

Guidelines for Trauma Centers Caring for Burn Patients

Burn Center Verification is overseen by the American Burn Association (ABA) Verification Committee with the endorsement of the American College of Surgeons Committee on Trauma (ACS-COT). The criteria for Burn Center Verification (and criterion deficiencies) are subject to change in a much more fluid fashion than is possible with the publication of this chapter. The ABA, in agreement with the ACS-COT, thus presents in this chapter the *principles* required for the operation of burn centers.

The ABA/ACS verification was developed to externally validate quality of care by U.S. burn centers. Increasingly, the process will emphasize outcomes, in addition to evaluating infrastructure and process. The ABA verification website includes the specific requirements for verification, including criterion deficiencies. (Click on the “Verification” tab at www.ameriburn.org.)

Each year in the United States, burn injuries result in more than 500,000 hospital emergency department visits and approximately 50,000 acute admissions. Most burn injuries are relatively minor, and patients are discharged following outpatient treatment at the initial medical facility. Of the patients who require hospitalization, approximately 20,000 are admitted directly or by referral to hospitals with specialized multidisciplinary programs dedicated to the treatment of burn injuries. These service capabilities, along with the setting in which they are provided, are termed *burn centers*. The guidelines in this chapter, developed in partnership with the ABA, define the burn care system, organizational structure, personnel, program, and physical facility involved in establishing the eligibility of a hospital to be identified as a burn center.

Trauma centers that do not have a burn center within the same hospital should establish communication and collaboration with a regional burn center and assess, stabilize, and arrange safe transport for seriously burned patients. Assessment should follow Advanced Burn Life Support® (ABLS®) and Advanced Trauma Life Support® (ATLS®) guidelines. The burn center should be contacted and the potential necessity for transfer discussed with the senior burn surgeon. In the absence of other injuries, the condition of burn patients usually is easily stabilized, and patients can withstand early long-distance transport with resuscitation en route.

Trauma centers that refer burn patients to a designated burn center must have in place written transfer agreements with the referral burn center (CD 14–1). It should be the responsibility of the trauma center and the burn center director to keep the transfer agreement current. Collaborative arrangements for the transfer of patients from other hospital units, such as a trauma unit or a surgical intensive care unit, should include protocols for transfer and acceptance.

Burn patients who are treated by the trauma service and who meet other inclusion criteria, such as length of stay, should be included in the trauma registry and counted among the total trauma population. Burn patients who are transferred externally to a burn center or internally to a burn service should not be included in the trauma registry or be counted in the total trauma population.

Burn Center Referral Criteria

A burn center may treat adults, children, or both. Burn injuries that should be referred to a burn center include the following:

- Partial-thickness burns of greater than 10 percent of the total body surface area.
- Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
- Third-degree burns in any age group.
- Electrical burns, including lightning injury.
- Chemical burns.
- Inhalation injury.
- Burn injury in patients with preexisting medical disorders that could complicate management, prolong recovery, or affect mortality.
- Burns and concomitant trauma (such as fractures) when the burn injury poses the greatest risk of morbidity or mortality. If the trauma poses the greater immediate risk, the patient's condition may be stabilized initially in a trauma center before transfer to a burn center. Physician judgment will be necessary in such situations and should be in concert with the regional medical control plan and triage protocols.
- Burns in children; children with burns should be transferred to a burn center verified to treat children. In the absence of a regional pediatric burn center, an adult burn center may serve as a second option for the management of pediatric burns.
- Burn injury in patients who will require special social, emotional, or rehabilitative intervention.

Guidelines for the Operation of Burn Centers

Burn Care System

A *burn care system* should be considered a coordinated component of an emergency medical services system that encompasses one or more burn centers and features communication links to, and triage–transfer protocols among, health care facilities, prehospital personnel, and transportation services. Within this comprehensive emergency medical system, trauma and burn centers should work together in a coordinated way to develop educational and performance improvement and patient safety (PIPS) programs that benefit injured patients. To fulfill this requirement of coordinated care, there must be commitment from the administration of the burn center, and the hospital should maintain accreditation with the Joint Commission or alternative accrediting agency. As evidence of this commitment, the burn center should have written guidelines for the triage, treatment, and transfer of burn patients from other facilities.

The burn center must also demonstrate commitment to the development of, and participation in, regional mass casualty/disaster coordination. This burn center commitment must include providing education to the community regarding the early treatment of burn care, such as sponsoring ABLIS® courses.

Organizational Infrastructure

The burn center must maintain policies and procedures that document the structure, staffing, and operation of the organization to verify the administration and staffing of the center. These policies and procedures should identify criteria for admission, use of burn beds by other services, criteria for discharge and follow-up, transfer policies, and care for inpatient burn patients outside the burn unit.

The burn center must also maintain a database of its admissions. At a minimum, verification requires that the burn center submit to the ABA's National Burn Repository a de-identified minimal data set (available on the ABA website) for all admissions. This process is easily accomplished with the ABA's TRACS system, but it may be accomplished through other databases. It is required that all patients admitted to the burn center for acute care be included in this database. Additionally, it is recommended that burn centers use their local registry to track outcomes and regularly review these data to identify areas for improvement.

Verification requires a large enough number of admissions to maintain clinical competency (for medical staff, nursing, and therapy) in the critical care nature of burn patients. This requirement means that the burn center must admit and maintain a census that indicates continuous exposure to complex burn care. Because a burn center may be verified as either an adult, pediatric, or combined adult and pediatric center, the burn center must have sufficient experience with each type of patient (adult and pediatric) that staff members have the clinical skills necessary to treat patients in the extremes of age. To be verified as an adult center, the burn program must admit and maintain an adequate census of adults; for pediatric burn centers, the program must admit and maintain a census indicative of experience in dealing with young children (younger than 4 years) and older children with extensive burns. Exact volume requirements are available on the ABA website. With the national trend toward outpatient burn management, experience with outpatient burns, and especially same-day surgery, fulfills some of these volume requirements. However, even burn centers with a robust outpatient burn program must demonstrate adequate experience with critical care inpatient burn patients.

Medical Personnel

Burn Center Director

The burn center director must be granted the necessary authority to direct and coordinate all services for patients admitted to the burn center. The director must maintain current board certification in surgery or plastic surgery and preferably have current board certification in critical care; additionally, the burn center director either must have completed a burn fellowship or must have at least 2 years of clinical burn experience. The burn center director is responsible for creating and maintaining policies and procedures related to most activities involved in the care of burn patients. The burn center director must ensure that medical care conforms to burn center protocols. The specific requirements are covered at the ABA website. The burn center director should demonstrate dedication to the burn program and expertise in the management of burn care by managing an adequate number of burn patients and performing a large enough number of burn

surgical operations. As leader of the burn program, the director should be involved with burn-related research or intellectual pursuits. The burn center director must demonstrate engagement in community outreach and regional burn education programs such as ABLIS.

Some burn centers, especially outside the United States, have a successful model of care in which the burn center director is the provider who oversees surgical care and a dedicated burn intensivist oversees much of the medical management. This system is allowable as long as the model represents a coordinated team approach to care that includes participation in all burn-related activities, including education, process, and PIPS efforts. Consulting a separate critical care or medical care team to manage patients does not meet the requirements for a verified burn center.

Attending Burn Surgeons

The burn center director may appoint qualified attending staff burn surgeons to participate in the care of patients on the burn service. The attending surgeons must be qualified (based on board certification or the standards established in Chapter 6, Clinical Functions: General Surgery). These surgeons must also demonstrate expertise in the care of burn patients by completing a burn fellowship or by having at least 2 years of experience in the management of burns within the past 5 years. They must participate in the care of an adequate number of patients and maintain an adequate amount of continuing medical education.

Burn Service Coverage

The burn center must have 24-hour continuous coverage and timely attending surgeon backup. An on-call schedule must be maintained. In addition to call coverage, the burn center should have readily available consultants of multiple specialties (as indicated on the ABA website).

Nursing Personnel

Nurse Manager

A nurse manager qualified to manage the nursing program of the burn center must have sufficient experience in burns and nursing leadership to lead the staff. As evidence of the nurse manager's leadership, there should be an organizational chart indicating his or her role in the burn program. The nurse manager should be an active participant in burn-related clinical, education, and PIPS activities. These requirements can be addressed by attending regional, national, or international burn meetings; being an ABLIS instructor; and being involved in the ABA.

Nursing Staff

The burn center should have qualified nurses to take care of the burn patients. Nurse staffing grids should be dictated by a patient care plan. Commitment to maintaining competencies related to burn and wound care should include a burn orientation program and ongoing burn-related educational modules. Staff should receive burn-related continuing education yearly.

Rehabilitation Personnel

Because rehabilitation is so important for the functional recovery of burn patients, an organized rehabilitation program with patient-specific goals is essential. This program requires a sufficient number of licensed physical therapists (PTs) and occupational therapists (OTs) who cover the burn rehabilitation needs of the burn unit. Both PT and OT coverage is required, and speech therapy is ideal. The PTs and OTs must be licensed, and working in the burn program must be their primary role. They must maintain continuing education and participate in burn-related education.

Other Personnel

Because burn care requires an organized and coordinated multidisciplinary team effort, many specialties contribute to the program. Some of the key ancillary team members are the following:

- Physician extenders
- Pediatricians (mandatory for pediatric burn centers)
- Physiatrists
- Social workers
- Nutritional services personnel
- Pharmacy personnel
- Respiratory care services personnel
- Clinical psychiatry or psychology personnel
- Peer support personnel
- Child life or recreational therapy personnel (mandatory for pediatric burn centers)
- Continuity of care program members

More extensive details are provided on the ABA website; click on the “Verification” tab at www.ameriburn.org.

Performance Improvement and Patient Safety Program

All burn centers must demonstrate evidence of an active multidisciplinary PIPS program. The burn center director is responsible for running the PIPS program. However, a multidisciplinary committee that includes independent peer review must oversee the performance program and must meet at least monthly to identify opportunities for improvement, take corrective actions, and resolve problems in a timely manner. There must be clear evidence of loop closure.

There must be at least monthly morbidity and mortality conferences with the participation of physicians other than those involved in the immediate care of burn patients. All significant complications and all deaths must be discussed. Recommendations for improvement as indications of loop closure must be documented as warranted. All records of the conference must be maintained.

There should be a multidisciplinary weekly patient care conference to discuss patient care needs. These conferences should include all of the team disciplines and must document the patient progress and transition of care.

The burn center must perform an annual audit of outcomes, including severity of burns, mortality, incidence of complications, and length of hospitalization. Other recommended data review includes tracking longer-term patient outcomes such as ability to return to work or school, as well as reviewing burn center financials.

Other Programs

Educational Programs

The burn center must provide educational programs for the medical and other staff. If residents and fellows rotate on the burn service, an educational plan must also exist for them.

Infection Control Program

The burn center must demonstrate a commitment to minimizing hospital-acquired infections. The center must have an effective means of isolation consistent with the principles of universal precautions and barrier techniques to decrease the risk of cross-infection and cross-contamination. Ongoing review of nosocomial infections must be available to the burn team.

Burn Prevention Program

The burn center must have an active burn prevention program to promote burn awareness to the community.

Research Program

The burn center must participate in some form of research related to burn care. This research could include robust PIPS initiatives that are used to educate the staff internally. The burn center director must be involved in this process; ideally, nursing and therapy leadership also participate in these efforts.

Configuration and Equipment

The burn center must maintain a specialized nursing unit dedicated to acute burn care. The center must be used primarily for patients with burn injuries or wounds with needs similar to those of major burn wounds. There must be at least four beds with intensive care qualifications. It is expected that the burn center have the equipment necessary to manage burn patients (see the ABA website). There must be operating suites that allow for the appropriate and timely surgical treatment of burn patients. Anesthesia support for critically ill burn patients must also be evident.

There should appropriate protocols and interactions with the emergency department of the hospital.

Supplemental Readings

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