



CURRICULUM

FELLOW IN BREAST SURGERY

COLLEGE OF SURGEONS OF EAST, CENTRAL AND SOUTHERN AFRICA

2024 Edition

The College of Surgeons of East, Central and Southern Africa (COSECSA)
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CONTENTS

<u>1.0</u>	<u>INTRODUCTION</u>	4
<u>1.1</u>	<u>Title of proposed programme</u>	4
<u>1.2</u>	<u>Mission and vision of the Breast programme</u>	4
<u>1.3</u>	<u>Philosophy of the programme</u>	4
<u>1.4</u>	<u>Rationale of the programme</u>	4
<u>1.5</u>	<u>Goals of the programme</u>	4
<u>2.0</u>	<u>CURRICULUM FOR FELLOW IN BREAST SURGERY</u>	5
<u>2.1</u>	<u>Education objectives of the Breast Surgery programe</u>	5
<u>2.2</u>	<u>Competencies expected from the Breast Fellow</u>	5
<u>2.3</u>	<u>Education programme of the Breast Surgery Fellowship</u>	6
<u>2.3.1.</u>	<u>Clinical rotations and Schedule</u>	6
<u>2.3.2.</u>	<u>Mode of programme delivery</u>	7
<u>2.4</u>	<u>Academic regulations</u>	9
<u>2.4.1.</u>	<u>Admission requirements</u>	9
<u>2.4.1.2.</u>	<u>Admission procedure</u>	10
<u>2.4.1.3.</u>	<u>Course structure and duration</u>	11
<u>2.4.1.4.</u>	<u>Discontinuation from the programme</u>	11
<u>2.4.2</u>	<u>Course requirements</u>	11
<u>2.4.2.2.</u>	<u>Trainer obligations</u>	111
<u>2.4.3.</u>	<u>Fellow assessment policy/criteria</u>	12
<u>2.4.4.</u>	<u>Grading system</u>	13
<u>2.4.5.</u>	<u>Examination regulations</u>	15
<u>2.4.6.</u>	<u>Moderation of examinations</u>	16
<u>2.4.7.</u>	<u>Graduation requirements</u>	16
<u>2.4.8.</u>	<u>Examination malpractices and irregularities</u>	17
<u>2.4.9</u>	<u>Disciplinary action</u>	18
<u>2.4.10.</u>	<u>Mode of appeal</u>	18
<u>2.4.9</u>	<u>Classification of degree</u>	18
<u>2.4.10.</u>	<u>Dissertation/thesis/research</u>	18
<u>2.5</u>	<u>Course evaluation</u>	18
<u>2.5.1.</u>	<u>Student evaluation</u>	18
<u>2.5.2</u>	<u>Trainer evaluation</u>	19

2.5.3	<u>Programme evaluation.</u>	19
2.5.4	<u>Mentorship evaluation.</u>	19
2.6	<u>Management and administration of the programme</u>	19
2.7.	<u>Course coding</u>	19
2.8	<u>Degree awarded</u>	20
3	<u>COURSE DESCRIPTION</u>	200
3.1	<u>BRS 300. Principles of Breast Surgery: Benign Disease I</u>	200
3.2	<u>BRS 301. Principles of Breast Surgery: Malignant Disease I</u>	Error! Bookmark not defined.1
3.3	<u>BRS 302. Breast Imaging for Breast Surgeons</u>	Error! Bookmark not defined.2
3.4	<u>BRS 400. Medical Oncology for Breast Surgeons</u>	Error! Bookmark not defined.3
3.5	<u>BRS 401. Radiation Oncology for Breast Surgeons</u>	Error! Bookmark not defined.5
3.6	<u>BRS 402. Pathology and Genetics for Breast Surgeons</u>	Error! Bookmark not defined.6
3.7	<u>BRS 500. Principles of Breast Surgery: Benign Disease II</u>	Error! Bookmark not defined.7
3.8	<u>BRS 501. Principles of Breast Surgery: Malignant Disease II</u>	Error! Bookmark not defined.8
3.9	<u>BRS 502. Research and Community Outreach</u>	30
4	<u>APPENDICES</u>	30
	<u>APPENDIX 1</u>	30
	<u>Curriculum organized by faculty</u>	30

1.0 INTRODUCTION

1.1 Title of proposed programme

Fellowship in Breast Surgery, College of Surgeons of East Central and Southern Africa

1.2 Mission and vision of the Breast Surgery programme

Improve and increase accessibility of breast surgical services, especially to African rural populations by standardising and widening access to training, skills, and knowledge. Be a leading organisation in breast surgical training, standards, and research, in our region and beyond.

1.3 Philosophy of the programme

The programme aims to prepare students for a surgical breast career through a student-centered programme with an emphasis on impeccable patient-centered care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, systems-based practices, and research skill development.

1.4 Rationale of the programme

Breast cancer is the most common cancer of women in Africa. It is also the second most common cause of cancer deaths, after cervical cancer. There is a great unmet need in the delivery of breast services in Sub-Saharan Africa with an incidence of around 130,000 new breast cancer cases annually and an unknown large incidence of benign breast diseases. Despite this need, there are currently no dedicated breast surgery training programmes in the COSECSA region.

This programme is primarily driven by the regional unmet public health need. In addition, to this programme will fulfill the requests and expressed interest of local and regional students with an interest in breast surgery despite lack of similar training programmes.

1.5 Goals of the programme

The goal of this programme is to teach and train future breast surgeons and breast surgery leaders in the COSECSA region.

2.0 CURRICULUM FOR FELLOW IN BREAST SURGERY

2.1 Educational objectives of the Breast Surgery programme

The specialty of Breast Surgery requires the understanding and knowledge of benign and malignant breast diseases. At the end of the Breast Fellowship, the Breast Fellow will be able to:

1. Demonstrate their ability to evaluate, diagnose and provide treatment options for patients within the entire spectrum of breast diseases.
2. Demonstrate comprehension of breast-specific knowledge from the related fields and specialties of radiology, medical oncology, radiation oncology, pathology, plastic surgery, palliative care, genetics, and community outreach.

2.2 Competencies expected from the Breast Fellow

The breast fellow will be expected to uphold and demonstrate the following competencies:

1. Patient Care: The fellow must be able to provide appropriate and effective treatment for the most common benign and malignant breast diseases in a compassionate approach. This includes care delivery in clinic, OR and emergency setting when indicated.
2. Medical Knowledge:
 - a. Pathophysiology: Fellows will know the epidemiology, pathology and other relevant biomedical principles in breast disease. These principles are detailed in the specialty specific curriculum included. These curricula were developed in collaboration with representatives from each specialty area.
 - b. Technical: Fellows will know all the technical procedures of the breast and axilla implemented in the surgical management of breast diseases. Details outlined in Curriculum below.
3. Practice Based Learning and Improvement: Fellows must demonstrate the ability to respond to feedback on their care of patients and commitment to lifelong learning. They will be expected to provide information and demonstrate knowledge of the literature through presentations at Division and Department level conferences. They will also be expected to actively participate in Breast Tumor Board presentations as well as develop and execute multidisciplinary based patient care plans. They are also expected to attend the Departmental M&M Conference and contribute cases when indicated.
4. Interpersonal and Communication Skills: Fellows must demonstrate the ability to communicate effectively with patients and families the complex information associated with breast diseases. They must also demonstrate a collaborative approach with other healthcare professionals in providing for the unique needs of these patients. This includes at least Medical Oncologists, Radiation Oncologists, Radiologists, Pathologists, Plastic Surgeons and other professionals such as Physical Therapists and Genetic Counselors. They are also expected to provide accurate and timely documentation of clinical activities.
5. Professionalism: Fellows must demonstrate professionalism in their relationships with patients, families and colleagues. They will be expected to demonstrate:
 - a. Compassion and respect
 - b. Responsiveness to patient needs

- c. Respect for patient privacy and autonomy
 - d. Accountability to patients and colleagues
 - e. Sensitivity and responsiveness to a diverse patient population including age, race, religion, disability and sexual orientation
 - f. High standards of ethical behavior
 - g. A commitment to continuity of care and in particular an appreciation of the long-term follow-up required in many clinical scenarios (particularly cancer patients)
 - h. Fellows must perform complete and thorough documentation of clinical activity in a timely manner.
6. Systems Based Practice: The fellow must demonstrate knowledge of community resources available for patients. The fellow will work with survivor organizations, nursing leaders, patient advocates and others to understand breast cancer from the patient's point of view.

2.3 Education programme of the Breast Surgery Fellowship

The Breast Surgery Fellowship will be run as a protected, full time, 18-month programme primarily located at the point of employment of the trainee. The Breast Fellow will obtain exposure and experience in all aspects of breast disease management through the required clinical rotations (*see rotation schedule*). In situations where expertise or equipment is lacking, students may rotate at a suitable facility for periods as agreed with the programme panel head. In addition, the education programme will be delivered as a series of course units (*see Courses section*).

2.3.1. Clinical Rotations and Schedule

The Breast Surgery Fellowship will be composed of clinical rotations across different multidisciplinary fields. Within each rotation, the Fellow will undergo progressive apprenticeship under supervision of the respective specialists.

Training Institutions

1. Rwanda Military Hospital (RMH)
2. Butaro District Hospital (BDH)
3. King Faisal Hospital (KFH)
4. University Teaching Hospital of Kigali (CHUK)

Rotation Schedule

The Breast Fellowship will consist of an 18-month experience, including rotations through the aforementioned Rwandan training institutions, the potential for an international rotation, and allocated research and vacation time.

1. Medical Oncology – 2 month
2. Radiation Oncology – 1 month
3. Pathology – 3-4 weeks combined
4. Radiology – 1 month combined
5. Plastic Surgery – 1 month combined

6. Surgery – 9 months
7. Community/Outreach – integrated into Medical Oncology rotations
8. International experience – 1 month optional (depending on availability)
9. Research - 1 month
10. Vacation - 1 month

2.3.2. Mode of programme delivery

All course units covered will consist of the following learning methods and materials:

Clinical

1. Outpatient Breast Surgical Clinics and Oncology Clinics: Fellows will be assigned to outpatient clinics during their clinical rotations. The Fellow will evaluate new patients and follow ups with the supervision of attending faculty. Graduated independence over the course of the year will be expected.
2. Inpatient Surgical and Oncology Wards: Fellows will manage all inpatient breast cases under supervision of attending faculty during their clinical rotations. The Fellow will perform daily ward rounds and organize daily treatment and discharge plans. Graduated independence over the course of the year will be expected.
3. Teaching in the Operating Theatre: Fellows will participate in all scheduled breast cases during their clinical rotations. Faculty members will delegate increasing, graduated involvement according to the fellow's level of training. Fellows are expected to read prior to all cases in which they participate.

Teaching

4. Didactic Lectures/Specialty Lectures: Lectures and didactic teaching will be delivered by faculty or by the Fellows. Visiting faculty may provide Specialty Lectures either in person or via virtual format. Fellows may be responsible for developing and presenting basic breast lectures to undergraduate and postgraduate students throughout the year during their clinical rotations or at the request of the University.
5. Morbidity and Mortality Meetings (*monthly*): Fellows will be responsible for tracking, coordinating, and presenting cases suitable for discussion on a monthly basis.
6. Journal Club: Fellows will participate in the presentation and discussion of seminal and/or recent articles of interest in breast surgery.
7. Grand Rounds: Towards the end of their fellowship, each Fellow will create and present a Grand Rounds presentation on the breast topic of their choosing, including personal research. This presentation will be delivered to a hospital-wide audience as demonstration of the Fellows' cumulative knowledge and presentation skills.

Self-directed learning

8. Online Curriculum: Fellows will have access to the COSECSA e-learning platform School for Surgeons. An online set of modules, including case studies, covering assigned breast topics will be available for in-depth, self-paced learning.
9. Selected Readings: Relevant surgical articles from the breast literature will be available to the Fellow in an online repository for self-paced reading.
10. Breast Education and Self-Assessment Program (BESAP): Fellows may obtain access to BESAP material through the American Society of Breast Surgeons. This material consists of online learning material, including practice questions and evidence-based explanations.

Conferences and Courses

11. Multidisciplinary Tumor Board and Case Presentations (*weekly*): Meetings are held regularly at RMH and BDH campus weekly. The Fellow will be responsible for any surgical breast cases to be presented at this meeting.
12. Breast Ultrasound Course (*depending on availability*): Fellow will participate in a breast ultrasound course to learn the basics of breast ultrasound imaging.
13. COSECSA (*annually*): Fellows are strongly encouraged to attend and participate via their research in the annual COSECSA Conference.
14. Regional Conferences: Fellows may attend educational conferences organized by regional surgical groups after discussion with the Program Director.

2.3.3. Course structure

The Fellowship is structured in a course format over 18 months. Please see below for details.

Course Code	Course Title	Semester	Credit Hours
BRS 300	Principles of Breast Surgery: Benign Disease I	I	
BRS 301	Principles of Breast Surgery: Malignant Disease I	I	
BRS 302	Breast Imaging for Breast Surgeons	I	
BRS 400	Medical Oncology for Breast Surgeons	II	
BRS 401	Radiation Oncology for Breast Surgeons	II	
BRS 402	Pathology/Genetics for Breast Surgeons	II	
BRS 500	Principles of Breast Surgery: Benign Disease II	III	
BRS 501	Principles of Breast Surgery: Malignant Disease II	III	
BRS 503	Research and Community Outreach	III	
TOTAL			

2.4 Academic regulations

2.4.1. Admission requirements

All candidates for the breast fellowship are required to register as trainees. Applications must be made on formal application forms available from the country representative or

the COSECSA website. All completed applications must be received by the first day of March of the first year of training and accompanied by certified copies of MCS certificates or equivalent examination.

Academic

Candidates for the Breast Surgery Fellowship should have:

1. Successful completion of COSECSA MCS training
2. Successful passing of both the MCS Part I and II examinations
3. Successful completion of COSECSA FCS General Surgery training
4. Successful passing of both FCS examinations

Exemption from the MCS examinations may be given to those who have passed an equivalent examination such as MMed (Surgery) of one of the constituent countries of the ECSA community, or Fellowship of the Royal Colleges of Surgeons of England, Scotland, Ireland, Australia, or South Africa.

Academic requirements

- Candidates should normally possess an MB, ChB degree, or MD degree from a recognized university or equivalent.
- The candidate must be a registered practitioner by the Ministry of Health of the country with an active license to practice
- Foreign applicants must hold doctor of medicine degree and must produce their professional license and a letter of good standing from their local accreditation body.

Non-academic requirements

- Applicants must be in acceptable physical and mental health without any serious health conditions that would limit the ability to cope with the requirements of the training program and service. The college reserves the right to deny admission to unfit candidates as determined by the ECC
- Female candidates are strongly encouraged and given special consideration
- Applicants should be proficient in the English language as the curriculum, training, and examination will be administered in English

Application Process

Applicants will complete the following:

1. Letter of intent
2. Two (2) Letters of Recommendation. One of these letters should be from the previous training program director or faculty.
3. Updated Curriculum Vitae

2.4.1.2. Admission procedure

A prescribed registration fee should be payable on registration. On registration the trainee shall receive a:

- i. Copy of the examination regulations and syllabus
- ii. Logbook or unique access to the electronic logbook
- iii. Access to online education modules
- iv. List of recognized hospitals and approved courses
- v. Assessment forms to be filled in at the end of every clinical rotation by the trainee and the supervising consultant.
- vi. Recommended reading list for the relevant examination
- vii. An application form to sit the examination
- viii. Registration number which remains unique to the candidate

2.4.1.3. Course structure and duration

The specialty training in breast surgery shall be a full time, 18-month fellowship programme. The maximum duration of the course shall be two years.

All courses are compulsory. A unit of study shall be 60 hours of lectures or 90 hours of tutorials or 120 hours of practicals, clinical clerkship/community attachment.

Clinical coverage outside official working hours (call duties) shall on average be one call per week and one weekend call in a month. To complete the course, candidates are expected to undertake a minimum of 60 hours a week of clinical work (on calls, clinics, ward work, theatres).

A Candidate exceeding the prescribed maximum duration of the course without valid reason shall be discontinued on recommendation of the Examination and Credentials Committee (ECC)

With appropriate reasons, and written application, temporary withdrawal may be granted from the programme for six months, renewable once. Temporary withdrawal greater than a year will result in discontinuation from the programme.

2.4.1.4. Discontinuation from the programme

A candidate may be discontinued from the programme under the following circumstances.

- Voluntary withdrawal in writing to the ECC.
- On medical grounds, with the approval by the Council, candidate is found to be academically unfit to continue.
- If candidate contravenes the ethical code expected of a medical practitioner. Relevant national regulations may be referred to.
- Exceeds the specified time for the programme without graduating.

2.4.2 Course requirements

2.4.2.1. Class attendance/attachment

The college expects that all candidates must attend at least 80% of prepared teaching sessions by the training site. In addition, the trainee must take courses included in the online courses organized by the College.

2.4.2.2. Trainer obligations

Trainer roles shall include, but not be limited to the following areas;

- Be available to students for teaching, consultation and mentoring.
- Serve the primary role of facilitating learning of students.
- Adequately prepare for all teaching assignments
- Demonstrate breast surgical skills to students
- Provide reading and learning materials/references in a timely fashion.
- Supervise tutorials, ward rounds, grand rounds, morbidity & mortality meetings, and other teaching sessions.
- Preparation of examinations and assessments in a timely fashion.
- Marking or grading of examinations and assessments in a timely fashion.
- Provide facilitative feedback to students on their continued progress and all assessments.
- Coordinate curriculum audit and review processes.
- Liaise with the head of department and dean on matters relating to the programme.

2.4.2.3 Trainee obligations

Shall include, but not limited to;

- To attend teaching sessions as stipulated.
- Commit themselves to the learning process and avoid distractions not directly related to the processes.
- Submit all assignments as required.
- Advise teaching staff beforehand if unable to attend classes or submit an assessment. This is subject to faculty approval.
- Be familiar with the contents of the COSECSA regulations and abide by them.
- Treat student peers and any facilitators with respect.
- Student moonlighting during the training programme is not permitted.

2.4.3. Fellow assessment policy/criteria

According to student assessment policy, the Fellow will undergo routine assessment and evaluation to ensure progression of skills and acquisition of knowledge throughout the fellowship. Assessments will be holistic and include cognitive, psychomotor and attitude assessments. All assessments must be fed back to the trainee within a week of the assessment taking place and discussions must be documented with a signed note.

Assessments of the Breast Surgery Fellowship will consist of:

1. Clinical Rotation Evaluations (after each rotation)
2. Program Director Evaluations (every 3 months)
3. School for Surgeons (online modules)
4. Electronic logbook (case log)
5. COSECSA breast fellowship exam

Clinical Rotation Evaluations

At the end of each clinical rotation, the Fellow will obtain a formal, standardized assessment of his work from the designated faculty at that training institution.

Program Director Evaluations

Every three months, the Program Director will formally evaluate and counsel the fellow. This evaluation may include: attendance and punctuality, professional appearance, concern for patients, interpersonal skills and initiative, patient evaluation and history taking skills, physical examination skills, clinical knowledge base, completion of reading assignments, completion of online modules, logbook upkeep, surgical and procedural skills, documentation, respect for authority and leadership, leadership ability and work ethic.

School for Surgeons/Online Modules

Fellows will be expected to cover assigned breast topics through self-paced learning via an online set of modules on the School for Surgeons website. Fellows will be evaluated on completion of topics and module scores.

Electronic Logbook

During the training period, Fellows must keep an online logbook prospectively recording in real time their operative and non-operative experience. Procedures and clinical follow ups must be electronically countersigned by the supervising consultant. The logbook can be accessed through the COSECSA website and should be available for inspection at any time by the Program Director. Consolidation sheets should be compiled at the end of every three months and a final consolidation sheet for the whole training period.

Review of assessment of trainees' work prior to final examinations will be conducted by the panel head of breast surgery. On satisfactory assessment at this stage, trainees will be allowed to sit examinations.

2.4.4. Grading system

Similar to all medical programmes, the final degree shall have no grading.

A closed marking system shall be used for this programme and consist of:

- Good pass >60%
- Pass 50 to 60%
- Fail <50%

2.4.5. Examination regulations

Candidates who are registered as trainees may sit the breast surgery examination at the end of their 18 months of training. Application for the examination must be made by the first day of March of the year of the examination. Candidates should submit a completed examination application form to the CCR, or register online. All registration fees must be paid. On receipt of the form and the fee, candidates will be informed of the precise times, dates and venue for the examinations.

By applying for the examination a candidate agrees to be bound by the rules and regulations of the College. A copy may be obtained from the Arusha office.

If a candidate withdraws from an exam more than 12 weeks before the exam is due, then the fee can be transferred to the next exam date. Fees will not normally be returned if the candidate withdraws permanently, unless due to special circumstances as determined by the College.

Candidates must pass the examination within four years of their first attempt. After this they will not be allowed to re-sit. A total of four attempts only will be allowed.

Examination Format and Conduct

The standards of the examination will be set by the examination committee. A panel of examiners will be chosen by the examination committee from amongst Fellows of the College for the examination.

A register of examiners will be kept by the chairman of the examination committee. An examination board will be constituted for each of examinations, comprising the chairman of the examination committee, two members from each examination panel and at least one external examiner. The role of the external examiner(s) is to:

- a) Moderate the written question papers
- b) Assist with the examination of candidates
- c) Assist with any pass/fail vivas
- d) Provide external independent assessment of the examination
- e) Report on the conduct of the examination to the examination committee

The exam comprises written, clinical and oral parts.

FCS-BRS (ECSA) exam will comprise two, three (3), hour papers and an OSCE.

- The first paper will consist of single best answer multiple choice questions
- The second paper will consist of extended matching and/or short answer questions

Written examinations may be held in any of the countries of the region where the trainee is located. In exceptional circumstances the examination committee may approve an examination site outside the region. The written examinations are held simultaneously on the first Wednesday of September, at a recognised examination centre with impartial invigilation.

The examination papers will be set by members of the examination committee and independently moderated by an external examiner. They will be sent to COSECSA administration office in Arusha by first day of March and will be stored confidentially there. One copy per candidate will then be sent by courier or secure delivery to a named country representative at all sites that are holding examinations 2-3 days before they are held.

After the examination, CCR will make photocopies of the candidates' completed exam scripts for safekeeping, and send the originals by courier or secure delivery to the relevant panel chairman. Marking of the examination paper will be coordinated by the panel chairman.

The clinical and oral part of the examination for FCS, will comprise the following:

All oral examination (and at a site designated by the college. There will be a minimum of two 30 minute orals viva) which will take place approximately 3 months after the multiple choice exam, in a country examinations.

A clinical OSCE examination which will take place at the same time and at the same site as the oral. This will comprise a minimum of six 20 minute stations.

Candidates have to pass the clinical and oral sections of the examination in order to pass overall. If a candidate scores a mean of 49% in one section and has over 50% in the other section then he or she will be given a pass/fail viva. The chairman of the examination panel will select two examiners, excluding those who had failed the candidate, together with an external examiner, to conduct this viva.

The chairman of the examination panel will endeavour to minimise the chance of a candidate being examined by an examiner from his or her own country.

The panel of examiners will give the results to the examination board who will meet on the day of examination. The board will then approve the results on behalf of Council and publish them.

For each candidate who fails the exam, the panel will allocate a Fellow of the College (usually a member of the panel) who will communicate with the candidate and offer advice as may be indicated. Details of marks will not be given. If a candidate fails his clinical and oral examination then he may attempt the clinical and oral examination for a maximum of two more years without having to rewrite the written examination.

Appeals against results must be made in writing to the Council within 60 days of the completion of the examination. The President of the College will then appoint an impartial committee to investigate the appeal and require a written report to be filed by the Chairmen of the examinations panel and board. The Appeals committee will then take all considerations and its own findings into account and recommend a decision which will remain final and binding.

Examination pass mark

The examination pass mark shall be set by the standard setting team Only those passing the written paper shall be called for the clinical examination.

Those failing the examination (written, clinical or both), in a given year may resist the examination when next offered.

2.4.6. Moderation of examinations

All examination paper shall be reviewed by the external examiner. Preparation of examination papers is the responsibility of the programme leader. Following preparation, papers are sent to a designated external examiner. Appointment of external examiner shall be by Council on recommendation of the ECC committee.

External moderation shall take place at least four months before the written examination.

2.4.6.1. Examination Schedule

Course Code	Course Title	Papers
BRS (covering courses BRS 300 To BRS 503)	Practice of Breast Surgery	2 x 3 hrs paper 1 x OSCE clinical Viva

2.4.7. Graduation requirements

The following are mandatory requirements for completion of the fellowship and to be eligible to sit for the exam.

1. Completion of all clinical rotations with one month leave.
2. A summative assessment report from the Program Director at the completion of all clinical rotations.
3. Submission of a well-kept and counter-signed operative logbook. This logbook will contain and demonstrate participation in the required number of operative and non-operative experiences (see below for requirements).
4. Completion of the online breast surgery modules
5. Completion of at least one research project.

Operative Experience and Skill Requirements: The Breast Fellow will demonstrate competency in common and uncommon breast procedures and operations. Each Fellow will participate in the following minimum number of procedures.

1. Breast ultrasound: 15 hands on and 30 observation only
2. Cyst aspiration: 2
 - a. Percutaneous
 - b. Ultrasound guided
3. FNA: 5
4. Core needle biopsy: 20
 - a. Percutaneous: 10
 - b. Ultrasound guided: 10
5. Excisional biopsy for benign disease: 20
6. Duct exploration and excision: 3
7. **Breast Conserving surgery**: 30
8. Mastectomy: 30
 - a. Radical, modified radical, total
 - b. Skin-sparing and NAC sparing
 - c. Palliative
9. Subcutaneous mastectomy for gynecomastia: 2
10. Axillary sentinel node biopsy: 30
 - a. Blue dye
11. Axillary lymph node dissection: 15
12. Clip placement/site markers: 10
13. Placement of localizing wire or seed (depending on availability)
14. **Chest wall resection (depending on availability)**
15. **Oncoplastic approaches and closure techniques** (depending on availability)
 - a. Local tissue flap closure

Non-operative Experience and Skill Requirements: The Breast Fellow will participate in at least 70 outpatient clinics during one year with at least 150 primary breast cancer cases.

1. Medical Oncology
 - a. 15 new breast CA/recurrent disease consultations
 - b. 15 follow up visits
2. Radiation Oncology
 - a. 15 new breast CA consultations
 - b. 5 new breast CA or recurrent breast CA simulations
 - c. 15 follow up visits and/or physics reviews
3. Pathology
 - a. 8 cancer case sign-outs
 - b. 8 benign and/or high risk lesions
4. **Plastic Surgery**

- a. 8 reconstructive cases
- 5. Genetics
 - a. 3 observed consultations
- 6. Radiology/Imaging
 - a. 10 screening cases
 - b. 10 breast ultrasound and/or nodal ultrasound
 - c. 10 diagnostic mammograms
 - d. 8 breast MRIs
- 7. Multidisciplinary Tumor Board
 - a. Weekly

To qualify for graduation a candidate must have successfully completed all examinations.

Graduation ceremonies are held once a year in any of the member countries on a rotational basis.

2.4.8. Examination malpractices and irregularities.

Invigilators during examination shall, prior to commencement of examination, advise all candidates on the consequences of examination irregularities or malpractice. Upon noticing, or a strong suspicion of, any malpractice must immediately consult with co-invigilators, and also advise the candidate that such an incident has been noted.

All evidence relating to the incident must be confiscated, photographed etc. as appropriate to the case.

Within eight hours, the incident must be reported in writing to the panel head, thoracic and vascular and the ECC, with all relevant evidence. Both invigilators and the concerned student are expected to make independent written reports.

A committee selected from members of the ECC and ESRC shall make a final decision on the case and inform council.

2.4.9 Disciplinary action.

Disciplinary action for examination irregularity, malpractice is exclusion from the programme.

2.4.10. Mode of appeal.

Trainees wishing to make appeals either for examination malpractice/irregularities or marking may do so in writing to the College Registrar. The appeal must contain enough detail to warrant the appeal being considered.

Any appeal must be made within a week of release of the official examination results or release of an irregularity/malpractice decision.

The case found to have merit shall be referred to the ECC for deliberation.

2.4.11. Classification of degree.

Fellowship in Breast Surgery, College of surgeons of East Central and Southern Africa shall not be classified.

2.4.12. Dissertation/thesis

The College does not currently expect students to undertake a dissertation as part of the training process. However, breast fellows must complete their required Research Course and Research rotation. Fellows will thus be expected to complete a minimum of one research project during their fellowship. The Fellow will initially develop their idea in collaboration with the Program Director or other faculty member. They will then be responsible for data collection, analysis, and writing under supervision of their faculty mentor. The results of the research should be prepared for presentation at one or several surgical conferences, including the annual COSECSA meeting. It is the expectation that the Fellow will present their research in at least one surgical conference and publish at least one article in a peer-reviewed scientific journal.

2.5 Course evaluation

The courses shall be evaluated through a number of methods. Responsibility for course evaluation shall be through the panel head and all evaluation reports forwarded to the ECC and ESRC for onward discussion by council.

2.5.1. Student evaluation.

At the end of each course a formal trainee evaluation of the course shall be conducted on a structured questionnaire containing both open and closed ended questions. Evaluation shall include assessment of student opinion on course content, delivery, and assessments.

Data collection shall be by the course coordinator in the respective center and result sent to the panel head for compilation. Information gathered shall be analysed and fed back to students and council.

2.5.2 Trainer evaluation.

Similar to the above, a training evaluation of all aspects of the training process shall be undertaken through structured questionnaires. Assessments shall be carried out by student as well as peer review. In the case of students, these shall be presented to student prior to the final examination.

2.5.3 Programme evaluation.

Overall programme evaluation shall be undertaken annually with a curriculum review five yearly. The latter shall take into consideration individual course assessments, reference materials, teaching facilities, trainers and examiners.

2.5.4 Mentorship evaluation.

Each training center shall set up mentorship programmes to help trainees in their studies.

Programmes shall assign specific trainees to trainers with trainees having the option to change mentors if not satisfied.

2.6 Management and administration of the programme

The direct day to day administrations of the programme shall be by the thoracic and vascular panel head using guidelines from the relevant committees and council.

2.7. Course coding

Course coding shall utilise three alpha and three numeric characters.

The first character of the alpha characters signify the programme, and the last two the course. For the numeric the first is the year of study and second the sequence of the programme

For this programme the course code shall resemble BRS 100 as per above description

2.7.1 Distribution of courses

Course	Code	Lectures	Clinical/Practical	Total
Principles of Breast Surgery: Benign Disease I	BRS 300			
Principles of Breast Surgery: Malignant Disease I	BRS 301			
Breast Imaging for Breast Surgeons	BRS 302			
Medical Oncology for Breast Surgeons	BRS 400			
Radiation Oncology for Breast Surgeons	BRS 401			
Pathology/Genetics for Breast Surgeons	BRS 402			
Principles of Breast Surgery: Benign Disease II	BRS 500			
Principles of Breast Surgery: Malignant Disease II	BRS 501			
Research and Community Outreach	BRS 502			

2.8 Degree awarded.

The degree awarded shall be, Fellowship in Cardiothoracic Surgery, College of Surgeons of East Central and Southern Africa, FCS-CTs (ECSA).

3 COURSE DESCRIPTION

3.1 Principles of Breast Surgery: Benign Disease I

Title of the course: BRS 300. Principles of Breast Surgery: Benign Disease I

Purpose of the course: The Fellow will understand and/or know the presentation, diagnosis, and management, including surgical indications, of important concepts in benign breast disease.

Expected learning outcomes of the course:

Course content: Benign Breast Disease

- a. Breast pain
- b. Breast masses
 - i. Cyst
 - ii. Fibroadenoma
 - iii. Phyllodes
 - iv. Diabetic mastopathy
 - v. Fat necrosis
 - vi. Galactocele
 - vii. Mondor's disease
- c. Nipple Discharge
 - i. Duct ectasia
 - ii. Intraductal papilloma

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- i. Didactic lectures and tutorials.
- ii. Assignments and case studies.
- iii. Self-directed learning.
- iv. Ward, theatre and clinic work
- v. Electronic discussion groups and online course materials.
- vi. Self-directed learning.
- vii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- i. Recommended reading materials listed
- ii. Wards and theatres
- iii. LCD projectors
- iv. Skills laboratory
- v. Computers

Course assessment:

Modalities of assessment will include:

- i. Continuous Assessment Tests.
- ii. Attendance.
- iii. Final examinations.
- iv. Course evaluation by students.
- v. Student Assignment of academic staff.
- vi. Stakeholder evaluation

3.2 Principles of Breast Surgery: Malignant Disease I

Title of the course: BRS 301. Principles of Breast Surgery: Malignant Disease I

Purpose of the course: The Fellow will understand and/or know the presentation, diagnosis, and management, including surgical indications, of important concepts in malignant breast disease.

Expected learning outcomes of the course:

1. **Course content:** Malignant Breast Disease
 - a. Paget's disease of the nipple
 - b. LCIS
 - c. DCIS
 - d. Invasive lobular CA
 - e. Invasive ductal CA
 - f. Inflammatory breast CA
 - g. Variants: tubular CA, mucinous CA, metaplastic breast CA

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- viii. Didactic lectures and tutorials.
- ix. Assignments and case studies.
- x. Self-directed learning.
- xi. Ward, theatre and clinic work
- xii. Electronic discussion groups and online course materials.

- xiii. Self-directed learning.
- xiv. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- ii. Recommended reading materials listed
- vi. Wards and theatres
- vii. LCD projectors
- viii. Skills laboratory
- ix. Computers

Course assessment:

Modalities of assessment will include:

- vii. Continuous Assessment Tests.
- viii. Attendance.
- ix. Final examinations.
- x. Course evaluation by students.
- xi. Student Assignment of academic staff.
- xii. Stakeholder evaluation

3.3 Breast Imaging for Breast Surgeons

Title of the course: BRS 302. Breast Imaging for Breast Surgeons

Purpose of the course: The Fellow will understand and/or know the important concepts in breast radiology.

Expected learning outcomes of the course:

Course content: Breast Imaging

1. Screening and Diagnostic studies
 - a. Guidelines for breast cancer screening
 - i. Controversies
 - b. Indications, techniques and uses for diagnostic studies
 - c. Studies:
 - i. Ultrasound
 - ii. Mammography
 1. Stereotactic biopsy
 2. Digital tomosynthesis
 - iii. MRI
 - d. Breast radiology reporting: BIRADS classification, breast composition, etc

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- xv. Didactic lectures and tutorials.
- xvi. Assignments and case studies.
- xvii. Self-directed learning.
- xviii. Ward, theatre and clinic work
- xix. Electronic discussion groups and online course materials.
- xx. Self-directed learning.
- xxi. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- iii. Recommended reading materials listed
 - x. Wards and theatres
 - xi. LCD projectors
 - xii. Skills laboratory
 - xiii. Computers

Course assessment:

Modalities of assessment will include:

- xiii. Continuous Assessment Tests.
- xiv. Attendance.
- xv. Final examinations.
- xvi. Course evaluation by students.
- xvii. Student Assignment of academic staff.
- xviii. Stakeholder evaluation

3.4 Medical Oncology for Breast Surgeons

Title of the course: BRS 401. Medical Oncology for Breast Surgeons

Purpose of the course: The Fellow will be familiar with options for systemic treatment, criteria for decision making- including indications, most common medications, mechanism of action, side effects/toxicities, and multidisciplinary care.

Expected learning outcomes of the course:

Course content: Medical Oncology

1. Staging
2. Tumor markers
3. Endocrine treatment
 - a. Management of hormone receptor +

- b. Management of hormone receptor –
 - c. Management of HER2+
- 4. Chemotherapy
 - a. NAC
 - b. Adjuvant
- 5. Management by stage
- 6. Palliative approaches to stage 4 disease

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- xxii. Didactic lectures and tutorials.
- xxiii. Assignments and case studies.
- xxiv. Self-directed learning.
- xxv. Ward, theatre and clinic work
- xxvi. Electronic discussion groups and online course materials.
- xxvii. Self-directed learning.
- xxviii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- iv. Recommended reading materials listed
- xiv. Wards and theatres
- xv. LCD projectors
- xvi. Skills laboratory
- xvii. Computers

Course assessment:

Modalities of assessment will include:

- xix. Continuous Assessment Tests.
- xx. Attendance.
- xxi. Final examinations.
- xxii. Course evaluation by students.
- xxiii. Student Assignment of academic staff.
- xxiv. Stakeholder evaluation

3.5 Radiation Oncology for Breast Surgeons

Title of the course: BRS 402. Radiation Oncology for Breast Surgeons

Purpose of the course: The Fellow will understand the role of radiation therapy in the care and management of breast cancer patients.

Expected learning outcomes of the course:

Course content: Radiation Oncology

1. Criteria for recommendation/indications
2. Treatment plans and regimens
 - a. Considerations in designing treatment fields
 - b. Whole breast/partial breast XRT
 - c. Post-mastectomy XRT
3. Side effects/complications
4. XRT for metastatic disease

Mode of delivery of the course: the course shall be delivered through a number of modalities including;

- xxix. Didactic lectures and tutorials.
- xxx. Assignments and case studies.
- xxxi. Self-directed learning.
- xxxii. Ward, theatre and clinic work
- xxxiii. Electronic discussion groups and online course materials.
- xxxiv. Self-directed learning.
- xxxv. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- v. Recommended reading materials listed
- xviii. Wards and theatres
- xix. LCD projectors
- xx. Skills laboratory
- xxi. Computers

Course assessment:

Modalities of assessment will include:

- xxv. Continuous Assessment Tests.
- xxvi. Attendance.
- xxvii. Final examinations.
- xxviii. Course evaluation by students.
- xxix. Student Assignment of academic staff.
- xxx. Stakeholder evaluation

3.6 Pathology and Genetics for Breast Surgeons

Title of the course: BRS 402. Pathology and Genetics for Breast Surgeons

Purpose of the course: The Fellow will be familiar with all the most common benign and malignant pathologies of the breast, understand the importance of specimen handling, tissue processing and pathologic staging. The Fellow will understand the concepts and models of breast risk analysis and be able to address the needs of this unique patient group.

Expected learning outcomes of the course:

Course content: Breast Pathology and Genetics

1. Understanding lesions
 - a. Benign
 - b. Malignant
2. Specimen handling and pathologic analysis
 - a. Orientation and margin assessment
 - b. Nodal evaluation
 - c. Frozen section, staining, immunohistochemistry
3. Pathologic staging
4. Genetic Risk assessment
 - a. Family history
 - b. Mutations
 - i. BRCA 1 and 2
 - ii. P53, CHEK, Cowden's
 - c. Environmental exposures

Mode of delivery of the course: the course shall be delivered through a number of modalities including:

- xxxvi. Didactic lectures and tutorials.
- xxxvii. Assignments and case studies.
- xxxviii. Self-directed learning.
- xxxix. Ward, theatre and clinic work
 - xl. Electronic discussion groups and online course materials.
 - xli. Self-directed learning.
 - xlii. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- vi. Recommended reading materials listed
- xxii. Wards and theatres
- xxiii. LCD projectors

- xxiv. Skills laboratory
- xxv. Computers

Course assessment:

Modalities of assessment will include:

- xxxi. Continuous Assessment Tests.
- xxxii. Attendance.
- xxxiii. Final examinations.
- xxxiv. Course evaluation by students.
- xxxv. Student Assignment of academic staff.
- xxxvi. Stakeholder evaluation

3.7 Principles of Breast Surgery: Benign Disease II

Title of the course: BRS 500. Principles of Breast Surgery: Benign Disease II

Purpose of the course: The Fellow will understand and/or know the presentation, diagnosis, and management, including surgical indications, of important concepts in benign breast disease.

Expected learning outcomes of the course:

Course content: Benign Disease

- a. Breast infections
 - i. Mastitis
 - ii. Abscess
- b. High risk lesions
 - i. Flat epithelial atypia and columnar cell change with atypia
 - ii. Atypical lobular/ductal hyperplasia
 - iii. LCIS
 - iv. Radial scar
- c. Peripartum breast issues, including physiologic changes, breastfeeding and breast health

Mode of delivery of the course: the course shall be delivered through a number of modalities including:

- xlili. Didactic lectures and tutorials.
- xliv. Assignments and case studies.
- xliv. Self-directed learning.
- xlvi. Ward, theatre and clinic work
- xlvi. Electronic discussion groups and online course materials.
- xlvi. Self-directed learning.

- xlix. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- vii. Recommended reading materials listed
- xxvi. Wards and theatres
- xxvii. LCD projectors
- xxviii. Skills laboratory
- xxix. Computers

Course assessment:

Modalities of assessment will include:

- xxxvii. Continuous Assessment Tests.
- xxxviii. Attendance.
- xxxix. Final examinations.
 - xl. Course evaluation by students.
 - xli. Student Assignment of academic staff.
 - xlii. Stakeholder evaluation

3.8 Principles of Breast Surgery: Malignant Disease II

Title of the course: BRS 501. Principles of Breast Surgery: Malignant Disease II

Purpose of the course: The Fellow will understand and/or know the presentation, diagnosis, and management, including surgical indications, of important concepts in malignant breast disease. The Fellow will be familiar with approaches to breast reconstruction and oncoplastic considerations in breast conservation.

Expected learning outcomes of the course:

Course content: Malignant Disease

- a. Malignant phyllodes
- b. Male breast CA
- c. Locally advanced breast CA: operable vs non-operable
- d. Recurrent breast CA: s/p mastectomy, in breast recurrence s/p partial mastectomy
- e. Hereditary breast CA
 - i. Family history
 - ii. BRCA 1 and 2
- iii. Genetic testing
- f. Hormone receptor status: ER, PR and HER2; triple negative disease

- g. Metastatic disease to the breast
- iv. Lymphoma, melanoma, thyroid
- h. Sarcoma of the breast
- i. Metastatic breast CA
- j. Breast asymmetry and chest wall defects after resection
- k. Oncoplastic techniques, basic
- l. Common flaps and techniques for reconstruction

Mode of delivery of the course: the course shall be delivered through a number of modalities including:

- I. Didactic lectures and tutorials.
- li. Assignments and case studies.
- lii. Self-directed learning.
- liii. Ward, theatre and clinic work
- liv. Electronic discussion groups and online course materials.
- lv. Self-directed learning.
- lvi. Skills laboratory demonstrations for practical aspects of surgical anatomy.

Instructional materials and/or equipment:

- viii. Recommended reading materials listed
- xxx. Wards and theatres
- xxxi. LCD projectors
- xxxii. Skills laboratory
- xxxiii. Computers

Course assessment:

Modalities of assessment will include:

- xlili. Continuous Assessment Tests.
- xliv. Attendance.
- xlvi. Final examinations.
- xlvi. Course evaluation by students.
- xlvi. Student Assignment of academic staff.
- xlvi. Stakeholder evaluation

3.9 Research and Community Outreach

Title of the course: BRS 502. Research and Community Outreach

Purpose of the course: The Fellow will have the opportunity to gain an understanding of breast cancer research. The Fellow will understand the importance of community education and cancer patient advocacy and gain an understanding of the unique needs of breast cancer patients. The Fellow will be able to understand the importance of rehabilitation therapy for breast cancer patients.

Expected learning outcomes of the course:

Course content: Research and Community Outreach

1. Ethics/Human Subject Protection
2. Develop and complete a clinical research project including manuscript preparation
3. Communication and interaction with:
 - a. Cancer support groups
 - b. Non-medical community
 - c. Other physicians
 - d. Multidisciplinary conferences
4. Knowledge of cancer prevention, screening, diagnosis and treatment
5. Preparation of educational materials for presentation
6. Palliative surgery
7. End of life care and management
8. Psycho-oncology
9. Disability assessment
10. ADLs and ROM
11. Lymphedema risk assessment, prevention and treatment

3 APPENDICES

APPENDIX 1

Curriculum Organized by Specialty

General Knowledge: The Fellow will understand and/or know the presentation, diagnosis, and management, including surgical indications, of the following important concepts:

Benign Breast Disease

- a. Breast pain
- b. Breast masses
 - iii. Cyst
 - iv. Fibroadenoma
 - v. Phyllodes
 - vi. Fat necrosis
 - vii. Galactocele

- c. Nipple Discharge
 - viii. Duct ectasia
 - ix. Intraductal papilloma
 - d. Breast infections
 - x. Mastitis
 - xi. Abscess
 - e. High risk lesions
 - xii. Flat epithelial atypia and columnar cell change with atypia
 - xiii. Atypical lobular/ductal hyperplasia
 - xiv. LCIS
 - xv. Radial scar
 - f. Peripartum breast issues, including physiologic changes, breastfeeding and breast health
2. Malignant Breast Disease
- a. Paget's disease of the nipple
 - b. LCIS
 - c. DCIS
 - d. Invasive lobular CA
 - e. Invasive ductal CA
 - f. Inflammatory breast CA
 - g. Variants: tubular CA, mucinous CA, metaplastic breast CA
 - h. Malignant phyllodes
 - i. Male breast CA
 - j. Locally advanced breast CA: operable vs non-operable
 - k. Recurrent breast CA: s/p mastectomy, in breast recurrence s/p partial mastectomy
 - l. Hereditary breast CA
 - i. Family history
 - ii. BRCA 1 and 2
 - iii. Genetic testing
 - m. Hormone receptor status: ER, PR and HER2; triple negative disease
 - n. Metastatic disease to the breast
 - i. Lymphoma, melanoma, thyroid
 - o. Sarcoma of the breast
 - p. Metastatic breast CA

Breast Imaging/Radiology: The Fellow will understand and/or know the important concepts in breast radiology. This includes:

- 3. Screening and Diagnostic studies
 - a. Guidelines for breast cancer screening
 - i. Controversies
 - b. Indications, techniques and uses for diagnostic studies
 - c. Studies:

- i. Ultrasound
 - ii. Mammography
 - 1. Stereotactic biopsy
 - 2. Digital tomosynthesis
 - iii. MRI
- d. Breast radiology reporting: BIRADS classification, breast composition, etc

Medical Oncology: The Fellow will be familiar with options for systemic treatment, criteria for decision making- including indications, most common medications, mechanism of action, side effects/toxicities, and multidisciplinary care. This includes an understanding of:

- 4. Staging
- 5. Tumor markers
- 6. Endocrine treatment
 - a. Management of hormone receptor +
 - b. Management of hormone receptor –
 - c. Management of HER2+
- 7. Chemotherapy
 - a. NAC
 - b. Adjuvant
- 8. Management by stage
- 9. Palliative approaches to stage 4 disease

Radiation Oncology: The Fellow will understand the role of radiation therapy in the care and management of breast cancer patients. This includes:

- 10. Criteria for recommendation/indications
- 11. Treatment plans and regimens
 - a. Considerations in designing treatment fields
 - b. Whole breast/partial breast XRT
 - c. Post-mastectomy XRT
- 12. Side effects/complications
- 13. XRT for metastatic disease

Pathology: The Fellow will be familiar with all the most common benign and malignant pathologies of the breast, understand the importance of specimen handling, tissue processing and pathologic staging. This includes:

- 14. Understanding lesions
 - a. Benign
 - b. Malignant
- 15. Specimen handling and pathologic analysis
 - a. Orientation and margin assessment
 - b. Nodal evaluation
 - c. Frozen section, staining, immunohistochemistry

16. Pathologic staging

Plastic and Reconstructive Surgery: The Fellow will be familiar with approaches to breast reconstruction and oncoplastic considerations in breast conservation. This includes:

- 17. Breast asymmetry and chest wall defects after resection
- 18. Oncoplastic techniques, basic
- 19. Common flaps and techniques for reconstruction

Palliative Care: The Fellow will gain an understanding of the unique needs of breast cancer patients including:

- 20. Palliative surgery
- 21. End of life care and management
- 22. Psycho-oncology

Genetics: The Fellow will understand the concepts and models of breast risk analysis and be able to address the needs of this unique patient group. This includes:

- 23. Risk assessment
 - a. Family history
 - b. Mutations
 - i. BRCA 1 and 2
 - ii. P53, CHEK, Cowden's
 - c. Environmental exposures

Community Service and Outreach: The Fellow will understand the importance of community education and cancer patient advocacy. This includes:

- 24. Communication and interaction with:
 - a. Cancer support groups
 - b. Non-medical community
 - c. Other physicians
 - d. Multidisciplinary conferences
- 25. Knowledge of cancer prevention, screening, diagnosis and treatment
 - a. Preparation of educational materials for presentation

Rehabilitation: The Fellow will be able to understand the importance of therapy for breast cancer patients including:

- 26. Disability assessment
- 27. ADLs and ROM
- 28. Lymphedema risk assessment, prevention and treatment

Research: The Fellow will have the opportunity to gain an understanding of breast cancer research.

- 29. Ethics/Human Subject Protection

30. Develop and complete a clinical research project including manuscript preparation