Basic Burn Reconstruction (Scar Release, Coverage, and Management)

Description of the Activity	All burn surgeons should be able to evaluate burn sequelae, develop a patient-centered reconstructive plan, and perform common reconstructive operations to restore durable coverage, preserve function, and optimize appearance. This includes acute release and coverage, staged reconstruction, and management of scar contracture, with appropriate coordination of multidisciplinary care (anesthesia, critical care, therapy, nursing, and consultants).
Functions	**Preoperative Assessment & Planning** **Expeditiously perform the following steps in order:** 1. Perform a focused history and physical examination (including functional assessment and relevant comorbidities) and review prior operative records and photographs when available. 2. Synthesize essential information (contracture etiology and severity, involvement of critical structures, patient goals) to define the primary reconstructive problem and time sensitivity. 3. Develop and communicate an evidence-informed, goal-concordant reconstructive plan that balances coverage durability, functional outcome, donor-site morbidity, and resource constraints. ❖ Work collaboratively with consulting teams (anesthesia, therapy, plastic surgery/orthopedics/hand, ENT/ophthalmology, etc.) to coordinate time-sensitive reconstruction. ❖ Identify age-specific and site-specific considerations (pediatric growth, frailty, face/hand/perineum, circumferential injury). ❖ Ensure the patient/surrogate can ask questions; address concerns; incorporate patient/caregiver preferences, commitment, and cultural humility into shared decision-making. ❖ Develops a plan that considers multi-modality scar rehabilitation, including non-surgical strategies and laser therapy. ❖ Recognize when more advanced and subspecialty reconstruction (e.g., hand, microsurgery, complex craniofacial/oculoplastic) is needed and initiate timely referral. **Operative reconstruction** ❖ Plan and perform release and coverage when indicated (incisional vs excisional release strategy; hemostasis strategy; tourniquet use for extremities as appropriate).

	❖ Select and apply appropriate coverage: autograft (sheet/mesh), temporary biologic/synthetic coverage, dermal substitutes (staged or single-stage), negative pressure adjuncts, and/or local/regional flap coverage. ❖ Restore function and prevent deformity with appropriate positioning/splinting plans in collaboration with therapy. ❖ Perform contracture prevention or release techniques when indicated (e.g., Z-plasty/local tissue rearrangement, full-thickness grafts, staged release and grafting), prioritizing function at high-stakes sites (hand, face, neck, axilla). ❖ Maintain operative safety: perioperative antibiotic choice, and team communication. **Postoperative & Longitudinal Management** ❖ Assess graft/flap viability and scar progression; manage dressings and adjuncts (bolsters, NPWT, immobilization) to maximize take. ❖ Recognize and manage common complications using evidence-based approaches: graft/flap loss, hematoma/seroma, infection, necrosis, donor-site morbidity, neuropathic pain, heterotopic ossification, and functional decline. ❖ Coordinate rehabilitation (therapy, splinting, compression, scar massage, silicone, laser/other modalities as available) and monitor long-term functional and psychosocial outcomes. ❖ Communicate prognosis and an updated plan of care to the patient/caregiver(s), considering feasibility within psycho-socioeconomic context. ❖ Reflect on outcomes and complications; incorporate learning into practice improvement and team well-being.
Scope	**In scope:** All pediatric and adult patients with scar rehabilitation and burn reconstruction needs, including scar contracture and functional sequelae. **Out of scope:** Specialized reconstruction beyond burn fellowship training scope, and elective cosmetic procedures.

Level of Competence

Level	Preoperative Planning & Decision-Making	Intraoperative Reconstruction	Postoperative & Longitudinal Care
1. Limited Participation Demonstrates understanding of information and has very basic skills. <u>Framework</u>: What a learner directly out of residency training should know. The attending can show and tell.	• Reports key information from referring/consulting teams • Obtains an H&P inclusive of reviewing records and available imaging with cultural humility; identifies reconstructive priorities (coverage vs function vs appearance) • Reports factors that have led to severe scarring and contracture formation but cannot articulate plan to mitigate • Describes indications for release/coverage vs. non-surgical strategies, but cannot reliably tailor to patient factors • Communicates elements of an informed consent discussion but omits some (donor-site morbidity, staged options, rehab requirements)	• Identifies relevant surface anatomy for preoperative markings but requires direct instruction to delineate excision margins, donor-site boundaries and planned incision lines • Demonstrates superficial knowledge of indications, steps, and basic skills for incision/excision, STSG harvest, meshing, graft placement, local tissue rearrangement • Assists in the OR; performs limited steps with direct instruction • Demonstrates limited understanding of blood-loss mitigation, hemostasis strategy, and staged reconstruction	• Performs basic postoperative assessment and dressing care with prompting • Identifies common complications (hematoma, infection, graft and flap loss) but needs assistance to prioritize and respond • Communicates an updated plan to patient/caregiver(s) in a timely way but may omit feasibility considerations (therapy burden, follow-up) • Documents care but with omissions, especially nuance around goals and shared decision-making
2. Direct Supervision Demonstrates understanding of the steps in care but requires direction through principles and does not know the	• Gathers and organizes key reconstructive data (depth/viability, exposed structures, contamination, comorbidities) and begins to form a plan with assistance • Recognizes factors that have led to severe scarring and contracture formation and identifies mitigation strategies	• Marks excision margins, donor-site boundaries, and contracture release incisions with supervision; demonstrates awareness of aesthetic subunits and relaxed skin tension lines but needs guidance to integrate these into accurate markings • Performs components of incision/excision, STSG harvest,	• Reassesses wounds/grafts/flaps and adjusts care with assistance • Identifies complications and begins management but requires guidance (return to OR timing, antimicrobial strategy, donor-site issues) • Coordinates with therapy but does not reliably anticipate rehab constraints or adherence barriers

nuances of a basic scenario. Framework: The learner can use the tools but may not know exactly what, where, or how to do it. The attending gives active help throughout the scenario to maintain forward progression.	• Identifies site-specific priorities (hand/face/neck/perineum) but needs help selecting among reasonable options • Initiates informed consent for procedure(s); requires help addressing best/worst-case scenarios and ensuring comprehension (language services, visuals)	meshing, graft placement, tissue mobilization under direct supervision • Demonstrates solid understanding of basic hemostasis and dressing/bolster techniques but needs guidance for efficiency and troubleshooting • Performs straightforward contracture release steps with supervision; limited ability to select local tissue rearrangement vs. graft choice	• Documents goals and the plan with few omissions; still needs help incorporating nuanced shared decision-making
3. Indirect Supervision Can provide stabilization and perform basic procedures but will not recognize abnormalities and does not understand the nuances of an advanced scenario. Framework: The learner can perform the care and procedure in straightforward circumstances.	• Synthesizes information to identify illness severity and reconstructive time sensitivity; considers comorbidities and resource constraints • Recognizes factors that have led to severe scarring/contracture, identifies mitigation strategies, and develops a goal-concordant plan with patient/family • Develops a patient-specific plan for straightforward cases (e.g., extremity/torso) and communicates it to the team • Recognizes when staged approaches (temporary coverage/dermal substitute) are appropriate but may need help selecting among complex options	• Independently performs preoperative markings for straightforward cases, including excision boundaries, donor-site dimensions, and tissue rearrangement geometry (e.g., Z-plasty orientation); may require assistance with complex hand/face/neck markings • Independently performs incision/excision and routine grafting for straightforward sites; adapts technique when initial approach is unsuccessful • Uses adjuncts appropriately (bolsters, NPWT, dermal substitutes) in common scenarios • Performs contracture release and grafting for common sites; may	• Monitors viability and endpoints of scar progression; identifies when management must be modified or additional information is needed • Manages common complications using evidence-based approaches with some supervision • Communicates an updated plan to patient/caregiver(s), considering some (but not all) psycho-socioeconomic factors and rehab feasibility • Reflects on outcomes and complications and uses strategies to learn from experience

The attending gives passive help.	• Calls for help appropriately when additional strategies are needed	require assistance for complex hand/face/neck cases or when flap coverage is needed	
4. Practice Ready Can manage more complex patient presentations and procedures and take care of most cases. Framework: The learner can treat all straightforward presentations and has a strong understanding of options and techniques for less common scenarios The attending is available at the request of the learner but not routinely needed for common scenarios	• Independently synthesizes all information to define the reconstructive problem, prioritize function and form, and select time-sensitive operative plans • Independently recognizes factors that have led to severe scarring/contracture, develops a goal-concordant mitigation plan with patient/family, and in conjunction with nursing/therapy colleagues • Leads shared decision-making that is goal-concordant, clearly communicating trade-offs (e.g. donor-site morbidity, mesh ratio/pattern, staged options, rehab demands) • Coordinates multidisciplinary care efficiently; recognizes when referral for subspecialty reconstruction is needed and arranges it promptly	• Executes precise preoperative markings for all sites including complex anatomic regions; integrates aesthetic subunit boundaries, skin tension lines, and flap geometry (pivot points, arc of rotation); anticipates contingencies by marking alternative plans • Performs incision/excision and coverage independently, anticipating challenges (blood loss, logistics) and adapting plans appropriately • Executes high-quality grafting (sheet/mesh), donor-site management, dermal substitute strategies, and adjuncts (NPWT/bolsters/immobilization) with efficiency • Manages complex anatomic sites (hand, face, neck, axilla, perineum) and performs appropriate contracture release/tissue rearrangement; selects graft vs flap coverage judiciously • Maintains operative safety and team communication, including antibiotic stewardship and escalation plans	• Proactively manages postoperative course and complications; makes timely decisions regarding return to OR, salvage, or alternative reconstruction • Integrates scar management and long-term functional outcomes with rehabilitation planning; adjusts care to patient context and adherence barriers • Critically appraises evidence and incorporates outcomes into practice improvement and teaching • Reflects on outcomes and complications and uses strategies to learn from experience
