

Guidelines
For
Competency Based Training Programme
In
FNB – Arthroplasty
2022



NATIONAL BOARD OF EXAMINATIONS IN MEDICAL SCIENCES
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I. INTRODUCTION

FNB arthroplasty aims to develop and sharpen skills of Orthopedic surgeons in examining and assessing patients with arthritis and related problems requiring joint replacement surgery. Exposure to basic surgical skills and techniques in primary and revision arthroplasty under the supervision of experienced guides. In our country, with an increasing population age, the need for young orthopedic surgeons to have an opportunity to learn the art of arthroplasty in a systematic and appropriate way



II. PROGRAM GOAL AND OBJECTIVES

The goal of the Arthroplasty Fellowship is to provide fellows with intensive training and broad exposure in diagnosis and treatment of arthritis and related problems requiring joint replacement surgery. The fellow will learn to evaluate and treat routine and complicated cases of the Hip, Knees, shoulder, elbow, and ankle surgical and non-surgical methods of treatment.

The Arthroplasty Fellowship offers comprehensive exposure to all aspects of adult reconstruction surgery including trauma, arthritis, congenital, and post-traumatic reconstruction. The program will emphasize the diagnosis of clinical disorders of the bones, joints and soft tissues; the pathogenesis of these disorders; the treatment modalities available for managing these disorders; and the results and complications of such treatment.

Upon completion of Arthroplasty Fellowship, fellows are prepared to build surgical practices, focus more deeply on research, and teach at top academic medical centers and hospitals around the country and the world.

Fellowship goal is to develop an arthroplasty surgeon capable of recognizing and managing a broad variety of joint conditions.

1. Develop a capability of critical thinking and recognizing and managing a broad variety of joint conditions:
 - Degenerative conditions
 - Deformity
 - Tumors and infections
 - Trauma
 - Injections
2. Detailed working understanding of hip, knee, shoulder, elbow and ankle anatomy as it pertains to normal anatomy, pathology, and the surgical and non-operative treatment of arthritic and non-arthritic disorders.
3. Become familiar and comfortable with the usage of operative techniques of the joints, usage of implants and tools specific to hip, knee, shoulder, elbow and ankle arthroplasty.



4. Learn to completely assess the patient with joint disorders, including specific history taking, physical exam, evaluation of radiographic findings, and an understanding of the results of treatment and diagnostic modalities.

Objectives of the Program

1. To develop a systemic approach to the patients' problem and decision-making skills in management.
2. To develop and sharpen skills in examination and assessment of patients with arthritis and related problems requiring joint replacement surgery.
3. To attain basic surgical skills and techniques in primary and revision arthroplasty.
4. To obtain experience in scientific data collection, analysis interpretation, publication and surgical audit.
5. To recognize when additional surgical care would be counterproductive to patient rehabilitation.
6. To thoroughly understand the nature of professional liability involved in the management of patients with arthroplasty situations.
7. To thoroughly understand the importance of record documentation and risk management.



III. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching program should include:

1. Case presentations & discussion- once a week
2. Seminar – Once in 2 weeks (alternating with Journal club)
3. Journal club- Once in 2 weeks (alternating with Seminar)
4. Grand round presentation (by rotation departments and subspecialties)- once a week
5. Faculty lecture teaching- twice a month
6. Radiology interaction for reading of Joint Specific Imaging (X rays, MRI and USG) – Once in 2 months (specific areas as per posting with specialist)
7. Clinical Audit-Once a Month
8. one oral presentation at least once during their training period in a recognized conference.
9. One publication in an indexed journal during the tenure is desirable

Bedside sessions, file rounds, and documentation of case history and examination, progress notes, round discussions, investigations, and management plans) should all be included in the rounds.

Knowledge, skills, and attitudes (behavior) would be the focus of the training program, which are all important components of education. In all elements of the delivery of rehabilitative care, including research and teaching methodology, it is classified into theoretical, clinical, and practical categories.

Theoretical: Candidates would gain theoretical knowledge through debates, journal clubs, symposia, and seminars. Students are introduced to new advances through journal club discussions. All these are essential to impart latest in arthroplasty knowledge.

Symposia: In a two-year period, trainees would be expected to present a minimum of 20 curriculum-based subjects to a combined class of teachers and students. In these symposia, open discussion is encouraged. The trainees would be given the symposium themes as well as the presenting dates well in time so that a good preparation for the same can be done.



Clinical: The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.

Bedside: The trainee would work up cases, learn management of cases by discussion with faculty of the department.

Journal Clubs: This would be a biweekly academic assignment. A list of recommended journals is provided at the end of this document. The candidate would critically summarize and discuss the scientific publication. A faculty member will propose the paper and moderate the debate, in which other faculty members and resident doctors will participate. The article's contributions to scientific knowledge, as well as any shortcomings, will be highlighted.

Research: The student would carry out the research project and write a thesis/ dissertation in accordance with NBEMS guidelines. He/ she would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.



IV. SYLLABUS

1. Basic & Applied Sciences

- Anatomy
- Physical Examination
- Radiologic Imaging (joint specific)
- Diagnostic Evaluations
- General Considerations for Arthroplasty Surgery Including Consent and Preparation. General Surgical Principles, Guidelines for Informed Consent, Patient Positioning for Surgery, Equipment Needed, and Postoperative Considerations
- Surgical Approaches
- Hip, Knee, Shoulder, Elbow and Ankle Instrumentation
- Bone Graft and Bone Substitute Biology

i. Hip Arthroplasty

a) Surgical approaches

- Posterior
- Antero-lateral
- Anterior

b) Hemiarthroplasty

- Cemented
- Uncemented

c) Total hip replacement

- Cemented
- Uncemented

d) Revision total hip replacement

- Acetabular revisions- cups, cages, 3D printing, Bone grafting techniques, trabecular metal
- Stem revisions- Extended trochanteric osteotomy, long stems, cement in cement

e) Computer assisted Hip replacement

f) Robotic Hip replacement

ii. Knee Arthroplasty

a) Unicompartamental Knee

- Fixed bearing



- Mobile bearing
- b) Total Knee Arthroplasty
 - Cruciate retaining
 - Cruciate substituting
 - Mobile bearing
 - Uncemented Knee replacement
- c) Revision Total knee
 - Use of stems – cemented, uncemented
 - Constrained knees
 - Hinged knees – rotating vs fixed
 - Use of sleeves and cones
- d) Computer assisted Knee replacement
- e) Robotic Knee replacement- Unicompartmental and Total knee

iii. Shoulder

- a) Hemiarthroplasty
- b) Total shoulder arthroplasty
- c) Reverse Shoulder arthroplasty – with transfers

iv. Elbow

- a) Total elbow replacement

v. Ankle

- a) Total ankle replacement

vi. Miscellaneous

- a) Gait Considerations in Patients with Joint arthroplasty
- b) Spine-pelvic relations
- c) Periprosthetic fractures
- d) Prosthetic joint infections
- e) Post arthroplasty arthroscopy



2. Academic Career Training

In addition to clinical treatment and research, Fellows gain the strong teaching and organizational abilities required for an academic career. Fellows collaborate closely with Residents on the Service to coordinate patient care. Attendings during office hours and a series of practice management sessions are used to teach techniques for running a practice. Academic Career Development In addition to clinical care and research, the Fellow develops the excellent teaching and organisational abilities required for a future in academia.

3. Learning

The fellow presents all pre-and post-operative cases from the previous and upcoming week in a PowerPoint presentation. All faculty members participate and critically analyze each case with attention directed toward proper indications, treatment and coding. Every implant is critically reviewed and alignment and balance are critiqued.

Each fellow will have the opportunity

- Make a number of case presentations.
- Reading textbooks and articles
- Assistance in the operating room
- Participation in the clinic
- Participation in pre-operative discussions
- Participation in research projects
- Writing article in journals
- Assistance in Training & Education, participating in conferences, CME, Seminars

Each Fellow works closely with Attending surgeons as well as Residents and assisting in the diagnosis, treatment, and management of a multitude of conditions affecting the Joints.

4. Teaching

Arthroplasty FNB would be closely involved in teaching and supervision of the orthopedic DNB/MS (Orth). candidates as well.



5. Research

The fellows are required to complete at least one publishable research project. They work with our research coordinator and individual attending. They may participate in clinical or basic science research projects. They are encouraged to submit and present their work at national and international meetings.

6. Syllabus

Includes relevant chapters covering various topics listed below for various major joints undergoing replacement arthroplasty routinely.

- Biomechanics.
- Indications.
- Pre-operative planning.
- Templating.
- Surgical techniques.
- Soft tissue handling and their importance.
- Implant Biomechanics and merits/demerits.
- Implant choice.
- Rehabilitation.
- Outcomes.
- Complications – pre, intra and post-operative.
- DVT prevention.
- Blood management during arthroplasty surgeries.
- Infection in Arthroplasty.
- Revisions, Principles and Practice.
- Current Concepts.



V. COMPETENCIES

After the FNB arthroplasty the fellow should be competent in –

1. OPD assessment of the patient with Joint problems (history and examination)
2. Preoperative planning and templating of the procedure
3. Hip hemiarthroplasty
4. Primary Total Hip arthroplasty
5. Revision Total hip replacement (septic and aseptic)
6. Primary Total Knee replacement
7. Unicompartmental knee replacement
8. Revision total knee replacement (septic and aseptic)
9. Shoulder hemiarthroplasty
10. Total Shoulder hemiarthroplasty
11. Reverse Shoulder arthroplasty
12. Total elbow arthroplasty
13. Total ankle arthroplasty (center dependent)



VI. LOG BOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / Head of the department / senior consultant. This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The log book should show evidence that the before mentioned subjects were covered (with dates and the name of teacher(s)) The candidate will maintain the record of all academic activities undertaken by him/her in log book.

1. Personal profile of the candidate
2. Educational qualification/Professional data
3. Record of case histories
4. Procedures learnt
5. Record of case Demonstration/Presentations
6. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the log book. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative Head of the Institution.
7. In the absence of production of log book, the result will not be declared.



VII. RECOMMENDED TEXT BOOKS AND JOURNALS

1. Books

- Insall & Scott Surgery of the Knee
- Total knee arthroplasty – Richard Scott
- Illustrated Tips and Tricks in Hip and Knee Reconstructive and Replacement Surgery 2019 By Daniel J. Berry
- The Adult Hip – Callaghan
- Low friction arthroplasty by John Charnley
- Surgical techniques in total knee arthroplasty by Scuderi and Tria
- Master Techniques in Orthopedic Surgery the Hip 3Rd Edition by Berand William Maloney
- Master Techniques in Orthopedic Surgery Total Knee Arthroplasty
- Master Techniques in orthopaedic surgery relevant surgical– Morrey
- Moreys – The Elbow and its Disorders
- Rockwood and Matson's – The Shoulder
- Shoulder arthroplasty by Gary Gratsman
- Total Ankle Arthroplasty – Hinterman & Beat

2. Journals

- Journal of Bone & Joint Surgery American (JBJS Am)
- Clinical Orthopaedics and Clinical research (CORR)
- Journal of Arthroplasty (JOA)
- Bone & Joint Journal (erstwhile JBJS Br)
- Indian Journal of Orthopaedics
- The Knee
- The Journal of Shoulder & elbow surgery
- OCNA- Orthopaedic Clinics of North America
- JAAOS - Journal of the American Academy of Orthopaedic Surgeons

