and encourages the use of a new conceptual or ideological framework that focuses less on assigning blame, and more on developing strategies to prohibit the occurrence of medical error.

Responsibilities

As a member of the health care industry, you have a responsibility to be aware of the risk of medical errors as well as learn strategies to minimize that potential risk. Remember that medical errors can occur at any point in treatment, even in preventive care, and do not always result in patient injury or death.

Health care personnel and institutions are held accountable for establishing and maintaining a safe health care environment for their patients. An investigation of sentinel events focuses primarily on systems and processes, rather than attaching blame to the actions of specific individuals. While personal responsibility is essential to reducing medical errors and increasing patient safety, a root-cause analysis addresses the issue of personal fault within the existing health care framework. Understanding the context of medical errors is essential to minimizing their occurrence and providing strategies through the implementation of appropriate organizational and systemic changes2.

Careful review and analysis of sentinel events and near-misses (situations in which a medical error occurred but did not cause harm to the patient) suggests close scrutiny of sentinel events can be key to determining whether adverse events, such as patient injury or death, were caused by the patient’s diagnosed condition, a medical intervention, or inaction on the part of a health care provider. As such, “sentinel events” signal the need for immediate attention and investigation, in order to reduce occurrence of medical error.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) requires health care organizations to establish internal processes to recognize sentinel events, conduct root-cause analyses, identify and document areas of risk, and implement a plan of risk-reduction measures to correct system failures. Once a sentinel event is identified, a root-cause analysis should be completed within 45 days. All personnel involved in the systems and processes under review must participate. A thorough analysis should inquire into all associated aspects of the event and include the following points:

- What factor or factors relate most directly to the sentinel event, and what systems and processes are associated with it?
- What underlying systems and processes allowed the event, and how can they be made more foolproof?
- What other areas of risk exist and could potentially contribute to a similar event?
- What improvements, if any, in systems and processes could be implemented to reduce the likelihood of such an event in the future?
- Finally, individuals are assigned responsibility for implementing necessary improvements. Once in place, these changes should be evaluated to determine their degree of efficacy.

All health care professionals should be obligated to report adverse incidents, defined as:

An event over which health care personnel could exercise control and which is associated in whole or in part with medical intervention, rather than the condition for which such intervention occurred, and which also satisfies one of the following requirements:

1. Was the performance of a surgical procedure on the wrong patient, a wrong surgical procedure, a wrong-site surgical procedure, or a surgical procedure otherwise unrelated to the patient’s diagnosis or medical condition.
2. Required the surgical repair of damage resulting to a patient from a planned surgical procedure, where the damage was not a recognized specific risk, as disclosed to the patient and documented through the informed-consent process.
3. Was a procedure to remove unplanned foreign objects remaining from a surgical procedure.
4. Resulted in one of the following injuries:
   a. Death.
   b. Brain or spinal damage.
   c. Permanent disfigurement.
   d. Fracture or dislocation of bones or joints.
   e. A resulting limitation of neurological, physical, or sensory function which continues after discharge from the facility.
   f. Any condition that required specialized medical attention or surgical intervention resulting from non-emergency medical intervention, other than an emergency medical condition, to which the patient has not given his or her informed consent.
   g. Any condition that required the transfer of the patient, within or outside the facility, to a unit providing a more acute level of care due to the adverse incident, rather than the patient’s condition prior to the adverse incident.

Many states require all licensed health care facilities to maintain internal systems for the reporting and documentation of adverse events. Be sure to check with your state regarding specific requirements.

**Recommendations for the practitioner and staff**

Safety systems must encompass all elements of a practice, including personnel, operational processes, technologies, environment, and materials. Some measures will be more obvious to you than others, so make sure you investigate all dimensions of your practice for potential hazards.

**Root-cause analysis**

**Figure 1. Framework for identifying errors**

Guidelines established by The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), a national organization dedicated to improving the quality of health care, are used to determine cause in the investigation of medical error, a process known as "root-cause analysis." (See figure 1.)

The following standardized nomenclature for root-cause analysis and reporting of sentinel events was developed by the IOM:

**IOM glossary of terms**

- **Adverse event**: an injury that was caused by medical management and that results in measurable disability.
- **Error**: the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an aim. Errors can include problems in practice, products, procedures, and systems.
- **Unpreventable adverse event**: an adverse event resulting from a complication that cannot be prevented given the current state of knowledge.
- **Medical error**: an adverse event or near miss that is preventable with the current state of medical knowledge.
- **Near miss**: an event or situation that could have resulted in an accident, injury or illness, but did not, either by chance or through timely intervention.
- **System**: a regularly interacting or interdependent group of items forming a unified whole.
- **Systems error**: an error that is not the result of an individual’s actions, but the predictable outcome of a series of actions and factors that comprise a diagnostic or treatment process.

The IOM defines error as “the failure of a planned action to be completed as intended or the use of a wrong plan to achieve an
experiencing any pain or discomfort, and let them know it is important
with a client’s medical history and current treatment status before
nonverbal communication cues. Some patients are reluctant to mention
listening skills, they must also be attentive and responsive to subtle or
Not only do practitioners need to demonstrate sensitivity and good
officials and therapy applicants."

sentinel event," defined as a case in which patient injury cannot
reasonably be attributed to the underlying medical condition of the

Sentinel events
Since the inception of its Sentinel Event Policy in 1995, the JCAHO
has compiled data from more than a thousand incidents. Reporting
facilities associated sentinel events with root causes relating to:
● Inadequate safety or security of the physical environment.
● Inadequate assessment or incomplete reassessment of the patient.
● Inappropriate assignment of the patient.
● Incomplete examination of the patient.
● Infrequent or incomplete patient observations.
● Factors related to insufficient training or orientation of personnel,
including inadequate staffing or competency reassessments.

Preventable medical errors are most commonly related to operative
and post-operative complications, surgical mistakes, issues of
medication, and patient falls. Older patients are far more likely to
be injured in these incidents, with individuals over the age of 65
experiencing medical error two to four times as often as patients under
the age of 45. Many preventable errors occur in hospitals, with the
likelihood of injury growing the longer the patient stays in the hospital
and the greater the severity of illness.

Common medical errors

A culture of patient safety
Part of the difficulty in addressing medical errors is the tendency for
individuals to attach blame to a single person or cause, rather than
understand the error within a faulty context that did not catch the error
before it caused harm. Fear of malpractice or other retribution motivates
individuals and organizations to hide, ignore, or deny the existence of
dangers, so that this defensive posture becomes a weakness in itself. A
culture of patient safety uses an incident as a tool for change: accepting
responsibility, acting decisively to investigate it, and incorporating what
is learned into operations, systems, and training. Tools for managing
error and error-producing conditions include:

Strong leadership, accountability, and commitment to patient
safety at the highest organizational levels.
● A non-punitive environment (no blame-game).
● Internal and interdisciplinary review of any incidents and thorough
root-cause analysis.
● Open and honest discussion of safety issues and options at all
levels of the organization.
● Staying attuned to the occurrence of errors and near misses.
● Communicating and educating staff, patients, and families.

Communication
William Greenberg, a former chair of The American Massage Therapy
Association (AMTA) Grievance Committee, writes:

“Nearly every one of the complaints that we receive [involves]
the lack of communication between the parties. ... Many of the
grievances begin because there was not clear communication between
therapist and client. Others have developed because of lack of clear
communication between massage school teachers and students. Yet
others have come to us because of lack of clarity between licensing
officials and therapy applicants.”

Not only do practitioners need to demonstrate sensitivity and good
listening skills, they must also be attentive and responsive to subtle or
nonverbal communication cues. Some patients are reluctant to mention
pain, injury, or personal sensitivities, both psychological and physical,
that affect their experience as a patient. Always familiarize yourself
with a client’s medical history and current treatment status before
beginning. Ask patients at the start of a session if they are currently
experiencing any pain or discomfort, and let them know it is important
that they tell you honestly about any discomfort or pain during or as a
result of the session, as well as any other issues affecting their comfort.

At minimum, the practitioner should know the client’s reasons
for seeking massage services, and what they expect or hope to
gain from the experience. While questions like these can be asked
verbally, it is useful to record this information in writing and keep it
with the patient’s chart or records. It is best to review medical
history questionnaires or other intake forms in person to clarify any
ambiguous points and/or learn more specific information about the
client’s condition or specific needs. All additional comments should be
included in the written records at the time of the interview.

Practitioners should develop informational materials for their clients
that describe the general policies and procedures used at your place of
business, including protocol for late or missed appointments, terms of
payment and billing, or hours of business, for example.
Figure 2. Client Information Sheet

To maximize the effectiveness and safety of your massage sessions, please take the time to carefully fill in this questionnaire. This information will be treated confidentially.

Name: ____________________________________________ Date: ____________________________________________
Address: __________________________________________ City/State/Zip: ______________________________________
Telephone: Home: ________________________________ Work: ________________________________
Email: __________________________________________ Occupation: ________________________________
Referred by: ______________________________________ Marital Status: ☐ Single ☐ Married ☐ Divorced ☐ Widow/Widower
Date of Birth: ______________________________________

Emergency Contact
Name: ____________________________________________ Telephone: ________________________________

Any area of complaint, pain, or tension? _______________________________________________________________________
Do you experience any difficulty lying face up or face down? __________________________________________________________
Have you had a professional massage before? If yes, when? __________________________________________________________

Medical History: Please mark a P for personal experience and/or an F if the disease runs in your family.

Hypertension ☐ Cancer/malignancy ☐
Fibromyalgia ☐ Edema (swelling) ☐
Herniated disk ☐ Inflammation ☐
Heart disease ☐ Osteoarthritis ☐
Fibrocystitis ☐ Allergies ☐
Varicose veins ☐ Skin rashes ☐
PMS/painful menstruation ☐ Diabetes ☐
Balance problems ☐ Chronic fatigue ☐
Phlebitis ☐ Rheumatoid arthritis ☐
Pregnancy ☐ Skin sensitivity ☐
Epilepsy ☐ Osteoporosis ☐
Abscess or open sore ☐ Headaches ☐
Thrombosis/embolism/stroke ☐ Easy bruising ☐
HIV/AIDS ☐

Surgery/fractures (please explain): __________________________________________________________________________
Musculoskeletal pain/stiffness (i.e. low back, neck, shoulder, feet, etc.): _______________________________________________________________________
Any other physical or emotional difficulties? (Please explain): _______________________________________________________________________
Do you wear contacts? _______________________________________________________________________________________________
Are you under medical care or supervision at this time? If yes, for what condition(s)? ________________________________
Are you taking any medication at this time? If yes, what type(s)? ______________________________________________________
Did you take any over-the-counter medication today? If yes, what type(s)? __________________________________________
Do you consume vitamins/herbs on a regular basis? If yes, which ones? ______________________________________________

Do we have your permission to contact your physician should the need arise? ☐ Yes ☐ No
Name of Physician: ____________________________ Tel: ____________________________

I, ____________________________ , understand that the massage therapy performed will be for the purpose of stress reduction, relief from muscular tension or spasm, or for increasing circulation and energy flow.

I understand that the massage therapist does not diagnose illness, disease or any other physical or mental disorder. As such, the massage therapist does not prescribe medical treatment or pharmaceuticals, nor do he/she perform any spinal manipulations. It has been made clear to me that massage therapy is not a substitute for medical examinations and/or diagnosis and that it is recommended that I see a physician for any physical ailment that I might have. Because a massage therapist must be aware of existing physical conditions, I have stated all my known medical conditions and take it upon myself to update the massage therapist about my physical health.

Signature: ____________________________________________ Date: ____________________________________________
Documentation and record keeping

Keep records of all treatments, including specific products used in a session, client’s health and response to treatment, sensitivity and tolerance levels associated with allergens or medication, insurance and financial information, and any other useful or important points about the client. Review these records before the session to reacquaint yourself with the facts.

Keep records in a secure location and the information in them confidential. Never discuss or provide personal information about a client, except if required by law. Personal information should not be discussed without the client’s consent, and shared with other health professionals only if it is in the client’s best interest.

Intake forms should be as comprehensive as possible, and include basic medical information, personal history or family history of disease, contact information for use in case of emergency, and any legal or medical disclaimers required in your practice. Use the above form as a general guide only (see figure 2).

Design forms so they are easy to read and understand. Be aware that some clients may not be able to read very well, or have very low comprehension skills. If a client leaves any questions blank, review each question with the client, one by one, and write the answer for them. Then, review and expand on each point, as necessary, by discussing the answer with the client.

Find out if the client has had any previous experience with massage. If he or she is new to the experience, it is useful to provide a list and description of services offered, explaining each procedure and how it might benefit the client. Ask the client if he or she has any questions, and keep them apprised of their progress throughout the course of treatment.

If you are unsure about a client’s condition or have any questions about their treatment, it is best to refer the client to a physician or other health professional for a more thorough assessment. Treatment strategies should be developed with client input, and be based on his or her preferences and needs.

Establish systems for error reporting and documentation, so that common and unusual errors can be tracked and their cause(s) examined. The use of automated systems and office management software (for basic medical forms, etc.) can reduce common errors in documentation and increase operating efficiency.

Up-to-date, accurate notes are important. Do your records pass this checklist?

Style
- Date and sign each new entry with your initials.
- All entries should be neat, legible and written in ink.
- Use objective, precise language and avoid subjective “casual” remarks and abbreviations that might not be understood.

Content
- Remember to record the source of referral of the patient (which general practitioner, hospital consultant, etc.).
- Record relevant conversations with the family or friends of the patient.
- Record the details of the information given to patients at their time of discharge, if applicable.

To avoid mistaken identities
- The patient’s name should be printed on every page.

The notes are an accurate record that should not be modified later
- Clearly identify the date and time and year that entries relate to.
- Do not skip lines or leave blank spaces.
- Make a note in the margin that the entry was made in error, and note what the correct entry should be.
- Never erase or use correction fluid or tape.

Mistakes
- Draw a single line through incorrect entries.
- Initial the error.
- Add today’s date.

Consent forms
- Record any information you have given to the patient before he/she made the decision to sign any consent forms; this helps ensure that you have informed consent.
- Consent forms are signed by the patient after the treatment has been discussed with the doctor.

Adverse reactions and other information
- Remember to record any adverse reaction or problems including drug allergies on prescription charts, case notes and head sheets/treatment sheets. Also record any other allergies on the alert forms provided in the case notes.

Confidentiality
- Do not remove case notes or send original case notes to other clinics or hospitals.

Facilities and equipment
Use the physical and spatial arrangement of your environment to facilitate efficient movement and decrease potential risk. While massage therapy rarely requires the use of dangerous equipment or practices, potential hazards relating to facilities and equipment nonetheless exist. Review the following checklists:
Safety and sanitation

- Hallways and walkways clear and well-lit.
- Carpets cleaned and vacuumed.
- Handwashing facilities should include germicidal soap and paper towels.
- Use fresh, clean linens with each client.
- Avoid contact with open wounds and sores.
- Do not have contact with clients if you suspect you might be ill or contagious.

Ventilation, heating, and electrical appliances

- Maintain a comfortable, warm environment for the client; use auxiliary heating in the massage room, if necessary.
- Keep heating and ventilation systems well maintained and clean; use filters to minimize dust and contaminants cycling through the system.
- Use auxiliary heating devices with automatic shut-off or confirm that devices are turned off when not in use.

Fire safety and first aid

- Test smoke and carbon monoxide detectors.
- Know the location of fire extinguishers and how to use them.
- Mark fire exits and establish and post evacuation procedures.
- Ensure that candles and incense are used safely and extinguished appropriately.
- Have your local fire department inspect the premises to ensure a safe environment.
- Have a complete first aid kit on the premises and inform all personnel where it is located.
- Encourage personnel to learn first aid and CPR techniques.
- Post emergency information near all telephones; include telephone numbers for police and fire departments, ambulance, hospital, emergency room, doctors, and taxicabs.

Safety and health policy statement and safety inspection checklist

Each practice should have a safety and health policy statement confirming the intent to provide for safety in the environment and operations under its control. Develop a basic statement that assures staff, clients, and visitors at your place of business that you adhere to national and state standards of safety and health as defined by the Occupational Safety and Health Act (OSHA), state fire laws, Worker’s Compensation Bureau or others, and what person, position, or organization is assigned the responsibility for administering existing safety measures or programs.

Emergency action plan

Establish policies and procedures for responding to emergency situations, providing a means of notifying employees, customers, and local authorities in case of emergency, and a system of accounting for employees who are on the premises at the time of emergency.

Include methods for responding and reporting in case of fire, tornado, earthquake, power outage, hazardous materials, robbery/burglary or other threat, including methods and materials for first aid and safe and orderly evacuation.

Preventing falls

Falls are a leading cause of preventable injury, especially in children and the elderly. More than one-third of adults ages 65 years and older fall each year. Common tripping hazards include the lack of stair railings or grab bars, unstable furniture, slippery surfaces, and poor lighting. Use the following checklist to spot potential hazards at your place of business and make your working environment a safe one:

- Are steps, stairs, and walkways free of snow, ice, leaves, or other clutter?
- Do steps, stairs, and walkway surfaces have good walking surfaces and traction?
- Are entrances, rooms, and hallways well lit?
- Are light switches located at the top and bottom of stairways, and by each doorway?
- Are flashlights available in case of power outage or emergency?
- Remove tripping hazards including throw rugs and clutter from walkways or tack down rug edges securely.
- Use non-slip mats on bathroom floor surfaces and any other slippery areas.
- Put grab bars next to the toilet and any bathing or showering facilities.
- Put handrails on both sides of a stairway.
- Increase lighting along walkways.
- Position needed items in easy-to-reach locations.
- Use a steady step stool with safety rail or ladder for reaching high shelves and cabinets.
- Clearly mark entrances, exits, and bathrooms.

**Contraindications**

Contraindications are conditions where the usual course of treatment is inadvisable. Absolute contraindications, associated with severe cases of hypertension, shock, pneumonia, or toxemia, mean no part of the body should be massaged, while other contraindications may refer only to localized areas of the body, to avoid a wound, for example. Modified therapeutic applications are available in some cases, but the practitioner should always err on the side of caution. Some conditions may be both indicated and contraindicated; one patient’s condition might be aggravated by a specific massage technique, while another responds favorably.

As a practitioner, it is critical to know when massage is not advisable. If in doubt, do not proceed. Your judgment should be based on the client’s medical history and your discussions and experiences with the patient from the initial consultation and ongoing treatments. Knowing the client’s state of health and reasons for seeking massage are important, but be sure to include a medical history checklist on your client intake form, and review it along with the client to clarify any ambiguities.

If the client’s condition calls for caution, he or she is probably already under a physician’s care. In these cases, the practitioner and doctor should confer before any massage treatments commence. In some cases, during the course of massage, you and the client may become aware of some condition that should be brought to the attention of a doctor. Get a physician’s report and doctor’s recommendations, if at all possible, before beginning or continuing massage treatments, and review the intended plan of treatment with the client’s doctor before you begin, including any electrical or mechanical devices you plan to use. Massage may also be contraindicated with certain prescribed medications. Safety considerations are intended to protect not only the health of the client, but also the health of the massage practitioner and the practitioner’s other clients. Major contraindications include:

- **Fever:** Massage should not proceed if body temperature exceeds 99.4 degrees F.
- **High blood pressure:** Proceed on advice of physician.
- **Acute infectious disease:** Such as severe colds and flu.
- **Acute inflammation of any part of the body:** In cases of arthritis, inflammation of the joints can sometimes be relieved through work on a reflex, related, or proximal area.
- **Tissue damage:** Usually characterized by inflammation; swelling, redness, heat, and pain.
- **Bacterial infestation:** Do not proceed if there are any signs of pus.
- **Osteoporosis:** If the client is elderly or appears frail, proceed on advice of physician.
- **Varicose veins or broken blood vessels:** Do not proceed (very light massage proximal to the affected area can be used in some cases).
- **Phlebitis (inflammation of a vein):** Do not proceed.
- **Aneurosa or aneurysm (localized dilation of a blood vessel or artery):** Do not proceed.
- **Acute hematoma (internal bleeding):** Do not proceed.
- **Edema (excess accumulation of fluid in the tissues):** Proceed on advice of physician.
- **Cancer:** Proceed on advice of physician.
- **Hernia/rupture:** Do not proceed.

The following skin conditions or injuries are contraindications for the affected area only:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Contraindicated Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne</td>
<td>Carbuncles</td>
</tr>
<tr>
<td>Tumor</td>
<td>Blisters</td>
</tr>
<tr>
<td>Pimples</td>
<td>Warts</td>
</tr>
<tr>
<td>Impetigo</td>
<td>Rashes</td>
</tr>
<tr>
<td>Bruises</td>
<td>Scaly skin</td>
</tr>
<tr>
<td>Burns</td>
<td>Lumps</td>
</tr>
<tr>
<td>Stings/bites</td>
<td>Lacerations/cuts/wounds</td>
</tr>
</tbody>
</table>

The practitioner should not begin any course of treatment without the physician’s knowledge. Patients suffering from **diabetes**, **asthma**, or a **pulmonary** or **heart condition** should have their physician approve the intended plan of treatment before proceeding.
### Nerves

<table>
<thead>
<tr>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigeminal nerve (V cranial). TMJ.</td>
<td>Pressure on nerve may cause Trigeminal neuralgia or tic douloureux with nerve inflammation Caution when working with jaw open.</td>
</tr>
<tr>
<td>Axillary nerve. Deep inside arm on the humerus.</td>
<td></td>
</tr>
<tr>
<td>Musculotaneous nerve. Median nerve. Lateral to biceps and triceps at the elbow.</td>
<td>Accessed when elbow is bent. Work with the arm straight.</td>
</tr>
<tr>
<td>Lumbar plexus. Between the 12th rib and the T12 along top edge of quadratus lumborum. Along the transverse processes of T12 and lumbars.</td>
<td></td>
</tr>
<tr>
<td>Vagus nerve. Deep in abdomen.</td>
<td>Deep psoas work is risky with people with high blood pressures as it may over-stimulate the vagus nerve and cause sweating, nausea.</td>
</tr>
<tr>
<td>Femoral nerve. Anterior pelvis lateral to psoas. Femoral triangle.</td>
<td>Caution when doing iliacus work. Follow the contour of the pelvis.</td>
</tr>
</tbody>
</table>

### Veins and Arteries

<table>
<thead>
<tr>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common carotid external jugular vein. Medical to SCM in anterior triangle.</td>
<td>Pressure may cause dizziness or blackouts.</td>
</tr>
<tr>
<td>Subclavian artery/vein. Behind clavicle in the hollow under the clavicle between the pec major and deltoid.</td>
<td></td>
</tr>
<tr>
<td>Aorta. Lateral to navel.</td>
<td>Move off if you feel pulse. May cause blackouts.</td>
</tr>
<tr>
<td>Cephalic vein. Anterior to deltoid, medial to triceps, lateral to pectoralis.</td>
<td>Can be impinged to the humerus.</td>
</tr>
<tr>
<td>Basilic vein. Upper arm.</td>
<td>Can be trapped between the biceps and triceps.</td>
</tr>
</tbody>
</table>

### Organs

<table>
<thead>
<tr>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart. Heavy compression on sternum is contraindicated.</td>
<td></td>
</tr>
<tr>
<td>Liver. Below rib cage extending from the right side to the left of center.</td>
<td>Press liver down as you press under rib cage to work diaphragm.</td>
</tr>
<tr>
<td>Spleen. Left abdominal region behind stomach.</td>
<td>Feels mushy.</td>
</tr>
<tr>
<td>Kidneys. Protected by lower rib cage between T10 and T12 on both sides.</td>
<td>No compression or vibration over kidneys on back. No high psoas work through abdomen.</td>
</tr>
<tr>
<td>Eyes. Do not apply pressure on eyeballs: retinal detachment indicated by flashes of light or color.</td>
<td></td>
</tr>
</tbody>
</table>
### General Areas of Endangerment for Swedish Massage

<table>
<thead>
<tr>
<th>Area of concern</th>
<th>Anatomy</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Temporal branches of facial nerve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ophthalmic branch of trigeminal nerve.</td>
<td></td>
</tr>
<tr>
<td>Temporomandibular joint (TMJ)</td>
<td>Parotid gland on ramus of mandible on top of masseter.</td>
<td></td>
</tr>
<tr>
<td>submandibular areas.</td>
<td>Facial nerve anterior and superior to parotid gland.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facial artery inferior to parotid gland.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Styloid process of temporal bone posterior to mandible, anterior to mastoid process.</td>
<td>Styloid process may break with excessive pressure. Opening the jaw exposes nerve more. Compressing or damaging the nerves can cause trigeminal neuralgia.</td>
</tr>
<tr>
<td>Anterior triangle of neck.</td>
<td>SCM, mandible, trachea.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carotid artery.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internal jugular vein.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trachea.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thyroid.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyoid bone.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Submandibular.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Salivary glands.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure on carotid can slow heart rate or cut off blood supply to head, causing dizziness or blackouts.</td>
<td></td>
</tr>
<tr>
<td>Posterior triangle of neck.</td>
<td>SCM, clavicle, trapezius.</td>
<td></td>
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<tr>
<td></td>
<td>External jugular vein.</td>
<td></td>
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<tr>
<td></td>
<td>Brachial plexus.</td>
<td></td>
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<tr>
<td></td>
<td>Subclavian artery and vein.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure on brachial plexus can cause pain down arm and hand.</td>
<td></td>
</tr>
<tr>
<td>Occipital area.</td>
<td>Occipital foramina.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greater occipital nerve (C2).</td>
<td>Digging too deep in the occipital area with the head in passive extension can entrap the nerves there. Static pressure with caution is OK.</td>
</tr>
<tr>
<td>Delto-pectoral triangle.</td>
<td>Inferior fibers of anterior deltoid, clavicle, and superior fibers of the clavicular head of the pec major.</td>
<td></td>
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<tr>
<td></td>
<td>Cechalic vein.</td>
<td></td>
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<tr>
<td></td>
<td>Brachial plexus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Axillary artery and vein.</td>
<td></td>
</tr>
<tr>
<td>Axillary region.</td>
<td>Anterior border: deltoid, biceps and pec major.</td>
<td>There are many very effective techniques for working the muscles of the pecs, subscapularis, through the armpit. Know what you are doing before proceeding.</td>
</tr>
<tr>
<td></td>
<td>Posterior border: deltoid, triceps, latissimus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Axillary nerve, artery, vein, lymph nodes.</td>
<td></td>
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<tr>
<td></td>
<td>Cephalic vein.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brachial plexus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median nerve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brachial artery.</td>
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</tr>
<tr>
<td></td>
<td>Basilic, brachial and cephalic veins.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radial nerve.</td>
<td></td>
</tr>
<tr>
<td>Brachial region.</td>
<td>Superior border: inferior aspects of the biceps.</td>
<td>Basilic vein can be trapped medial to the humerus between the biceps and triceps. Cephalic vein can be pinned to the humerus just lateral to the biceps.</td>
</tr>
<tr>
<td></td>
<td>Inferior border: superior aspect of the triceps.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median nerve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brachial artery.</td>
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</tr>
<tr>
<td></td>
<td>Basilic, brachial and cephalic veins.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Radial nerve.</td>
<td></td>
</tr>
<tr>
<td>Antecubital fossa-anterior elbow.</td>
<td>Distal to biceps brachii.</td>
<td>Caution when using cross fiber friction on the insertions of the biceps and brachialis in the shortened position as it may entrap the median nerve.</td>
</tr>
<tr>
<td></td>
<td>Border: lateral common extensor tendon, medial – common flexor tendon.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median and radial nerve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basilic vein.</td>
<td></td>
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<tr>
<td></td>
<td>Brachio; artery.</td>
<td></td>
</tr>
<tr>
<td>Cubital notch-posterior elbow.</td>
<td>Posterior to medial epicondyle, anterior to olecranon ulnar nerve.</td>
<td>“Funny bone” cross fiber work on the triceps insertion requires a lengthened position to protect ulnar nerve.</td>
</tr>
<tr>
<td>Anterior surface of distal forearm and wrist.</td>
<td>Radial nerve and artery.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median nerve.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ulnar nerve and artery.</td>
<td></td>
</tr>
<tr>
<td>Xiphoid process.</td>
<td>Xiphoid process.</td>
<td>Heavy direct pressure could break off bone.</td>
</tr>
</tbody>
</table>
**Area of concern** | **Anatomy** | **Notes**
--- | --- | ---
Abdominal region. | Liver, spleen, stomach, gall bladder, reproductive organs, intestines, colon. Abdominal aorta, vena cava. Vagus nerve. | Visceral manipulation is an advance technique that can be learned. Deep pressure on the psoas may over-stimulate the vagus nerve and cause symptoms such as sweating, nausea.


Gluteal region. | Between sacrum and greater trochanter. Sciatic nerve. | When working the piriformis, watch for referred pain.

Posterior knee. | Tibial and peroneal nerve (split off from sciatic nerve). Popliteal artery and vein. | 

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**Lifting, transferring and positioning**

Lifting, transferring, and positioning are skills requiring some degree of instruction and experience. Do not attempt to move a client without taking the time to learn proper body mechanics (ergonomics). Good body alignment, posture, and balance will significantly reduce strain on muscles and joints.14

Client handling and transfer, especially with frail or heavy clients, or those with limited mobility, can be injurious to the practitioner as well as the client. Always assist clients on and off the massage table. When transferring clients from one location to the other, such as from a chair or bed, use the following procedure: Explain what you plan to do to the client, and ask how they would prefer to make the move. Assess the situation and obtain assistance, if necessary. Make sure there are no obstacles in the way and any necessary equipment, such as a lifter or hoist, is available. If movement is to or from a wheelchair, make sure the wheels are securely locked in place.

**Other considerations**

**Recommendations for the client**

Informed clients are likely to be safer clients. Share information about preventing medical errors with your patients and encourage them to actively participate in health care decisions. The following Patient Fact Sheets were developed by the AHRQ and Federal agencies in the Quality Interagency Coordination (QuIC) Task Force, in partnership with other health care purchasers and providers, to educate patients and assist them in taking an active role in their health care:

**20 tips to help prevent medical errors**

Medical errors are one of the nation’s leading causes of death and injury. A recent report by the Institute of Medicine estimates that as many as 44,000 to 98,000 people die in U.S. hospitals each year as the result of medical errors. This means that more people die from medical errors than from motor vehicle accidents, breast cancer, or AIDS.

Government agencies, purchasers of group health care, and health care providers are working together to make the U.S. health care system safer for patients and the public. This fact sheet tells what you can do.

**What are medical errors?**

Medical errors happen when something that was planned as a part of medical care doesn’t work out, or when the wrong plan was used in the first place. Medical errors can occur anywhere in the health care system, including hospitals, clinics, outpatient surgery centers, doctors’ offices, nursing homes, pharmacies and patients’ homes.

Most errors result from problems created by today’s complex health care system. But errors also happen when doctors and their patients have problems communicating. For example, a recent study supported by the Agency for Healthcare Research and Quality (AHRQ) found that doctors often do not do enough to help their patients make informed decisions. Uninvolved and uninformed patients are less likely to accept the doctor’s choice of treatment and less likely to do what they need to do to make the treatment work.

**Errors can involve:**

Medicines, surgery, diagnosis, equipment, lab reports.

They can happen during even the most routine tasks, such as when a hospital patient on a salt-free diet is given a high-salt meal.

**What can you do? Be involved in your health care.**

The single most important way you can help to prevent errors is to be an active member of your health care team. That means taking part in every decision about your health care. Research shows that patients who are more involved with their care tend to get better results. More specific tips, based on the latest scientific evidence about what works best, follow.


**Medicines**

1. **Make sure that all of your doctors know about everything you are taking.** This includes prescription and over-the-counter medicines, and dietary supplements such as vitamins and herbs. At least once a year, bring all of your medicines and supplements with you to your doctor. “Brown bagging” your medicines can help you and your doctor talk about them and find out if there are any problems. It can also help your doctor keep your records up to date, which can help you get better quality care.

2. **Make sure your doctor knows about any allergies and adverse reactions you have had to medicines.** This can help you avoid getting a medicine that can harm you.

3. **When your doctor writes you a prescription, make sure you can read it.** If you can’t read your doctor’s handwriting, your pharmacist might not be able to either.

4. **Ask for information about your medicines in terms you can understand, both when your medicines are prescribed and when you receive them.**
   - What is the medicine for?
   - How am I supposed to take it, and for how long?
   - What side effects are likely? What do I do if they occur?
   - Is this medicine safe to take with other medicines or dietary supplements I am taking?

5. **When you pick up your medicine from the pharmacy, ask:** Is this the medicine that my doctor prescribed?

6. **If you have any questions about the directions on your medicine labels, ask:**

7. **Ask your pharmacist for the best device to measure your liquid medicine.** Also, ask questions if you’re not sure how to use it.

8. **Ask for written information about the side effects your medicine could cause.**

**Hospital stays**

1. **If you have a choice, choose a hospital at which many patients have the procedure or surgery you need.**

2. **If you are in a hospital, consider asking all health care workers who have direct contact with you whether they have washed their hands.**

   Hand washing is an important way to prevent the spread of infections in hospitals. Yet, it is not done regularly or thoroughly enough. A recent study found that when patients checked whether health care workers washed their hands, the workers washed their hands more often and used more soap.

3. **When you are being discharged from the hospital, ask your doctor to explain the treatment plan you will use at home.**

   This includes learning about your medicines and finding out when you can get back to your regular activities. Research shows that at discharge time, doctors think their patients understand more than they really do about what they should or should not do when they return home.

**Surgery**

1. **If you are having surgery, make sure that you, your doctor, and your surgeon all agree and are clear on exactly what will be done.**

   Doing surgery at the wrong site (for example, operating on the left knee instead of the right) is rare. But even once is too often. The good news is that wrong-site surgery is 100 percent preventable. The American Academy of Orthopaedic Surgeons urges its members to sign their initials directly on the site to be operated on before the surgery.

2. **Make sure that someone, such as your personal doctor, is in charge of your care.**

   This is especially important if you have many health problems or are in a hospital.

3. **Make sure that all health professionals involved in your care have important health information about you.**

   Do not assume that everyone knows everything they need to.

4. **Ask a family member or friend to be there with you and to speak up for you if you can’t.**

5. **Know that “more” is not always better.**

6. **If you have a test, don’t assume that no news is good news.**

   Ask about the results.
7. Learn about your condition and treatments by asking your doctor and nurse and by using other reliable sources.
For example, treatment recommendations based on the latest scientific evidence are available from the National Guidelines Clearinghouse at http://www.guideline.gov. Ask your doctor if your treatment is based on the latest evidence.15

ENDNOTES
12. This information has been modified (with more explanation) from the leaflet: Good Record Keeping, published in 1998 by Patient Services via the PR and Communications Office. It is intended only as a quick reference on good record keeping for health care staff at Addenbrooke’s. Detailed information outlining the responsibilities of the medical staff and other health professionals is filed in the front/rear pocket of the medical casenote folder; copies can also be obtained from Patient Services hospital extension 3768. Medical ethics and law: Good record keeping – a guide for medical staff. Last updated: 6 December 2002

PREVENTING MEDICAL ERRORS
Final Examination Questions
Select the best answer for each question and mark your answers online at Massage.EliteCME.com.

1. According to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), once a sentinel event is identified, a root-cause analysis should be completed within ____________.
   a. 3 days.
   b. 10 days.
   c. One month.
   d. 45 days.

2. Preventable medical errors are most commonly related to all the following, except:
   a. Operative and post-operative complications.
   b. Incorrect documentation.
   c. Issues of medication.
   d. Patient falls.

3. Tools for managing error and error-producing conditions include all the following, except:
   a. Strong leadership, accountability, and commitment to patient safety at the highest organizational levels.
   b. A punitive environment (blame-game).
   c. Internal and interdisciplinary review of any incidents and thorough root-cause analysis.
   d. Staying attuned to the occurrence of errors and near misses.

4. All of the following steps are associated with correcting documentation mistakes, except:
   a. Draw a single line though incorrect entries.
   b. Initial the error.
   c. Make a note in the margin that the entry was made in error, and note what the correct entry should be.
   d. Erase or use correction fluid or tape.

5. Which of the following statements about contraindications is false?
   a. Contraindications are conditions where the usual course of treatment is recommended.
   b. Absolute contraindications are associated with severe cases of hypertension, shock, pneumonia, or toxemia.
   c. Absolute contraindications mean no part of the body should be massaged.
   d. Other contraindications may refer only to localized areas of the body, to avoid a wound, for example.