



**S G H C**  
**S S C C**

# BASIC HEART SURGERY DOPS

(Direct Observation of Procedural Skills)

Trainee

Editor                    Young Swiss Cardiac Surgeons Club (YSCSC)  
Authors                 Samuel Hurni, David Reineke, Diana Reser  
Publishing Date      December 2013

## **Contents**

Introduction	3
Open Vein Harvesting	4
Endoscopic Vein Harvesting	8
Radial Artery Harvesting	12
Sternal Closure	16
IABP Implantation	20
Sternotomy	24
IMA Harvesting	28
Cannulation	32
Proximal Anastomosis	36
General Perioperative Duties	40

# Introduction

Surgical skills are acquired through systematic training. The supervision of the learning process and the feedback plays a central role in the learning process of young surgeons.

To optimise surgical training DOPS (Direct Observation of Procedural Skills) are frequently used. DOPS is a workplace-based assessment tool for trainees that has been designed for the assessment of practical skills.

DOPS focuses on the procedural skills essential to providing good clinical care especially when it comes to important and technically demanding procedures.

The trainee is observed by an assessor and receives constructive feedback. The following DOPS were specially adapted to the training of heart surgeons.

# Open Vein Harvesting I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ruling out history of deep venous thrombosis before saphenectomy					
Identification of correct incision site					
Knowledge of the anatomy					
Atraumatic dissection of the vein					
Control of vein quality					
Correct dissection and clipping of the side branches					
Atraumatic removal of the graft					
Checks the graft for leakage					
Safe handover to the scrub nurse					
Hemostasis, standard wound closure					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Open Vein Harvesting II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ruling out history of deep venous thrombosis before saphenectomy					
Identification of correct incision site					
Knowledge of the anatomy					
Atraumatic dissection of the vein					
Control of vein quality					
Correct dissection and clipping of the side branches					
Atraumatic removal of the graft					
Checks the graft for leakage					
Safe handover to the scrub nurse					
Hemostasis, standard wound closure					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Endoscopic Vein Harvesting I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Preparation and check of the system					
Identification of the correct incision site					
Atraumatic dissection of the vein					
Proper dissection of the side-branches					
Use of the correct instruments					
Proper clipping and cutting of the side branches					
Atraumatic and correct removal of the vein					
Positioning of a drain					
Preparation of the vein post saphenectomy: all side branches secured with clips					
Level of difficulty (low, medium or high)					



## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Endoscopic Vein Harvesting II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Preparation and check of the system					
Identification of the correct incision site					
Atraumatic dissection of the vein					
Proper dissection of the side-branches					
Use of the correct instruments					
Proper clipping and cutting of the side branches					
Atraumatic and correct removal of the vein					
Positioning of a drain					
Preparation of the vein post saphenectomy: all side branches secured with clips					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Radial Artery Harvesting I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Knowledge of the results of the Allen test					
Knowledge of the critical anatomy					
Identification of proper incision site					
Atraumatic dissection of the radial artery (no touch technique)					
Proper clipping of side branches					
Performance of appropriate proximal and distal ligation					
Check of the graft for leakage					
Use of vasodilator (e.g. papaverin) for graft					
Performance of adequate hemostasis					
Wound closure in standard technique					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Radial Artery Harvesting II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale:

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Knowledge of the results of the Allen test					
Knowledge of the critical anatomy					
Identification of proper incision site					
Atraumatic dissection of the radial artery (no touch technique)					
Proper clipping of side branches					
Performance of appropriate proximal and distal ligation					
Check of the graft for leakage					
Use of vasodilator (e.g. papaverin) for graft					
Performance of adequate hemostasis					
Wound closure in standard technique					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Sternal Closure I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Performance of adequate hemostasis before sternal closure					
Proper osteosynthesis technique with the use of steel wires					
Ensures that there is no bleeding after placement of the sternal wires					
Correct assessment of sternal stability					
Performance of standard wound closure					
Level of difficulty (low, medium or high)					



## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Sternal Closure II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Performance of adequate hemostasis before sternal closure					
Proper osteosynthesis technique with the use of steel wires					
Ensures that there is no bleeding after placement of the sternal wires					
Correct assessment of sternal stability					
Performance of standard wound closure					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# IABP Implantation I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Preparation and check of equipment					
Identification of anatomical landmarks					
Proper puncture of the femoral artery					
Correct application of Seldinger's technique for IABP insertion					
Correct positioning of IABP catheter (with or without TOE control)					
Appropriate fixation of the catheter					
Proper connection of the catheter with the IABP device					
Control correct functioning of IABP with console (arterial/inflation/deflation curve)					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# IABP Implantation II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Preparation and check of equipment					
Identification of anatomical landmarks					
Proper puncture of the femoral artery					
Correct application of Seldinger's technique for IABP insertion					
Correct positioning of IABP catheter (with or without TOE control)					
Appropriate fixation of the catheter					
Proper connection of the catheter with the IABP device					
Control correct functioning of IABP with console (arterial/inflation/deflation curve)					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Sternotomy I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Checks equipment before use (sternal saw)					
Correct identification of anatomical landmarks					
Obtains an appropriate sub-sternal plane					
Demonstrates correct communication with anesthetist regarding ventilation					
Proper midline division of the sternum					
Appropriate hemostasis					
Level of difficulty (low, medium or high)					



## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Sternotomy II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale:

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Checks equipment before use (sternal saw)					
Correct identification of anatomical landmarks					
Obtains an appropriate sub-sternal plane					
Demonstrates correct communication with anesthetist regarding ventilation					
Proper midline division of the sternum					
Appropriate hemostasis					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# IMA Harvesting I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale:

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Uses the mammary retractor atraumatically to obtain optimal access to IMA					
Appropriate knowledge of the anatomy					
Demonstration of atraumatic and careful dissection					
Appropriate clipping of all side branches					
Proper protection of the phrenic nerve					
Asks for heparinisation before clipping the graft distally					
Use of vasodilator (e.g. papaverin) for graft					
Performance of adequate hemostasis					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# IMA Harvesting II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Uses the mammary retractor atraumatically to obtain optimal access to IMA					
Appropriate knowledge of the anatomy					
Demonstration of atraumatic and careful dissection					
Appropriate clipping of all side branches					
Proper protection of the phrenic nerve					
Asks for heparinisation before clipping the graft distally					
Use of vasodilator (e.g. papaverin) for graft					
Performance of adequate hemostasis					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Cannulation I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Sufficient knowledge of the extracorporeal circuit					
Adequate communication with anesthetist (heparin administration)					
Identification of correct cannulation sites regarding possible calcifications of the aorta					
Correct purse-string suture at cannulation sites					
Safe cannulation technique					
Correct connection of the cannulae to the extracorporeal circuit					
Knowledge of the required ACT for institution of cardiopulmonary bypass					
Adequate communication with the perfusionist					
Level of difficulty (low, medium or high)					



## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Cannulation II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Sufficient knowledge of the extracorporeal circuit					
Adequate communication with anesthetist (heparin administration)					
Identification of correct cannulation sites regarding possible calcifications of the aorta					
Correct purse-string suture at cannulation sites					
Safe cannulation technique					
Correct connection of the cannulae to the extracorporeal circuit					
Knowledge of the required ACT for institution of cardiopulmonary bypass					
Adequate communication with the perfusionist					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Proximal Anastomosis I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not Observed

D = Development Required

S = Satisfactory (No intervention required)

Date					
Identifies proper anastomosis site					
Correct preparation of the Aorta and careful positioning of the sideclamp					
Proper use of the punch					
Correct anastomotic technique					
Proper removal of the sideclamp					
Checks anastomosis for bleeding					
Quality control by flow measurement					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# Proximal Anastomosis II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale:

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Identifies proper anastomosis site					
Correct preparation of the Aorta and careful positioning of the sideclamp					
Proper use of the punch					
Correct anastomotic technique					
Proper removal of the sideclamp					
Checks anastomosis for bleeding					
Quality control by flow measurement					
Level of difficulty (low, medium or high)					

## Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

# General Perioperative Duties

Assessor

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

## Preoperative Planning

Date					
Knowledge of patient records, personal review of all investigations					
Knowledge of indication and contraindication to surgery					
Knowledge of different operative or non-operative strategies					
Knowledge of complications of planned surgery					
Knowledge of pathological anatomical abnormalities, relevant co-morbidities and selection of appropriate operative strategies/techniques					
Ability to choose appropriate equipment, materials or devices					
Ensures the operation site is marked and the informed consent signed					

## Consent

Date					
Explains the procedure to the patient/relatives and checks understanding					
Explains outcome and time to recovery and checks understanding					



## Preoperative Preparation

Date					
Proper communication with OR team about the planned operation and required instruments, materials or devices					
Ensures proper positioning of the patient on the operating table					
Demonstrates careful skin preparation					
Demonstrates careful draping of the operative field					

## General Intraoperative Technique

Date					
Knowledge of optimal skin incision					
Achieves an adequate exposure through dissection in correct tissue planes and identifies all structures correctly					
Performs proper wound repair where appropriate					
Protects the wound with dressings and drains where appropriate					
Follows an agreed protocol for the procedure					
Handles tissue with minimal damage					
Controls bleeding promptly by an appropriate method					
Uses diathermy effectively					
Demonstrates a sound technique of knots and sutures/staples					
Uses instruments appropriately and safely					
Proceeds at appropriate pace					
Anticipates and responds appropriately to variation in anatomy					

Deals calmly and effectively with unexpected events/complications					
Uses assistant(s) to the best advantage					
Communicates clearly and consistently with the scrub team					
Communicates clearly and consistently with the anesthetist					
Communicates clearly and consistently with perfusionist					

### Postoperative Management

Date					
Constructs a clear operation note					
Records clear and appropriate post-operative instructions					
Demonstrates accurate completion of the database					
Gives effective briefing to intensive care team					
Explains operative and post-operative process to relatives and checks understanding					

### Final Evaluation of Performance

Insufficient evidence observed to support a summary judgment	
Unable to perform the procedure or part observed, under supervision	
Able to perform the procedure, or part observed, under supervision	
Able to perform the procedure with minimum supervision (needed occasional help)	
Competent to perform the procedure unsupervised (could deal with complications that arose)	

### Comments of the Assessor

(Description of the given verbal feedback to the trainee about strengths and suggestions for development)

### Comments of the Trainee

**Assessors Name, Signature, Date**

**Trainees Name, Signature, Date**

