



Principal performance statistics

The following **process measures** are proposed and will be refined and ratified by the Clinical Reference Group in Year 1. The quality standards are indicated for each measure.

	PROCESS MEASURE	Required data	Stratification variable	Standard	Source
PM1	Elapsed time between admission/ referral and when first seen by consultant surgeon	Time/date of admission Time/date first seen by consultant surgeon following admission	Admission type (Elective/emergency) Admitting speciality (HES)	High risk patients are defined by a predicted hospital mortality $\geq 5\%$: they should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway	RCS HR
				Consultant Surgeon involved in decision making for high risk group within 1hr of identification as high risk.	RCS HR
				Those considered at high risk are discussed with the consultant and reviewed by a consultant surgeon within four hours if the management plan remains undefined and the patient is not responding as expected.	RCS USC
PM2	Elapsed time between admission and first dose of antibiotics	Time/date of admission to hospital Time/date of first antibiotic administration	Assessment of sepsis from POSSUM data Time entered theatre Transfer of care following admission	Antibiotic treatment starts without delay once decision is made	RCS USC
				Those with septic shock require immediate broad-spectrum antibiotics with fluid resuscitation and source control.	RCS HR
				...administer broad-spectrum antimicrobials as early as possible, and always within the first hour of recognising severe sepsis and septic shock together with other appropriate measures	RCS HR
PM3	Proportion of "decisions to operate" made by consultant surgeon	Grade of most senior clinician making decision to operate	NCEPOD Urgency Mortality assessment from pre-operative risk assessment	Each patient should have his or her expected risk of death estimated and documented prior to intervention and due adjustments made in urgency of care and seniority of staff involved.	RCS HR

				Each higher risk case (predicted mortality $\geq 5\%$) should have the active input of consultant surgeon and consultant anaesthetist. Surgical procedures with a predicted mortality of $\geq 10\%$ should be conducted under the direct supervision of a consultant surgeon and a consultant anaesthetist unless the responsible consultants have actively satisfied themselves that junior staff have adequate experience and manpower and are adequately free of competing responsibilities	RCS HR
				Consultant Surgeon involved in decision making for high risk group within 1hr of identification as high risk.	RCS HR
				All patients admitted as emergencies are discussed with the responsible consultant if immediate surgery is being considered.	RCS USC
				Surgical patients often require complex management and delay worsens outcomes. The adoption of an escalation strategy which incorporates defined time-points and the early involvement of senior staff when necessary are strongly advised.	RCS HR
PM4	Proportion of patients seen in the pre-operative period by a consultant anaesthetist was appropriate to the risk of death	Time/date first seen by consultant anaesthetist prior to surgery Time/date entered operating theatre	NCEPOD Urgency Mortality assessment from pre-operative risk assessment P-POSSUM	The peri-operative anaesthetic care of ASA3 and above patients requiring immediate major surgery (and therefore with an expected higher mortality) is directly supervised by a consultant anaesthetist.	RCS USC
				The time of surgery is determined by its urgency based upon the needs of the individual patient. Pre-operative anaesthetic assessment and optimisation is undertaken as soon as the patient has been referred for surgery.	RCS USC
PM5	Elapsed time between decision to operate and entry into operating theatre	Time/date of decision to operate Time/date entered operating theatre	NCEPOD Urgency Mortality assessment from pre-operative risk assessment	Trusts should ensure emergency theatre access matches need and ensure prioritisation of access is given to emergency surgical patients ahead of	RCS HR

			P-POSSUM	elective patients whenever necessary as significant delays are common and affect outcomes.	
				Hospitals accepting undifferentiated patients requiring immediate life and/or limb-preserving surgery are equipped and staffed 24/7 to manage the likely range of surgical emergencies.	RCS USC
				All hospitals admitting emergency general surgical patients should have a dedicated, fully staffed, theatre available at all times for this clinical workload.	ASGBI EGS
				Adequate emergency theatre time is provided throughout the day to minimise delays and avoid emergency surgery being undertaken out of hours when the hospital may have reduced staffing to care for complex postoperative patients.	RCS USC
				Trusts should ensure emergency theatre access matches need and ensure prioritisation of access is given to emergency surgical patients ahead of elective patients whenever necessary as significant delays are common and affect outcomes.	RCS HR
				Surgical patients often require complex management and delay worsens outcomes. The adoption of an escalation strategy which incorporates defined time-points and the early involvement of senior staff when necessary are strongly advised.	RCS HR
				Patients with an intraabdominal pathology and organ dysfunction should be operated on within 6hrs of onset of organ dysfunction.	RCS HR
				Time to operate within 2hrs of decision to operate for high risk group.	RCS HR
				For non-high-risk group definitive operation within same working day from time of decision	RCS HR



				to operate.	
				The time from decision to operate to actual time of operation is recorded in patient notes and audited locally	RCS USC
PM6	Elapsed time between admission and entry into operating theatre	Time/date of admission Time/date entered operating theatre	NCEPOD Urgency Mortality assessment from pre-operative risk assessment available at time of consent P-POSSUM Operative findings	<i>As per PM5</i>	
PM7	Proportion of patients who received a pre-operative abdominal CT scan	Was an abdominal CT scan performed in the pre-operative period as part of the diagnostic work-up?	NCEPOD Urgency	Wherever general and regional anaesthesia is administered there is access to an appropriate range of laboratory and radiological services.	RCS USC
				The delivery of quality clinical care is dependent on access to supporting facilities. Rapid access to CT imaging, U/S scanning and laboratory analyses are critical to the efficient diagnosis, resuscitation and prioritisation of these patients	ASGBI EGS
PM8	Proportion of pre-operative abdominal CT scans reported pre-operatively by a consultant radiologist.	Was this CT reported pre-operatively by consultant radiologist?		An individual who reports an investigation must have been trained in radiological observation and analytical skills	<i>RCR06</i>
				Consultant radiologists should be available to provide their expert opinion on imaging investigations at all times	<i>RCR06</i>
				There should be effective and timely communication of imaging reports	<i>RCR11</i>
				High risk patients are defined by a predicted hospital mortality $\geq 5\%$: they should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway	RCS HR
PM9	Proportion of patients who have a documented pre-	What was the patient's risk of mortality documented as being		(All elective high risk patients should be seen and fully investigated in pre-assessment clinics).	NCEPOD KTR



	operative objective assessment of risk of mortality & morbidity, carried out at the time of consent.	(low/medium/high) Not documented How was this assessment made?		Arrangements should be in place to ensure more urgent surgical patients have the same robust work up.	
				An assessment of mortality risk should be made explicit to the patient and recorded clearly on the consent form and in the medical record	NCEPOD KTR
				A robust method of risk assessment for elderly patients presenting with an acute intra-abdominal catastrophe should be developed.	NCEPOD age
				Each hospital should work towards identifying patients at risk of adverse outcomes and put in place a system to try and reduce their morbidity and mortality	NCEPOD KTR
				High risk patients are defined by a predicted hospital mortality $\geq 5\%$: they should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway	RCS HR
				We recommend that objective risk assessment become a mandatory part of the pre-operative checklist to be discussed between surgeon and anaesthetist for all patients. This must be more detailed than simply noting the American Society of Anesthesiologists (ASA) score.	RCS HR
PM10	Proportion of patients in whom the seniority of the principal operating surgeon present for the majority of the surgical procedure was appropriate to the risk of death	Grade of most senior surgeon present in theatre for the majority of the surgical procedure	Mortality assessment from pre-operative risk assessment	Each patient should have his or her expected risk of death estimated and documented prior to intervention and due adjustments made in urgency of care and seniority of staff involved.	RCS HR
				High risk patients are defined by a predicted hospital mortality $\geq 5\%$: they should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway	RCS HR



				We recommend that objective risk assessment become a mandatory part of the pre-operative checklist to be discussed between surgeon and anaesthetist for all patients. This must be more detailed than simply noting the American Society of Anesthesiologists (ASA) score.	RCS HR
PM11	Proportion of patients in whom the seniority of the anaesthetist present in theatre for the majority of the surgical procedure was appropriate to the risk of death	Grade of most senior anaesthetist present in theatre for majority of procedure	Mortality assessment from pre-operative risk assessment	A consultant surgeon (CCT holder) and consultant anaesthetist are present for all cases with predicted mortality $\geq 10\%$ and for cases with predicted mortality $> 5\%$ except in specific circumstances where adequate experience and manpower is otherwise assured.	RCS USC
				Each patient should have his or her expected risk of death estimated and documented prior to intervention and due adjustments made in urgency of care and seniority of staff involved.	RCS HR
				Each higher risk case (predicted mortality $\geq 5\%$) should have the active input of consultant surgeon and consultant anaesthetist. Surgical procedures with a predicted mortality of $\geq 10\%$ should be conducted under the direct supervision of a consultant surgeon and a consultant anaesthetist unless the responsible consultants have actively satisfied themselves that junior staff have adequate experience and manpower and are adequately free of competing responsibilities	RCS HR
				Surgical procedures with a predicted mortality of $\geq 10\%$ should be conducted under the direct supervision of a consultant surgeon and consultant anaesthetist unless the responsible consultants have satisfied themselves that their delegated staff have adequate competency, experience, manpower and are adequately free of competing responsibilities.	RCS HR
				Consultant Surgeon involved in decision making	RCS HR



				for high risk group within 1hr of identification as high risk.	
				All patients admitted as emergencies are discussed with the responsible consultant if immediate surgery is being considered.	RCS USC
				The [monitoring and treatment] plan must match competency of the doctor to needs of the patient	RCS HR
				Surgical patients often require complex management and delay worsens outcomes. The adoption of an escalation strategy which incorporates defined time-points and the early involvement of senior staff when necessary are strongly advised.	RCS HR
				The peri-operative anaesthetic care of ASA3 and above patients requiring immediate major surgery (and therefore with an expected higher mortality) is directly supervised by a consultant anaesthetist.	RCS USC
PM12	Proportion of patients in which goal directed fluid therapy was utilised	How did you provide goal directed fluid therapy? Not provided CO monitor other		There is good evidence to demonstrate that inappropriate peri and post operative fluid therapy is harmful. Dynamic monitoring of stroke volume and cardiac output avoids this, and should be considered in all patients undergoing major surgery	ASGBI pt safety
				There should be clear strategies for the management of intra-operative low blood pressure in the elderly to avoid cardiac and renal complications. Non invasive measurement of cardiac output facilitates this during major surgery in the elderly.	NCEPOD Age
				The CardioQ-ODM should be considered for use in patients undergoing major or high-risk surgery or other surgical patients in whom a clinician would consider using invasive cardiovascular monitoring.	NICE MTG3



PM13	Proportion of patients who have a structured assessment of risk of mortality & morbidity, carried out at the end of surgery	Was the patient classified as high risk at the end of surgery? Y/N How was this decision reached?		Each patient should have their risk of death re-assessed by the surgical and anaesthetic teams at the end of surgery, using an 'end of surgery bundle' to determine optimal location for immediate post-operative care.	RCS HR
PM14	Proportion of high risk patients directly admitted to critical care following surgery (level 2/3) -	Level of care following discharge theatre/recovery (see help for definitions) Level 3 (ITU) Level 2 (HDU) Level 1 (Ward)	Mortality assessment from post-operative risk assessment	All high risk patients should be considered for critical care and as minimum, patients with an estimated risk of death of $\geq 10\%$ should be admitted to a critical care location.	RCS HR
				Intensive care requirements are considered for all patients needing emergency surgery. There is close liaison and communication between the surgical, anaesthetic and intensive care teams peri-operatively with the common goal of ensuring optimal safe care in the best interests of the patient.	RCS USC
				The outcome of high-risk general surgical patients could be improved by the adequate and effective use of critical care in addition to a better pre-operative risk stratification protocol.	ASGBI pt safety
				Given the high incidence of postoperative complications demonstrated in the review of high risk patients, and the impact this has on outcome there is an urgent need to address postoperative care	NCEPOD KTR
				High risk patients are defined by a predicted hospital mortality $\geq 5\%$: they should have active consultant input in the diagnostic, surgical, anaesthetic and critical care elements of their pathway	RCS HR
				All patients with a predicted mortality of $\geq 10\%$ should be admitted to a level 2 or 3 critical care area after surgery and all patients should have an updated management plan which	RCS HR



				incorporates haemodynamic and blood gas parameters, on-going antibiotics, nutrition and thromboembolic prophylaxis.	
PM15	Proportion of eligible patients who were reviewed by specialist from Elderly Medicine in the post-operative period	Patient was reviewed by specialist from Elderly Medicine in the post-operative period	Age at operation (or admission?)	Clear protocols for the post-operative management of elderly patients undergoing abdominal surgery should be developed which include where appropriate routine review by a MCOP (Medicine for care of older people) consultant and nutritional assessment	NCEPOD Age
				Older people's care in hospital is delivered through appropriate specialist care and by hospital staff who have the right set of skills to meet their needs.	NSF older people



The following **outcome measures** are proposed and will be refined and ratified by the Clinical Reference Group in Year 1. The quality standards are indicated for each measure.

	OUTCOME MEASURES	Required data	Standard	Source of standard / evidence
OM1	Short-term mortality (30-day) (derive from ONS)	Date of surgery Date of discharge Status at discharge	ASGBI supports the development of outcome related standards of care in Emergency General Surgery	ASGBI EGS
OM2	Unplanned escalation of care from ward	IF WENT TO WARD FROM THEATRE Did the patient have an unplanned move to a higher level of care within 7 days of surgery?	The outcome of high-risk general surgical patients could be improved by the adequate and effective use of critical care in addition to a better pre-operative risk stratification protocol.	ASGBI PS
		Place of admission following surgery	Given the high incidence of postoperative complications demonstrated in the review of high risk patients, and the impact this has on outcome there is an urgent need to address postoperative care	NCEPOD KTR
			Trusts should formalise their pathways for unscheduled adult general surgical care. The pathway should include the timing of diagnostic tests, timing of surgery and post-operative location for patients.	RCS HR
OM3	Proportion of patients who have an unplanned return to theatre following their emergency laparotomy within same admission	At discharge: within this admission, did the patient return to theatre in the post-operative period following their initial emergency laparotomy?	<i>As per OM2</i>	
OM4	Length of post-operative hospital stay	Date entered operating theatre	ASGBI supports the development	ASGBI EGS



		Date of hospital discharge	of outcome related standards of care in Emergency General Surgery	
OM5	30-day unplanned readmission	Date entered operating theatre Subsequent date of admission (HES)	<i>As per OM2</i>	

[ASGBI EGS] ASGBI emergency general surgery consensus statement (2007)
http://www.asgbi.org.uk/en/publications/consensus_statements.cfm

[ASGBI PS] ASGBI patient safety: a consensus statement (2009)

[NCEPOD Age] Wilkinson K et al. An age old problem: A review of the care received by elderly patients undergoing surgery. *NCEPOD*, London 2010
http://www.ncepod.org.uk/2010report3/downloads/EESE_fullReport.pdf

[NCEPOD KTR] Findlay GP, Goodwin APL, Protopapa K, Smith NCE, Mason M. Knowing the risk: a review of the perioperative care of surgical patients. *NCEPOD*, 2011
http://www.ncepod.org.uk/2011report2/downloads/POC_fullreport.pdf

[NICE CG50] National Institute for Health and Care Excellence Clinical Guideline 50: Acutely ill patients in hospital, 2007
<http://publications.nice.org.uk/acutely-ill-patients-in-hospital-cg50>

[NICE MTG3] National Institute for Health and Care Excellence medical technologies guidance: CardioQ-ODM
<http://www.nice.org.uk/guidance/MTG3>

[NSF older people] Department of Health. The National Service Framework for older people. 2001. Crown Copyright
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/198033/National_Service_Framework_for_Older_People.pdf

[RCS HR] Anderson ID. The Higher Risk General Surgical Patient: towards improved care for a forgotten group. RCSEng and DH, London 2011.
<http://www.rcseng.ac.uk/publications/docs/higher-risk-surgical-patient/>

[RCS USC] "Emergency Surgery Standards for unscheduled surgical care" RCSEng 2011
<http://www.rcseng.ac.uk/publications/docs/emergency-surgery-standards-for-unscheduled-care>

[RCR11] "Standards & recommendations for the reporting & interpretation of imaging investigations by non-radiologist medically qualified practitioners and teleradiologists"
 RCR 2011
[http://www.rcr.ac.uk/docs/radiology/pdf/BFCR\(11\)2_Reporting.pdf](http://www.rcr.ac.uk/docs/radiology/pdf/BFCR(11)2_Reporting.pdf)

[RCR06] "Standards for the reporting and interpretation of imaging investigations." RCR 2006
<http://www.rcr.ac.uk/docs/radiology/pdf/StandardsforReportingandInterpwebvers.pdf>