Standard of Care for Hand Trauma: Where Should We Be Going?

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Abstract Emergency Medical Treatment and Active Labor Act, an unfunded mandate for emergency hospital physician coverage, combined with falling reimbursement and escalating medico-legal risk, has resulted in declining enthusiasm for specialty coverage to emergency rooms. In a South West Florida community of 150,000, limited hand surgeons necessitated modification of acute on-call duties for hand trauma, whereby the hospital emergency room personnel performed evaluation and wound management with telephonic consultation followed by referral and definitive care in the outpatient setting by the hand surgeon. The policy for hand care, triage, management, and transfer is reviewed, as well as the first year experience with this highly efficient management methodology for urgent and emergent hand problems. In establishing a county-wide standard of care, emergency rooms and hand surgeons are coordinated to deliver excellent care by treatment protocol.

Keywords Standard of care · Emergency hand care · Hand referral call

Introduction

A problem currently exists across the country in matching hospital emergency room demands for physician coverage and the willingness and ability of specialists to meet this demand. Emergency Medical Treatment and Active Labor Act (EMTALA) mandates, combined with the traditional linkage of emergency room (ER) call duties to hospital admitting

privileges, place large and unpredictable time requirements on physicians. Declining reimbursement, increasing numbers of uninsured patients, escalating medico-legal risk, and exposure hazards all summate to motivate many specialists to avoid ER duties by modifying their practices.

Hand surgery is subject to all the pressures above and has witnessed changes in practices since the introduction of the Certificate of Added Qualification in hand surgery (CAQ). Not only has the certificate served to identify special competence in Hand but it has also resulted in most orthopedic, plastic, and general surgeons withdrawing hand surgery privileges and hence the obligations for Hand ER call. All of these circumstances have limited the number of dedicated hand surgeons and are causing an evolution in emerging standards of care with extreme emphasis on efficiency.

Central to the discussion of emerging standards is the high trauma component to the practice of hand surgery and the necessity to successfully triage care when patients engage the medical system through the hospital emergency room. The Hand (CAQ) has affected the debate over core hospital privileges and obligations for plastic surgery, orthopedic surgery, and general surgery in addressing the never ending question, “Who is qualified by day, and who by night?” Since Hand problems represent the most common traumatic injuries in most ERs, the debate is far from trivial. Hospitals rarely restrict elective surgery privileges for carpal tunnel release (general surgery, plastic surgery, orthopedic surgery, neurosurgery, hand surgery) but find it difficult to force all who are so capable electively to cover the spectrum of hand problems emergently...and the battle rages.

The history of hand call in a small community setting 2 h from major university tertiary centers may prove instructive to private and university settings alike as medical communities ask, “Standard of Care for Hand Trauma: Where Should We Be Going?”

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History of hand call at Naples Community Hospital in SW Florida (Collier County population 150,000):

- 1992: Hand Call established by staff consensus: all plastic surgeons; CAQ hand orthopedic surgeons
- 1994: Last replant performed secondary to lack of micro-vascular case volume
- 2004: 6/15 plastic surgeons resigned hospital privileges over hand call requirement citing lack of experience
- 2006–2008: 7/9 plastic surgeons refused to take hand call, citing medico-legal concerns
- 2006–2008: acute hand call replaced by hand referral call with 1 CAQ hand orthopedic surgeon, 1 CAQ hand plastic surgeon, and 1 plastic surgeon

Hand Policy

In 2006, both hospitals in the larger of two systems in the county adopted the hand referral call policy and treatment protocol. The second hospital system has functioned for 8 years since inception with a single CAQ hand plastic surgeon on staff in an identical fashion and is undergoing formal adoption of the policy, which will create a county-wide standard of care for hand emergencies.

The hand referral call policy was recommended by the Department of Surgery, approved by the Medical Executive Committee, unanimously favored by the Professional Capabilities Committee, and approved by the hospital board before going into effect. The policy is as follows:

Any ER patient requiring acute hand care (<24 hours) shall be transferred out by the ER. This will include replantations, revascularizations, severe paint or grease injection injuries, and limb-threatening infections, diseases, or injuries. All other hand patients shall be stabilized by the ER Physician, and referred to the Hand Surgeon on Referral Hand Call.

The Referral Hand Call Surgeons shall be available 24/7/365 to the ER for consultation by telephone. When necessary, the Referral Hand Call Surgeon shall determine if a case should be transferred or seen as an outpatient. The Referral Hand Call Surgeon shall not be expected to come to the ER.

The ER Physicians need not routinely call the on-call Referral Hand Surgeon to refer a case and shall assume acceptance of follow-up evaluation by the on-call Surgeon in a timely fashion, determined by the on-call Surgeon.

The on-call Referral Hand Surgeon shall not use finances as a barrier to the initial evaluation of ER patient referrals. Notwithstanding, on-call Hand Referral Surgeons are in private practice without compensation...and reserve the right to use ethical financial standards for patient reimbursement. Means testing shall be with the assistance of

Collier County Social Services. The ER shall bear the responsibility for explaining the private practice referral system and shall not guarantee, imply, or otherwise indicate to any patient that they will be “seen for free.”

Emergency Hand Treatment Protocol

Carefully defined hand care responsibilities are coordinated between the ER and the hand referral surgeon.

Emergency Room Function

1. Patient evaluation: injuries, co-morbid conditions, tetanus status
2. Hand evaluation and emergency care
3. Triage: admit and consult hand surgery; transfer hand injury; emergency hand care, and refer to hand surgery
4. Manage parts for transfer
5. Documentation

Emergency Hand Care, with Consultation of Hand Surgeon

1. Define hand injury
2. Control bleeding
3. Evaluate vascularity (color, capillary refill, pin prick)
4. Evaluate skeleton (X-ray)
5. Evaluate neural status (nerve injury vs. compartment pressure)
6. Cut off rings
7. Reduce dislocations
8. Drain dorsal pus
9. Locally anesthetize and manage wounds (remove contaminants and most foreign objects, irrigate, close/partially close/pack open)
10. Splint as necessary
11. Administer IV antibiotics, pain medicines, and tetanus prophylaxis as necessary
12. Prescribe antibiotics and pain medications as necessary
13. Instruct patient: necessity of follow-up hand care, sling/elevate, work status, do not smoke, other
14. Return to ER instructions that are very clear to the patient or caretaker (planned re-dressing, bleeding, numbness, ascending infection, other)

Replantation

To assist the ER in triage management of amputations for replant consideration, the following criteria categories were developed with the cooperation of university centers in Tampa and Miami accepting replantation candidates by transfer.

Favorable Criteria for Replantation

1. Thumb
2. Child
3. Hand/hemi-hand
4. Multiple digits

Unfavorable Criteria for Replantation

1. Crush/avulsion injury
2. Single digit, especially zone 2, especially non-dominant hand
3. Smoking history or medical condition precluding micro-vascular surgery
4. Prolonged ischemia, especially for muscle
5. Toe, foot, leg, arm, scrotum

Special Considerations for Replantation

1. Scalp
2. Ear
3. Face
4. Forearm
5. Penis
6. Zone 1 single digit

Replantation criteria vary from center to center, increasing the need for coordination between the ER and local hand referral surgeon to determine acceptability. A confounding variable frequently encountered is finance. The uninsured patient requiring airlifting to a replant center, emergency surgery, and a substantial hospital stay may be placed in extreme hardship by the recommendation for replantation. ER physicians and hand surgeons, therefore, must carefully counsel patients, giving realistic expectations for functional outcomes, aesthetic outcomes, down time, and costs incurred with replantation. Decisions, of course, are not reversible and, therefore, of great medico-legal importance as well.

Transfer agreements are currently not in place for emergency hand injury referrals but represent the logical progression along with a county-wide standard of care. Criteria for transfer need to be agreed upon by both the transferring and accepting establishments, especially as they pertain to replantation, to maximize efficiency of the system and strictly avoid very costly mis-utilization.

Emergency Hand Care Documentation

In addition to documentation of the history, physical examination, studies, treatments, and instructions, it is critical that the emergency room physician documents a decision not to replant most carefully in concert with

the hand surgeon because this decision is final with a propensity for being “second guessed.” Exclusion criteria should be explained carefully by the ER physician after consultation with the hand surgeon, and if requested, consultation with the potential receiving institution hand surgeon.

Once the decision not to replant has been reached, the injury is managed as any other open wound with local anesthesia, wash-out, and closure or partial closure. Follow-up care is managed by the hand surgeon on referral call.

To be effective, the hand referral service must provide 24/7/365 telephone consultation services. We are rapidly approaching the era where tele-radiology and photographic review will become the norm as well. Coordination for follow-up care is agreed upon between the ER physician and the hand surgeon whenever there is a question. “I need to be seen right away” when the patient calls for an appointment is helpful to no one. Notwithstanding, patients are typically anxious to be seen especially if they face surgical intervention for their injury.

Hand Referrals

Evaluation capabilities must be match by OR availability as well. Add-ons must be routine whether surgery is performed in the office, ambulatory center, or hospital operating rooms. Two schedules work: Monday–Wednesday–Friday clinic, Tuesday–Thursday OR, or A.M./P.M. surgery + A.M./P.M. clinic on a daily basis. At the ambulatory center, afternoon block time is more readily available than A.M. time and can be ideally utilized for most hand surgeries. ER physicians must be willing to follow-up crush injuries, infections, and other urgent problems on weekends when otherwise a Friday night incident to Monday follow-up with the hand surgeon would be unacceptable. Hospital admission is always a possibility as well but proves most time consuming to the hand surgeon and is rarely indicated except for medical conditions confounding an urgent hand problem.

Hand Surgeon Considerations

1. Clinical evaluation capabilities within 24–48 h
2. Operative capabilities within 48–72 h (block time)
3. Substantial office staff for unpredictable patient volume management

Legal Considerations

1. EMTALA laws governing the ER
2. The doctor–patient relationship governing the hand surgeon

Financial Considerations

While EMTALA appropriately precludes financial discussion prior to stabilization of an ‘emergency condition,’ once hand problems are managed by the ER under the hand referral policy, they no longer meet the criteria as emergency conditions. This affords a significant opportunity to achieve approvals and make financial arrangements before surgery is performed. Before the hand referral policy went into effect, most surgical work performed in the ER was not reimbursed, paralleling the 41% community no-pay rate for all ER services (55% nationwide). When patients are stabilized in the ER and seen in the office, our absolute no-pay rate has fallen to approximately 5% for operative cases in the first 12 months. None are denied service, but the expectation is that all will pay something, and the office staff works diligently to this end. Social services, vocational rehabilitation, cobra payment, credit cards, churches, family, and friends are all asked to help. County social services accepts referrals routinely determining qualification for assistance based on income and ability. The ‘no-pay’ rate for initial evaluations remains very high, skewed upwards by patients seen in the ER and referred for non-operative problems, whereby they fail follow-up secondary to an expectation for a payment commitment. Non-paying OR cases are paid for by the office in order to maintain the efficiency of the system and are simply considered a necessary cost. Underpayment and payment plans are problematic.

Notwithstanding the EMTALA advantages of the hand referral service, acceptance and evaluation of referred patients establishes the hand surgeon as a treating physician with obligations under the doctor–patient relationship concept.

With 55% of emergency medicine across the nation non-reimbursed and 41% in our SW Florida community, financial considerations become pre-eminent in ones ability to practice hand surgery with emergency referrals. Our community has worked it out as follows:

- Hospital by-laws preclude on-call physicians from using finances as a barrier to the initial evaluation.
- Physicians offer reduced cash up-front fees, payment plans, or referral to social service organizations that assist with payment.

The Problems

- By far and away, the biggest problem with uninsured patients referred from the ER is the heartfelt perception that specialty services are included with their ER visit at no extra charge and that the specialist is paid by the hospital. It is a time-consuming exercise to dispel the

myth. In the not-so-distant past, the hand surgeon reported to the ER to see patients, rendered care at the ER, operated in the inpatient OR suite, and placed at risk time and inconvenience. Now, managing large volume referrals from the ER system in the private office with a private staff, supplies, and outpatient facilities demands very, very careful negotiations, planning, and management.

- Medicaid simply does not pay and has been dropped by most of our community. My experienced office billing staff with a combined 40 years (+) of experience failed to collect a single dollar from Florida Medicaid between 2005 and 2007 when we withdrew from participation.
- Patients falling outside social services criteria for assistance are problematic.
- There are two important components of on-call reimbursement: the physician’s time (nights, weekends, holidays, elective care disruptions) and the physician’s very real out of pocket costs to care for the indigent. Both need to be reflected in on-call reimbursement.
- Outpatient vendors, independently providing medical services in our community, which we utilize for the care of our Hand patients, will not accept non-payers. These include surgery centers, hand therapists, imaging centers, pharmacies, pathology, and anesthesiology. Services requested through the referring hospital, while not requiring up-front payment are often billed to the patient at astronomical ‘usual and customary’ fee schedules and can be subject to collections.

The Partial Solution

- Solve all financial problems up front to the maximum extent possible. Full disclosure is part of the informed consent to treat process. A detailed finance policy as part of patient sign in is essential.
- Offer packaged fees (surgeon, OR, X-rays, rehabilitation, anesthesia, supplies) based roughly on Medicare. Negotiate with vendors to accept this by guaranteeing their payment through up-front collection by the hand surgeon. Our standard financial hardship fee is \$3,500 paid in advance for essentially whatever the patient needs to complete care for a single structure injury or problem treated by surgery in the outpatient setting. This covers much of what we do in hand surgery and is an amount of money that many can produce provided that they do not have to keep paying and paying and paying. We increase the fee slightly for complex problems, and we have had great success with this—everyone paid something and the patient has a financial obligation that is manageable for all but the un-working destitute who somehow fail to qualify for help from social services. Our community is 70% Medicare

anyway, so the ‘subcontractors’ to the ‘general contractor’ hand surgeon are typically amenable given that the hand surgeon’s office is responsible for the cash payment to them.

- Payment plans are plans not to pay. Unless your office is a bank, then lending money to unqualified borrowers without collateral is insane and your hand program will quickly go bankrupt. Our payment plan is a credit card—the patient’s or a patient’s friend. Admittedly, this borrowing is subject to high credit card interest rates, but we have found over many years in practice that low or no interest lending from the office has three undesirable consequences: (1) It elevates non-compliance as patients are asked for money at follow-up; (2) it deteriorates outcomes perceptions because patients will rationalize that if they complain enough or accuse the doctor of malpractice, their bills will be written off; and (3) the administrative work to manage loans is excessive to what can be collected.
- Use outside agencies to economically credential patients. In our county, this is simply “social services.” They post their criteria on the web and pay providers and vendors roughly Medicare rates. Patients from social services fall into one of three categories: (1) qualified—proceed with care; (2) overqualified—proceed with upfront payment, as it is the patient’s choice whether or not to proceed with care just as it is the patient’s option whether or not to fill medical prescriptions. A decision not to proceed is against medical advice, but again, it is the patient’s choice. (3) Unqualified. These patients either do not live in the county or are illegal aliens. In these cases, we offer the standard fee package, transfer to their county or country of residence, or just proceed and pay the bill for them based on urgency, need, and alternatives available.
- Charity is an unquestionable part of hand surgery because the problems are so common. Be prepared to simply guide a number of patients through the system on your personal dime. Vendor expenses come off the top line of course, but your time, when non-reimbursed, is non-deductible. If charity is not part of your medical practice, then hand surgery should not be either. OR fees, anesthesia fees, therapy fees, and supplies make up the bulk of top-line charitable expenses for patient who need care and cannot otherwise pay. A case by case analysis would be necessary to accurately calculate charitable expenses for our practice, but using our global hardship fee of \$3,500 per surgical case, five to ten patients per year are managed without any payment (actual cost to the practice \$17,500 to \$35,000 off the top-line collections); another 25–50 grossly underpay. Charity care is community driven based as much on

demographics as any other factor. Notwithstanding, when patients are stabilized in the ER, wounds managed, pain controlled, and are given an opportunity to participate in paying for a discrete, well-defined medical problem at a rate based on Medicare, most work hard to resolve finances. Few refuse help, but an occasional patient will choose to live with deformity rather than engage elective services.

Outcomes of Hand Referral Policy at 1 Year

- Approximately 1,500 referrals were managed (three surgeons, variable participation).
- Three wrist dislocations and a thumb dislocation required urgent care and were not transferred.
- Three patients were transferred: two replants, one pediatric infection.
- Several amputations were not replantable and were managed per protocol.
- Six hospital administrative complaints occurred: five—financial, 1—“concierge care” family demand to be seen immediately in the ER by the hand surgeon.
- No osteomyelitis was reported in the Ambulatory Surgery Center JACHO report (approximately 2/3 of all surgical case referrals).
- No change in infection rates were reported in Ambulatory Surgery Center JACHO report (approximately 2/3 all surgical cases).

Horizons

Referral monitoring—crippling to a referral system is siphoning ‘payers’ in directions away from the on-call duty roster. Non-payers do not have primary care doctors, established relationships with specialty practices, or group practice affiliations. Unless the ER is willing to commit substantially all referrals to the on-call hand surgeon, participation will dwindle to nil. No on-call reimbursement is high enough to offset practice needs to see payers along with non-payers. Contract hand referral care to solidify the ER referral stream may represent a solution, but in any case, ER referral monitoring is mandatory.

Just as tele-radiology has permitted off-site professional services, digital photography represents an additional communication modality between the ER and hand specialist. Time constraints, archival requirements, and standards are yet to be created.

Finally, transfer agreements for micro-surgery and replantation, if not available within a community, require serious consideration to address medical and medico-legal needs of patients and doctors alike.

Profile: J. Daniel Labs, M.D.

- Board-certified General Surgery (expired)
- Board-certified Plastic Surgery 1994
- CAQ Hand Surgery 1994
- Member: ASPS, AAHS
- Elected Chief Plastics and Hand Surgery, two hospitals (400+ beds) 2003–present
- SW Florida practice in four hospital (two hospital systems) community of 150,000; 41% ER self-pay rate
- 50% Hand; 50% plastics