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Orthopaedic Institute of Medicine

**Report on the
Crisis in the Delivery of
Orthopaedic Emergency Care**

A Call to Action

January 2009

Additional copies of this report are available from the American Orthopaedic Association, 6300 North River Road, Suite 505, Rosemont, IL 60018; 847.318.7330; e-mail: oiom@aoassn.org; Internet: www.aoassn.org.

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FOREWORD

**From the Orthopaedic Institute of Medicine Council Chair,
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In 2006, the American Orthopaedic Association established the Orthopaedic Institute of Medicine (OIOM) Council to provide focused, in-depth, unbiased information and recommendations in regards to issues critical to the discipline of orthopaedics. The OIOM Council focuses upon concerns involving the care of patients with musculoskeletal disease or injury. We work with individuals from other disciplines who share similar concerns. The OIOM Council is composed of individuals from different backgrounds representing orthopaedics, the health care industry, and the legal system who have volunteered to identify and assess the critical issues facing our profession.

Following nine months of study, the Council selected for its inaugural project the looming crisis of Emergency Department (ED) Call Coverage for patients with musculoskeletal injury and related urgent conditions. In June 2007, the OIOM Council appointed a Task Force to study this topic in depth; to analyze all aspects of the challenges surrounding ED coverage including barriers to ED call; to identify possible solutions; and to make recommendations for addressing the crisis.

The activities of the OIOM Task Force represent the most comprehensive approach of this issue to date and the only treatise offering a variety of possible solutions to the crisis of ED Call Coverage.

Orthopaedic Institute of Medicine's Report

INTRODUCTION

Importance and Scope

Patients coming into the emergency department (ED) expect to have 24-hour access to prompt, appropriate, and effective emergency musculoskeletal care, or minimally, orthopaedic assessment and stabilization followed by the initiation of definitive care or transfer (for definitive care) as needed. Patients experience the problem first-hand when local musculoskeletal care is “not available,” and they are transferred to distant locations. Often these transfers occur for conditions that fall under the rubric of “routine” musculoskeletal conditions.

In a survey conducted by the American College of Emergency Physicians, three-quarters of ED medical directors reported that their hospitals have inadequate on-call specialist coverage; these findings were widespread impacting all US geographic regions.¹ Another survey reported that 42% of ED administrators felt that the lack of specialty coverage in the ED posed a significant risk to patients.²

Providing emergency care on an on-call basis has become unattractive to many specialists in critical disciplines such as orthopaedics.³ Historically, ED call coverage was seen as an integral part of the profession of orthopaedic surgery. Many young orthopaedic surgeons were required by hospital bylaws to cover the ED for after-hours emergency care; this service provided a pool of patients from which to develop their professional practices. Subspecialization, managed care, and the increased use of outpatient surgery are among the factors that interrupted this relationship.

A sizable portion of the new generation of orthopaedists is unwilling to provide ED coverage citing conflicts with personal time and concerns about a reimbursement system that provides little or no compensation.⁴ Subspecialty

orthopaedic surgeons (e.g., hand, foot and ankle) perform the majority of their procedures in outpatient facilities. Hospital affiliation is not required for many orthopaedic subspecialists as their patients rarely require hospitalization; they perform surgeries at outpatient surgical centers; and their practices do not rely heavily on the ED for patient referrals. The lack of reliance on a hospital setting allows these subspecialty orthopaedic surgeons to opt out of call responsibilities.

Without routine practice in the ED setting, the necessary skills to treat emergency musculoskeletal cases become less familiar; many general orthopaedic surgeons claim not to be comfortable treating the variety of injuries seen in EDs. The assessment and management of these musculoskeletal traumas are required areas of education and skill development for all orthopaedic residency programs. Since all board certified orthopaedic surgeons must demonstrate competence in the management of most urgent musculoskeletal conditions, it could be argued that a problem of local access to care is more related to a lack of interest rather than a lack of competence on the part of the local orthopaedic provider.

Among those willing to participate in ED call, the financial ramifications of providing ED call coverage often adversely impact their decision to do so. Collecting payment for ED services is difficult as emergency and trauma patients are often uninsured.³ In many cases, the orthopaedist is not only inadequately compensated for providing acute care, but he also suffers financially by providing uncompensated ED care instead of care to other patients from whom reimbursement might be received.

Contributing to the problems associated with on-call trauma coverage by orthopaedic surgeons is the ongoing medical liability crisis.^{4,5} The current liability system and the health care governance agencies in the US neither effectively compensate persons injured from medical negligence nor address system errors (the correction of which would dramatically improve patient safety). The current

medical liability environment has a profoundly adverse effect on those physicians willing to engage in high risk situations such as providing emergency care.^{6,7} In addition, liability risks are increased during the on-call hours due to the seriousness of the ED patient's condition combined with streamlined after-hours emergency staffing and services and fatigue associated with long working hours.

Due to the lack of available and affordable medical liability insurance, physicians have changed their practice patterns, and patients are forced to travel greater distances and wait longer to obtain care. While liability rates have stabilized in the years 2006 to 2008, the premiums remain exorbitant. All physicians have been affected by the medical liability crisis, but "high-risk" specialties (e.g., obstetrics, neurosurgery, and orthopaedic surgery) have been disproportionately affected.⁸ Between 2003 and 2004, double- and triple-digit increases in medical liability premiums were seen across the country.⁹ Thus, declining payments from all sources, an increasing burden of uncompensated ED care, considerable medical liability costs, and the availability of new practice patterns are draining the pool of orthopaedic specialists willing and able to take ED call.

The obstacles to achieving a successful plan for ED coverage by orthopaedists and orthopaedic subspecialties are daunting. Solutions must be tailor-made to meet the needs and optimize the resources of individual communities. The American Orthopaedic Association (AOA) recognizes the significant crisis that exists in the provision of emergency musculoskeletal care. To uphold its commitment to patient access to high quality care and serve in a leadership capacity for the profession, the AOA established an Task Force on Emergency Department Call Coverage in 2008 under the aegis of its Orthopaedic Institute of Medicine (OIOM) to review the scope of this crisis, identify barriers impacting orthopaedic coverage in EDs across the US, and propose solutions that can be adopted at the community level.

GOALS AND OBJECTIVES

The goal of the Task Force was to engage the orthopaedic community in putting forth new strategies to ensure that all patients who require emergent musculoskeletal care have access to appropriate high quality service in the ED.

Essential to the success of this endeavor is the dissemination of the knowledge gained. This report describes the Task Force's findings and recommendations that are pertinent to the field of orthopaedics but also applicable to all specialties. This document is intended to be used to solve problems at the community level associated with the overall issue of specialty ED coverage. The most appropriate and successful solution for a particular community may be different from that in a neighboring community; each community will find the best solution to remove barriers and address this issue in its own individual way. However, there are aspects of this issue for which state, regional, and national action is required to assist communities in identifying and implementing meaningful solutions.

Case studies are presented in Appendix A of this report. These case studies present actual problems and solutions and highlight the need to individualize strategies for resolution. Problem solving must begin locally and must be facilitated by partnerships among local orthopaedic communities, hospitals, third-party payers, and other community stakeholders such as other medical disciplines. However, without national recognition of the importance of these issues, there will be an absence of the support necessary to foster and drive the initiative at the local, regional, and individual provider levels.

METHODS

As its first priority, the Task Force identified the key stakeholders, any or all of whom might be engaged as collaborative partners in working through this crisis. As an additional priority, the Task Force identified core areas that might offer

opportunities for collaboration in addressing this ongoing problem: hospitals, training programs, clinical practices, and health care systems. By identifying barriers to providing high quality orthopaedic services in the ED, the Task Force seeks to engage key stakeholders in a dialogue that will ultimately encourage collaboration and create successful partnerships.

Table 1. Potential key stakeholders for community-level solutions.

Key Stakeholders	Areas for Collaboration
Clinical Leadership	<ul style="list-style-type: none"> • Emergency medicine physicians • Orthopaedic surgeons (academic, community-based nonacademic)
Hospital Leadership	<ul style="list-style-type: none"> • Chief medical officer of the hospital or medical staff • Chairs of departments of surgery and orthopaedics
Academic Health Center Leadership	<ul style="list-style-type: none"> • Hospital president and chief executive officer • Senior management in human resources department • Key nursing personnel
Local Government	<ul style="list-style-type: none"> • Public health agencies • Mayor or selectman of local communities knowledgeable of issues surrounding inter-hospital transfers to deliver acute care outside of the local hospital
Patients	<ul style="list-style-type: none"> • Patient advocates
Payers	<ul style="list-style-type: none"> • Primary local insurers • Local Medicare and Medicaid insurers • National insurers - government and others
Physician Organizations	<ul style="list-style-type: none"> • Leadership from <ul style="list-style-type: none"> ○ Accreditation Council for Graduate Medical Education's Resident Review Committee (ACGME, RRC) ○ American Academy of Orthopaedic Surgeons (AAOS) ○ American Board of Orthopaedic Surgery (ABOS) ○ American Orthopaedic Association (AOA) ○ Orthopaedic Trauma Association (OTA) ○ Pediatric Orthopaedic Society of North America (POSNA) ○ Other physician organizations

SURVEY RESULTS

To characterize and quantify the problem of ED coverage among practicing orthopaedists, the OIOM surveyed the American Academy of Orthopaedic Surgeons (AAOS) membership in May and June of 2008. The survey was designed to capture characteristics of ED coverage, including call frequency, reimbursement, support, and perceptions surrounding barriers to ED call coverage (Appendix E).

Professional Practice and Call Coverage

A total of 1527 AAOS members participated in this survey. Most of the survey respondents were in non-rural community-based practices (general or specialty) with a balanced distribution of specialty type and experience (Table 2)

Reasons for Taking Call. When asked for their reasons for participating in ED call coverage, most (n=800, 72.9%) stated that call was mandated by hospital bylaws. However, about half (n=556, 50.7%) felt it was a personal responsibility to the community to take call, and 38.4% (n=421) felt that ED call coverage was a professional obligation of orthopaedic surgeons (Table 3).

Table 2. Survey respondent characteristics.

Characteristic	n	%
Primary Practice		
Community-based specialty practice	628	41.5
Community-based general orthopaedic surgery practice	613	40.5
Academic/University practice	271	17.9
Service Area of Practice		
Suburban community	674	44.8
Urban community	550	36.5
Rural community	282	18.7
Specialty Practice		
Hand	237	22.3
General	208	19.5
Trauma	188	17.7
Sports Medicine	169	15.9
Spine	68	6.4
Other	194	18.2
Years in Practice		
5 or less	258	17.4
6 to 10 years	264	17.8
11 to 15 years	302	20.3
16 to 20 years	232	15.6
21 or more years	431	29.0

Table 3. Reasons for participating on ED call coverage.

Reasons*	n	%
Mandatory according to hospital bylaws	800	72.9
Personal responsibility to community	556	50.7
Considered a professional obligation	421	38.4
Personal interest in trauma	293	26.7
Other	184	16.8

*Some respondents selected more than one reason.

Call Frequency and Compensation. Only one-third of respondents were first responders (n=334, 30.7%). The frequency of which most of the respondents provided on-call coverage was one in five or more days (n=774, 71.3%) or covered subspecialty call (n=224, 20.6%). Over half (n=621, 57.3%) of the respondents reported receiving no financial compensation for ED call coverage, while 76% considered \$1000 to \$2000 (USD) per 24 hour on-call session adequate pay (Table 4).

Table 4. Reported on-call pay and opinion of pay viewed as adequate.

On-call Pay per 24-hour Session (USD)	Reported Pay		Pay Considered "Adequate"	
	n	%	n	%
No Pay	621	57.3	0	---
\$ 500	54	5.0	65	6.1
\$ 1,000	118	10.9	348	32.4
\$ 1,500	45	4.2	284	26.4
\$ 2,000	18	1.7	189	17.6
More than \$2,000	21	1.9	108	10.1
Other	206	19.0	80	7.4

Issues Surrounding Call Coverage

Nearly 70% (n=1019, 68.9%) of respondents viewed orthopaedic ED coverage in their community as problematic. Seventy-five percent (n=1097, 74.7%) reported that they participate in general orthopaedic call. Of these, 90% stated that problems surrounding ED call coverage affected them individually and in their practice.

Hospital Resources. Of the 1097 respondents reportedly participating in ED call coverage, few stated that the hospital provided critical resources to facilitate care: support with a daily fracture operating room (OR) (n=192, 17.5%); mid-level support (physician assistant or nurse practitioner) (n=193, 17.6%); or subsidization of indigent care (n=143, 13.0%). Over half (n=865, 61%) did not feel that it was necessary for an orthopaedic surgeon to assess a patient prior to transfer to a higher-level hospital. Most respondents stated that the hospitals requiring ED call coverage should provide compensation for care to uninsured patients (n=919, 83.8%); daily OR time for urgent cases (918, 83.7%); and ancillary health care providers to assist in ED care (n=759, 69.2%).


Regionalization of Fracture Care. About one-third (n=540, 37.5%) of respondents favored regionalization of fracture care in their community, i.e., after-hours fracture care would only be provided at a single hospital or set of hospitals in a city or region.

Skills and Training. Regarding skills and training, over 80% of respondents (n=1167, 81.4%) felt that their current practice profile provides them with adequate skills and training to participate in acute musculoskeletal care. Most respondents (1062, 74.3%) did not support allowing general surgeons, who are appropriately trained in fracture management, to participate in general orthopaedic call at their hospital.

Barriers to Call Coverage by Orthopaedic Surgeons. Survey respondents from the OIOM survey provided barriers to ED call coverage (Table 5) and actions that would make call more acceptable (Table 6).

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Table 5. Major barriers to orthopaedic ED call coverage.

Barrier	Score (1 to 7)	Most Important
Disruption of surgeon's lifestyle and family life	2.49	
Inadequate compensation from hospital for call coverage	2.90	
Disruption of elective orthopaedic practice	2.92	
Monetary impact of high volume of uninsured patients	3.21	
Increase professional liability risk	3.41	
Other	3.42	
Surgeons have received inadequate training to manage the majority of cases encountered on-call	5.34	

*Respondents were asked to select all that apply and rank in order of importance where 1 is the *most important* and 7 is the *least importance*.

When asked if they felt that the creation of an orthopaedic fracture service staffed by hospital-paid orthopaedic surgeons would benefit ED call coverage and help the problem, 68% (n=963) stated that it would be helpful.

Table 6. Actions that would make call coverage more acceptable.

Action	n	%
Subsidization for indigent care	1112	72.8
Limited non-economic damage tort reform	1000	65.5
No fault malpractice insurance	948	62.1
Fully equipped OR for fracture management	627	41.1
Catastrophic health care coverage	341	22.3
Universal health care insurance	304	19.9

*Some respondents selected more than one choice.

Professional Credentials. Thirty-five percent (n=503) of respondents favored prohibiting candidates from taking Part II of the American Board of Orthopaedic Surgery (ABOS) certification exam if they did not participate in ED call coverage. (Part I is a written examination; Part II is an oral examination with case presentations of recent surgeries and independent review. Both parts are required for ABOS certification.)

The ABOS Credentialing Committee has revised the peer review evaluation to include issues pertaining to professional responsibilities for patient care. The candidates for certification and recertification/maintenance of certification will now be evaluated for their participation in emergent and indigent care

responsibilities by both their peers and the directors of the EDs at their hospitals. Most of the OIOM survey respondents (n=1049, 74.5%) were not aware of the revision; support was split: 45% (n=637, 45.2%) supported the change; 55% (n=771, 54.8%) did not.

Barriers to Patient Access to Orthopaedic Emergency Care

The OIOM Council Task Force on ED Call Coverage reviewed the OIOM survey data and peer-reviewed literature and consulted with experts in government and health care administration and clinical orthopaedic practices. The Task Force deliberated and reached consensus on the major barriers to ED call coverage. The following barriers emerged: lifestyle/time away from family; poor reimbursement; increased liability risk; medical practice issues (e.g., disruption of elective practice, movement to entirely outpatient practice); lack of comfort with skills needed for ED cases; and inadequacies of hospital emergency care delivery (e.g., inadequate resources: staff, equipment, OR availability, facilities, and systems of care). Potential solutions to these barriers impact social, professional, and financial aspects of our current system; these are listed in Table 7. Nine case studies, provided in Appendix A, represent real-world solutions that are currently operational.

From the OIOM survey, it appears that half of the orthopaedic surgeons believe participation in ED call coverage is a responsibility to their community, but only one-third believe it is a professional responsibility. Seventy-five percent of the OIOM survey respondents reported that they participated in general orthopaedic ED call coverage. However, more than two-thirds indicated that there was a problem with orthopaedic ED coverage in their communities, and 90% of the respondents indicated that the problem affected their professional practice.

Participants in the OIOM survey, described lack of compensation for ED call coverage as a major barrier; 73% answered that subsidization of indigent or self

pay emergency patients would make call coverage more acceptable. More than 60% felt that malpractice reform would make ED call coverage more acceptable. Upon review of the comments provided by survey respondents, a theme emerged which characterized the treatment of the ED patient as a “second class citizen” in the health care hierarchy.

Table 7. Areas of impact involved in solutions for ED call coverage.

<i>Areas of Impact</i>
Social
1. Improved Delivery of Emergency Care
Professional
2. Physician Leadership
3. Education and Core Competences
4. Hospital Resources for Orthopaedic Emergency Care
5. Collaboration with Other Organization
Financial
6. Reimbursement for Services: Orthopaedic Surgeons and Hospitals
7. Tort Reform
8. Third-party Payers as Community Participants in Generating Solutions

Ideally, all stakeholders, such as those described in Table 1, should lead efforts to improve orthopaedic call coverage in the ED. However, solutions to these problems are complex and require change at many levels. Recommendations from the Task Force address these barriers with potential solutions, and emphasize that most solutions must be individualized at the local level.

RECOMMENDATIONS

All communities should identify those responsible for emergency musculoskeletal care at both the individual hospital level and the local community level. This includes the recognition that some patients will require care from a higher-level trauma center. However, the great majority of musculoskeletal emergencies—compartment syndromes, open fractures, badly displaced fractures with skin compromise, septic joints and joint dislocations—should receive initial care locally. In some settings, this initial care will simply require an intervention at the

time of ED presentation with definitive care provided on the following day by another member of the orthopaedic community.

Included in the planning for ED orthopaedic care should be the recognition that, without training and recent ED experience, an orthopaedist may lose proficiency in the management of some of these emergent musculoskeletal conditions.

Communities should consider implementing a local solution to cover these cases, such as a separate orthopaedic call coverage plan for spine, hand, and pediatric emergencies. However, the orthopaedic surgeon on-call should assume direct responsibility for each patient, and either perform the necessary emergency intervention or be responsible for direct communication with a referral doctor to facilitate transfer of care. The important issue is the recognition of responsibility of the local orthopaedic surgeon, rather than the ED physician, for the patient's orthopaedic care.

Emergency department care is largely directed by specialists in the field of emergency medicine. When additional specialty care is required, the responsibility is shifted to the specialist, typically the on-call specialist, and this responsibility involves providing care to the patient in a timely manner. This disconnect often creates a conflict at the hospital resource level. Most hospitals are seeing their operating margins squeezed by decreasing government and third-party payer reimbursement compounded by rapidly increasing health care costs. To remain solvent, the hospital must focus (primarily) on the support of more predictable and financially secure areas of elective surgery and quality of life care; and thus, hospitals are less able to direct similar levels of support to the unpredictable needs of the emergency patient. Specialty care of a patient with an acute musculoskeletal condition must wait until after the delivery of quality of life care for another orthopaedic patient. These issues arise from a health care delivery system that is not in tune with needs of patients or orthopaedic surgeons.

The Orthopaedic Institute of Medicine Council presents the following overarching recommendations to help to resolve the looming crisis in orthopaedic emergency department call coverage. In each community in the US, orthopaedic surgeons, in partnership with hospitals and other stakeholders, such as acute care surgeons, neurosurgeons, and trauma surgeons, should discuss, identify, and implement a solution to this issue. The goal will be to ensure that the COMMUNITY provides access to appropriate emergency care for most musculoskeletal conditions for all patients in that community. The solution in each community will be unique and determined by the identified issues that must be overcome in that community's medical environment. If orthopaedists work within their communities to develop a proactive strategy, patients, physicians, and all stakeholders will benefit. Modifications must be made at the state, regional, and national levels to assist in removing barriers that are presently challenging access to emergency musculoskeletal care in EDs in many communities. Such modifications will assist individual communities in implementing successful solutions to this issue.

Through the work of the Task Force, it has become clear that solutions to this crisis must involve all relevant stakeholders beginning at the community level. It is the position of the Task Force that ALL members of the orthopaedic profession, regardless of whether they ultimately participate in ED call coverage, participate in developing a solution that provides all members of the community access to high-quality, emergent musculoskeletal care.

1. Delivery of Emergency Care

To ensure that all patients in a given community who require emergent specialty care receive appropriate care in the ED, a formal community plan is required. This plan expands upon existing on-call lists that are utilized to organize ED care in individual hospitals. The involvement of key community stakeholders (i.e., hospital systems, government, insurance carriers, and physicians (Table 1)) is

critical. Stakeholders must acknowledge that patients presenting to the ED are entitled to the same quality of care as elective surgical patients. Patients requiring urgent care should not be denied care in the ED because of unavailable physicians or hospital resources (i.e., ORs, hospital beds, or diagnostic studies).

The Centers for Medicare and Medicaid Services recommend that hospitals develop and participate in a formal community-level on-call plan.¹⁰ Individually, communities develop policies and procedures whereby patients requiring emergency specialty treatment receive care when an appropriate specialist is unavailable. For example, specific orthopaedic surgeons could be designated as the on-call physician; through collaboration with members of their practice and with other surgeons, their sole responsibility would be emergency care.

The development of a community call plan represents a major step in improving the collaboration between hospitals and the physician community. However, without acknowledgment that the delivery of emergency care must change, solutions become harder to implement. All stakeholders will need to be innovative and cooperative to build and implement a successful community plan.

Regarding the delivery of emergency department care, the Orthopaedic Institute of Medicine recommends:

1. Communities ensure all patients have access to readily available orthopaedic surgical consultation in the emergency department.
2. Hospitals streamline processes so that emergency patients are prioritized to receive inpatient diagnostic procedures and treatment promptly.
3. Communities create community-wide teams to evaluate musculoskeletal emergency care. Hospitals, physicians, community leaders, and other stakeholders should assess the need and demand for local services and then recommend and champion the development of programs to meet these

community needs. Orthopaedic transfer agreements (Appendix B) may be included.

4. Hospitals provide the readily available resources that are needed to administer appropriate care to patients with urgent musculoskeletal conditions. At minimum, this should include the provision of prompt diagnostic testing and imaging services, the availability of hospital inpatient beds, and the guarantee of appropriate OR time and adequately trained OR personnel. All such resources should be dedicated to providing care to urgent patients without disrupting or displacing the elective schedule.

2. Physician Leadership

Simply stated, the attitude of orthopaedic surgeons surrounding participation in ED call coverage must be addressed. Based on the OIOM survey, 51% of respondents recognize ED call coverage as a personal responsibility to one's community, yet only 38% view it as a professional obligation of orthopaedic surgeons. Many survey respondents (73%) participated in ED call coverage and indicated that they were required to do so by their hospitals.

Attempts to establish standards of professionalism (SOP) for emergency care have been universally unsuccessful due to the orthopaedic surgeons' concern that they cannot uphold these standards until the local and national barriers to providing ED call coverage are resolved. Within the AAOS, two different project teams have made recommendations on emergency care including the development of SOPs.¹¹ However, the impact of these standards is questionable; the problem is so large that a multidisciplinary approach is needed.¹¹ Additionally, many orthopaedic surgeons are concerned that an SOP may be used in a coercive manner to force surgeons to participate in ED call coverage.

Given the highly varied training, interests, and specialization among orthopaedists, it is generally acknowledged that not all orthopaedic surgeons are similarly proficient in all aspects of the core competences of orthopaedic surgery. However, all board certified orthopaedic surgeons should be able to provide knowledgeable consultation in a timely and appropriate manner in response to a request from an ED. The specific surgical skills required to adequately cover emergency care are inadequately defined. Furthermore, the question of whether all orthopaedic surgeons must maintain these skills throughout their career is similarly unanswered.

Some circumstances are generally considered acceptable for not participating in ED call coverage: age and length of service (defined by local standards), administrative responsibilities, departmental guidelines, specialty, and contractual arrangements. All such exemptions from call coverage should be agreed upon at the community level and based on objective criteria set forth by a community of hospitals and physicians. Similarly, hospitals should not develop bylaws mandating the physician workforce to provide services that are unreasonable, excessive, or beyond the scope of their skills. The orthopaedic profession is obliged to maintain the professional qualities of orthopaedic surgery; this must include recognition that ED call coverage is a responsibility of the profession for which certain skills must be maintained.

Another area that will require a universal approach is the changing pattern of practice and demands of the new generation of orthopaedic surgeons. Respondents to the OIOM survey ranked disruption of lifestyle and family life as the highest-ranked barrier to participating in ED call coverage. The third-highest ranked barrier was disruption of the surgeon's elective practice. The long-term effects of the 80-hour resident work week have yet to be seen. Will this limit on the hours worked in residency follow through into a surgeon's practice and eventually decrease the amount of time that any one surgeon will be willing to

work? Further, should there be legislation, based on similar concerns for errors due to sleep deprivation, to limit the hours of an orthopaedic surgeon's practice, recognizing that the excessive work hours are due to participating in ED call coverage?

Orthopaedic surgeons are ultimately the most qualified, capable, and cost-effective providers of musculoskeletal care. If orthopaedic surgeons, as a profession, neglect the needs of our communities, they risk losing their social contract and professional stature in the community.

The previous generation's philosophy of "work first, family second" appears to be a rapidly fading paradigm. Surgeons no longer need to be in attendance at the ED to build their practices. The growth of independent surgical centers provides surgeons with a viable work place and no need to commit to ED coverage. Moreover, managed care organizations frequently direct insured patients away from the on-call physicians to other physicians; these actions have taken away another previous incentive for young physicians to take call and build their practices. For these and other reasons, the number of surgeons available for ED call has decreased.

Involving orthopaedists in leadership roles to collaboratively solve local issues of orthopaedic health care delivery will benefit the hospitals, the orthopaedic surgeon community, and ultimately, the patients. At the Scripps Institute in San Diego, the hospital and physicians established a Physicians Leadership Cabinet to address mutual problems, the first of which was ED call coverage reimbursement. According to Mr. Chris Van Gorder, President and Chief Executive Officer of Scripps Health, "Physicians and administrators as adversaries is a no-win position."¹² The Institute formed a task force of physicians and administrators to review the hospital's financial information jointly. With both physicians and administrators evaluating the same information, the

task force developed shared goals and conclusions leading to an ED compensation and coverage package acceptable to both groups. Scripps is currently operating under a mixed model that includes both stipend and fee-for-service components. However, Scripps is evaluating a new model involving a contractual relationship with a large multispecialty group to manage all on-call scheduling and ED call coverage for a fixed monthly fee. This arrangement includes quarterly incentive payments upon meeting jointly established and agreed-upon quality indicators.

Orthopaedic leadership is critical to developing creative and collaborative relationships with the goal of providing high quality care to patients with urgent musculoskeletal conditions. The orthopaedic community must recognize the importance of their involvement as decision-makers. Individual responsibility is essential to success; therefore, leadership training may be beneficial.

Regarding physician leadership, the Orthopaedic Institute of Medicine recommends:

1. All orthopaedic surgeons have a professional obligation to ensure that there is a system in their community whereby all patients have access to timely and appropriate high quality emergency musculoskeletal care.
2. The orthopaedic professional organizations have a responsibility to establish professional guidelines to ensure that emergency musculoskeletal care is available to all patients requiring it.
3. The orthopaedic community must work collaboratively and constructively with hospitals and other stakeholders to ensure that, in each community, all patients receive timely and appropriate care for urgent musculoskeletal conditions.

Refer to Case Study 1 (Appendix A).

3. Education and Core Competences

Musculoskeletal emergency care is a core component of orthopaedic surgery education and training. After successful completion of an orthopaedic surgeon's training, the individual is assumed to be competent in managing the urgent care needs of all patients presenting to an ED with musculoskeletal conditions. This assumption is further verified through the certification process of the ABOS, whose written examination covers core subject areas in orthopaedics including care of patients with urgent conditions.

The training and certification process for orthopaedic surgery produces a surgeon who is competent in the management of musculoskeletal emergencies; however, this may not be true for all orthopaedists once they establish their subspecialty practices. Consequently, many orthopaedic surgeons feel that some of their skills, especially those required for emergency conditions, have eroded with time leaving them uncomfortable handling the orthopaedic emergency patient. However, in the OIOM survey, only 19% of respondents felt they lacked adequate training and skills to participate in acute musculoskeletal care. Additionally, when asked to rank major barriers to covering call, the lowest ranking (least important) barrier was "inadequate training to manage the majority of cases encountered on-call." Yet, anecdotally, "lack of necessary skills" is the reason most commonly heard at academic medical centers when accepting transfers from community hospitals.

Since it is clearly recognized that not all orthopaedic surgeons are equally competent in all areas of musculoskeletal care, the issue related to ED call should not be framed in terms of expecting every orthopaedic surgeon on the call panel to be equally competent at providing care for every urgent musculoskeletal

condition. Instead, the issue should be framed in terms of what core competencies orthopaedic surgeons need to possess to provide appropriate initial care for all urgent musculoskeletal conditions, as well as, definitive care for some of the more common urgent musculoskeletal conditions. For example, definitive care for the highly complex spinal fracture will generally be performed by a spinal specialist, yet any orthopaedic surgeon should possess and retain the core competency to provide initial care for such a patient before referring to the spinal specialist. Conversely, all orthopaedic surgeons should be competent at diagnosing and treating compartment syndrome of the leg. The diagnosis is straightforward; the surgical treatment is simple; and delay in care can be disastrous for the patient.

The orthopaedic community has yet to specifically identify the basic core competencies that every orthopaedic surgeon should maintain and the conditions that every orthopaedic surgeon should be able to manage definitively. This needs to occur. Appropriately targeted continuing medical education directed at maintaining these core competencies should be routinely available. The community should also seek consensus opinion on the care that should be provided locally and the conditions for which expertise is not locally available.

One method to facilitate community-wide participation is the use of transfer agreements. Such agreements are in place in many communities and academic medical centers. Transfer agreements facilitate call coverage participation by orthopaedists by precisely defining expectations and providing a “safety net” for conditions that clearly require subspecialty care. Specifically, transfer agreements delineate who will participate in ED call coverage; which conditions will receive definitive care by the on-call orthopaedist; which conditions will receive stabilizing care with subsequent referral to a subspecialist in the community (i.e., spinal fractures); and which conditions will receive stabilizing care and subsequent transfer to a designated trauma center.

In this era of orthopaedic subspecialization, a potential solution may be the development of a new subspecialty in orthopaedics, the acute care orthopaedic surgeon, whose sole responsibility is the management of emergency musculoskeletal problems such as septic joints, fractures, and dislocations. Orthopaedic traumatology is an existing subspecialty area involved in complex fracture care but not in the management of acute musculoskeletal conditions other than trauma. The acute care orthopaedic surgeon would be required to manage these acute musculoskeletal cases and provide the community-based orthopaedic surgeon with necessary support, making call less disruptive to life and professional practice. For this plan to be successful, the issue of payment for services must also be addressed. Additionally, it will be imperative that hospitals provide the appropriate infrastructure to allow this new orthopaedic specialist to effectively deliver this type of care. The required number of acute care orthopaedic surgeons would be determined by the community size, the injury incidence rates in the community, and the number of available orthopaedic surgeons and their interest in ED call coverage.

Regarding education and core competences, the Orthopaedic Institute of Medicine recommends

1. The American Board of Orthopaedic Surgery and the Accreditation Council for Graduate Medical Education's Residency Review Committee define core competences for the care of urgent and emergent musculoskeletal conditions; delineate specific conditions that can be definitively managed; and propose methods for maintaining these core competencies. As part of this process, these organizations should consider the role of community orthopaedic surgeon's practical experience.
2. The Orthopaedic Institute of Medicine supports continuing data-driven efforts to better define minimal criteria for general musculoskeletal emergency care and community care of transfers.

3. Continued evaluation of the community emergency musculoskeletal needs must be done to best define the core competences and case mix. This evaluation will develop a basis for transfer criteria that will allow the appropriate management of the orthopaedic emergency department patient.
4. The American Board of Orthopaedic Surgery and orthopaedic training programs assess the feasibility of developing a training program for an acute care orthopaedist.

Accredited orthopaedic residency programs combined with the certifying board examination process provide the public with the knowledge that each board certified orthopaedist, at the time of certification, possesses competence in the core clinical and surgical areas (Table 8). These core competences are generally considered skills that all orthopaedists should maintain and update throughout their careers; these skills should also qualify most orthopaedic surgeons to provide ED coverage. However, only 81% of the OIOM survey respondents reported that their practice profile provides adequate skills and training to participate in acute musculoskeletal care. The remaining 19%, albeit a minority, represent a sizable reduction of the available pool for skill-based reasons.

Table 8. Core clinical and surgical competencies.

Core clinical and surgical competencies post-board certification*
1. Assessment and initial or definitive care of <ol style="list-style-type: none"> a. Soft tissue extremity wounds b. Infections involving the soft or muscular tissues c. Infections involving orthopaedic specialty-related bones and joints
2. Fasciotomies for compartment syndrome
3. Reduction of dislocations
4. Closed reduction and splinting, traction or external fixation of fractures
5. Operative treatment of common fractures (ankle, hip, radius / ulna, wrist) when indicated
6. The operative treatment of femur and tibia fractures with the appropriate resource

*These core competencies were proposed by the AAOS SOP committee.¹¹

The disparity expressed by community orthopaedists between the “core competencies” and the care provided in a subspecialty practice is concerning.

The less often an orthopaedic surgeon performs a specific procedure, the less adept he/she becomes in performing that procedure. Additionally, in this era of super-subspecialization, it is unrealistic to expect all orthopaedic surgeons to perform all emergency procedures with a comparable level of competence. This problem may be more significant for younger orthopaedists, as many of the older physicians are general orthopaedists who are less likely to have narrowed subspecialties and who might feel more comfortable with most aspects of ED call. However, younger orthopaedists are closer to their training and should be more comfortable with managing these patients. Conversely, older surgeons may feel uncomfortable providing potentially “outdated” care; and because of potential liability issues, they may elect not to participate in ED call coverage.

The issue of ED call may be more critical in rural or suburban areas than in urban environments. In rural areas, there may be a single hospital in the community. In urban areas, there are usually multiple hospitals, at least one of which provides after-hours musculoskeletal care. The solo rural orthopaedist cannot be expected to function 100% independently in ED call coverage. Rural areas often have fewer available orthopaedic surgeons to share the call burden; the high-energy trauma patient may not be best managed in a small community hospital without the resources necessary for optimal treatment. Urban centers are impacted by the rural call coverage situation; routine musculoskeletal care is often shifted to the urban centers due to this lack of call coverage in the rural hospitals. These rural to urban transfers, in turn, can compromise available hospital beds at urban centers and reduce access for the more severely injured patients requiring tertiary care. Furthermore, transfers add to the cost of care; four of the most common orthopaedic conditions seen in the ED—fractures, sprains and strains, and open wounds—are ranked among the top ten most costly conditions in the US.¹³

Innovative solutions must be developed to organize a system that will support orthopaedists who are hesitant to provide ED call coverage, because they no longer feel comfortable and competent in providing such care. To be effective, these solutions should specifically address the controversy concerning who is “capable” of appropriately managing emergent musculoskeletal conditions in the ED.

Refer to Case Study 2 (Appendix A).

As residents complete fellowships and subsequently narrow their scope of practice to a subspecialty, their skills in managing emergency cases will diminish with diminishing exposure to emergency cases. However, if there is an expectation known from the beginning of their practice, that they would be occasionally responsible for managing emergency cases, they would find a way to remain current within this particular clinical setting or ensure that a tiered call system was in place.

In the current environment of competitive health care, cooperation among rival surgeons, orthopaedic groups, and hospitals can be challenging. Even within orthopaedic practices, the concept of one partner partially subsidizing another for provision of emergency care may be met with resistance by the high-volume, high-revenue practitioner. However, the management of the orthopaedic emergency patient differs in many ways from the management of patients seen in an elective practice. For an orthopaedic practice to be successful and efficient, someone in the practice must be available for the emergency cases.

Subspecialists need to recognize this community responsibility, and if they do not want to invest the time to maintain competency for coverage of ED cases, their support to others should be provided either financially or through allocation of dedicated OR resources.

In summary, it is not necessary to encourage additional clinical training for those surgeons who are not interested in caring for the emergency cases. The lack of interest will be readily apparent regardless of the level of training. It is better to create a mechanism by which those who are not interested in accepting this responsibility provide support for those who are interested. Similarly hospitals within a specific region should work collaboratively to address these issues and, in cooperation with orthopaedists within that region, develop a call plan for emergency care.

Refer to Case Study 4 (Appendix A).

4. Hospital Resources for Orthopaedic Emergency Care

For optimal care of the musculoskeletal emergency patient, hospitals must provide adequate and appropriate resources to allow the orthopaedic surgeon to provide quality care without disrupting the routine elective practice of other surgeons or the hospital. Surgical cancellations, treatment delays, and potential errors due to excessive work hours should be avoided. A successful system requires that organizations representing hospitals, physicians, the federal government, and third-party payers understand the need for available resources and for local cooperation among hospitals.

In the OIOM survey, 84% of respondents support the availability of an OR on a daily basis for urgent cases. However, only 18% have such availability in their hospitals, and only 18% have mid-level support (nurse practitioner or physician assistant). Orthopaedists cannot provide appropriate ED care to patients if hospitals do not provide the basic resource of well-staffed and equipped ORs during the day for emergency care. Designated daytime orthopaedic ORs for emergency care have been shown to greatly improve the safety and efficiency of patient care. Bhattacharyya et al. conducted a retrospective study examining OR efficiency before and after implementation of a dedicated, unbooked trauma OR

for urgent and semi-urgent cases from 7:45 a.m. to 5 p.m.¹⁴ They found that a designated orthopaedic trauma OR suite decreased OR overutilization, decreased the numbers of surgeries for hip fractures performed after 5 p.m., and decreased surgical time particularly for closed femoral nailings. Importantly, complications in hip and femoral fracture surgery were significantly reduced. Wixted et al. confirmed the dramatic decrease in the number of after-hours orthopaedic surgery performed at a level I trauma center after implementation of a dedicated orthopaedic trauma OR.¹⁵ Complimentary benefits included fewer disruptions to the normal daily OR schedule and office hours and more frequent fracture care by subspecialty orthopaedic traumatologists. The impact of a longer delay from admission and to surgical treatment and more frequent transfer of care between surgeons deserves further evaluation.

When a designated orthopaedic trauma service with access to a daily orthopaedic trauma OR was implemented at a level I academic medical center, a prospective evaluation of the department's revenue the following year revealed a substantial improvement in collections.¹⁶ This was attributed, in part, to the lack of disruption of elective practices while facilitating the acute care of musculoskeletal emergencies. Additionally, the surgeons saw improvements in patient care, and their individual practices benefited from fewer disruptions. Similar recommendations have been made by the American College of Surgeons (ACS) Committee on Trauma and the Orthopaedic Trauma Association (OTA). The OTA has developed a list of essential supporting resources for optimal care of patients with musculoskeletal injuries; these resources involve staffing, staff development, space, equipment, and supplies (Appendix C).¹⁷ Support personnel, adequately trained in fracture care, must be available to assist thereby reducing disruption in the surgeon's practice and lifestyle. National leadership groups, in concert, should promote these concepts to other medically aligned associations to make them aware of these needs at a national level. With national support, the local resolution of these barriers will be easier.

Another potential solution is the development of an orthopaedic hospitalist, an orthopaedic surgeon hired by the hospital to handle the specific area of orthopaedic ED call and other acute emergent musculoskeletal problems. Among OIOM survey respondents, 68% thought that the creation of an orthopaedic fracture service in their hospital would improve the ED call situation. To accommodate these changes, it will be necessary to change practice patterns to better-defined scheduling and perhaps, introduce shift work with call coverage limits of 8 to 12 hours per day. A shared call system would be beneficial in assuring defined call days and time requirements, allowing for a better-organized lifestyle and professional practice. If coupled with a hospital-based orthopaedic emergency service, most orthopaedic surgeons would likely be willing to participate in ED call coverage. For this to occur, there must be a change in philosophy and priorities in orthopaedic surgery; this change must be transmitted to the specialty physicians and other stakeholders.

The best system in each community is that which is developed in cooperation with the local orthopaedic surgeons and which is agreeable to both the hospital and the surgeon. Enforced solutions tend to fail due to lack of cooperation between the stakeholders. Although the possible solutions are numerous, at least six solutions are presently functioning successfully in various communities in the US; these solutions are listed in Table 9.

Table 9. Hospital-supported ED call coverage models

Hospital-supported models	
1	Community-based orthopaedic surgeons who have committed to the hospital to run an orthopaedic trauma service. The system is coordinated by an orthopaedic trauma director who is also financially supported by the hospital. Call coverage for the management of non-traumatic emergencies by orthopaedists who are not part of the trauma panel is separate from trauma call. ¹⁸
2	Community-based orthopaedic traumatologists who contract with the hospital to cover the hospital's ED patients.
3	Hospital-employed orthopaedic tramatologist who works with local community orthopaedists to provide emergency coverage and support for complex cases.
4	Full-time employment of hospital-based orthopaedic traumatologists who provide all of the care and call coverage (i.e., the typical academic medical center model). There may be additional call coverage by non-trauma orthopaedists. In this system, the orthopaedic traumatologist generally manages all orthopaedic ED cases.
5	Using physician extenders as the "first line of defense" to stabilize patients (when appropriate and in coordination with the on-call physician) until the physician arrives. This solution may be attractive to smaller community hospitals or in communities where a specialist must cover more than one hospital.
6	Hospital-to-hospital contracts to supply acute orthopaedic coverage via telemedicine so that uncovered call periods can be managed trough a triage system eliminating unnecessary transfers.

Regarding hospital resources for orthopaedic emergency care, the Orthopaedic Institute of Medicine Council recommends

1. Hospitals follow the recommendations of the American College of Surgeons and Orthopaedic Trauma Association to provide the necessary resources for the orthopaedist to provide surgical and non-operative care to their emergency patients.
2. Hospitals provide dedicated daily operating room time for the management of musculoskeletal emergency cases. The amount of dedicated time allocated should match the average daily volume of such cases in the hospital.
3. Hospitals should make available the necessary operative equipment and surgical implants for the orthopaedist to provide appropriate care.
4. Hospitals should provide qualified staff to assist in performing urgent musculoskeletal surgical cases.

5. Hospitals should collaborate with local orthopaedic surgeons to develop an effective and viable orthopaedic emergency department call system.
6. Hospitals and orthopaedic surgeons work together to establish meaningful transfer agreements between institutions to assure the best care for the patient and eliminate inappropriate referrals.
7. Orthopaedic surgeons meet the expectations for patient care outlined in the recommendations of the American College of Surgeons, the American Academy of Orthopaedic Surgeons, and the Orthopaedic Trauma Association.

Refer to Case Studies 1, 3, 4, 7, 8, and 9 (Appendix A).

5. Collaboration with Other Organizations

For many orthopaedic subspecialists, burdensome call responsibilities represent a potential disruption of their elective schedules. This perceived barrier to ED call coverage might be translated into a solution by creating multiple levels of orthopaedic call such as spine call, hand call, non-trauma call, or floor call.

Other surgical specialties, such as neurosurgery, hand surgery, plastic surgery, and ear, nose, and throat surgery, have identified this same issue of ED call coverage. For example, there is a shortage of neurosurgeons nationally, and many are voluntarily relinquishing their privileges or components thereof (such as intracranial work or spine surgery) to avoid call burden.¹⁹ This creates an identifiable societal issue as the outcomes of treatment of intracranial pathology worsen the longer the condition exists.²⁰ This highlights the necessity of communities to plan for emergency care based on the local resources available and not on those readily available at each hospital.

Increasingly, pediatric orthopaedic practices are located in urban pediatric specialty hospitals. As such, the majority of pediatric emergencies occurring in all communities are being transferred to the urban pediatric specialty hospitals. Conversely, hand surgery emergencies are often covered by three different surgical specialties: orthopaedics, plastic surgery, and general surgery. This flexibility facilitates a more tolerable distribution of the emergency burden.

General trauma surgeons are also experiencing problems with ED call coverage and have initiated the development of a new subspecialty devoted to acute care. With the advent of this initiative, acute care surgeons have expressed the desire to be involved with the initial evaluation and stabilization of patients with musculoskeletal injuries. At many hospitals, acute care surgeons are receiving stipends for providing the initial evaluation and emergent care of general and multiple-discipline trauma cases. In some situations, they are available on the premises to provide immediate care. If orthopaedists are to continue to be recognized as the experts in musculoskeletal care, they must be willing to deliver high quality emergency care for musculoskeletal injuries.

Through their residency training and subsequent clinical experience, orthopaedic surgeons are clearly the best qualified in the delivery of care for musculoskeletal injuries. To that end, it is the responsibility of the orthopaedic community to ensure that patients requiring acute orthopaedic care receive treatment in a timely manner by professionals trained to respond to their needs. If there is an orthopaedic ED call coverage problem due to the nuances of local ED call demands and/or the lack of available orthopaedic surgeons to treat these cases, orthopaedic surgeons in these communities should take a leadership role in crafting a solution. Solutions may involve any combination of the suggestions listed in this report, and will require collaboration or co-management with other appropriate specialists, hospital administration, and other local community leaders to define a solution.

A recent change to the Federal Emergency Medical Treatment and Labor Act (EMTALA) allowing communities to develop a “Call Plan” should be an addition that will facilitate the development of logical and thoughtful solutions to these issues facing hospitals, specialists, and patients. To facilitate the implementation of these recommendations and to support the orthopaedic community in developing a proper approach to emergency room coverage, a resource center will be necessary. This center would be responsible for the gathering of the different solutions to this issue from different locales and for disseminating this information to groups interested in developing new approaches. It will also be necessary for this center to promote these solutions to the other stakeholders in the health care field. The center’s responsibilities would include research and development of future ideas in this area. Such center would also have a consulting role to help individuals, groups, hospitals, and local and regional health care groups solve their ED call coverage issues.

Regarding collaboration with other organizations, the Orthopaedic Institute of Medicine recommends:

1. The American Orthopaedic Association considers establishing a resource center for the orthopaedists to use to help in resolving this crisis.
2. The American Orthopaedic Association work with other organizations, such as the American Hospital Association, the American College of Emergency Physicians, the American Academy of Orthopaedic Surgeons, the American College of Surgeons, the American Board of Orthopaedic Surgery, and orthopaedic specialty societies, at state and congressional levels, to increase awareness and produce results that will further support community based-solutions to this crisis.

6. Reimbursement for Services: Orthopaedists and Hospitals

There is growing concern over reimbursement practices for providing ED call coverage. The Federal Emergency Medical Treatment and Labor Act requires hospitals provide services to ED patients if the needed services are available at the hospital regardless of patients' financial means. This regulation illuminates the need for a national or state program to ensure that the orthopaedist and the hospital are paid for care of the ED patients with musculoskeletal conditions. Numerous possible approaches to the issue of reimbursement exist; several are in use in various communities in the US. Possible approaches to the issue of reimbursement include:

- *Local improvements in compensation.* Local solutions, such as improvements in ED call compensation, could be accomplished through hospitals and regional funding agencies. The most common form of compensation is a stipend or an hourly rate for providing ED call coverage. Professional fees generated on-call are usually retained by the physician (99% of the time in orthopaedic surgery).²¹ Other options include:
 - Stipend for providing on-call coverage
 - Hourly rate for providing on-call coverage and/or for providing services when called in to the ED
 - Activation fee payable each time the physician is called to the ED
 - Subsidy for unassigned/uninsured patients based on Medicare payment rates (average is 103% of Medicare)²¹
 - Subsidy for malpractice insurance
 - Fee for service payment
- *Mandatory reimbursement.* Co-promotion by the leadership of orthopaedic surgery professional organizations and US hospitals of the concept that reimbursement for emergency musculoskeletal care is mandatory both for orthopaedic surgeons and hospitals is one such strategy.
- *In-kind reimbursement.* This approach would allow doctors to use the delivery of ED care to uninsured patients to generate in-kind

reimbursement such as credits to pay down medical school debts or to use as an income tax credit. This innovative approach has only been explored in a cursory manner and would require changes in both federal and state laws to implement.

- *National catastrophic insurance plan for emergency care.* Such a plan would provide the necessary reimbursement for all individuals who are in need of emergency care. This type of insurance plan would be operated by state or federal agencies but would not be a complete national health care initiative.
- *Universal health care.* This major change in the US health care system must be resolved at the federal level; it is unlikely to provide a solution in the near future.

Respondents to the OIOM survey were not overwhelmingly supportive of a national universal health care program (20%) or catastrophic health care coverage (22%); however, 73% of respondents supported payment for indigent care. Successful resolution of the reimbursement issue to the hospitals and to physicians providing these services will go a long way towards providing access to these services for all patients.

A universal health care plan would directly address the issue of ED reimbursement for services rendered, as all patients would be covered. In the US, this long-running discussion sees no tangible signs of becoming a solution. Therefore, the possibility that publicly funded health insurance coverage will reduce this barrier to ED call coverage in the near future is slight. One potential solution or stopgap measure might be the creation of a federal- or state-funded catastrophic health insurance plan. It would provide universal coverage for all catastrophic health problems, such as injury and acute serious medical problems. However, regardless of the type of health insurance, coverage does not always imply access to high quality care; reimbursement must be sufficient to access the necessary care.

Citizens in New Zealand are covered by a national no-fault accident insurance system, the Accident Compensation Corporation. In this system, all trauma-related health care is covered, “from the roadside to rehabilitation.”²² This insurance system provides 24-hour no-fault personal injury insurance coverage. The Corporation provides bulk funding to hospitals to manage the care of trauma patients and includes case managers and rehabilitation.

Presently, 43% of orthopaedic surgeons responding to the OIOM survey are paid for ED call coverage, and the amount of remuneration is variable (Table 4). The hospital is generally the source of funds for this compensation. Occasionally, arrangements exist in which both the hospital and medical group contribute to the funding source. Analogous arrangements whereby the medical group, as a sole source, voluntarily contributes to the compensation have not been seen. Call coverage pay levels are typically developed through a consensus process involving the hospital management and physician leadership (57% of the time) or negotiated individually with the physician or practice (41% of the time).²¹ Pay rates are based on local and national market rates.

Payment schemes for ED call coverage must be in line with the EMTALA and the Office of Inspector General Anti Kickback Advisory Opinion 07-10, which stated that “any payment from hospital to physician must be based on fair market value and at arm’s length.”²³ Compensation must not take into account any volume from physician referral or business generated from such referrals. In order to be in the safe harbor for the Anti Kickback Law, all agreements between the physician and hospital must be signed by all parties; delineate all of the services that will be provided; specify the schedule, length, and charge for the services; define the performance intervals and frequency (e.g., periodic, sporadic, or part-time basis); and cover a duration of more than 1 year.

Regarding reimbursement for services, the Orthopaedic Institute of Medicine recommends:

1. US hospitals and leadership of professional organizations for orthopaedic surgery collaboratively advocate for appropriate reimbursement for emergency musculoskeletal care for both orthopaedic surgeons and hospitals.
2. Communities of hospitals and orthopaedic surgeons work together to find an appropriate method to provide compensation (either monetary or in-kind) for orthopaedic surgeons covering on-call responsibilities.
3. Advocacy efforts continue for the development of some form of compensation (state and/or federal) for the care of patients sustaining catastrophic injury or illness.
4. Physicians should understand, in advance, the scheme for state-level reimbursement for indigent care (if one exists) as this currently varies from state to state.
5. Consideration is given to modifying tax laws and other regulations that would allow physicians and hospitals to gain tax credits for the provision of urgent care.

Refer to Case Studies 3 and 5 (Appendix A).

7. Tort Reform

The American public has seen access to care profoundly affected by maldistribution of physicians and changing practice patterns. Each year, approximately 50% of neurosurgeons and 33% of orthopaedic surgeons, ED physicians, and trauma surgeons are sued.²⁴ To decrease liability risk, many orthopaedic surgeons have eliminated high-risk procedures and discontinued emergency room coverage. A random survey of orthopaedic surgeons in four high-risk states (Nevada, Pennsylvania, Mississippi and Florida) found that 58%

have stopped or limited their emergency room coverage; 33% are no longer performing spine surgery; 33% have eliminated high-risk procedures or complicated trauma; and all have noted increased referrals to academic health centers placing greater pressure on these already overburdened centers.^{25,26} Unfortunately, these changes have adversely affected patient access to care and have led to increases in health care costs.

Public opinion has always favored medical liability reform. The public is aware that the medical liability crisis is affecting their access to health care and contributing to rising costs.¹ The US House of Representatives has passed medical liability reform bills, (based on the California Medical Injury Compensation Reform Act of 1975 (MICRA) legislation) at least eight times over the last several congresses; these same bills have not passed the US Senate. In the 108th Congress, four votes on medical liability reform (including a “carve out” for emergency care) failed because of the inability to get the 60 votes needed in the Senate to close debate. All proposals put forward have been modeled on the California MICRA legislation or the more recent 2003 Texas model, both of which impose varying caps on non-economic damages.²⁷ Placing a cap on non-economic damages is the only solution that has a proven track record in the US. The votes in the Senate have generally followed party lines with Republicans supporting medical liability reform and Democrats opposing it. Historically, Democratic legislators generally oppose legislation that places a cap on non-economic damages.

Recent publications by two key Democrats have at least begun to recognize that any solution to America’s health care problems must address the tort system. In the May 25, 2006, issue of the *New England Journal of Medicine*, Senators Hillary Rodham Clinton and Barack Obama authored *Making Patient Safety the Centerpiece of Medical Liability Reform*; wherein they stated, “...the current tort system does not promote open communications to improve patient safety. On the

contrary, it jeopardizes patient safety by creating an intimidating liability environment.”²⁸

A number of additional approaches have been suggested to protect emergency care specialists without compromising patients’ safety. One approach would be the provision of “conditional” immunity for emergency physicians and specialists while seeing patients on-call. Another promising approach is a public no-fault system modeled on the National Vaccine Injury Compensation System.²⁹ In such a system, malpractice in emergency care would be compensated through a fund that would be supported by hospitals and physicians. Such an approach would provide much more rapid and certain compensation than the current tort system, while encouraging hospitals and individual providers to transparently and quickly address patient safety issues. Alternatively, caps on non-economic damage awards, which have been effective in some states, could be placed on emergency services.³⁰

Unfortunately, the prognosis for any tort reform on the federal level for the foreseeable future is grim. The medical liability crisis will continue to affect not only trauma and emergency care but also increasing health care costs and manpower issues. Collaboration with other affected specialties and state-level orthopaedic and medical associations to effect tort reform at the state level must continue. These battles have a better chance of succeeding in the current environment than at the federal level. In addition, other options need to be considered including a “loser pays” system, health care courts, no fault (i.e., workers’ compensation model), and “Early Offer” program which encourages early settlement of claims to control costs by providing fair and prompt compensation without time-consuming and expensive litigation.³¹

The best possible alternative at the moment would be “carve outs” for trauma care modeled after either the California MICRA legislation or the Texas Tort

Reform of 2003. Another potential solution could include demonstration projects modeled on the Health Court principle adopted by Common Good with the American Medical Association modification on the definition of negligence.³²

Regarding tort reform, the Orthopaedic Institute of Medicine recommends

1. The orthopaedic community continues to work with other affected specialties and state orthopaedic and medical associations to achieve tort reform at the state level.
2. Insurers, legislators, hospital organizations, and physician organizations step up efforts to propose, discuss, and enact meaningful tort reform at the federal level.

8. Third-party Payers as Community Participants in Generating Solutions

Insured patients hold third-party payers responsible for ensuring that the medical care delivery system, both locally and nationally, provides high quality care to the insured. Should the quality of care be threatened by financial or reimbursement problems, third-party payers must be participants in the solution. The ultimate solution will be a consensus between the hospital, physicians, and payers. Third-party payers have various controls that can be used to influence the quality of health care at the community level. For example, adjustment of the conversion factor determining reimbursement can shift the location, and therefore local availability, of care in a given community. This shift can promote retention of high quality specialists who may be inclined to switch practice venues to maximize profit.

Regarding third-party payers as community participants in generating solutions, the Orthopaedic Institute of Medicine recommends

1. Local hospitals assess their need for high quality emergency department coverage by specialty area. If there is lack of such care secondary to financial problems, they should approach third-party payers to negotiate a cooperative solution to remedy this problem.

2. Local physicians involve themselves in this process so as to provide unbiased opinions and support for new reimbursement schemes.

Refer to Case Study 6 (Appendix A).

CALL TO ACTION

The Orthopaedic Institute of Medicine Council presents the following call to action related to the looming crisis in orthopaedic emergency department call coverage:

Orthopaedic surgeons are ultimately the most qualified, capable, and cost-effective providers of emergency musculoskeletal care. In each community in the US, orthopaedic surgeons, in partnership with hospitals and other stakeholders, should discuss, identify, and implement a solution to this issue. The goal is to provide local access to emergency care for most musculoskeletal conditions for all patients in that community. The solutions will be based on the unique resources and obstacles identified within in each community. To support these local initiatives, national organizations such as the American Orthopaedic Association, the American Academy of Orthopaedic Surgeons, the American Board of Orthopaedic Surgery, the Accreditation Council for Graduate Medical Education, and orthopaedic specialty societies, should continue to support activities and legislation at the state, regional, and national levels to assist in removing barriers that are presently challenging access to emergency musculoskeletal care in many communities.

APPENDIX A. CASE STUDIES

Case Study 1: Supporting Referral Hospitals

Institution A was an academic medical center locally recognized as a “dumping institution” for both ED and trauma cases. Primarily, patients were transferred to Institution A if they had severe illnesses or injuries and the inability to pay for services. Although caring for the underserved was integral to the mission of Institution A, it was woefully under-funded, despite support from state and federal funding, as well as from the local, private hospitals. Across the state, Institution A was known as the place where “undesirable or very sick and indigent patients” were sent. Institution A continued to serve the community until the facility was forced to close its doors permanently due to unforeseen circumstances.

The closure of Institution A resulted in a void for this community; not a single institution was willing to be responsible for the care of this patient population. In addition, economic drivers in this region left most of the other hospitals in financial hardship. Prior to the closure of Institution A, private hospitals had politically supported some degree of funding for the institution recognizing that, in the absence of Institution A, its patients would ultimately appear at the doors of the private hospitals’ EDs.

Following closure of Institution A, collaboration occurred between the private hospitals that had previously provided financial support to the mission of Institution A. The private hospitals continued to “politic” for the state and federal support previously provided to Institution A. The private hospitals realized that if this funding did not exist, they would have to absorb this “undesirable” patient population and all of their associated costs.

This case study underscores an important message for all orthopaedists especially those not interested in caring for the ED patient: *Orthopaedists must continue to support referral hospitals; without such support, the patients from the referral hospitals will have to be absorbed into the referring institutions.* Thus, if local community and rural hospitals do not want to address the issue of ED call coverage, they need to support the academic medical centers or referral hospitals caring for the very sick, uninsured population.

Case Study 2: Orthopaedic Trauma Service

Institution B is a busy level I trauma center serving as a tertiary referral center for cancer, cardiovascular disease, pathology, and trauma. The general surgery department is steeped in tradition surrounding the trauma care they provide. The orthopaedic department has traditionally held an excellent reputation in sports medicine, hand surgery, and trauma; this reputation was beginning to wane due to discontent among orthopaedic faculty over having to cover ED trauma call and be responsible for treating trauma victims arriving during their on-call period. Many expressed dissatisfaction in caring for these patients and felt it interfered with their ability to develop subspecialty practices. They also felt it was unfair that they were required to treat patients “outside of their subspecialty comfort zone.” The issues at Institution B illustrate precisely what needs to be addressed on a larger scale.

Institution B developed a solution to this problem. Through discussion with all members of the orthopaedic department, a trauma service was created. Through the trauma service, all faculty members participated in ED call coverage and addressed the true emergency cases at night; once the morning arrived, the burden of care was transferred to members of the trauma service who had distinct interests in this patient population. For this plan to be successful, members of the orthopaedic department had to give up some of their elective OR time to create a trauma OR. Thus, the availability of the dedicated trauma OR resulted in higher quality patient care and less frustration among the members of the trauma service; both of which reduced their resistance to trauma call coverage.

The benefits of creating the trauma service were prospectively evaluated. Relieving the orthopaedic surgeons, who did not enjoy trauma care, of this responsibility and enabling them to do more elective cases had positive outcomes: the orthopaedic department prospered financially, and the individual doctors’ practices developed into more subspecialty services. This collaboration facilitated a high level of ED care, and at the same time, enhanced the elective practices by reserving the trauma cases for those most interested in trauma care. Removing the responsibility of trauma care from physicians who

were not interested in trauma care resulted in improved physician satisfaction; this change resulted in a positive learning environment for residents. More importantly, patient access to high quality care improved.

Case Study 3: Adapting to Increases in Demand

A single level I trauma center is located in a community of 125,000 persons with a trauma catchment area of 750,000 persons. This center, Trauma Center A, is one of four trauma centers in the state. At Trauma Center A, there are no orthopaedic residents, and the private orthopaedists provide ED call coverage.

Five years ago, prior to becoming a level I trauma center, there were only seven orthopaedists providing ED call coverage for a high percentage of uninsured patients. These orthopaedists were also providing follow-up care in their offices or in a charity clinic at the hospital. The ED coverage situation (i.e., high volume of uninsured, level I trauma center patients, and follow up care for complex injuries) was complicating efforts to recruit new orthopaedists to the area. Emergency department coverage and follow up care was provided with no compensation (other than income derived from the occasional insured patient). Over time, the percentage of uninsured patients grew dramatically, the medical liability climate worsened, and underlying health of the patient population decreased (e.g., seen as increases in significant co-morbidities such as hepatitis and AIDS).

Additionally, with the improvement in Emergency Medical Services transports and at-the-scene treatments, severe injuries that might have been associated with mortality several years ago were now making it to the ED; thus, the complexity of the trauma presenting for care also increased. Emergency department coverage was becoming increasingly difficult. When the hospital became a level I trauma center, even more cases were received from the outside communities.

The acuity of the trauma and the demand for sophisticated techniques caused an obvious disruption to the office and surgical schedules. The specialties providing many of these

emergency services – orthopaedics, neurosurgery, plastic surgery, and ear, nose, and throat surgery – felt that they should be reasonably compensated for the value they were delivering to the hospital and community.

All of the orthopaedists (even those no longer required to take call because of age) met with the hospital's administration and explained the complexity of trauma care being delivered. They articulated ways in which orthopaedic coverage differed from other subspecialties that delivered care but covered the ED infrequently. For example, some primary care physicians provided ED call coverage one night every six weeks often with resident coverage. On the other hand, the private orthopaedists provided all orthopaedic ED coverage, without resident backup, and coverage for follow-up clinics that met twice weekly.

Initially, the hospital could not afford to compensate the orthopaedic surgeons for their services. However, eventually the hospital realized the value of the service that was provided. After two years of further negotiating, compensation was instituted. Currently \$1500 (USD) is paid for a 24-hour on-call session in addition to what is collected from insured patients. The orthopaedists are also paid \$500 for covering the orthopaedic charity clinic. The clinic meets twice weekly, and one orthopaedist covers the clinic each time it meets.

In addition, the hospital has now hired a full-time orthopaedic traumatologist and three physician assistants to assist with trauma care. In a period of five years, the hospital and orthopaedic community have gone from a difficult situation to one that is more tenable and provides higher quality care to the patients in the community. Additionally, because of the measures enacted, recruitment efforts have resulted in the addition of three highly skilled orthopaedists in the past three years thus decreasing the frequency of ED call coverage for all.

Case Study 4: Collaboration and Telemedicine

A large private hospital associated with a community-based multispecialty group including orthopaedic traumatologists has established a collaborative relationship with local community hospitals. This arrangement consists of a contract with each hospital that clearly delineates the types of cases to be transferred and provides telemedicine consultation by the traumatologist for each hospital. The community hospitals pay for this service. The transfer agreements allow for each community orthopaedic surgeon to keep selected patients and transfer the remainder. No consideration given to insurance status.

One orthopaedic group with expertise in multiple trauma patients has collaborated with their hospital to help smaller community hospitals address their call burden while also being sensitive to local community and patient needs. Through the use of telemedicine technology, web-based x-ray evaluation, and transfer agreements, members of the large orthopaedic (trauma) group review x-rays and respond to outside ED phone calls for advice and direction. This resource facilitates decisions regarding cases that can be safely splinted and kept in the community as opposed to sending out all cases seen on a night where the local call panel does not have an available orthopaedist. This allows the patient to receive appropriate treatment within their community and relieves the local orthopaedic community of some of the call burden. Further, the arrangement allows patient transfers when appropriate to tertiary centers without the perception of dumping. Additionally, in return for taking “call by phone and computer,” the large orthopaedic trauma group and co-sponsoring hospital receive a nightly on-call stipend.

Case Study 5: The Canadian Example

Even though the Canadian health care system is a single payer system, physicians work on a fee-for-service basis. Even though over 98% of patients receiving emergency care are covered by the plan, the orthopaedic surgeons of Ontario expressed dissatisfaction over ED call coverage. This dissatisfaction was attributed to resource availability, lifestyle issues, and poor reimbursement. To overcome these barriers, the government now pays a separate fee for call coverage and has a prorated fee schedule that provides additional

pay for after-hours care. A careful study of this model may assist US hospitals in overcoming some of their barriers to call coverage.

Case Study 6: Third-party Payer Solutions

A major hospital experienced a potential loss of faculty and community specialists coupled with a change in the level of trauma care. These circumstances resulted in a much greater demand for trauma services for the academic medical center.

Several discussions ensued with three third-party payers who recognized that the quality of service was significantly diminished for the region if there was a loss “of the endangered species” (i.e., trauma specialists). Subsequently, the third-party payers agreed to significantly enhance the conversion factor, which allowed for the retention and recruitment of critical care and trauma specialists in the region. The specialists included orthopaedic surgeons, general surgeons, neurosurgeons, and burn and trauma surgeons. The annual cost to the insurers for this volume-driven agreement was approximately \$500,000 per year. No additional funds were provided to the regional hospitals. This intervention was introduced to retain and recruit additional surgeons as necessary. The plan has been in effect over the past four years and has been quite successful.

Case Study 7: Hospital-owned Orthopaedic Practice

A level II trauma center with approximately 40 private practice orthopaedic surgeons on staff serves a primary service area of approximately one million. The hospital has a very busy ED with over 120,000 visits annually. The hospital does not have an orthopaedic residency program but has partial resident coverage via rotations from an academic medical center approximately 35 miles away.

Over a period of about eight years, the community orthopaedists became increasingly disinterested in covering call for the hospital. Reasons for the disinterest included poor reimbursement for ED patients, the disruption of elective practices, some discomfort in managing patients with complex injuries, and the higher liability risk for patients managed while on-call. The community orthopaedists stated that payment for call coverage would be

appreciated, but they felt ultimately that an appropriate solution would have them not covering call at all for complex orthopaedic trauma patients.

The hospital chose to solve the problem by creating a hospital-owned orthopaedic practice based on the hospital campus. Over a period of about five years, the practice grew to eight physicians: two orthopaedic traumatologists and six other orthopaedic surgeons. Initially, the community orthopaedists remained on the call schedule, but only covered some nights – the hospital-owned group covered the weekdays and many nights. When the hospital-owned group became fully operational, it assumed all of the ED call coverage at the hospital. The hospital-owned group has dedicated OR time and equipment to treat their patients; they cover the ED, provide musculoskeletal care for indigent patients in the local community, and provide musculoskeletal care for insured patients much as a private practice would. The hospital-owned group operates largely as a private practice, except that the hospital provides minimum salary guarantees, and the hospital retains any earnings from the practice. The community orthopaedists are satisfied with the system even though the hospital-owned group competes with them to some extent for insured patients.

Case Study 8: Enlisting Physician Extenders

A community-based orthopaedic group of 25 surgeons was situated in a community with three local hospitals and about 750,000 persons in the catchment area. The group felt the need to stay involved in the care provided at all three hospitals, but the group's physicians began to complain about the call burden. Initially, the group assigned a surgeon to provide ED call coverage for up to two different hospitals on the same night. As the hospitals grew busier, this arrangement became untenable. The surgeons would not accept the call frequency necessary to have a schedule where they covered only one hospital at a time. Thus, the group began to search for another solution to meet the surgeons' requests but keep the group engaged in all three hospitals.

Ultimately, the group chose to hire a number of physician assistants. The physician assistants provide surgical and office assistance for the surgeons in the group, but also provide first-line ED call coverage for the group. A total of ten physician assistants provide primary call coverage to two hospitals and are assigned a one-in-five day call frequency. If called in for consultation by the ED physicians, the physician assistant evaluates the patient and provides straightforward care (e.g., splinting, admission for surgery the next day, reduction of simple fractures or dislocations). The physician assistant calls the orthopaedic surgeon for patients requiring the surgeon's attention that night. Additionally, the physician assistants take calls from the nursing staff on the hospital floors.

This group has been very satisfied with the approach. The surgeons are pleased with a decreased call burden, the management of many simple conditions by the physician assistants, and the additional assistance of the physicians assistants in the office and OR. The physician assistants enjoy the hands-on procedural experience they receive. The group is also satisfied with the financial impact of this arrangement.

Case Study 9: Hospital-based Orthopaedic Traumatologists

A level II trauma center in a mountain community with a service area of approximately 200,000 has a local orthopaedic community of approximately 25 surgeons. Due to the area's popularity for recreation, the hospital found its volume of high-energy and complex orthopaedic injuries increasing. The local physicians became less willing to participate in ED call coverage particularly for the management of these complex trauma patients. The orthopaedic surgeons in the community approached the hospital to craft a solution.

The ultimate solution was that the hospital system hired two fellowship-trained orthopaedic traumatologists to provide care for the complex orthopaedic trauma patients in the community. These two surgeons have a hospital-based practice consisting almost entirely of fracture patients. The community orthopaedists still provide the vast majority of the ED call coverage, but they now have the option of transferring the care of the fracture patient to the orthopaedic traumatologists following the on-call period. Some fracture patients

(usually simple fractures) are kept by the local orthopaedists, but most fractures (and all the complex ones) are transferred to the care of the traumatologists. Included in this arrangement is a formal agreement with written expectations of what conditions the on-call surgeon must manage. The orthopaedists and traumatologists hold frequent question-and-answer conferences to assure that the care delivered the patients is maintained at a high level. All parties are highly satisfied with the arrangement.

APPENDIX B. TRANSFER AGREEMENT EXAMPLE

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<<INSTITUTION/MEDICAL CENTER NAME>>
INTERFACILITY PATIENT TRANSFER AGREEMENT

<<Other Entity Name>>

This Patient Transfer Agreement (“Agreement”) is made and entered into as of _____, 200__ (“Effective Date”), by and between <<Institution/Medical Center Name>> (“Receiving Facility”), and _____ (“Transferring Facility”), and is based on the following facts:

- A. Transferring Facility is a licensed hospital or other healthcare provider that requires an agreement with Receiving Facility; and
- B. The parties desire to enter into an agreement governing the transfer of patients from Transferring Facility to Receiving Facility; and
- C. The parties desire to enter into an agreement that specifies the duties, rights, and obligations of each party and to specify the procedure for ensuring the timely transfer of patients between the facilities; and
- D. The parties have determined that an agreement providing for inter-facility transfers will facilitate the continuity of care and promote quality patient care through the timely transfer of patients and records; and
- E. The parties desire to fulfill their responsibilities under federal and state law with regard to the inter-facility transfer of patients.

Now, therefore, in consideration of the mutual covenants and agreements herein contained, the parties agree as follows:

1. Transfer of Patients

- a. Receiving Facility agrees to receive from the Transferring Facility patients in need of the care provided by Receiving Facility for the purpose of providing improved patient care and continuity of patient care, as deemed medically appropriate by the Transferring Facility and upon acceptance by Receiving Facility.
- b. Upon determining that the transfer of a patient is medically appropriate, the Transferring Facility or the patient’s attending physician at the Transferring Facility shall contact the person or department at Receiving Facility designated to arrange for patient transfers (hereinafter “Transfer Office”) to arrange for appropriate treatment as contemplated by this Agreement.
- c. The facilities shall make all transfers in accordance with applicable federal and state laws and regulations, the standards of The Joint Commission, and any other applicable accrediting bodies, and the respective policies and procedures of the facilities.
- d. Neither party shall transfer or refuse to accept a transfer of a patient for arbitrary, capricious, discriminatory, or unreasonable reasons. In cases involving a patient with an emergency medical condition that has not been stabilized, a facility shall not refuse to accept a transfer based upon the patient’s ability to pay for services rendered.

2. Responsibilities of Transferring Facility. The Transferring Facility shall be responsible for performing, or ensuring performance of, the following:

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- a. Provide within its capabilities (and unless a transfer of an unstabilized patient is made in accordance with applicable law) for the medical screening and stabilization of the patient prior to transfer;
- b. Arrange for appropriate and safe transportation and care of the patient during transfer, in accordance with applicable federal and state laws and regulations;
- c. Designate a person who has authority to represent the Transferring Facility and coordinate the transfer of the patient from the facility;
- d. Notify Receiving Facility's designated representative prior to transfer to receive confirmation as to availability of appropriate facilities, services and staff necessary to provide care to the patient;
- e. In cases that do not involve (i) an emergency medical condition that has not been stabilized or (ii) active labor, ensure that the transferring physician has contacted and secured a receiving physician at Receiving Facility prior to transfer who shall attend to the medical needs of the patient and accept responsibility for the patient's medical treatment and hospital care;
- f. Within its capabilities provide personnel, equipment and services to assist the transferring physician with the coordination and transfer of the patient;
- g. Within its capabilities provide personnel, equipment and life support measures determined appropriate for the transfer of the patient by the transferring physician;
- h. Forward to the receiving physician and Receiving Facility a copy of the patient's medical record that is available at the time of the transfer and the following information:
 - i. Medical records related to the patient's medical and, if applicable, emergency medical condition, including available history;
 - ii. Observations of signs or symptoms;
 - iii. Preliminary diagnosis;
 - iv. Treatment provided;
 - v. Results of any tests or diagnostic studies; and
 - vi. For patients with an emergency medical condition that has not been stabilized, a copy of the patient's informed consent to the transfer, if consent can be obtained from the patient, and a copy of a physician certification that the medical benefits of the transfer outweigh the risk of transfer, which consent and certification are made in accordance with the requirements of 42 CFR 489.24(e)(1); and
 - vii. The name and address of any on-call physician who has refused or failed to appear within a reasonable time to provide necessary stabilizing treatment for the patient.
If medical records are not available at the time of transfer, then the Transferring Facility shall forward such records to Receiving Facility as soon as practicable after transfer.
- i. Transfer the patient's personal effects, including, but not limited to, money and valuables, and information related to those items;
- j. Notify Receiving Facility of the estimated time of arrival of the patient;

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- k. Provide for the completion of a certification statement, summarizing the risks and benefits of the transfer of a patient with an emergency condition that has not been stabilized, by the transferring physician or other qualified personnel if the physician is not physically present at the facility at the time of transfer, made in accordance with 42 CFR 489.24 (e)(i);
 - l. Acknowledge any contractual obligations and comply with any statutory or regulatory obligations that might exist between a patient and a designated provider;
 - m. Recognize the right of a patient to request to transfer into the care of a physician and facility of the patient's choosing;
 - n. Recognize the right of a patient to refuse consent to treatment or transfer;
 - o. Complete, execute and forward a memorandum of transfer form to Receiving Facility for every patient who is transferred;
 - p. Establish a policy and/or protocols (i) for maintaining the confidentiality of the patient's medical records in accordance with the applicable state and federal law, and (ii) for the inventory and safekeeping of any patient valuables sent with the patient to Receiving Facility; and
 - q. Recognize and comply with the requirements of any state law and regulations or local ordinances that apply to the care and transfer of patients.
3. Responsibilities of Receiving Facility. Receiving Facility shall be responsible for performing or ensuring performance of the following:
- a. Provide, prior to transfer, confirmation to the Transferring Facility of the availability of bed(s), appropriate facilities, services, and staff necessary to treat the patient, and confirmation that Receiving Facility has agreed to accept transfer of the patient. The Receiving Facility shall respond to the Transferring Facility as promptly as possible after receipt of the request to transfer a patient (i) with an emergency medical condition that has not been stabilized, or (ii) in active labor;
 - b. Provide, within its capabilities, appropriate personnel, equipment and services to assist the receiving physician with the receipt and treatment of the patient transferred, maintain a call roster of physicians at Receiving Facility and provide, on request, the names of on-call physicians to the Transferring Facility;
 - c. Reserve beds, facilities and services as appropriate for patients being transferred from the Transferring Facility upon acceptance of the patient by Receiving Facility and receiving physician, if deemed necessary by a transferring physician unless such are needed by Receiving Facility for an emergency;
 - d. Designate a person who has the authority to represent and coordinate the transfer and receipt of patients into the facility;
 - e. When appropriate and within its capabilities, assist with the transportation of the patient as determined appropriate by the transferring or receiving physician
 - f. Provide the Transferring Facility with a copy of the patient's clinical or medical records, including any record generated in the emergency department;
 - g. Maintain the confidentiality of the patient's clinical or medical records in accordance with applicable state and federal law;

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- h. Establish a policy and/or protocols for (i) maintaining the confidentiality of the patient's clinical or medical records in accordance with applicable state and federal law, (ii) the receipt of the patient into the facility and (iii) the acknowledgement and inventory of any patient valuables transported with the patient;
 - i. Provide for the return transfer of patients to the Transferring Facility when requested by the patient or the Transferring Facility and ordered by the patient's attending/transferring physician if the Transferring Facility has a statutory or regulatory obligation to provide healthcare assistance to the patient; and if transferred back to the Transferring Facility, provide the items and services specified in Section 2 of this Agreement;
 - j. Provide the Transferring Facility with any information available about the patient's coverage or eligibility under a third party coverage plan, Medicare or Medicaid, or a healthcare assistance program established by a county, public hospital, or hospital district;
 - k. Upon request, provide current information concerning its eligibility standards and payment practices to the Transferring Facility and patient;
 - l. Acknowledge any contractual obligations and comply with any statutory or regulatory obligations that might exist between a patient and a designated provider;
 - m. Complete, execute and return the memorandum of transfer form to the Transferring Facility; and
 - n. Recognize and comply with the requirements of any state law and regulations or local ordinances that apply to the care and transfer of patients.
4. Billing. Each facility providing services to a patient transferred from the other facility pursuant to this Agreement shall bill and collect all charges or claims from the patient, third party payer (including governmental payer sources), or other payer sources unless applicable law and regulations require that one facility bill the other facility for such services. The parties may, by addendum to this Agreement, provide different terms to address such circumstances. The Transferring Facility shall provide to Receiving Facility the information necessary to appropriately and fully bill all charges to third party payers, including, but not limited to, identifying any managed care obligations and complying with managed care requirements (e.g., pre-certification).
5. Return of Patient to Transferring Facility.
- a. Clinical Determination. After Receiving Facility has provided the patient with the level of care necessitating the transfer, and the receiving physician or other appropriate Receiving Facility Medical Staff member has determined that the patient's condition is appropriate for return to the Transferring Facility based upon the clinical capabilities and capacity of the Transferring Facility, Receiving Facility shall notify the Transferring Facility that the patient is appropriate for a return transfer. Receiving Facility and the receiving physician or other appropriate Receiving Facility Medical Staff member shall determine the appropriateness for a return transfer of the patient to the Transferring Facility and the Transferring Facility shall accept such patients in return transfer in accordance with Section 5.b., below.
 - b. Timing of Return Transfer. The Transferring Facility shall use its best efforts to accept a patient in return transfer within a reasonable time not to exceed five (5) working days after receipt of notification that the patient clinically is appropriate for return transfer, as defined in Section 5.a., above. For purposes of this Section 5.b., the term "best efforts" includes, but is not limited to, the requirement that the Transferring Facility accept return transfer patients, including custodial or skilled level patients, into either an available acute bed or into an available bed at a long term care facility in which the Transferring Facility has a financial interest or with which it has an appropriate contractual arrangement. Absent alternative arrangements agreed to by the parties in advance, the Transferring Facility will be responsible for making all arrangements necessary to

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transport the patient back to its facility or to another appropriate facility, and shall be responsible for obtaining a physician to accept such return transfer.

- c. Return Transfer of Unstabilized Patient. If Receiving Facility seeks to return a patient to the Transferring Facility and the patient is, at the time of return to the Transferring Facility, unstable, then the parties shall be subject to the requirements of the Emergency Medical Treatment and Active Labor Act (42 USC 1395 dd, et seq.) and implementing regulations (“EMTALA”), including but not limited to, the specific responsibilities of receiving and transferring facilities listed in Sections 2 and 3, above. For purposes of this Section 5.c., Receiving Facility will be considered a transferring facility and the Transferring Facility will be considered a receiving facility under EMTALA.
6. Compliance with EMTALA and Law. Each facility shall comply with all applicable federal and state laws, rules and regulations including, but not limited to, the Emergency Medical Treatment and Active Labor Act (42 USC 1395 dd, et seq.) and implementing regulations, and those laws and regulations governing the maintenance of clinical or medical records and confidentiality of patient information. Each facility also shall comply with all standards promulgated by any relevant accrediting agency.
7. HIPAA Compliance. Each facility shall, and shall require its employees, subcontractors and agents, to comply with and recognize all confidentiality and nondisclosure requirements that apply to facility, including, but not limited to, the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”) Privacy regulations (45 C.F.R. Parts 160 and 164), Security regulations (45 C.F.R. Part 142), and EDI regulations (45 C.F.R. Parts 160 and 162), and the Confidentiality of Alcohol and Drug Abuse Patient Records Regulations (45 C.F.R. Part 2), as amended from time to time.
8. Access to Records. Pursuant to 42 C.F.R. §420.300, et seq., each party shall make available, upon written request of the Secretary of the United States Department of Health and Human Services (the “Secretary”) or upon request of the Controller General of the United States General Accounting Office (the “Controller General”) or any of their duly authorized representatives, a copy of this Agreement and such books, documents and records as are necessary to certify the nature and extent of the costs of the services provided under this Agreement for a period of four (4) years after the furnishing of such services. If either party carries out any of its duties under this Agreement through a subcontract with a value or cost of Ten Thousand Dollars (\$10,000) or more over a twelve (12) month period, such subcontract shall contain a provision that, until the expiration of four (4) years after the furnishing of such services pursuant to such subcontract, the subcontractor shall make available, upon written request, to the Secretary, the Controller General or any of their duly authorized representatives, a copy of the subcontract and such books, documents and records as are necessary to verify the nature and extent of the costs of providing the services pursuant to the subcontract.
9. Indemnification and Insurance. Each facility shall be responsible for its own acts and omissions, including those of its agents and employees, in the performance of the duties required of it under this Agreement, and shall indemnify and hold harmless the other party from and against any and all claims, liabilities, causes of action, losses, costs, damages, and expenses (including reasonable attorney’s fees) incurred by the other party as a result of any such acts or omissions. In addition, each party shall maintain comprehensive general and professional liability insurance and property damage insurance coverage during the term of this Agreement in amounts reasonably acceptable to the other party, and shall provide evidence of such coverage upon request.
10. Term. Subject to Section 11, the term of this Agreement shall be one (1) year commencing as of the Effective Date and shall automatically renew for successive one (1) year periods.
11. Termination. Notwithstanding the foregoing, this Agreement may be terminated as follows:
 - a. Without Cause. Either party may terminate this Agreement at any time without cause on thirty (30) days’ written notice to the other party.

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- b. For Cause. Either party may terminate this Agreement at any time on five (5) days' written notice to the other party if the party to whom such notice is given is in material breach of this Agreement. The party claiming the right to terminate hereunder shall set forth in the notice of intended termination the facts underlying its claim that the other party is in breach of this Agreement.
 - c. Involuntary Termination. Either party may terminate this Agreement immediately upon the occurrence of any of the following:
 - i. Either facility closes or discontinues operation to such an extent that the patient care cannot be performed adequately; or
 - ii. Either facility loses its license or Medicare certification.
12. Warranty of Non-Exclusion. Each facility represents and warrants that it, its officers, directors and/or employees:
- a. Are not currently excluded, debarred, or otherwise declared ineligible to participate in the federal health care programs as defined in 42 U.S.C. §§1320a-7b(f) or by any other federal program, including, but not limited to, the Food and Drug Administration, the National Institutes of Health, the Department of Defense or the Department of Veterans Affairs;
 - b. Have not been criminally convicted of any offense related to the delivery of health care items or services or to the neglect or abuse of patients; and
 - c. Are not, to the best of its knowledge, currently under investigation or otherwise aware of any circumstances that reasonably may result in the party or any such individual being excluded from participation in the federal healthcare programs referenced in Section 12.a., above.
13. Waiver. A waiver by either party of any breach or failure to perform under this Agreement shall not constitute a waiver of any subsequent breach or failure.
14. Assignment: Binding Effect. Neither facility may assign or transfer, in whole or in part, any of its rights, duties or obligations under this Agreement without the prior written consent of the other facility. Any assignment or transfer without such consent shall be void. This Agreement shall inure to the benefit of and be binding upon the parties and their respective representatives, successors and permitted assignees.
15. Governing Law: Venue. The validity, interpretations and performance of this Agreement shall be governed by and construed in accordance with the laws of the State of _____. The venue for any judicial proceeding brought by either party with regard to any provision of or obligation arising under this Agreement shall be in the appropriate federal or state court in _____ City/County _____, _____ State _____.
16. Partial Invalidity. The provisions of this Agreement shall be deemed severable and if any portion shall be held invalid, illegal or unenforceable for any reason, the remainder of this Agreement shall be effective and binding upon the parties. Notwithstanding the foregoing, if enforcement of this Agreement as so modified would substantially deprive one of the parties of the benefit of the original bargain or is materially detrimental to one of the parties, then said party may terminate this Agreement upon thirty (30) days written notice.
17. Change in Law. In the event that any governmental agency that administers a governmental payer program, including, but not limited to, Medicare and Medicaid, issues or promulgates any law, rule, regulation, standard or interpretation, or any court of competent jurisdiction render any decision or issues any order which prohibits, restricts, limits, or in any manner substantially changes the method or amount of reimbursement for payment for services rendered under this Agreement, or that otherwise significantly affects wither facility's rights or obligations hereunder, either facility may notify the other facility of its

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Report on the Crisis in the Delivery of Orthopaedic Emergency Care: A Call to Action

intent to amend this Agreement. If the parties cannot agree to amend the terms of the Agreement to compensate for the effects of the change in law, then this Agreement shall terminate as of midnight thirty (30) days after notice is given.

18. Notice. Any notice required or allowed to be given hereunder shall be deemed to have been given upon deposit in the United States mail, registered or certified, with return receipt requested and addressed to each of the parties at the following addresses:

19. Entire Agreement. This Agreement constitutes the entire agreement between the parties, and shall supersede all other agreements, written or oral, made by the parties. Neither party has made any presentations or warranties that are not stated expressly in this Agreement. This Agreement may be modified only by a written agreement executed by the parties.

20. Execution Required. This Agreement shall not take effect until signed by both parties.

The parties have caused this Agreement to be executed on the day and year first above written.

Dated: _____

Dated: _____

By: _____

By: _____

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APPENDIX C. ORTHOPAEDIC TRAUMA ASSOCIATION RESOURCE LIST

The Orthopaedic Trauma Association believes essential supporting resources for optimal care of patients with musculoskeletal injuries include:	
Staff	<ul style="list-style-type: none"> • Orthopaedic surgeons with a commitment to the care of injured patients. • Supporting staff in operating rooms, wards, and clinics; Includes supporting medical staff such as anesthesia / pain management, trauma surgery, neurosurgery, critical care, plastic surgery, nutrition, rehabilitation, neurology, infectious disease, internal medicine, etc. • Administrative staff, for record keeping, quality assurance, research, and business purposes.
Staff Development	<ul style="list-style-type: none"> • Time and funding for onsite and offsite educational programs
Space	<ul style="list-style-type: none"> • An accessible operating room, 24 hours a day, 7 days a week, with anesthesia, nurses and technologists familiar with orthopaedic trauma care procedures. • A well-equipped and staffed ED orthopaedic area. • A cast-room or equivalent area on or adjacent to inpatient wards.
Services	<ul style="list-style-type: none"> • 24/7 Radiology, in ED, OR (including C-arm fluoroscopy), and Hospital wards, with adequate staff and facilities for timely standard (department and portable) radiographs, CT, MRI, ultrasound, and special procedures
Equipment	<ul style="list-style-type: none"> • Modern orthopaedic beds with frames for mobility aids, support / suspension and traction; modern instrumentation for wound care (debridement, lavage, and temporary or definitive closure), and fracture fixation (plates & screws, intramedullary nails, and external fixators.) • Adequate resources for information management are essential - computers and support, medical records systems and staff, etc. Provision for an orthopaedically relevant Trauma Registry is essential for performance improvement and clinical knowledge development.
Supplies	<ul style="list-style-type: none"> • To be determined in consultation with the Orthopaedic Trauma Service: For example, fracture-fixation implants, joint replacement prostheses, appropriate hand and power instruments, and disposable equipment (drill bits, reamers, etc.), bone cement, bone graft substitutes, splinting and casting equipment, prefabricated braces, etc.
Reasonable Performance Goals	<ul style="list-style-type: none"> • Timely operation for open fractures, and for hip fractures (consistent with medically fitness). • Patients with multiple trauma should have timely stabilization of long bone and pelvis fractures, unless medically inappropriate. • Patients with fractures and associated limb-threatening vascular injuries will be in the OR promptly after arrival, unless medically contraindicated, 100% of X-rays will be available wherever and whenever needed, 100% of in-patient medical records will be available whenever needed for outpatient care, etc.
Trauma System Issues	<ul style="list-style-type: none"> • Provisions for inter-institutional transfer, at an appropriate time after initial stabilization, for definitive care of certain types of tertiary orthopaedic trauma care (multiple fractures, spine and spinal cord injuries, acetabular fractures, replantation of limbs, etc.). Such transfers must be based upon medical need. • Third-party reimbursement for orthopaedic trauma care should be fairly, promptly, and equitable provided. • Outpatient care, especially after hospitalization for orthopaedic trauma, should be provided in the most medically appropriate fashion, maintaining continuity of care whenever appropriate.
<i>Copied with permission from Orthopaedic Trauma Association, Committee on Health Policy and Planning.</i>	

APPENDIX D. RESOURCES FOR OPTIMAL CARE OF THE INJURED PATIENT

CHAPTER 9- CLINICAL FUNCTIONS: ORTHOPAEDIC

OTA Model of Orthopaedic Service Organization Surgery

More than half of all hospitalized trauma patients have one or more musculoskeletal injuries that could be life- or limb-threatening or that might result in significant functional impairment. An estimated 200,000 adolescents and adults under the age of 65 years are hospitalized each year in the United States for the management of lower extremity fractures. These injuries are the leading cause of all trauma admissions in this age group, generating \$1.2 billion in hospital costs.¹ The majority of these patients are male blue-collar workers who are motivated to perform well at their jobs.²

The probability of death caused by an injury is higher in rural areas particularly if motor vehicle related. The development of rural based trauma systems is critical to the overall advancement of orthopedic trauma care.

Patients with isolated simple fractures with low-grade soft tissue injuries are appropriately treated in any well-equipped hospital by orthopaedic surgeons committed to quality fracture care. Patients who have multiple fractures, fractures associated with multiple injuries, complex fractures (including pelvic, acetabular, intraarticular, and spinal column) and high-grade soft tissue injuries are appropriate candidates for musculoskeletal trauma care in a Level I or II trauma center. The more complex the spectrum of injury, the more important the decision-making process becomes. For example, prompt stabilization of proximal long bone fractures and spinal fractures has the potential to decrease inflammatory mediator production, catecholamine release, analgesic requirements, morbidity rate, and hospital costs.³ It is important to categorize patients as to their physiologic insult, anatomic injuries and their response to resuscitation in order to plan the appropriate fracture management. For example, a patient with an unstable pelvic fracture with significant bleeding and potential intraabdominal hemorrhage requires rapid and coordinated consultation among many specialty services. The team decides the priority of laparotomy, angiography, and spinal, pelvic and long bone fracture stabilization. Such patients are best managed by experienced personnel with significant resources and protocols at Level I or II trauma centers.

Musculoskeletal trauma usually requires a prolonged recovery phase because of the extended healing time of the soft tissue and bony injury. Early established and continuing physical, mental, and vocational rehabilitation maximizes both functional and psychological outcome.

MUSCULOSKELETAL TRAUMA PATIENT TYPES

Patients with musculoskeletal injury can be classified into three distinct types that affect resource utilization.

The first type is a patient with an isolated closed simple musculoskeletal injury unassociated with any other fracture or injury potential. The acute injury assessment is appropriately performed by an emergency department physician with timely referral to an orthopaedic surgical specialist. Surgical intervention is determined on an elective basis. Trauma team involvement is not a requirement.

The second type comprises individuals who have multiple fractures of major long bones and joints or significant injury potential. Because of the potential for missed life-threatening injuries, they do require assessment by the trauma team. After resuscitation and the exclusion of other potential injuries, there should be no contraindication to proceeding with early aggressive fracture stabilization.

The third type consists of individuals who have multiple fractures of major long bones, joints and/or the spinal column, associated with additional injuries outside the musculoskeletal injury. They are the multiply-injured fracture patients. Such patients require skillful decision-making by the trauma team. Therefore, injury prioritization may modify standard fracture care. These patients will usually require the resources available at a Level I or II trauma center.

ORTHOPAEDIC SURGICAL TEAM MEMBER(S)

The orthopaedic surgeon's responsibility to the trauma team begins with the initial evaluation of the patient in the emergency department. In conjunction with the trauma team leader, the orthopaedic surgeon on call is responsible for the development and coordination of the management strategy of all axial and appendicular musculoskeletal injuries so that the overall goals of patient care are not forgotten. After the acute treatment phase, the orthopaedic surgeon is frequently delegated the responsibility of rehabilitation, co-coordinating transfers and providing long-term follow-up care for fracture related problems.

Minimal qualifications for the orthopaedic surgeon who participates as a member of the trauma team and is on call at a Level I or II trauma center are described at the end of this chapter. These requirements are similar to those established for the emergency medicine physician, general surgeon, and neurosurgeon.

ALLIED TEAM MEMBERS

Optimal musculoskeletal management requires that the orthopaedic surgeon be supported and assisted by a team of skilled individuals who can assist with tasks, such as traction, casting, daily patient management, operative care, rehabilitation, and documentation. Well-trained X-ray technologists and operating room staff are important to the smooth running of an efficient musculoskeletal trauma system. Physical and occupational therapists and rehabilitation specialists trained in the management of acute musculoskeletal trauma problems and the rehabilitation phase are essential at Level I and II trauma centers. Social workers and discharge planners facilitate the transition of care from the acute care setting to home or the definitive recovery environment.

FACILITIES

Modern operative musculoskeletal injury care depends upon the coordination of three synergistic resources: (1) a well-trained staff, (2) a well-equipped hospital and, (3) a readily available operating room. Operating rooms must be promptly available to allow for emergency operations on musculoskeletal injuries, such as open fracture debridement and stabilization and compartment decompression. However, the majority of surgical fracture care can be conducted on a semi-urgent or elective basis. It is necessary to provide timely operating room access for semi-urgent and elective surgical treatment of musculoskeletal injuries that do not require emergent care in the off-hours. This should include allocation of sufficient operating room time to complete operative orthopaedic trauma care in a timely manner.

A functional orthopaedic surgical service requires flexibility in the operating room and staff scheduling. In Level I and II trauma centers, a system must be organized so that musculoskeletal trauma cases can be scheduled without delay and not at inappropriate hours that might conflict with more emergent surgery or other elective procedures. This is necessary to avoid inappropriate delays in patient care. Unique solutions to this scheduling problem may be necessary in each trauma center. In centers where the trauma volume demands daily availability, ideally, a designated operating room will be provided to the orthopedic trauma service so that these cases can be handled in an efficient manner. A mechanism for prompt operating room availability must be present. These solutions need to be monitored to determine effective usage of time.

MUSCULOSKELETAL TRAUMA CARE IN TRAUMA CENTERS

All Levels

The orthopaedic surgeon assigned to provide scheduled coverage for trauma patients must meet the requirements for inclusion on the orthopaedic trauma call panel. An orthopaedic surgeon should participate in service-related activities, especially those related to performance improvement and to the development of institutional protocols for systematic evaluation and management of common injuries. A minimum on-call experience should maintain the skills of the orthopaedic surgeon in both evaluation and management. All Level I and II trauma centers must have an orthopaedic surgeon who is identified as the liaison to the trauma program. This orthopaedic surgeon should be included in the initial planning for the program, and should maintain on going involvement in the organization of the program. The only exception to this is the rare level III center where no orthopaedic surgeons are on staff.

Level I

The care of musculoskeletal trauma at a Level I trauma center should be organized, and run by a director who is highly experienced and devoted to the orthopaedic care of the injured patient. If this surgeon is not the director of the orthopaedic service, a liaison orthopaedic surgeon with the same qualifications for the care of the injured must be designated. Under the auspices of the trauma director, the orthopaedic trauma director should have the authority to affect all aspects of orthopaedic trauma care, including (1)

recommending trauma team privileges, (2) cooperating with the nursing administration to support the nursing needs of orthopaedic trauma patients, (3) developing orthopaedic treatment protocols, (4) insuring orthopaedic participation in the PIPS process, (5) organizing the orthopaedic trauma call schedule, and (6) excluding from orthopaedic trauma call those team members who do not meet criteria. The need for more specialty-trained surgeons depends on the volume and priorities of the service. Plastic surgery, hand surgery, and spinal injury capabilities are essential at Level I trauma centers. Orthopaedic team members must have dedicated call at their institution or have an effective backup call system. They must be promptly available in the trauma resuscitation area when consulted by the attending surgical trauma team leader for multiply injured patients. A PGY 4 or higher level orthopaedic resident or orthopaedic trauma fellow may act as a temporary consultant as long as this is acceptable to the attending surgical trauma team leader. If the on-call orthopaedic surgeon is unable to respond promptly, a back-up consultant call surgeon must be available. The design of this system is the responsibility of the orthopaedic trauma liaison, but must be approved by the trauma program director. Compliance with these requirements must be monitored by the hospital's trauma performance improvement and patient safety (PIPS) program.

Level II

Within a Level II trauma center, there must be a musculoskeletal component of the trauma program designated for the management of complex skeletal injuries, multiple fracture patients, and multiply-injured patients with fractures. The director of the trauma program and the orthopaedic liaison should clearly define those patients for whom the orthopaedic service will be the primary care team, and which of those patients must be seen in consultation with the trauma service.

These centers must provide all of the necessary resources, including instruments, equipment, and personnel for modern musculoskeletal trauma care, with readily available operating rooms for musculoskeletal trauma procedures. The services of the related specialists such as plastic surgeons and a spinal injury service should be available, and, if not available, transfer guidelines with a Level I trauma center must be established.

Ideally, the individual is on-call at only one institution and must be promptly available. If the orthopaedic surgeon is unable to comply with this requirement, a back-up call system must be in place.

Level III

Level III facilities will vary significantly in the staff and resources that they can commit to musculoskeletal trauma care. A Level III facility with an orthopaedic surgeon can provide basic immediate musculoskeletal care. Management of major long bone fractures and articular fractures should be carried out only if the appropriate resources are available. The orthopaedic staff at a Level III facility should be realistic about its capabilities and develop a working relationship and transfer guidelines with higher-level institutions.

PERFORMANCE IMPROVEMENT

The orthopaedic service must participate actively with the overall trauma PIPS program and the Trauma Program Committee (dealing with system issues). The orthopedic representative(s) to the Trauma PIPS program must attend a minimum of 50% of these meetings (Level I and II). As well, the musculoskeletal trauma program must review their own cases and develop ongoing processes to assess their care. Prospective reviews of identifiable problems must be developed at all levels of care. Reports must be submitted to the trauma program's PIPS director for review (see Chapter 16: Performance Improvement and Patient Safety).

REHABILITATION

The goal of rehabilitation is to return an injured individual to society with the maximum function consistent with his or her injuries. This is best accomplished by using a cooperative team approach between the surgeon responsible for the acute management of the patient and the rehabilitative specialist. For skeletal injuries, rehabilitation protocols should be adjusted to the individual needs and should be supervised by the surgeon who is responsible for the management of the injured patient. The overall rehabilitation program should be managed by a rehabilitation specialist and the appropriate allied health personnel. Rehabilitation protocols should be commenced at the time that the patient enters the hospital and continue until discharge from the system. The return to full activity after major musculoskeletal injury often requires a year or more.

Optimal rehabilitation systems for trauma patients are still developing. Regional rehabilitation centers specializing in the physical and vocational rehabilitation of the multiply injured should be developed to assist the patient and society in the most efficient return to function.

PAIN MANAGEMENT

Pain management of the injured patient begins in the initial phases of care. It is important to establish an appropriate regimen as the injured patient is prone to develop a dependency on pain medications due to the prolonged nature of their recovery. Early fracture stabilization provides an effective method of providing relief of pain during the acute hospitalization. Appropriate consultation with Pain and Rehabilitation services to co-operatively assure that the patient's pain is relieved throughout their care is optimal.

GERIATRIC TRAUMA

As the population ages, the number of older patients with injury will increase. This is a twofold problem. First the patients have significant comorbidities that effect care and outcome. The second problem is the stabilization of fracture in osteoporotic bone leading to increasing complication rates. Specialized programs for care and rehabilitation for the older individual will need to be developed along with improved techniques of fracture care in osteoporotic bone. To attempt to lessen the impact of this problem, effective programs for prevention and treatment of osteoporosis are needed.

SPECIFIC QUALIFICATIONS FOR ORTHOPAEDIC SURGEONS

1. Board Certification

Basic to qualification for trauma care for any surgeon is board certification in a surgical specialty recognized by the American Board of Medical Specialties, a Canadian board, or other equivalent foreign board. Examples for orthopaedic specialists include: The American Board of Orthopaedic Surgery; the American Board of Osteopathy or The Royal College of Physicians and Surgeons of Canada.

It is acknowledged that many boards require a practice period and that complete certification may take three to five years after a residency approved by the Accreditation Council for Graduate Medical Education (ACGME). If an individual has not been certified five years after successful completion of an ACGME or Canadian residency, that individual is ordinarily unacceptable for inclusion on the trauma team. Such an individual may be included when recognition by major professional organizations has been received in his or her specialty (for example, The American College of Surgeons).

Alternate Criteria for a non-board certified orthopaedic surgeon: In rare instances, in a Level I trauma center, a non-boarded specialist who does not meet all of the nine criteria listed in the Alternate Pathway document may be included on the trauma panel if he/she has:

- a. provided exceptional care of trauma patients
- b. has numerous publications and presentations
- c. has published excellent research
- d. and is documented to provide excellent teaching

In rare circumstances in Level II trauma centers, a non-board-certified orthopaedic surgeon may be included in the trauma service. This situation may arise when a limited number of qualified orthopaedic surgeons are available to a community that desires to establish a verified trauma program. To assist these programs in providing optimal care to the injured patient with existing surgical resources, the following alternative to board certification is available. This option cannot be used for the trauma director of a trauma program. The criteria are:

1. A letter by the trauma medical director indicating this critical need in the trauma program because of the physician's experience or the limited physician resources in general surgery within the hospital trauma program.

2. Evidence that the orthopaedic surgeon completed an accredited residency training program in that specialty. This must be certified by a letter from the program director.

3. Documentation of current status as a provider or instructor in ATLS®.

4. *A list of the 48 hours of trauma-related CME over the past three years.*
5. *Documentation that the orthopaedic surgeon is present at least 50 percent of the trauma performance improvement and educational meetings.*
6. *Documentation of membership or attendance at local, regional and national trauma meetings over the past three years.*
7. *A list of patients treated over the past year with accompanying ISS and outcome.*
8. *Performance improvement assessment by the trauma medical director demonstrating that the morbidity and mortality results of the orthopaedic surgeon compare favorably with the morbidity and mortality results of comparable patients treated by other members of the trauma call panel.*
9. *The orthopaedic surgeon must be licensed to practice medicine and be approved for full and unrestricted surgical privileges by the hospital's credentialing committee.*

2. Clinical Involvement

Qualified orthopaedic surgeons must be regularly involved in the care of injured patients. In a hospital committed to trauma care, orthopaedic surgeons with special expertise in trauma should be identified. Participation in the organization of trauma protocols, trauma teams, trauma call rosters, and trauma rounds are clear indicators of commitment to excellence in trauma patient care.

3. Education

The background of orthopaedic surgeons should reflect an interest in and a commitment to trauma care. Formal orthopaedic trauma fellowships, training in orthopaedic surgery on an active trauma service, or combat experience as an orthopaedic surgeon constitute prime examples of such interest. Active participation as an instructor for the American College of Surgeons ATLS® Course clearly demonstrates educational involvement in trauma. It is helpful, but not required for orthopaedic surgeons on the trauma team to successfully complete an ATLS Student Course. Participation in specialty sponsored educational fracture and trauma courses is valuable. Orthopaedic surgical liaison to the trauma team at Level I and II centers must be involved in at least 16 hours of trauma-related CME annually. In addition, the other members of the orthopaedic trauma team need to be knowledgeable and current in care of the injured patient. This may be documented by acquisition of 16 hours of CME per year on average or through an internal educational process conducted by the trauma program and the orthopaedic liaison based on the principles of practice based learning and the performance improvement program.

4. Regional/National Commitment

The major trauma organizations in the United States and Canada include (1) the Committee on Trauma of the American College of Surgeons and its state/provincial committees, (2) the American Association for the Surgery of Trauma, (3) the Canadian Trauma Association, (4) the American Burn Association, and (5) the Orthopaedic Trauma Association (6) the trauma organizations of various surgical specialties, such as the Section on Neurotrauma and Critical Care of the American Association of Neurological Surgeons, and the Congress of Neurological Surgeons. The criteria governing membership in these organizations are such that active membership ordinarily signifies a position of leadership among surgeons involved in the care of injured. Participation in regional groups, such as state and regional trauma committees, and membership in regional organizations, such as the Western Trauma Association or the Eastern Association for the Surgery of Trauma, identify significant involvement in and commitment to trauma-related matters.

(This chapter has been approved by the Orthopaedic Trauma Association and the American Academy of Orthopedic Surgeons)

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1. MacKenize EJ, Cushing BM, Jurkovich GJ, et al: Physical impairment and functional outcomes six months after severe lower extremity fractures. *J Trauma* 1993; 34: 528.
2. MacKenize EJ, Bosse MJ, LEAP Study Group: Limb salvage versus amputation: Are they different from each and the general population? *Abstracts of the Orthopaedic Trauma Association Meeting*, Louisville, KY, Oct 17–19, 1997.
3. Bone LB, Johnson KD, Weigelt J, et al: Early versus delayed stabilization of fractures—A prospective randomized study. *J Bone Joint Surg* 1990; 71A: 3336.

Chapter 9: Clinical Functions: Orthopaedicⁱ

American College of Surgeons Committee on Trauma

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ⁱ American College of Surgeons Committee on Trauma. 2006. Resources for Optimal Care of the Injured Patient: 2006. Chapter 9: Clinical Functions: Orthopaedic. Accessed from <http://www.facs.org/trauma/resourcesoptimal.html> on October 28, 2008, p 1-8

APPENDIX E. ORTHOPAEDIC INSTITUTE OF MEDICINE SURVEY

American Orthopaedic Association 2008 Research Project - Analysis & Result Reporting

Survey Highlights

Survey Methodology and Return Rate

- Perception Solutions (PS) assisted American Orthopaedic Association (AOA) with a Web-based research survey. The survey was conducted during May and June 2008.
- PS programmed the survey and AOA sent out e-mail invitations to its members.
- A total of 1,527 members participated in the survey. The sample size is statistically valid.
- The survey has an error margin of +/- 5% and a confidence level of 95%. "The confidence level means that if we repeat this survey, we would receive the exact same response 95% of the time,"
- The survey included 25 questions and included several open-ended/comment fields.

Your Practice

- About 41% of survey participants practiced in a "Community - General Orthopaedic Surgeon" setting. Another 42% practiced in a "Community - Specialty Practice" setting. The remaining 18% were from academic/university practices.
- Those in specialty practices mostly selected "hand", "sports medicine", and "general" as their specialties.
- Over 44% of participants selected "suburban community" as their primary practice location. About 37% selected "urban community."
- 29% of participants had been in practice for 21 or more years. The remaining had been in practice from 5 to 20 years.

Orthopedic On-call Coverage

- More than two third of survey respondents indicated that there was a problem with orthopaedic on-call coverage in their communities. About 90% of these respondents indicated that the problem affected them and their practices.
- About 75% indicated that they took general orthopaedic calls (call for any orthopaedic patient who came to their Emergency Departments). Many (73%) took calls because they were mandatory by hospital by laws. About half of those taking call also selected "personal responsibility to my community."
- Only 31% of those taking calls were first responders.
- The majority of respondents (71%) indicated the ideal call frequency to be "1 in 5 or more."
- Over 57% of those taking calls indicated that they received no compensation for call coverage.
- About 32% considered \$1,000 as an adequate pay for a session (a session is defined as 24 hours) on-call. About 26% selected \$1,500 per session, and 18% selected \$2,000 per session.
- Over 83% of respondents that took call indicated that If a hospital required them to take call, the hospital should provide compensation for care to uninsured patients. They also indicated that hospitals should provide daily OR time for urgent cases and ancillary health care providers to assist in ER care.
- When asked "do you favor regionalization of fracture care in your community, where after-hours fracture care would only be provided at a single hospital(s) in a city or a part of a state?", over 62% said no.
- When asked "would you favor prohibiting candidates from taking Part II of the ABOS certification exam if they did not take emergency room call?", about 65% said no.
- Over 81% of survey respondents indicated that their practice profiles provided them with adequate skills/training to participate in acute orthopaedic care.

American Orthopaedic Association
2008 Research Project - Analysis & Result Reporting

Survey Highlights

- When asked "would you support general surgeons who are appropriately trained in fracture management participating in general orthopaedic call at your hospital?", over 74% said no.
- Major barriers to orthopaedic surgeons participating in call coverage in their communities included: "disruption of surgeons lifestyle and family life", "inadequate compensation from hospital for call coverage", and "disruption of elective orthopaedic practice." Survey participants also provided many other factors listed in the comments section of this report.
- Most respondents selected "subsidization for indigent care", "limited non economic damage tort reform", and "no fault malpractice insurance" as factors that would make "taking calls" more acceptable to them.
- When asked "do you think that the creation of an orthopaedic fracture service staffed by hospital paid orthopaedic surgeons would benefit ER call and help the problem?", about 68% said yes.
- When asked "do you believe that it is necessary for you as an orthopaedic surgeon to assess a patient prior to transfer to a higher level hospital?", about 61% said no.

ABOS Guidelines

- Over 25% of survey participants were aware of ABOS guidelines. Only 45% of all participants supported the guidelines. There were many comments provided that are listed in the comments section of this report.


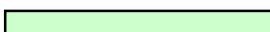

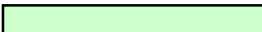








Participants' Comments

- Survey participants provided many insightful comments and suggestions. Comment summary as well as complete list of all responses to open-ended questions and comments are included in this report.

Your Practice

		Sample size	%	
2. What is your primary practice type?				
	Community - General Orthopaedic Surgeon	613	40.5%	41%
	Community - Specialty Practice *	628	41.5%	42%
	Academic/University Practice	271	17.9%	18%
	<i>Total</i>	1,512		
3. Do you consider your primary practice to be serving a(n):				
	Urban community	550	36.5%	37%
	Suburban community	674	44.8%	45%
	Rural community	282	18.7%	19%
	<i>Total</i>	1,506		
*4. Please indicate your specialty and the percent of time spent in this specialty:				
			Average %	
	General	208	8.8%	9%
	Hand	237	32.9%	33%
	Sports Medicine	169	16.8%	17%
	Trauma	188	9.4%	9%
	Spine	68	8.6%	9%
	Other	194	23.5%	24%
	<i>Total</i>		100.0%	
5. How many years have you been in the practice?				
	5 years or less	258	17.4%	17%
	6 to 10 years	264	17.8%	18%
	11 to 15 years	302	20.3%	20%
	16 to 20 years	232	15.6%	16%
	21 or more years	431	29.0%	29%
	<i>Total</i>	1,487		

Orthopedic On-call Coverage

		Sample size	%	
6. Is there a problem with orthopaedic on-call coverage in your community?				
Yes *		1,019	68.9%	 69%
No		459	31.1%	 31%
Total		1,478		
* 7. Does this problem with orthopaedic on-call coverage in your community affect you and your practice?				
Yes		912	89.7%	 90%
No		105	10.3%	 10%
Total		1,017		
8. Do you take general orthopaedic call (call for any orthopaedic patient who comes to your Emergency Department)?				
Yes *		1,097	74.7%	 75%
No		371	25.3%	 25%
Total		1,468		
* 9. Why do you take call? (Select all that apply.)				
Mandatory by hospital by laws		800	72.9%	 73%
Personal interest in trauma		293	26.7%	 27%
Personal responsibility to my community		556	50.7%	 51%
It is a professional obligation of orthopaedic surgeons		421	38.4%	 38%
Other		184	16.8%	 17%
Selected Participants* (some selected more than 1 choice)		1,097		
10. Are you the first responder or does another provider provide initial response and contact you only as needed?				
First Responder		334	30.7%	 31%
Contacted Only As Needed		753	69.3%	 69%
Total		1,087		





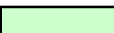







* Selected participants answered "yes" to Q8.

Orthopedic On-call Coverage

		Sample size	%	
11. What would you feel would be the ideal call frequency?				
	1 in 2	0	0.0%	0%
	1 in 3	9	0.8%	1%
	1 in 4	78	7.2%	7%
	1 in 5 or more	774	71.3%	71%
	Subspecialty call	224	20.6%	21%
<i>Total</i>		1,085		
12. How much do they pay you per session (a session is defined as 24 hours)?				
	\$500 per session	54	5.0%	5%
	\$1,000 per session	118	10.9%	11%
	\$1,500 per session	45	4.2%	4%
	\$2,000 per session	18	1.7%	2%
	More than \$2,000 per session	21	1.9%	2%
	Other	206	19.0%	19%
	No compensation received for call coverage	621	57.3%	57%
<i>Total</i>		1,083		
13. What do you consider adequate pay for a session (a session is defined as 24 hours) on-call?				
	\$500 per session	65	6.1%	6%
	\$1,000 per session	348	32.4%	32%
	\$1,500 per session	284	26.4%	26%
	\$2,000 per session	189	17.6%	18%
	More than \$2,000 per session	108	10.1%	10%
	Other	80	7.4%	7%
<i>Total</i>		1,074		
14. Does your hospital support you with any of the following resources? (Select all that apply.)				
	A daily fracture OR room	192	17.5%	18%
	Mid-level support (PA or NP)	193	17.6%	18%
	Subsidization for indigent patient care	143	13.0%	13%
	Other	244	22.2%	22%
<i>Selected Participants* (some selected more than 1 choice)</i>		1,097		

* Selected participants answered "yes" to Q8.

Orthopedic On-call Coverage

	Sample size	%	
15. If a hospital requires you to take call, the hospital should provide you with the following resources? (Select all that apply.)			
Compensation for care to uninsured patients	919	83.8%	 84%
Fracture clinics	352	32.1%	 32%
Daily OR time for urgent cases	918	83.7%	 84%
Ancillary health care providers to assist in ER care	759	69.2%	 69%
<i>Selected Participants* (some selected more than 1 choice)</i>		1,097	
16. Do you favor regionalization of fracture care in your community, where after-hours fracture care would only be provided at a single hospital(s) in a city or a part of a state?			
Yes	540	37.5%	 38%
No	899	62.5%	 62%
<i>Total</i>	1,439		
17. Would you favor prohibiting candidates from taking Part II of the ABOS certification exam if they did not take emergency room call?			
Yes	503	35.0%	 35%
No	933	65.0%	 65%
<i>Total</i>	1,436		
18. Does your practice profile, provide you with adequate skills/training to participate in acute orthopaedic care?			
Yes	1167	81.4%	 81%
No	267	18.6%	 19%
<i>Total</i>	1,434		
19. Would you support general surgeons who are appropriately trained in fracture management participating in general orthopaedic call at your hospital?			
Yes	368	25.7%	 26%
No	1062	74.3%	 74%
<i>Total</i>	1,430		

* Selected participants answered "yes" to Q8.

Orthopedic On-call Coverage

20. What do you believe are the major barriers to orthopaedic surgeons participating in call coverage in your community?		
<i>Select all that apply and rank those selected from 1 to 7.</i>	<i>Average Score</i>	<i>Rank</i>
Disruption of surgeons lifestyle and family life	2.49	1
Inadequate compensation from hospital for call coverage	2.90	2
Disruption of elective orthopaedic practice	2.92	3
Monetary effects of high load of uninsured patients	3.21	4
Increased professional liability risk	3.41	5
Other	3.42	6
Surgeons have received inadequate training to manage the majority of cases encountered on call	5.34	7

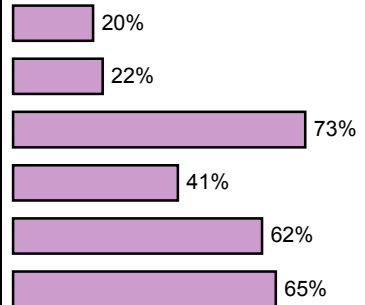
Highest



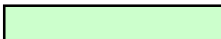

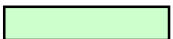

Lowest

<i>Sample size</i>	<i>%</i>
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21. Which of the following would make taking call more acceptable to you?		
Universal health care insurance	304	19.9%
Catastrophic health care coverage	341	22.3%
Subsidization for indigent care	1,112	72.8%
Fully equipped OR for fracture management	627	41.1%
No Fault malpractice insurance	948	62.1%
Limited non economic damage tort reform	1,000	65.5%
<i>Total Participants (some selected more than 1 choice)</i>	1,527	



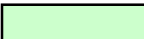



Orthopedic On-call Coverage

		Sample size	%	
22. Do you think that the creation of an orthopaedic fracture service staffed by hospital paid orthopaedic surgeons would benefit ER call and help the problem?				
Yes		963	68.0%	 68%
No		454	32.0%	 32%
<i>Total</i>		1,417		
23. Do you believe that it is necessary for you as an orthopaedic surgeon to assess a patient prior to transfer to a higher level hospital?				
Yes		552	39.0%	 39%
No		865	61.0%	 61%
<i>Total</i>		1,417		

ABOS Guidelines

The ABOS Credentialing Committee has revised the peer review evaluation to include issues pertaining to professional responsibilities for patient care. The candidates for certification and recertification/maintenance of certification (MOC) will now be evaluated for their participation in emergent and indigent care responsibilities by both their peers and the directors of the emergency departments at their hospitals.

		Sample size	%	
24a. Are you aware of the above ABOS guidelines?				
Yes		359	25.5%	 25%
No		1,049	74.5%	 75%
<i>Total</i>		1,408		
24b. Do you support these guidelines?				
Yes		637	45.2%	 45%
No		771	54.8%	 55%
<i>Total</i>		1,408		

Q1. In which city, state is your practice located?

City, State	n	City, State	n	City, State	n
Abilene, TX	1	france	1	Newton, MA	1
Ahmedabad	1	frankfort,ky	1	Noblesville, IN	1
Aiken, SC	1	Franklin, NC	1	Norman, Oklahoma	1
airmont,ny	1	Fredericksburg, VA	1	North Carolina	2
akron, ohio	3	fremont, ca	2	northampton, MA	1
ala	1	Fresno	1	northfield,nj	1
alaska	2	fresno,ca	2	Norwalk, CT	1
Albany, GA	1	Ft Walton Beach Fl	1	NORWOOD, MASSACHUSETTS	1
albany, new york	2	Ft. Lauderdale, Florida	1	ny	7
albuquerque new mexico	6	Fullerton, California	1	ny ny 10075	1
Alexandria, MN	1	ga	2	Oak Park, IL	1
Alexandria, Virginia	1	Gainesville, Florida	3	Oak Ridge Tn	1
Alhambra, CA	1	Gainesville, GA	1	oakland, ca	5
All, US	1	Gallup	1	Ocala, FL	1
allas	1	Gastonia,NC	1	Ocean Springs, MS	1
allentown, pa	2	geneva, illinois	1	Oceanside, CA	1
Altoona,PA	1	georgia	6	Ogden, UT	1
Ames, IA	1	gibson city, illinois	1	ohio	9
Anaheim, CA	1	gilbert, arizona	2	Ohio and West Virginia	1
anc,ak	1	glen burnie,md	1	oklahoma	4
Anchorage, AK	1	Glen Carbon, IL	1	oklahoma city, OK	2
Anchorage, Alaska	1	Glenview, IL	1	Olimpia Washington	1
Anderson, SC	1	Gloucester, Virginia	1	Olney, Maryland	1
anderson,IN	1	Goldsboro, North Carolina	1	olympia fields, il	2
Ann Arbor Michigan	3	Gonzales,Louisiana	1	Olympia, washington	1
annapolis, maryland	1	Goodyear, Arizona	1	Omaha, Nebraska	9
apple valley	1	Goshen,in	1	Omigod, Ohio	1
Appleton, Wisconsin	1	Grand Junction, CO	7	Orange Park, FL	2
appleton,WI	1	Grand Rapids	2	Oregon	2
arizona	6	Grand Rapids , Michigan	3	Orlando, FL	5
Arkansas	2	Grand Rapids, Minnesota	2	Oshkosh, WI	2
arlington heights, IL	1	grandview, missouri	1	overland park, ks	1
arlington, tx	1	Grants Pass, OR	2	Owensboro, KY	3
Asheboro, NC	1	Great Neck, New York	3	pa	2
Asheville, NC	3	greeley,colo	1	Palmer, AK	1
ashland,kentucky	1	green bay, wi	1	Palo Alto, CA	1
Athens, Ga	2	Greenberg, PA	1	palos heights, IL	1
Atlanta, Georgia	18	Greensboro NC	1	pampa tx	1
Atlanta, GA-Retired	1	Greenville, SC	5	Panama City, FL	2
Auburn, WA	1	Greenville, Texas	1	PANAMA REP. OF PANAMA	1
auburn,wa	1	gresham, or	1	Paragould, Arkansas	1
Augusta, Georgia	2	Groton, CT	2	paramus, nj	2
augusta, me	1	Gulf Breeze, FL	1	Parsons, KS	1
Aurora,illinois	2	Hackensack, NJ	1	Pasadena,CA	1
austin,texas	3	Hamilton, MT	1	Patchogue, NY	2
aventura	1	Harrisonburg, VA	2	Paterson NJ	1
avon, CT	1	hartford, CT	3	Peabody, MA	2
Bakersfield, CA	1	hastings, michigan	1	Pennsylvania	5
baltimore	2	hawaii	2	pensacola, florida	3
Baltimore, Maryland	6	Heber Springs,Arkansas	1	peoria ill	1
Bangor, Maine	3	Helena, MT	1	petoskey, mi	1

Q1. In which city, state is your practice located?

City, State	n	City, State	n	City, State	n
bartlesville, ok	1	herrin illinois	1	Philadelphia, PA	4
bartlett, illinois	1	hershey, PA	1	Phoenix, AZ	13
Batesville, Arkansas	1	hillsboro,oregon	1	pikeville, ky	2
Baton Rouge, Louisiana	2	Hilo, HI	1	Pinellas Park,FL	1
bay city, michigan	1	hinsdale, il	2	Pismo Beach, CA	1
bc	1	Hoffman Estates, Illinois	1	Pittsburgh, PA	3
Beaufort, SC	2	holyoke,ma	1	Pittsfield, MA	2
Beaumont, Texas	1	honolulu	2	plano, texas	2
beaumont, tx	2	Honolulu, Hawaii	1	Plantation, Florida	1
Beaver Dam, WI	2	Honolulu, HI	1	Pleasanton, Texas	1
bedford, in	1	Horrman Estates, Illinois	1	Port Angeles, WA	1
bedford, PA	1	Hot Springs, Arkansas	1	Port Saint Lucie, FL	2
Bedminster, NJ	1	houston texas	2	portland maine	2
Belleville, Ill	1	Houston, Texas	17	portland oregon	7
Bellevue, WA	1	huntington, west virginia	1	portland, maine	2
Beloit, Wisconsin	1	Huntington, WV	1	portoalegre	1
Bemidji, MN	1	huntington,new york	2	portsmouth oh	1
Bend,OR	1	huntsville, AL	1	Pottsville,PA	2
bend,oregon	1	Hurst, Texas	1	Prescott, AZ	1
Berlin, VT	1	Hyannis, Massachusetts	2	Price, Utah	1
Berlin, Wisconsin	1	idaho	2	Princeton, WV	1
bethlehem Pa.	1	Idaho falls, ID	1	princeton,nj	1
Billings MT	1	iowa	3	Providence, RI	2
Billings, Montana	3	Illinois	12	Provo, Utah	1
Birmingham, Alabama	8	Independence,Ks	1	Puyallup, wa	1
Blackfoot, Idaho	1	Indiana	5	Quincy, IL	1
Bloomington, Indiana	1	Indianapolis, Indiana	11	Raleigh, NC	4
Boaz, AL	1	iowa City, iowa	2	RANCHO MIRAGE, CA	1
Boca Raton, FL	1	Iron Mountain, MI	1	rancho mirage, California	1
boca raton, florida	2	irvine, ca	1	Randolph, NJ	1
Boise, ID	2	Ithaca, NY	1	randolph, vermont	1
Boone, NC	1	jackson ms	1	reading pa	1
Boston, MA	9	Jackson, Tennessee	1	red bank,nj	1
Boulder, Co.	3	Jacksonville, Florida	5	Redlands	1
Bowling Green,KY	1	Jacksonville, IL	1	Redlands, CA	6
Bradenton, Florida	2	Jacksonville, NC	2	Redmond ,OR	1
Brenham, Texas	1	japan	1	Reidsville, NC	1
brevard nc	1	Jasper, GA	1	reno, nv	2
bridgewater New Jersey	1	Johnstown, Pennsylvania	1	reston, va	1
bridgewater, nj	1	Joliet, IL	2	retired	2
Brighton, MI	1	Joplin, MO	1	Rhineland, WI	1
bristol	1	Kalamazoo, Michigan	2	Rhode Island	2
bristol, ct	1	kansas	3	Richardson	1
Bristol, TN	1	kansas city	1	Richland, Washington	2
Bronx, NY	2	Kansas City, KS	1	Richmond, Virginia	8
Brooklyn, NY	2	kansas city, MO	3	Riverside, California	2
buffalo, ny	2	Kaufman, TX	1	riverton, wy	1
Burbank, CA	1	kearney, nebraska	1	Roanoke, VA	2
Burlingame, CA	1	Keene, NH	2	Rochester, MI	1
burlington, mass	1	Kenosha, WI	1	Rochester, Minnesota	3
Burlington, nc	2	Kent, Ohio	1	rochester, new york	7

Q1. In which city, state is your practice located?

City, State	n	City, State	n	City, State	n
Burlington, VT	1	Kentucky	3	Rockford, Illinois	2
BUTLER PA	1	Ketchum, ID	1	Rockville, MD	1
ca	6	Kill Devil Hills, NC	1	Rome, NY 13440	1
Caguas, PR	1	Killeen, Texas	1	Roseville, CA	2
California	10	Kingsport, TN	2	Royal Oak	1
camarillo, California	1	kingwood	1	royal oak michigan	1
Cambridge, MN	2	Kissimmee, FL	1	Rural town, Indiana	1
canandaigua, ny	1	knoxville, tennessee	1	Sacramento, CA	5
canton, ohio	1	KY	1	safford, AZ	1
Cape Girardeau, MO	1	la mesa, ca	1	saginaw, mi	1
Carlisle, PA	1	Lafayette, Colorado	1	saint cloud, mn	1
Carson city, Nevada	2	Lafayette, IN	1	saint louis, mo	1
Casper, Wyoming	2	Lafayette, LA	2	Salem, VA	3
Castro Valley, CA	1	Laguna Woods, California	1	saalem, ma	1
Cedar Knolls, NJ	1	LaJolla, CA	1	saalem, oregon	1
Cedar Rapids, Iowa	2	lake charles, la	2	Salmon, ID	1
Centralia, WA	2	Lake Mary, Florida	1	Salt lake City, Utah	4
Chambersburg PA	1	Lakeland, FL	3	San Angelo, TX	1
Chapel Hill, NC	4	lakewales, florida	1	San Antonio, TX	9
charleston, wv	1	Lakewood, CA	1	san cristobal, edo. tachira	1
Charleston, SC	6	Lancaster, PA	1	San Diego, CA	9
Charlotte	1	Landstuhl, Germany	1	San dimas, California	1
Charlotte, NC	4	Lansing, Michigan	2	San Francisco, California	3
charlotte, north carolina	1	lapeer, mi	1	San Jose, CA	1
Charlottesville, VA	1	LaPlace, LA	1	San Pedro, CA	1
Chattanooga, TN	3	Laramie, WY	2	Sandpoint Idaho	1
CHESAPEAKE, VA	1	larkspur, california	1	Santa Barbara, California	1
chestertown, md	1	las cruces, nm	1	Savannah, GA	4
Cheyenne, WY	1	Las Vegas, Nevada	4	SC	2
Chicago Heights, IL	1	lawrence KS	1	SD	1
Chicago, Illinois	14	Lawrenceburg IN	1	Seattle, WA	13
Christiansburg, VA	1	Lawrenceville, GA	1	Sebring, Florida	2
chula vista, CA	1	Lawrenceville, NJ	1	Sheboygan, Wisconsin	1
cincinnati, ohio	6	Layton, Utah	3	Shelton, Connecticut	1
Clark, NJ	1	lebanon, nh	1	Shreveport, Louisiana	2
Clarkston, MI	1	lecanto, florida	1	Siloam Springs, AR	1
Clearwater, Florida	1	leesburg va.	1	Silver Spring, MD	2
Cleveland, Ohio	6	Leesville, LA	1	Silverdale, WA	2
Cleveland, TX	1	leonardtown, maryland	1	Sioux Falls, SD	3
clinton, iowa	1	Lewisburg PA	1	Somerset, KY	1
Clyde, North Carolina	1	lexington	2	somerset, pa	1
coeur d alene, ID	1	Lexington Kentucky	5	sonora CA	1
colebrook NH	1	Libertyville, IL	1	south carolina	1
College Station, Texas	1	LIMA	1	south carolina, spartanburg	1
Collierville, Tennessee	1	lincolnshire, il	1	south lake tahoe, ca	1
colonial heights, va	2	Lincolnton, nc	1	South Plainfield, NJ	1
colorado	1	Little Falls, MN	1	Southfield, Michigan	2
colorado springs, colorado	2	little rock, ar	2	sparta, nj	1
columbia TN	1	Livingston, NJ	1	Spencer, Iowa	3
Columbia, Missouri	2	Ljubljana, Slovenija	1	Spokane, WA	4
columbia, sc	4	Lockport, NY	2	springfield, illinois	3
Columbus, OH	4	Loma Linda, CA	1	Springfield, MA	1
concord california	1	London, Ontario	1	Springfield, MO	10
conn	1	Long Beach, CA	1	springfield, oregon	1
connecticut	2	Longview, Texas	1	Springfield, ohio	1
conroe, texas	1	Lorain, Ohio	1	St. Cloud, MN	2
Conway, South Carolina	1	Los Angeles, California	9	St. Louis MO	8
Conway, AR	1	Los Gatos, CA	2	St. Paul, MN	2
conway, SC	1	Louisiana	2	steubenville ohio	1

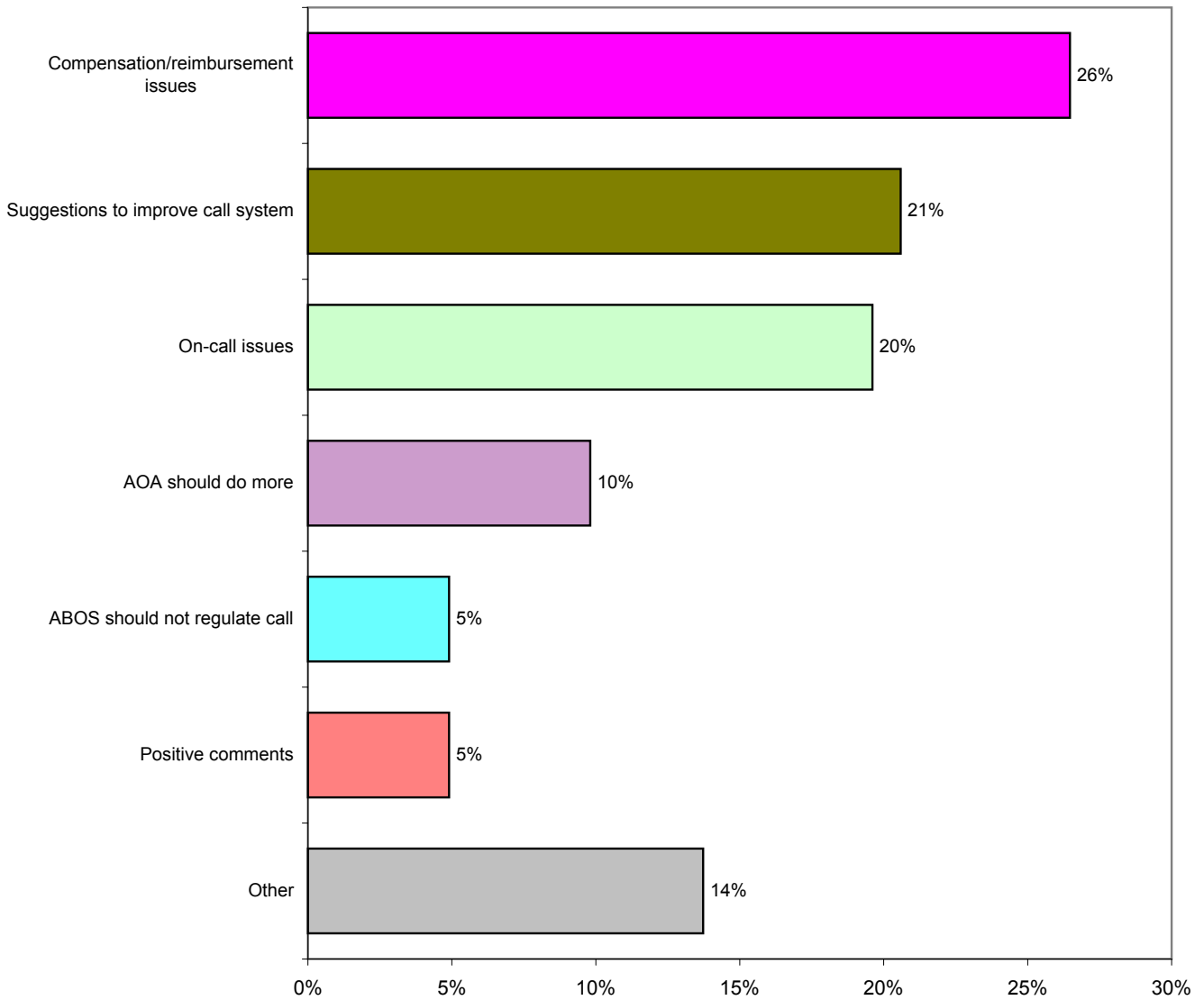
Q1. In which city, state is your practice located?

City, State	n	City, State	n	City, State	n
Cooperstown, NY	2	Louisville, Kentucky	5	Stockton, California	5
Coos Bay, OR	1	Lubbock, Texas	3	Stroudsburg, PA	1
Corning, NY	1	Iudington, MI	1	Syracuse, NY	2
corpus christi, texas	3	Lynchburg, Virginia	2	Tacoma, Washington	3
corvallis	1	MA	4	tallahassee, florida	1
Corvallis, Oregon	2	Macon, GA	3	Tampa, FL	2
Cottonwood, Arizona	2	madisonville,ky	1	teaneck	1
council bluffs, iowa	1	Maine	2	temecula,ca	1
Covina, CA	1	manahawkin, new jersey	1	temple, texas	2
Covington, WA	1	manassas, va	1	templeton,ca	1
Crookston MN	1	Manhasset, NY	1	Tennessee	1
crystal lake illinois	1	manitowoc, wisconsin	1	Texarkana, TX	1
CT	2	Marietta, GA	1	Texas	10
culpeper,va.	2	Marietta, Ohio	1	The Dalles, Oregon	1
dahlonoga,ga	1	Marlton, NJ	4	The Woodlands	1
Dallas, TX	6	Marquette,Michigan	1	thomaston, ga	1
Danbury, CT	1	marrero,la	1	Thomasville, Georgia	3
Dansville, NY	1	maryland	2	Thornton, CO	2
Danville, VA	1	Maryville tennessee	1	tifton, georgia	1
Danville,Ky	1	mason city, iowa	5	Toledo, Ohio	1
daphne, al	2	Massachusetts	3	Topeka, KS	1
Davenport, IA	1	Massapequa, NY	1	Torrance, CA	2
Davis, CA	3	maywood, illinois	2	torrington, ct	1
Dayton, Ohio	1	Mc Minnville, TN	1	Traverse City, MI	1
Daytona Beach, FL	1	McKinney Tx	1	Tualatin, OR	1
DC	1	meadowbrook, pa	1	tucson, az	6
DECATUR, ILLINOIS	1	melbourne, FL	3	Tulsa, Ok	2
deland,fl	1	memphis, tn	2	tupelo, ms	1
Denton, Texas	2	Merrillville, Indiana	1	tx	6
Denver, Colorado	12	mesa az	1	Tyler,Tx	2
Derry, NH	1	Metairie, Louisiana	1	Urbana, IL	2
Des Moines, Iowa	4	Mexico, MO	1	Utah	2
detroit lakes mn	1	miami, FL	2	Utica, NY	1
Detroit, Michigan	2	Miami Beach, Florida	1	VA	1
dickson,tn	1	Michigan	5	Valdosta, GA	1
dothan, alabama	1	Middlebury, CT	1	vallejo, ca	2
Douglas, GA	1	Midland, Michigan	2	Valparaiso IN	1
douglas, wyoming	1	midland,tx	1	vancouver bc	1
Dover, Delaware	1	Miinneapolis, MN	1	Vancouver, WA	1
dover, nh	1	Milford, CT	1	vermont	2
downers grove, illinois	1	Milledgeville, GA	1	vero beach, FL	2
Downey,ca	1	Milwaukee, Wisconsin	10	Victoria, TEXAS	1
Doylestown, PA	2	Mineola	1	Vincennes, IN	2
Dublin Georgia	1	mineola, NY	1	Vineland, nj	1
Dubuque, Iowa	2	Minneapolis, Minnesota	6	Virginia	4
Dunkirk, NY	1	Minnesota	6	Virginia Beach, VA	1
Durango, CO	1	Misawa AB, Japan	1	Visalia, CA	1
Durham, N.C.	3	Mississippi	2	Voorhees, NJ	1
duxbury ma	1	missouri	5	wa	3
Easley, SC	1	Mobile, AL	1	Waco, Tx	1
Easton	1	Modesto, CA	2	Wailuku, HI	1
Easton, Maryland	2	Monroe, LA	1	Walnut Creek, CA	5
Easton, Pennsylvania	1	montana	2	ware, mass	1
eatontown, nj	1	montclair ca	1	Warner Robins, GA	1
Eau Claire	1	Montclair, New Jersey	1	warrenton,virginia	1
Edgewood, KY	1	Montgomery, AL	2	Warrenville, Il	1
Edina,MN	1	Montreal, Canada	1	warwick, rhode island	1
effingham, il	1	montrose, co	1	Warwick, RI	5
El Paso, Texas	5	Morehead City, NC	3	Washington	4
Elgin, Illinois	1	Morgan City, LA	1	Washington, D.C.	5
Ellicott City,Md	1	Morganton, NC	1	Waterbury, CT	4

Q1. In which city, state is your practice located?

City, State	n	City, State	n	City, State	n
Ellsworth, ME	1	Morgantown, WV	1	Watsonville, Ca	1
elmhurst, IL	1	Morris, MN	1	Waukesha, WI	2
emporia,kansas	1	Mount Vernon, WA	2	Wausau,WI	1
encinitas,ca	1	Mountlake Terrace, WA	1	Waycross	1
enfield,ct	1	MS	1	Waynesville, NC	1
Englewood, Colorado	2	mt	1	West Chester PA	3
Erie, PA	2	Mt. View, CA	1	West Palm Beach, FL	3
Escondido, California	1	Murray, Ky	1	West Virginia	1
Eugene,OR	2	Murrieta, California	1	westlake, oh	1
Evansville, Indiana	2	myrtle beach, sc	1	Weston, WV	1
Everett, WA	1	Nacogdoches, TX	1	Weymouth, MA	2
Exeter, NH	1	Nampa, Idaho	1	white plains, ny	3
fairfax, va	3	napa, ca	1	whittier, ca	1
Fairfield,CT	1	Naples, FL	1	Wichita Falls, Texas	1
Falls Church, VA	1	Nashville, TN	7	Wichita, Kansas	4
falmouth	1	Natchez MS	1	williamsville, ny	1
falmouth,MA	1	NC	7	willoughby,ohio	1
Fargo, ND	1	NE	1	Wilmington, NC	2
FARMINGDALE, New York	1	Nebraska	1	windsor, vt	1
Farmington Hills, MI	1	Neenah, WI	1	winston salem, nc	1
Farmington, Maine	1	Nelspruit	1	Wisconsin	3
Farmington, NM	1	new brunswick, nj	1	Wisconsin Rapids, WI	2
Fayetteville, AR	2	New Haven, CT	2	Woburn, Massachusetts	2
Fayetteville, NC	2	new iberia, la	2	Worcester MA	4
fgh	1	new jersey	3	wv	1
Findlay, Ohio	2	New Orleans, LA	2	Wyoming	2
FISHERSVILLE, VA	1	New York, NY	55	Yakima, WA	2
Flint, MI	1	Newark	1	York, PA	1
Florence, AI	1	Newark ohio	1	youngstown, OH	3
florida	12	Newark, DE	1	Ypsilanti, Michigan	1
Fort Collins CO	1	Newark, NJ	1	Yuba City, CA	1
Fort Worth, Texas	2	Newport Beach	1	Yuma, AZ	1
Fountain Valley, CA	1				

25. Additional Comments:



* Comment summary is based on random review of comments.

LIST OF ABBREVIATIONS

AAOS	American Academy of Orthopaedic Surgeons
AAST	American Association for the Surgery of Trauma
ABOS	American Board of Orthopaedic Surgery
ACEP	American College of Emergency Physicians
ACGME	Accreditation Council for Graduate Medical Education
ACS	American College of Surgeons
AOA	American Orthopaedic Association
ED	Emergency department
EMTALA	Federal Emergency Medical Treatment and Labor Act
MICRA	California Medical Injury Compensation Reform Act of 1975
OIOM	Orthopaedic Institute of Medicine
OR	Operating room
OTA	Orthopaedic Trauma Association
POSNA	Pediatric Orthopaedic Society of North America
RRC	Resident Review Committee
SOP	Standards of Professionalism

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