

Program Requirements for Graduate Medical Education in Hand Surgery

Common Program Requirements are in Bold
Subspecialty Specific Requirements are Not Bolded

I. Introduction

A. Definition and scope of subspecialty

Hand surgery is a surgical subspecialty that is focused on the study of congenital and acquired defects of the hand and wrist that compromise the function of the hand and their treatment by medical, surgical, or physical methods.

B. Duration and scope of education

1. A hand surgery educational program is designed to educate physicians in the art and sciences of the hand surgery and to develop a competent hand surgeon who is capable of independent function. The educational program should provide experience in the repair, resection, and reconstruction of defects of form and function of the hand; in the design, construction, and transfer of flaps and the transplantation of tissues, including microsurgery of multiple tissues; in surgical and ancillary methods of treatment of tumors; in management of complex wounds; and in the use of alloplastic materials.
2. Prerequisite education must be completed in a general surgery, orthopaedic surgery, or plastic surgery program accredited by the Accreditation Council for Graduate Medical Education (ACGME) or the Royal College of Physicians and Surgeons of Canada.
3. The length of the education program is 1 year.

II. Institutions

A. Sponsoring Institution

One sponsoring institution must assume ultimate responsibility for the program, as described in the Institutional Requirements, and this responsibility extends to fellow assignments at all participating institutions.

B. Participating Institutions

1. **Assignment to an institution must be based on a clear educational rationale, integral to the program curriculum, with**

clearly-stated activities and objectives. When multiple participating institutions are used, there should be assurance of the continuity of the educational experience.

2. **Assignment to a participating institution requires a letter of agreement with the sponsoring institution. Such a letter of agreement should:**
 - a) **identify the faculty who will assume both educational and supervisory responsibilities for fellows;**
 - b) **specify their responsibilities for teaching, supervision, and formal evaluation of fellows, as specified later in this document;**
 - c) **specify the duration and content of the educational experience; and**
 - d) **state the policies and procedures that will govern fellow education during the assignment.**
3. Assignments to participating institutions must be based on an appropriate educational rationale. Assignments that dilute the education of fellows or that do not provide proper supervision and coordination of educational activities should not be established or maintained.
4. Assignments to participating institutions that are geographically distant from that sponsoring institution are not desirable. To be justifiable, such assignment must offer special resources or opportunities not otherwise available to the program.
5. The number and location of participating institutions must not preclude the participation of fellows and faculty in the educational activities of the hand surgery course of study.

III. Program Personnel and Resources

A. Program Director

1. **There must be a single program director responsible for the program. The person designated with this authority is accountable for the operation of the program. In the event of a change of either program director or department chair, the program director should promptly notify the executive director of the RRC through the Web Accreditation Data System of the ACGME.**

- 2. The Program Director, together with the faculty, is responsible for the general administration of the program, and for the establishment and maintenance of a stable educational environment. Adequate lengths of appointment for both the program director and faculty are essential to maintaining such an appropriate continuity of leadership.**
- 3. Qualifications of the program director are as follows:**
 - a) The program director must possess the requisite specialty expertise, as well as documented educational and administrative abilities.**
 - b) The program director must be certified in Hand Surgery by an ABMS Board, or possess qualifications judged to be acceptable by the RRC.**
 - c) The program director must be appointed in good standing and based at the primary teaching site.**
 - d) Frequent changes in leadership, or long periods of temporary leadership, are undesirable and may adversely affect the accreditation status of the program.**
- 4. Responsibilities of the program director are as follows:**
 - a) The program director must oversee and organize the activities of the educational program in all institutions that participate in the program. This includes selecting and supervising the faculty and other program personnel at each participating institution, appointing a local site director, and monitoring appropriate fellow supervision at all participating institutions.**
 - b) The program director is responsible for preparing an accurate statistical and narrative description of the program as requested by the RRC, as well as updating annually both program and fellow records through the ACGME's Accreditation Data System.**
 - c) The program director must ensure the implementation of fair policies, grievance procedures, and due process, as established by the sponsoring institution and in compliance with the Institutional Requirements.**
 - d) The program director must seek the prior approval of the RRC for any changes in the program that may significantly alter the educational experience of the**

fellows. Such changes, for example, include:

- (1) the addition or deletion of a participating institution;**
- (2) a change in the format of the educational program;**
- (3) a change in the approved fellow complement for those specialties that approve fellow complement.**

On review of a proposal for any such major change in a program, the RRC may determine that a site visit is necessary.

- e) Ensure that each fellow is provided with a sufficient educational program, including a sufficient volume and variety of operative experience and progressive surgical responsibility.
- f) Annually collect, compile, and retain the number and types of hand surgery operative procedures performed in all institutions used for fellow education. These data must be provided in the form and format specified by the RRC.
- g) Annually collect, compile, and retain a comprehensive record of the operative procedures performed by each hand surgery fellow completing the program. This information must be provided in the form and format specified by the RRC. This record must be signed by the hand surgery fellow and the program director, attesting to its accuracy.
- h) Advise applicants of the prerequisite requirements of the appropriate specialty board.

B. Faculty

- 1. At each participating institution, there must be a sufficient number of faculty with documented qualifications to instruct and supervise adequately all fellows in the program.**
- 2. The faculty, furthermore, must devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities. They must demonstrate a strong interest in the education of fellows, and must support the goals and objectives of the educational program of which they are a member.**
- 3. Qualifications of the physician faculty are as follows:**

- a) **The physician faculty must possess the requisite specialty expertise and competence in clinical care and teaching abilities, as well as documented educational and administrative abilities and experience in their field.**
 - b) **The physician faculty must be certified by an ABMS Board, or possess qualifications judged to be acceptable by the RRC.** The majority of the faculty must possess certificates in Hand Surgery from an ABMS Board.
 - c) **The physician faculty must be appointed in good standing to the staff of an institution participating in the program.**
4. **The responsibility for establishing and maintaining an environment of inquiry and scholarship rests with the faculty, and an active research component must be included in each program. *Scholarship* is defined as the following:**
- a) **the scholarship of *discovery*, as evidenced by peer-reviewed funding or by publication of original research in a peer-reviewed journal;**
 - b) **the scholarship of *dissemination*, as evidenced by review articles or chapters in textbooks;**
 - c) **the scholarship of *application*, as evidenced by the publication or presentation of, for example, case reports or clinical series at local, regional, or national professional and scientific society meetings.**

Complementary to the above scholarship is the regular participation of the teaching staff in clinical discussions, rounds, journal clubs, and research conferences in a manner that promotes a spirit of inquiry and scholarship (e.g., the offering of guidance and technical support for fellows involved in research such as research design and statistical analysis); and the provision of support for fellows' participation, as appropriate, in scholarly activities.

5. **Qualifications of the nonphysician faculty are as follows:**
- a) **Nonphysician faculty must be appropriately qualified in their field.**
 - b) **Nonphysician faculty must possess appropriate institutional appointments.**

C. Other Program Personnel

Additional necessary professional, technical, and clerical personnel must be provided to support the program.

D. Resources

- 1. The program must ensure that adequate resources (e.g., sufficient laboratory space and equipment, computer and statistical consultation services) are available.**
2. Inpatient Facilities
 - a) Inpatient facilities should have a sufficient number of beds, support staff, operating suites, and clinic and office space must be available for fellow participation in the preoperative evaluation, treatment, and postoperative follow-up of patients for whom the fellow has responsibility.
 - b) Operating suite and diagnostic and treatment facilities must contain technologically current equipment.

B. Outpatient Facilities

Appropriately equipped outpatient facilities, including support staff, operating suites, and clinic and office space must be available for fellow participation in the preoperative evaluation, treatment, and postoperative follow-up of patients for whom the fellow has responsibility.

C. Library

1. Fellows must have ready access to a major medical library, either at the institution where the fellows are located or through arrangement with convenient nearby institutions.
2. Library resources must include current and past orthopaedic periodicals and reference books that are readily accessible to all orthopaedic fellows in the program.
3. Library services should include the electronic retrieval of information from medical databases.
4. There must be access to an on-site library or to a collection of appropriate texts and journals in each institution participating in the program. On-site libraries and/or collections of texts and journals must be readily available during nights and weekends.

IV. Fellow Appointments

A. Eligibility Criteria

- 1. The program director must comply with the criteria for fellow eligibility as specified in the Institutional Requirements.**
2. The program director must verify the satisfactory completion of prerequisite education before the fellow begins the hand surgery program.

B. Number of Fellows

The RRC will approve the number of fellows based upon established written criteria that include the adequacy of resources for fellow education (e.g., the quality and volume of patients and related clinical material available for education), faculty-fellow ratio, institutional funding, and the quality of faculty teaching.

C. Fellow Transfers

To determine the appropriate level of education for fellows who are transferring from another program, the program director must receive written verification of previous educational experiences and a statement regarding the performance evaluation of the transferring fellow prior to their acceptance into the program. A program director is required to provide verification of education for fellows who may leave the program prior to completion of their education.

D. Appointment of Other Students

- 1. The appointment of fellows from other programs, residents or students must not dilute or detract from the educational opportunities available to regularly appointed fellows.**
2. The appointment of other fellows to the hand surgery service requires a clear statement of the areas of education, clinical responsibilities, and duration of the education. This statement must be supplied to the RRC at the time the program is reviewed.
3. If such fellows so appointed will, in the judgment of the RRC, detract from the education of the hand surgery fellows, the accreditation status of the program may be adversely affected.

V. Program Curriculum

A. Program Design

1. Format

The program design and sequencing of educational experiences will be approved by the RRC as part of the review process.

2. Goals and Objectives

The program must possess a written statement that outlines its educational goals with respect to the knowledge, skills, and other attributes of fellows for each major assignment and for each level of the program. This statement must be distributed to fellows and faculty, and must be reviewed with fellows prior to their assignments.

B. Subspecialty Curriculum

The program must possess a well-organized and effective curriculum, both didactic and clinical. The curriculum must also provide fellows with direct experience in progressive responsibility for patient management.

1. Didactic components

- a) A comprehensive, organized course of study must be offered, to include educational conferences that are well defined, documented, and regularly held. At minimum, the program must provide a didactic component that complements the clinical education detailed in V.B.2 of these requirements.
- b) The written course of study should reflect careful planning, with evidence of a cyclical presentation of core specialty knowledge supplemented by the addition of current information, including practice management, ethics, and medicolegal topics as they relate to hand surgery.
- c) Conferences must include basic science subjects related to clinical surgery of the hand, such as anatomy, physiology, pathology, genetics, microbiology, and pharmacology. A periodic review of the morbidity and mortality experience of the service must be included.
- d) A list of the conferences should be maintained and available for review at the time of the site visit.
- e) Conferences should be attended by both the fellows and the faculty, and such attendance should be documented.

- f) Conferences should be organized by the faculty to ensure that sufficient educational experience is provided. Hand surgery fellows assigned to participating institutions other than the sponsoring institution should attend the hand surgery conferences at those sites.
- g) Fellows should make presentations at conferences and actively participate in conference discussions. Adequate time for fellow preparation should be permitted to maximize the educational experience.

2. Clinical components

- a) Fellows must be provided with education in surgical design, surgical diagnosis, embryology, surgical and artistic anatomy, surgical physiology and pathology, pharmacology, wound healing, microbiology, adjunctive oncological therapy, biomechanics, rehabilitation, and surgical instrumentation.
- b) A sufficient number and variety of adult and pediatric hand surgery patients must be available for fellow education.
- c) Generally equivalent and sufficient distribution of operative procedures among the patients must be available for fellow education.
- d) Fellows should be provided with graduated and progressive patient management responsibility.
- e) Because judgment and technical capability to achieve satisfactory surgical results are mandatory qualities for the hand surgeon, education should be provided in the following areas:
 - (1) Skin repair, including grafts and flaps, multiple tissue flaps, free microscopic tissue transfers, and insertion of tissue expanders
 - (2) Fingertip injuries
 - (3) Tendon repair, including flexor tendon repair and graft, implantation of tendon spacer, extensor tendon repair, and tenolysis/tenodesis
 - (4) Tendon transfer and tendon balancing
 - (5) Nerve repair, including major and digital, graft, neurolysis, surgical treatment of neuroma,

transpositions, and tendon decompressions

- (6) Management of fractures and dislocations, including phalangeal or metacarpal with and without internal fixation; wrist, radius, and ulna with and without internal fixation; and injuries to joint ligaments
- (7) Bone grafts
- (8) Joint and tendon sheath repairs, including release of contracture, synovectomy, arthroplasty with and without implant, arthrodesis, trigger finger release, and stiff joints that result from rheumatoid or other injury
- (9) Pollicization or ray transfer
- (10) Foot to hand transfer
- (11) Tumors, benign and malignant
- (12) Dupuytren's contracture
- (13) Replantation, revascularization
- (14) Amputations
- (15) Fasciotomy, deep incision and drainage for infection, and wound debridement
- (16) Congenital deformities, including syndactyly and others
- (17) Management of upper extremity vascular disorders and insufficiencies
- (18) Foreign body, implant removal
- (19) Thermal injuries
- (20) Arthroscopy
- (21) Upper extremity pain management

C. Fellows Scholarly Activities

1. **Each program must provide an opportunity for fellows to participate in research or other scholarly activities, and fellows must participate actively in such scholarly activities.**

2. Fellows must participate in basic and/or clinical hypothesis-based research.
3. Fellows must learn to design, implement, and interpret research studies under supervision by qualified faculty.
4. The program must provide time and facilities for research activities by fellows.

VI. Fellow Duty Hours and the Working Environment

Providing fellows with a sound didactic and clinical education must be carefully planned and balanced with concerns for patient safety and fellow well-being. Each program must ensure that the learning objectives of the program are not compromised by excessive reliance on fellows to fulfill service obligations. Didactic and clinical education must have priority in the allotment of fellows' time and energy. Duty hour assignments must recognize that faculty and fellows collectively have responsibility for the safety and welfare of patients.

A. Supervision of Fellows

1. **All patient care must be supervised by qualified faculty. The program director must ensure, direct, and document adequate supervision of fellows at all times. Fellows must be provided with rapid, reliable systems for communicating with supervising faculty.**
2. **Faculty schedules must be structured to provide fellows with continuous supervision and consultation.**
3. **Faculty and fellows must be educated to recognize the signs of fatigue, and adopt and apply policies to prevent and counteract its potential negative effects.**

B. Duty Hours

1. **Duty hours are defined as all clinical and academic activities related to the program; i.e., patient care (both inpatient and outpatient), administrative duties relative to patient care, the provision for transfer of patient care, time spent in-house during call activities, and scheduled activities such as conferences. Duty hours do *not* include reading and preparation time spent away from the duty site.**
2. **Duty hours must be limited to 80 hours per week, averaged over a four-week period, inclusive of all in-house call activities.**

3. **Fellows must be provided with 1 day in 7 free from all educational and clinical responsibilities, averaged over a 4-week period, inclusive of call. *One day* is defined as 1 continuous 24-hour period free from all clinical, educational, and administrative duties.**
4. **Adequate time for rest and personal activities must be provided. This should consist of a 10-hour time period provided between all daily duty periods and after in-house call.**

C. On-call Activities

The objective of on-call activities is to provide fellows with continuity of patient care experiences throughout a 24-hour period. *In-house call* is defined as those duty hours beyond the normal work day, when fellows are required to be immediately available in the assigned institution.

1. **In-house call must occur no more frequently than every third night, averaged over a 4-week period.**
2. **Continuous on-site duty, including in-house call, must not exceed 24 consecutive hours. Fellows may remain on duty for up to 6 additional hours to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care.**
3. **No new patients may be accepted after 24 hours of continuous duty.**
4. ***At-home call* (or *pager call*) is defined as a call taken from outside the assigned institution.**
 - a) **The frequency of at-home call is not subject to the every-third-night limitation. At-home call, however, must not be so frequent as to preclude rest and reasonable personal time for each fellow. Fellows taking at-home call must be provided with 1 day in 7 completely free from all educational and clinical responsibilities, averaged over a 4-week period.**
 - b) **When fellows are called into the hospital from home, the hours fellows spend in-house are counted toward the 80-hour limit.**
 - c) **The program director and the faculty must monitor the demands of at-home call in their programs, and make scheduling adjustments as necessary to mitigate**

excessive service demands and/or fatigue.

D. Moonlighting

- 1. Because graduate medical education is a full-time endeavor, the program director must ensure that moonlighting does not interfere with the ability of the fellow to achieve the goals and objectives of the educational program.**
- 2. The program director must comply with the sponsoring institution's written policies and procedures regarding moonlighting, in compliance with the ACGME Institutional Requirements.**
- 3. Any hours a fellow works for compensation at the sponsoring institution or any of the sponsor's primary clinical sites must be considered part of the 80-hour weekly limit on duty hours. This refers to the practice of *internal moonlighting*.**

E. Oversight

- 1. Each program must have written policies and procedures consistent with the Institutional and Program Requirements for fellow duty hours and the working environment. These policies must be distributed to the fellows and the faculty. Duty hours must be monitored with a frequency sufficient to ensure an appropriate balance between education and service.**
- 2. Back-up support systems must be provided when patient care responsibilities are unusually difficult or prolonged, or if unexpected circumstances create fellow fatigue sufficient to jeopardize patient care.**

F. Duty Hours Exceptions

An RRC may grant exceptions for up to 10% of the 80-hour limit to individual programs based on a sound educational rationale. Prior permission of the institution's GMEC, however, is required.

VII. Evaluation

A. Fellow

1. Formative Evaluation

The faculty must evaluate in a timely manner the fellows whom they supervise. In addition, the program must demonstrate that it has an effective mechanism for assessing fellow

performance throughout the program, and for utilizing the results to improve fellow performance.

- a) **Assessment should include the use of methods that produce an accurate assessment of fellows' competence in patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.**
- b) **Assessment should include the regular and timely performance feedback to fellows that includes at least semiannual written evaluations. Such evaluations are to be communicated to each fellow in a timely manner, and maintained in a record that is accessible to each fellow.**
- c) **Assessment should include the use of assessment results, including evaluation by faculty, patients, peers, self, and other professional staff, to achieve progressive improvements in fellows' competence and performance.**

2. Final Evaluation

The program director must provide a final evaluation for each fellow who completes the program. This evaluation must include a review of the fellow's performance during the final period of education, and should verify that the fellow has demonstrated sufficient professional ability to practice competently and independently. The final evaluation must be part of the fellow's permanent record maintained by the institution.

B. Faculty

The performance of the faculty must be evaluated by the program no less frequently than at the midpoint of the accreditation cycle, and again prior to the next site visit. The evaluations should include a review of their teaching abilities, commitment to the educational program, clinical knowledge, and scholarly activities. This evaluation must include annual written confidential evaluations by fellows.

C. Program

The educational effectiveness of a program must be evaluated at least annually in a systematic manner.

1. **Representative program personnel (i.e., at least the program director, representative faculty, and one fellow) must be**

organized to review program goals and objectives, and the effectiveness with which they are achieved. This group must conduct a formal documented meeting at least annually for this purpose. In the evaluation process, the group must take into consideration written comments from the faculty, the most recent report of the GMEC of the sponsoring institution, and the fellows' confidential written evaluations. If deficiencies are found, the group should prepare an explicit plan of action, which should be approved by the faculty and documented in the minutes of the meeting.

2. The program should use fellow performance and outcome assessment in its evaluation of the educational effectiveness of the program. Performance of program graduates on the certification examination should be used as one measure of evaluating program effectiveness.
3. The program should maintain a process for using assessment results together with other program evaluation results to improve the program.

VIII. Experimentation and Innovation

Since responsible innovation and experimentation are essential to improving professional education, experimental projects along sound educational principles are encouraged. Requests for experimentation or innovative projects that may deviate from the program requirements must be approved in advance by the RRC, and must include the educational rationale and method of evaluation. The sponsoring institution and program are jointly responsible for the quality of education offered to fellows for the duration of such a project.

IX. Certification

Fellows who plan to seek certification by the American Board of Orthopaedic Surgery should communicate with the office of the board regarding the full requirements for certification.

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