



# ADVANCED HEART SURGERY DOPS

(Direct Observation of Procedural Skills)

Trainee

Editor Young Swiss Cardiac Surgeons Club (YSCSC)

Authors Samuel Hurni, Bernhard Michael Winkler,  
Diana Reser, David Reineke

Publishing Date June 2014

## **Contents**

Introduction	3
ECMO Implantation	4
CABG	6
CABG off pump	10
Aortic Valve Replacement	12
Combined CABG and AVR	16

# 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.

# ECMO Implantation

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Interdisciplinary discussion of timing, indication and contraindication for veno-venous or veno-arterial ECMO					
Decision of cannulation sites and techniques for veno-venous or veno-arterial ECMO					
Ensures that the patient, anesthetist and perfusionist are adequately prepared for ECMO Implantation (TOE, choice of cannulas, Hkt>28%, adequate preload)					
Communication with anesthetist for timing of heparin administration					
Knowledge of the required heparin amount and ACT for ECMO					
Puncture of the femoral artery/vein, jugular vein					
Application of Seldinger`s technique					
Surgical dissection and preparation of the vessels in case of open cannulation (graft preparation and suturing, banding)					
Positioning of the cannulas with TOE or fluoroscopic control					
Connection of the cannulas to the ECMO lines by careful de-airing					
Fixation of the cannulas					
Hemostasis for open accesses					
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**

# CABG I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for CABG and knows patient specific grafts available ( instruments, shunts, sutures, endoscopic equipment)					
If applicable at the end of IMA harvest communicates with anesthetist for proper timing of heparin administration					
Communicates with team members in terms of time frame and graft quality, finds alternatives at the right time in case of inadequate graft quality or size					
Clearly communicates with the cardiotechnician and scrub nurse prior to cannulation, ensures all necessary prerequisites, checks ACT, checks if cardioplegia is prepared					
Informs anaesthesia and checks BP, checks site of cannulation, deals calmly with bleeding or unexpected events during cannulation					
Clearly communicates when going on bypass and deals with unexpected events ( repeated cardioplegia, high line pressure)					

Performs anastomoses in adequate sequence, orders necessary equipment prior and allows scrub nurse time to prepare it ( shunts, sutures, bulldog),communicates continuously with all staff members in a calm environment.					
Is aware of time frame and checks if heart is arrested, applies if applicable repeated cardioplegia					
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**

# CABG II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for CABG and knows patient specific grafts available ( instruments, shunts, sutures, endoscopic equipment)					
If applicable at the end of IMA harvest communicates with anesthetist for proper timing of heparin administration					
Communicates with team members in terms of time frame and graft quality, finds alternatives at the right time in case of inadequate graft quality or size					
Clearly communicates with the cardiotechnician and scrub nurse prior to cannulation, ensures all necessary prerequisites, checks ACT, checks if cardioplegia is prepared					
Informs anaesthesia and checks BP, checks site of cannulation, deals calmly with bleeding or unexpected events during cannulation					
Clearly communicates when going on bypass and deals with unexpected events ( repeated cardioplegia, high line pressure)					

Performs anastomoses in adequate sequence, orders necessary equipment prior and allows scrub nurse time to prepare it ( shunts, sutures, bulldog),communicates continuously with all staff members in a calm environment.					
Is aware of time frame and checks if heart is arrested, applies if applicable repeated cardioplegia					
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**

# CABG off Pump

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for Off pump CABG (warming blanket, cell saver, CO2 blower, Octopus, snares, shunts, bed straps) and unexpected events ( ECC ready and communicates with cardiotechnician)					
Adequate communication with anesthetist for proper timing of heparin administration					
Knowledge of the required heparin amount and ACT for Off pump CABG					
Adequate preparation of the pericardium (wide opening of the right pleural space while sparing the phrenic nerve)					
Performs pericardial deep stitches at the correct location ( prior communication of starting dislocation with the team)					
Attachment of temporary pacemaker wires					
Knows the ideal heart rate for Off pump CABG					
Adequate communication with anesthetist for positioning the table according to the requirements of the different distal and proximal anastomoses (trendelenburg, anti-trendelenburg, left, right).					
Knows the adequate sequence of the performed anastomoses (LAD>RCA>RCX)					

Orders the desired shunt size in time in order to enable the scrub nurse to prepare it correctly					
Deals calmly and effectively with unexpected events/complications (blood pressure drop during anastomosis, VFib, etc)					
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**

# Aortic Valve Replacement I

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for aortic valve replacement (e.g. knows patient characteristics, comorbidities and desire to select correct type of valve)					
Communicates with anesthetist for heparin administration after pericardial incision					
Clearly communicates with the cardiotechnician and scrub nurse prior to cannulation, ensures all necessary prerequisites, checks ACT, checks if cardioplegia is prepared					
Informs anesthetist and checks BP, checks site of cannulation, deals calmly with bleeding or unexpected events during cannulation					
Installs vents and cardioplegia lines and communicates with cardiotechnician to control function					
Clearly communicates when going on bypass and deals with unexpected events, checks CO2 Insufflation					
Performs safe crossclamping, looks for fast cardiac arrest and performs aortotomy in correct position in relation to the aortic root structures					
Analyses valve pathology, cuts out valve structures and ensures meticulous for clean annulus and flushes operation site					
Measures valve size and communicates clearly to scrub nurse					

Is aware of time frame and checks if heart is arrested, applies if applicable repeated cardioplegia					
Checks ostia after valve implantation					
Performs safe closure of aortotomy and communicates clearly with cardiotechnician and anesthesiologist to de-air left ventricle and aorta					
Communicates when releasing the aortic clamp					
Places pacemaker wires, terminates bypass, checks for protamine and goes off pump with continuous clear communication with the team.					
Checks with anaesthesia TEE and valve function					
Deals calmly and effectively with unexpected events/complications					
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**

# Aortic Valve Replacement II

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for aortic valve replacement (e.g. knows patient characteristics, comorbidities and desire to select correct type of valve)					
Communicates with anesthetist for heparin administration after pericardial incision					
Clearly communicates with the cardiotechnician and scrub nurse prior to cannulation, ensures all necessary prerequisites, checks ACT, checks if cardioplegia is prepared					
Informs anesthetist and checks BP, checks site of cannulation, deals calmly with bleeding or unexpected events during cannulation					
Installs vents and cardioplegia lines and communicates with cardiotechnician to control function					
Clearly communicates when going on bypass and deals with unexpected events, checks CO2 Insufflation					
Performs safe crossclamping, looks for fast cardiac arrest and performs aortotomy in correct position in relation to the aortic root structures					
Analyses valve pathology, cuts out valve structures and ensures meticulous for clean annulus and flushes operation site					
Measures valve size and communicates clearly to scrub nurse					

Is aware of time frame and checks if heart is arrested, applies if applicable repeated cardioplegia					
Checks ostia after valve implantation					
Performs safe closure of aortotomy and communicates clearly with cardiotechnician and anesthesist to de-air left ventricle and aorta					
Communicates when releasing the aortic clamp					
Places pacemaker wires, terminates bypass, checks for protamine and goes off pump with continous clear communication with the team.					
Checks with anaesthesia TEE and valve function					
Deals calmly and effectively with unexpected events/complications					
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**

# Valve and CABG

Assessor

## Evaluation of Procedural Steps

Rate using the following scale

N = Not observed

D = Development required

S = Satisfactory (no intervention required)

Date					
Ensures that the patient and staff is adequately prepared for combined procedure Valve and CABG and knows patient specific grafts available ( CO2 insufflation, shunts, sutures, endoscopic equipment, type of valve)					
If applicable at the end of IMA harvest communicates with anesthetist for proper timing of heparin administration					
Communicates with team members in terms of time frame and graft quality, checks strategy with team members ( e.g.distal anastomoses after valve excision)					
Clearly communicates with the cardiotechnician and scrub nurse prior to cannulation, ensures all necessary prerequisites, checks ACT, checks if cardioplegia is prepared					
Informs anaesthesia and checks BP, checks site of cannulation with respect to combined procedure, deals calmly with bleeding or unexpected events during cannulation					
Clearly communicates when going on bypass and deals with unexpected events ( repeated cardioplegia, high line pressure), checks CO2 Insufflation					
Performs anastomoses in adequate sequence and/ or valve excision/ repair, orders necessary equipment prior with respect to correct valve/ring size and allows scrub nurse time to prepare it.					

Ensures meticulous clean annulus and OR site free of any debris, particles, flushes and checks ostia prior to valve implantation if applicable					
Ensures good asepsis prior/during implantation and checks with scrub nurse (changing of gloves, aseptic handling of prosthesis)					
Is aware of time frame and checks if heart is arrested, applies if applicable repeated cardioplegia					
Communicates when releasing the aortic clamp and performs proximal anastomoses, de-airs, returns swabs, bulldogs and checks with scrub nurse					
Places pacemaker wires, terminates bypass, checks for protamine and goes off pump with continuous clear communication with the team.					
Checks with anaesthesia TEE and valve function					
Deals calmly and effectively with unexpected events/complications e.g. bleeding, low blood pressure, ECG changes, unexpected low graft flow					
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**

