



Public Health  
England

Protecting and improving the nation's health

# **Vascular surgery exposure prone procedure (EPP) categorisation**

Advice from the United Kingdom Advisory  
Panel for Healthcare Workers Infected  
with Bloodborne Viruses (UKAP)

# About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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# Contents

About Public Health England	2
Executive summary	4
Exposure Prone Procedures (EPPs)	5
Vascular Surgery EPP Categorisations	7
Contributors	15

## Executive summary

This exposure prone procedure (EPP) categorisation list is not exhaustive of all procedures carried out in vascular surgery, but is to be used as a guide only. Individual variation between surgeons does not allow for a higher EPP risk category to be incorporated in a personal interpretation of a procedure.

If any procedures in this document are semi-laparoscopic, when the hand is inserted into the abdomen via skin incision, then the procedures would certainly be categorised as EPP category 2, or possibly 3. Laparoscopic assisted procedures are likely to be EPP category 3. **Robotic procedures should be categorised the same as laparoscopic.**

In any case of uncertainty about any of the procedures listed here, or procedures that have not been included, please contact the UKAP Secretariat for guidance at:  
[ukap@phe.gov.uk](mailto:ukap@phe.gov.uk)

# Exposure Prone Procedures (EPPs)

Provided appropriate infection prevention and control precautions are adhered to scrupulously at all times, the majority of clinical procedures (including many which are invasive) in the healthcare setting pose no risk of transmission of BBVs from an infected HCW to a patient, and can safely be performed.

Those procedures where an opportunity for HCW-to-patient transmission of BBV does exist are described as 'exposure prone' procedures (EPPs), where injury to the HCW could result in the worker's blood contaminating the patient's open tissues. This is described as "bleed-back" in this guidance.

EPPs include procedures where the worker's gloved hands may be in contact with sharp instruments, needle tips or sharp tissues inside a patient's open body cavity, wound or confined anatomical space where the hands or fingertips may not be completely visible at all times.

The definition of EPPs covers a wide range of procedures, in which there may be very different categories of risk of bleed-back. A risk-based categorisation of clinical procedures has been developed, including procedures where there is negligible risk of bleed-back (non-EPP) and 3 categories of EPPs with increasing risk of bleed-back.

It should be noted that the majority of HCWs do not perform EPPs.

The definitions and examples of categories 1, 2 and 3 are:

## Category 1

Procedures where the hands and fingertips of the worker are usually visible and outside the body most of the time and the possibility of injury to the worker's gloved hands from sharp instruments and/or tissues is slight. This means that the risk of the HCW bleeding into a patient's open tissues should be remote.

Examples: local anaesthetic injection in dentistry, removal of haemorrhoids.

## Category 2

Procedures where the fingertips may not be visible at all times but injury to the worker's gloved hands from sharp instruments and/or tissues is unlikely. If injury occurs it is likely to be noticed and acted upon quickly to avoid the HCW's blood contaminating a patient's open tissues.

Examples: routine tooth extraction, colostomy.

### Category 3

Procedures where the fingertips are out of sight for a significant part of the procedure, or during certain critical stages, and in which there is a distinct risk of injury to the worker's gloved hands from sharp instruments and/or tissues. In such circumstances it is possible that exposure of the patient's open tissues to the HCW's blood may go unnoticed or would not be noticed immediately.

Examples: hysterectomy, caesarean delivery, open cardiac surgical procedures.

### Non-exposure prone procedures

Non-EPPs are those where the hands and fingertips of the worker are visible and outside the patient's body at all times, and internal examinations or procedures that do not involve possible injury to the worker's gloved hands from sharp instruments and/or tissues. These procedures are considered not to be exposure prone provided routine infection prevention and control procedures are adhered to at all times.

Examples in vascular surgery:

- venography
- transluminal operations on the iliac artery
- endovascular procedures on the renal artery

# Vascular surgery EPP categorisation

## Head and neck

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 2</b> (Intermediate risk of bleed-back)	Carotid endarterectomy
	Reconstruction of carotid artery (vein patch and bypass)
<b>Category 3</b> (Higher risk of bleed-back)	Bypass to carotid artery from the arch
	Bypass of subclavian artery from the arch
	Bypass of subclavian artery – extra-thoracic
	Endarterectomy and patch repair of subclavian artery
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	<b>Procedure</b>
	<i>NONE IDENTIFIED</i>

**Thoracic**

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	Percutaneous transluminal balloon operations on aorta
	Endovascular repair of thoracic aorta
<b>Category 2</b> (Intermediate risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 3</b> (Higher risk of bleed-back)	Emergency replacement of aneurysmal segment of ascending/arch/thoracic aorta
	Planned replacement of aneurysmal segment of ascending/arch/ thoracic aorta
	Repair of thoraco-abdominal aneurysms
	Excision of infected aortic graft with bypass
	Plastic repair of aorta

<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	Procedure



**Renal**

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 2</b> (Intermediate risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 3</b> (Higher risk of bleed-back)	Reconstruction of renal artery Endarterectomy of renal artery Transluminal operations on renal artery*
<i>* Open procedures</i>	

EPP Category	Procedure
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	Endovascular procedures on renal artery

## Abdominal vessels

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	Percutaneous transluminal balloon operations on aorta†
	Endovascular repair of abdominal aortic aneurysm
<b>Category 2</b> (Intermediate risk of bleed-back)	Axillo-femoral bypass
	Axillo-bifemoral bypass
<b>Category 3</b> (Higher risk of bleed-back)	Replacement of aneurismal segment of aorta
	Infrarenal abdominal aortic aneurysm tube graft
	Infrarenal abdominal aortic aneurysm bifurcation graft
	Revision of/attention to prosthesis of abdominal aorta
	Endarterectomy and patch repair of visceral branch of abdominal aorta
	Other open operations on other visceral branch of abdominal aorta
† If vascular access via a cut-down procedure	

EPP Category	Procedure
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	Endovascular procedures on splanchnic vessels

## Ileo-femoral vessels

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 2</b> (Intermediate risk of bleed-back)	Femoro-femoral bypass
	Femoro-popliteal bypass using prosthesis and/or vein and/or vein cuff/patch
	Femoro-distal calf bypass using prosthesis and/or vein and/or vein cuff/patch
	Reconstruction/endarterectomy of femoral artery
	Reconstruction/bypass of popliteal aneurysm
	Revision of femoral bypass graft
<b>Category 3</b> (Higher risk of bleed-back)	Aorto-iliac, aorto-femoral, ileo-femoral bypass
	Aorto-bifemoral bypass
	Endarterectomy and patch repair of iliac artery
	Open operations on iliac artery

EPP Category	Procedure
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	Transluminal operations on iliac artery
	Transluminal operations on femoral artery

Non-specific

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	Biopsy of artery (including temporal)
	Micro-arterial or micro-venous graft
	Microsurgical repair of artery
	Creation of arteriovenous fistula
	Ligation and/or excision of arteriovenous fistula
	Insertion of arteriovenous prosthetic graft for haemodialysis
	Excision of congenital arteriovenous malformation (superficial only)
	Repair of acquired arteriovenous fistula (superficial only)
	Repair of arteriovenous fistula (superficial only)
	Insertion of Hickman line, tunnelled central lines etc.
	Insertion of portocath/vasoport unit
	Isolated limb perfusion
	<b>Category 2</b> (Intermediate risk of bleed-back)
Repair of artery‡	
Repair of artery using vein graft‡	
Open embolectomy of artery‡	
Excision of congenital arteriovenous malformation (deep only)	
Repair of acquired arteriovenous fistula (deep only)	
Repair of arteriovenous fistula (deep only)	
Open removal of thrombus from vein§	
<b>Category 3</b> (Higher risk of bleed-back)	NONE IDENTIFIED
‡ If deeply placed, then category 3 § Category 2 or 3	

Category Zero (NOT exposure prone, no risk of bleed-back)	Procedure
	Percutaneous transluminal angioplasty of artery

Varicose veins

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	Ligation/stripping of short and/or long saphenous vein (including local excision/multiple phlebectomy)
	Ligation/stripping of short and/or long saphenous vein (including local excision/multiple phlebectomy) - bilateral
	Ligation of recurrent varicose vein of leg
	Local excision (multiple phlebectomy) of varicose vein of leg
<b>Category 2</b> (Intermediate risk of bleed-back)	<i>NONE IDENTIFIED</i>
<b>Category 3</b> (Higher risk of bleed-back)	<i>NONE IDENTIFIED</i>

	Procedure
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	Endovenous treatment of varicose veins
	Venography

## Lymphatic

EPP Category	Procedure
<b>Category 1</b> (Lowest risk of bleed-back)	Block dissection of inguinal lymph nodes
	Biopsy/sampling of cervical lymph nodes
	Biopsy/sampling of axillary lymph nodes
	Biopsy/sampling of inguinal lymph nodes
	Excision or biopsy of lymph node
<b>Category 2</b> (Intermediate risk of bleed-back)	Operations on lymphatic duct
<b>Category 3</b> (Higher risk of bleed-back)	Block dissection of cervical lymph nodes (not included in other procedures)
	Block dissection of axillary lymph nodes
	Block dissection of para-aortic lymph nodes
	Block dissection of pelvic lymph nodes (not included in other procedures)
	Excision of cystic hygroma

EPP Category	Procedure
<b>Category Zero</b> (NOT exposure prone, no risk of bleed-back)	<i>NONE IDENTIFIED</i>

## Contributors

On behalf of the UK Advisory Panel for Healthcare Workers Infected with Bloodborne Viruses (UKAP), this document, endorsed by the Vascular Society, was prepared by:

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