Rules and Procedures for MSTS Recognition of Fellowship Programs

Overview: The MSTS is excited to announce a new fellowship accreditation program that will advance our society’s mission for excellence in education and patient advocacy. This change coincides with musculoskeletal oncology transitioning to an independent match process rather than being part of the AAHKS Reconstruction fellowship match. Beginning June 1st, 2022, MSTS will start a process to formally recognize musculoskeletal oncology fellowships. The timeline fellowship recognition application and approval is provided in Appendix A of this document. Programs must be MSTS recognized in order to participate in SF Match and the Central Application Service (CAS). Orthopaedic Oncology fellows who wish to become active members of the MSTS must graduate from an MSTS recognized program. The purpose of this new initiative is to ensure that fellowship programs, current and future, meet a minimum standard of educational and experiential quality as they train the next generation of orthopaedic oncologists. For a fellowship program to be recognized by the MSTS it must either be ACGME accredited or apply for MSTS recognition.

https://www.acgme.org/Specialties/Program-Requirements-and-FAQs-and-Applications/pfcatid/14/Orthopaedic%20Surgery

Requirements for MSTS Fellowship Program Recognition

ACGME Pathway: Programs that are ACGME accredited will be automatically MSTS recognized.

MSTS Recognition Pathway: Programs that are not ACGME accredited may choose to apply for MSTS recognition through the MSTS recognition application process. This involves filling out an online application, undergoing an in person or virtual site visit, and paying a fee; the fellowship committee may request additional information as part of the application. The MSTS fees include an initial application fee of $5500 and subsequent annual renewal fee of $3000 (note fees are subject to change without notice; fees are set to breakeven with cost of administering program recognition).

Please see Timeline for Applications in Appendix A

MSTS Accreditation Rules and Procedures

I. Institution
   A. One sponsoring institution should assume ultimate responsibility for the fellowship program including fellow education at participating institutions.
   B. Sponsoring institution must be affiliated with a multidisciplinary adult and pediatric sarcoma program that includes full time personnel as indicated in section IIC below.
C. Programs must provide an intellectual environment for acquiring the knowledge, skills, clinical judgment, and attitudes essential to the practice of the subspecialty. Education must be emphasized over service.

D. Fellowship education must occur in a manner that enhances rather than detracts from resident education in orthopaedic oncology.

II. Personnel

A. Fellowship Director: Each program must have a designated fellowship director who meets the following requirements:
   1. The Fellowship director’s primary career focus is in orthopaedic oncology
   2. Dedicates over 50% of their time to the clinical practice of orthopaedic oncology
   3. Must be in third or more year of post-fellowship clinical practice
   4. Has complete authority of and accountability for the administration, operations, educational program, scholarship program, fellow selection, fellow and program evaluations, and promotion regarding the fellowship program.
   5. Completes all required documentation as requested by the MSTS in a timely manner.
   6. Ensures program compliance with all MSTS program requirements.
   7. The Program Director must oversee and ensure complete and accurate case log documentation by the fellow.
   8. Notify the MSTS fellowship committee about any significant change in the program within 1 month of the occurrence. This includes but is not limited to change in fellowship director or program coordinator, addition/subtraction of core faculty, or fellow withdrawal from program.
   9. Notify matched applicants about loss of core faculty or any significant change to the educational program within 1 month. If significant changes occur after the interview but before the match, the program director must notify all applicants who interviewed.
   10. Inform applicants about expectations pertaining to serving in an attending or clinical instructor capacity; for example, taking attending level call and/or moonlighting.
   11. Maintain a full and unrestricted license to practice medicine in the United States or Canada or give evidence of full-time medical service in the federal government, which does not require licensure.
   12. Current board certification via the American Board of Orthopaedic Surgery, the American Osteopathic Board of Orthopaedic Surgery, or the Royal College of Surgeons of Canada-Orthopaedics. Board Eligible status does not fulfill this requirement.
13. Maintain an environment of scholarly activity. The Program Director must demonstrate involvement in scholarly activity in addition to local teaching.

B. **Core Faculty:** For the first fellowship position, there should be a minimum of 2 practicing orthopedic oncologists. An additional fellow may be added to the program for each additional faculty member. At least one core faculty member must be in 7th or more year of practice. All faculty members must have the following qualifications:
   1. Dedicate over 50% of their time to the clinical practice of orthopaedic oncology
   2. Maintain a full and unrestricted license to practice medicine in the United States or Canada or give evidence of full time medical service in the federal government which does not require licensure.
   3. Completion of an orthopaedic oncology fellowship
   4. Published at least one first or last author orthopaedic oncology related research article.
   5. Current board certification via the American Board of Orthopaedic Surgery, the American Osteopathic Board of Orthopaedic Surgery, or the Royal College of Surgeons of Canada-Orthopaedics

C. **Multidisciplinary Team:** Orthopaedic oncology by nature is a multidisciplinary field. A fellowship program must have collaborators in the following disciplines who are affiliated with the institution where the fellowship program is based.
   1. Adult medical oncology
   2. Pediatric oncology
   3. Pathologist with experience in musculoskeletal tumors
   4. Musculoskeletal radiologist
   5. Radiation Oncology
   6. Access to associated surgical disciplines such as vascular surgery, plastic surgery to support, as needed, the orthopaedic tumor service.
   7. Physical and Occupational therapist with experience in caring for cancer patients.

D. **Program Coordinator**
   1. A program coordinator must be identified and have adequate time allotted to managing the administrative tasks associated with a
musculoskeletal oncology fellowship. These tasks include but are not limited to making policies and procedures available for applicants and fellows, assisting with credentialing, communicating with the MSTS fellowship committee and providing accreditation documentation as necessary. The program coordinator may share additional responsibilities such as coordinating other fellowships or acting as residency coordinator.

III. Fellow Education Requirements: The program must have a written curriculum that outlines how the fellowship will produce an orthopaedic oncologist capable of independent practice. The program must have a volume of at least 300 new patients per fellow per year including benign and malignant bone and soft tissue tumors. The details of the curriculum are the responsibility of the fellowship director but must include the following:

A. Broad Clinical exposure

1. Surgical experience: Fellows must demonstrate competence in surgical skills related to orthopaedic oncology. The fellow must perform a minimum 150 operative procedures related to musculoskeletal tumors. The experience must include surgery in the following categories and see Appendix B for case log minimums:
   a. Pelvic sarcomas
   b. Metastatic bone disease
   c. Pediatric (<18 years old) bone sarcoma limb salvage
   d. Pediatric (<18 years old) soft tissue sarcoma
   e. Extremity/pelvis soft tissue sarcoma
   f. Extremity/pelvis bone sarcoma
   g. Amputation
   h. Management of complications including but not limited to infection, wound infection or dehiscence, implant loosening, allograft nonunion or fracture, and fractures related to sarcoma treatment e.g. radiation, periprosthetic fractures.

2. Outpatient experience: Fellows must learn how to evaluate patients, create effective treatment plans, communicate with team members, and counsel patients regarding their disease in the outpatient setting. This experience must include the following:
   a. Staging of bone and soft tissue sarcomas
   b. Learning how to participate in multidisciplinary care for bone and soft tissue sarcomas and metastatic bone disease
c. Diagnosing and formulating treatment plans for bone and soft tissue tumors

d. Identifying and formulating treatment plans for surgical complications

e. Developing communication skills including how to have difficult conversations such as informing of new cancer diagnosis and shared decision making.

f. Learning about non-surgical treatment strategies for musculoskeletal tumors

g. Learning how to be an effective member of a multidisciplinary sarcoma team.

3. **Multidisciplinary Tumor Board:** Fellows must participate in regularly scheduled tumor board.

4. **Fundamentals of diagnostics:** Through clinical exposure and didactics the fellow must have sufficient educational experience to develop:

   a. Expertise in radiological diagnosis of musculoskeletal tumors

   b. Basic understanding of pathological evaluation of musculoskeletal tumors including familiarity with basic histology, immunohistochemical staining, molecular testing, and advanced diagnostics of bone and soft tissue tumors.

B. **Education Conferences:** The fellow must participate in educational programming that includes at least:

   1. Monthly or more frequent multidisciplinary sarcoma tumor board

   2. Monthly or more frequent didactic teaching conference.

   3. At least monthly journal club or similar literature review conference

   4. Quality and safety conference such as monthly department M&M conference, post-operative case conference, or any other formal opportunity to discuss quality, safety and/or complications.

   5. At least one national meeting, for example: MSTS, ISOLS, AAOS, CTOS

IV. **Scholarship:** The critical evaluation of research literature is an important aspect of orthopaedic oncology. Fellowship programs must establish scholarship activity as a graduation requirement. Scholarship activities may include first author on a publishable quality research article or in-depth review article or book chapter or participation in a formal research design and statistics course.
V. **Moonlighting:** The fellow may do moonlighting work. This may include taking attending call at the primary fellowship institution or an outside institution. The fellowship director is responsible for ensuring that moonlighting does not interfere with the fellow’s education or clinical responsibilities related to the musculoskeletal oncology fellowship.

VI. **Evaluation**

A. **Evaluation of the program by the fellow.** The program should create an environment where fellow comments and feedback are encouraged. At a minimum, the fellow must provide a written program evaluation at the end of the year.

B. **Evaluation of the fellow by the program.** The program must provide feedback to the fellow on a routine basis including a mid-year and end of year evaluation.

C. **Program self-evaluation.** All members of the program including director, core faculty, program coordinator, and fellow should participate in yearly evaluation and improvement efforts of the fellowship program. This can be accomplished by a program evaluation committee or other formal process.

VII. **Maintenance of Recognition:** The MSTS fellowship committee will review each fellowship program on a yearly basis. In order for programs to maintain recognition they must complete the following items:

A. Programs must comply with all MSTS rules and procedures for fellowship accreditation that are indicated in this document.

B. Submit yearly case log data for the graduating fellow within one month of the fellow’s graduation date.

C. Graduating fellow must complete the annual survey administered by the MSTS fellowship committee.

D. Pay annual fee.

VI. **Adverse Actions:** The following actions may be taken based on a fellowship programs performance. Program status will be indicated on the MSTS website. Programs will be given the opportunity to correct deficiencies. All actions will be communicated to programs in writing.

A. **Letter of Concern:** If the fellowship program is found to be deficient or non-compliant with the rules for recognition as outlined in this document, the fellowship program director will be notified in writing. Within 45 days of
receiving the letter of concern the program director must file a letter of response addressing the concerns with the fellowship committee. If areas of concern persist the program may be placed on probation.

B. **Probation**: If deficiencies or non-compliance persist the program will be placed on probation. A probation letter will be sent to the fellowship program director that outlines the deficient areas, corrective actions required, and timeline for action. At the end of the probationary period the program may be fully reinstated, remain on probation, or be terminated.

C. **Suspension**: If there are major deficiencies in the program it will be suspended and not allowed to participate in the upcoming SF Match while corrective actions are taken. Examples of major deficiencies include but are not limited to failure to meet case minimums over 2 consecutive years, unprofessional behavior or abuse by faculty/staff towards the fellow, submitting falsified material or information to the MSTS. Suspension will result in the program being removed from the list of recognized fellowships. Suspension will last for no less than 1 year. Suspension will end when a program demonstrates substantial improvement.

D. **Protection of the Fellow**: if at any time a program is substantially out of compliance such that fellow education or well-being is severely compromised the MSTS fellowship committee will expedite the adverse action and corrective measures. If a program is suspended the MSTS fellowship committee will work with the impacted fellow to find an acceptable course of action to ensure a fellow who matches into a recognized program that subsequently loses recognition during their fellowship will still be eligible for MSTS membership.

**VII. Grievance and appeals:**

A. A fellowship program may file an appeal within 6 weeks of receiving any adverse action taken by the fellowship committee. The fellowship committee’s adverse action and the fellowship program’s appeal will be forwarded to an appeals panel appointed by the executive committee. The appeals panel will be composed of MSTS members who are not on the fellowship committee and do not practice within the geographic region of the fellowship program.

B. Fellows may file complaints, grievances, or concerns regarding a program, the match, or any other fellowship related topic.

C. All appeals and grievances must be submitted in writing to the MSTS Fellowship Committee Chairperson
Appendix A

**MSTS Fellowship Recognition Timeline**

**ACMGE accredited programs**: ACGME accredited programs are automatically MSTS recognized. The only action needed is to maintain ACMGE accreditation per ACGME rules and procedure.

**The following apply to programs that do not have ACGME accreditation or MSTS recognition.**

**2022 Match Cycle**

All fellows who match in the 2022 Match cycle (Fellowship training dates 2023-2024) will be considered eligible for Active MSTS membership.

**2023 Match Cycle**

Starting with 2023 Match cycle (applications open Aug 2022 and Match in April 2023) programs must participate in the MSTS fellowship recognition process in order to participate in the SF Match. Fellows who wish to become Active Members in the MSTSS must graduate from an MSTS recognized fellowship.

Participation in the MSTS recognition process for the 2022-2023 Match cycle year is defined as follows:

1. Programs must start the MSTS Recognition applications by July 5th, 2022.
   a. For programs that seek MSTS pathway recognition, the Minimum required to fulfill this requirement is complete “Part I: Background and Personnel” of the application.
2. Programs that wish to gain ACGME accreditation must submit proof of submitting/starting the ACGME accreditation process. A letter from the ACGME, institution DIO, email confirmation of application submission, or other official document that confirms the start the of the ACMGE application process will fulfill this requirement.
3. Programs must submit complete application by Feb 27, 2023 and have finalized and approved MSTS Recognition ACGME accreditation by April 3, 2023.
4. In the scenario that programs are denied approval for MSTS recognition (denied either MSTS Application or ACGME accreditation) prior to the April 3, 2023 deadline the following apply:
   a. Their fellow who graduates in 2024 will not be penalized. The fellow will be eligible for Active Membership
   b. The Program will not be eligible to participate in the fellowship match for the 2024 Match cycle. The program may reapply the for the subsequent year.

**2024 and future Match Cycles**
Starting with the 2024 Match cycle, (applications open Aug 2023 and Match in April 2024), and moving forward programs must participate in the MSTS fellowship recognition process for their graduating fellows to be eligible for active membership into the MSTS.

Participation in the MSTS recognition process for the 2023-2024 Match Cycle and future years is defined as follows:

1. Already completed and approved MSTS Recognition or ACGME accreditation in the year(s) prior.
2. Programs not already approved must submit completed application with all required documents by January 31 of the year that applications open; for example, for the 2024 match cycle applications for new programs are due January 31 2023 in anticipation of participating in the SF Match/Central Application Service starting August 2023 for match to take place April 2024. The MSTS fellowship committee with review all applications and make recommendations to the Executive Committee for approval of fellowships. Estimated time from submission of application to final approval decision is 3 months.
3. For new programs wishing to pursue ACGME accreditation: the program must have full ACGME approval by July 1st of the year in which applications open for that cycle; for example, ACGME approval is needed by July 1st 2023 in order to be participate the SF Match/Central Application Service starting August 2023 for match to take place April 2024.
Appendix B

MSTS Fellowship Surgical Guidelines

Fellows must demonstrate competence in performing operative procedures related to benign and malignant bone and soft tissue tumors, metabolic musculoskeletal disease, and complex reconstruction with an oncologic diagnosis, including a minimum of 150 relevant oncologic operative procedures which should include:

1. at least 5 internal or external hemipelvectomies or sacrectomies
2. at least 20 soft tissue malignant tumor resections with appropriate reconstructive surgery
3. at least 10 extremity (proximal humerus, elbow or forearm, proximal/distal femur, proximal/distal tibia) limb salvage procedures that involve wide margin bone resection and reconstruction for a diagnosis of primary bone sarcoma.
4. at least 5 cases demonstrating surgical management of the complications of limb salvage surgery. Complications include but no limited to wound infection, wound dehiscence, aseptic loosening of endoprosthesis, endoprosthesis failure, soft tissue failure, nonunion or fracture of allograft, and other.
5. at least 20 cases demonstrating management of distant metastatic disease
6. at least 15 pediatric oncologic cases in the first three categories (under 18 years of age)
7. at least 3 extremity amputations
**CODES FOR CASE LOGGING for MSTS FELLOWSHIPS**

### 1. PRIMARY BONE SARCOMA HEMIPELVECTOMY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27075</td>
<td>Radical resection of tumor; wing of ilium, 1 pubic or ischial ramus or symphysis pubis</td>
</tr>
<tr>
<td>27076</td>
<td>Radical resection of tumor; ilium, including acetabulum, both pubic rami, or ischium and acetabulum</td>
</tr>
<tr>
<td>27077</td>
<td>Radical resection of tumor; innominate bone, total</td>
</tr>
<tr>
<td>27078</td>
<td>Radical resection of tumor; ischial tuberosity and greater trochanter of femur</td>
</tr>
<tr>
<td>27080</td>
<td>Coccygectomy, primary</td>
</tr>
</tbody>
</table>

### 2. SOFT TISSUE RESECTIONS PELVIS TRUNK OR EXTREMITY

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>21935</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of back or flank; less than 5 cm</td>
</tr>
<tr>
<td>21936</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of back or flank; 5 cm or greater</td>
</tr>
<tr>
<td>22904</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of abdominal wall; less than 5 cm</td>
</tr>
<tr>
<td>22905</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of abdominal wall; 5 cm or greater</td>
</tr>
<tr>
<td>23077</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of shoulder area; less than 5 cm</td>
</tr>
<tr>
<td>23078</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of shoulder area; 5cm or greater</td>
</tr>
<tr>
<td>24077</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of upper arm or elbow area; less than 5 cm</td>
</tr>
<tr>
<td>24079</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of upper arm or elbow area; 5 cm or greater</td>
</tr>
<tr>
<td>25077</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of forearm and/or wrist area; less than 3 cm</td>
</tr>
<tr>
<td>25078</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of forearm and/or wrist area; 3 cm or greater</td>
</tr>
<tr>
<td>26117</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of hand or finger; less than 3 cm</td>
</tr>
<tr>
<td>26118</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of hand or finger; 3 cm or greater</td>
</tr>
<tr>
<td>27049</td>
<td>Radical resection of tumor (eg, sarcoma), soft tissue of pelvis and hip area; less than 5 cm</td>
</tr>
<tr>
<td>27059</td>
<td>Radical resection of tumor (e.g., sarcoma), soft tissue of pelvis and hip area; 5 cm or greater</td>
</tr>
</tbody>
</table>
3. **Limb Salvage – Minimum 20**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23200</td>
<td>Radical resection of tumor; clavicle</td>
</tr>
<tr>
<td>23210</td>
<td>Radical resection of tumor; scapula</td>
</tr>
<tr>
<td>23220</td>
<td>Radical resection of tumor, proximal humerus</td>
</tr>
<tr>
<td>24150</td>
<td>Radical resection of tumor, shaft or distal humerus</td>
</tr>
<tr>
<td>25170</td>
<td>Radical resection of tumor, radius or ulna</td>
</tr>
<tr>
<td>26250</td>
<td>Radical resection of tumor, metacarpal</td>
</tr>
<tr>
<td>26260</td>
<td>Radical resection of tumor, proximal or middle phalanx of finger</td>
</tr>
<tr>
<td>26262</td>
<td>Radical resection of tumor, distal phalanx of finger</td>
</tr>
<tr>
<td>27365</td>
<td>Radical resection of tumor, femur or knee</td>
</tr>
<tr>
<td>27645</td>
<td>Radical resection of tumor; tibia</td>
</tr>
<tr>
<td>27646</td>
<td>Radical resection of tumor; fibula</td>
</tr>
<tr>
<td>27647</td>
<td>Radical resection of tumor; talus or calcaneus</td>
</tr>
</tbody>
</table>

4. **Management of Complications**: For surgical cases to count in the category of “Complications” the primary indication for surgery must be for managing a complication related to a prior surgery. When logging this type of case, the fellow should check the box in the case entry form indicating a complication. Complications include but not limited to the following:

- **a** Surgical site infection
- **b** Surgical wound dehiscence
- **c** Arthroplasty failure for any reason
- **d** Structural allograft failure (osteoarticular or intercalary allograft) for any reason
- **e** Post-operative hematoma/seroma
- **f** Joint dislocation
- **g** Nerve compression related to prior surgery
- **h** Vascular injury or compromise related to prior surgery
- **i** Excessive pain related to complication from prior for surgery
j Tendon, ligament, or joint injury, malfunction, or disruption directly or indirectly related to prior surgery
k Joint contracture due to prior surgery expected or unexpected
l Prosthetic joint infection
m Periprosthetic fracture.
n Unexpected limb length inequality
o Tumor recurrence
p Other complication not listed that is directly or indirectly related to prior surgery that require additional surgical treatment
q Other

5. MANAGEMENT OF METASTATIC BONE DISEASE: For cases to count in the category of Management of Metastatic Bone Disease the surgical case must be performed for the primary indication of managing a orthopaedic condition directly related to metastatic bone disease. In the case log entry system there will be a check box that should be checked if the case is performed primarily for the management of metastatic bone disease. The procedure code may include fracture treatment, arthroplasty, nonunion repair, prophylactic nailing or plating with or without cement, amputation, and other codes as long as the primary indication is to treat a problem directly caused by metastatic cancer to bone. Although the case log entry system does not specifically record ICD-10 codes, the programs and fellows may reference ICD-10 C79.5, “secondary malignant neoplasm of bone and bone marrow”, in their hospital medical records when searching for cases that may count towards this category.

6. FOR THE PURPOSES OF MSTS FELLOWSHIP RECOGNITION APPLICATION PART II QUESTION 8f AND 8g, EXCISION OF BENIGN SOFT TISSUE AND BENIGN BONE TUMOR “EXCISION” CODES SHOULD BE USED TO PROVIDE THE NUMBER OF CASES PERFORMED IN THESE CATEGORIES. FOR EXAMPLE, FOR THE ANATOMIC CATEGORY OF THE SHOULDER THE FOLLOWING CODES WOULD BE USED FOR SURGICAL TREATMENT OF BENIGN BONE AND SOFT TISSUE TUMORS

   a 23140 Excision or curettage of bone cyst or benign tumor of clavicle or scapula;
   b 23145 Excision or curettage of bone cyst or benign tumor of clavicle or scapula; with autograft (includes obtaining graft)
   c 23146 Excision or curettage of bone cyst or benign tumor of clavicle or scapula; with allograft
   d 23150 Excision or curettage of bone cyst or benign tumor of proximal humerus;
   e 23155 Excision or curettage of bone cyst or benign tumor of proximal humerus; with autograft (includes obtaining graft)
   f 23156 Excision or curettage of bone cyst or benign tumor of proximal humerus; with allograft
   g 23071 Excision, tumor, soft tissue of shoulder area, subcutaneous; 3 cm or greater
h  23073 Excision, tumor, soft tissue of shoulder area, subfascial (eg, intramuscular); 5 cm or greater
i  23075 Excision, tumor, soft tissue of shoulder area, subcutaneous; less than 3 cm
j  23076 Excision, tumor, soft tissue of shoulder area, subfascial (eg, intramuscular); less than 5 cm

FOR OTHER ANATOMIC AREAS SUCH AS HUMERUS/ELBOW, FEMUR/KNEE AND SO FORTH, THE FELLOW OR FELLOWSHIP PROGRAM SHOULD USE THE CODES USING THE DESCRIPTIVE WORDS “EXCISION, TUMOR” OR “EXCISION OR CURETTAGE OF BONE CYST OR BENIGN TUMOR” TO ANSWER QUESTION 8g AND 8g ON THE APPLICATION FORM.