

**NHS BLOOD AND TRANSPLANT**  
**MULTI-VISCERAL AND COMPOSITE TISSUE ADVISORY GROUP**  
**WORKING GROUP ON NHSBT DATA AND POST-OPERATIVE**  
**DATA COLLECTION**

**Pre Transplant**

1. Number
2. Registration type: Elective/Super-urgent
3. Transplant type: Intestine Alone/ Modified/MVTx/ Liver+Intestine/ OTHER
4. Indication
  - SBS
    - NEC
    - Gastroschisis
    - Crohn's
    - Intestinal atresia
    - Trauma
    - Vascular
    - Volvulus
    - OTHER
  - Motility
    - Neuronal intestinal atresia
    - Hirschsprungs disease
    - Megacystis-microcolon
    - Visceral neuropathy/myopathy
  - Tumours
    - Desmoid
    - Neuroendocrine
    - PMP
    - OTHER
  - Liver disease
    - IFALD
    - Non IFALD
    - Porto-mesenteric thrombosis
  - Other
  - Re-transplant
    - Acute rejection
    - Chronic rejection
    - Primary non-function
    - Non-thrombotic infarction
    - Ductopenic rejection
    - Recurrent disease
    - Biliary complications
    - Hepatic artery thrombosis
    - Early graft dysfunction
    - Acute vascular occlusion - venous
    - Acute vascular occlusion - artery and venous
    - Acute vascular occlusion - artery of small bowel

5. Recipient sex
6. Recipient ethnicity
7. Recipient age
8. Recipient height
9. Recipient weight
10. Recipient BMI
11. Recipient CMV
12. Recipient EBV
13. ABO: identical/compatible/incompatible
14. Patient location Home/ICU/Ward
15. Pre Tx Renal Support Acute/Chronic
16. Pre Tx cGFR (MDRD):
17. Serum creatinine
18. Kidney Tx included: yes/no
19. Pre Tx Anatomy: Oesophagus/Stomach/Duodenum/Proximal Jejunum/ Ileum/Right colon/Transverse colon/Left colon/Sigmoid colon/Rectum
20. Estimated small bowel length: ... cm
21. Previous laparotomy: yes/no
22. Pre existing stoma: No/Gastrostomy/Duodenostomy/Jejunostomy/Ileostomy/Colostomy
23. Enterocutaneous fistulae: yes/no
24. Life style activity: Normal/Restricted/ Self care/Confined/Reliant
25. Restricted vascular access (>2 obstructed): yes/no
26. Subclavian vein patent: Right yes/no Left yes/no
27. Internal jugular vein patent: Right yes/no Left yes/no
28. cRF:
29. MisMatch:
30. DSA: no/yes(type/MFI)
31. Serum bilirubin
32. Serum sodium
33. INR
34. TWL
35. Donor sex
36. Donor age
37. Donor BMI
38. Donor CMV
39. Donor EBV
40. Donor height
41. Donor weight
42. Donor ethnicity
43. Donor cause of death:
44. Cardiac arrest: yes/no/duration
45. Inotrope support: maximum/minimum/no support

**Intraoperative**

**Induction:** Campath IV SC /Basiliximab/ATG/No induction  
**Immunosuppression:** Tac/Belatacept/Basiliximab/AZA/MMF/Pred  
**Bowel Resection:** Gastric/Pancreaticoduodenal complex/Jejunum/Ileum/ Right colon/Transverse colon/Left colon/Sigmoid colon/Rectum  
**Proximal Bowel Anastomosis:** Fundus to Oesophagus/Fundus to Fundus/Jejunum to Duodenum/Jejunum to Jejunum/OTHER  
**Primary intestinal restoration:** No/Bishop Koop/ Buried stump/ OTHER  
**Distal Bowel:** Temporary Ileostomy/Permanent Ileostomy/Permanent Colostomy/none  
**Transplanted colon:** yes/no  
**Venous drainage of intestine:** Systemic/Portal  
**Venous extension:** yes/no  
**Arterial anastomosis:** Patch/Arterial conduit  
 Cold ischaemia time  
**Perfusion established to intestine:** intestine had excellent perfusion/vasospasm resolved over time  
**Abdo closure:** Primary/Mesh/Delayed/VCA/Devascularised fascia/other  
**VCA:** AWTx/SSF  
**Blood loss:**...ml

**Postoperative**

**Length of stay:** ...days  
**Readmissions:** n= (median stay)  
**Renal support:** yes/no  
**Days on ITU:**  
**Return to theatres:** yes(n=)/no  
  
**Vascular Access post op:** yes/no/type  
**Post op support (days):** IV fluids/TPN/Enteral  
**Post op BMI at 1year:**  
**Disease recurrence:** yes/no (months post op)  
**Stoma/stoma reversal:** yes/no (months post op)  
**Chronic pain:** opiates/no/other  
**Diabetes post ITx:** yes/no (months post op)  
**PTLD:** yes/no (months post op/treatment)  
**GVHD:** yes/no (months post op/treatment)  
**Microchimerism:** 1month/3months/6months/1 year/annual  
  
**Graft loss:** yes/no (months post op)  
**Retransplant:** yes/no (months post op)  
**Death:** yes/no (months post op)

## Reporting Rejection<sup>1</sup>

**Acute:** months post ITx + treatment

Grade 0

Grade Indeterminate

Grade 1 (mild)

Grade 2 (moderate)

Grade 3 (severe)

**Chronic** (progressive form of graft injury defined histopathologically by obliterative arteriopathy involving submucosal, subserosal, and/or mesenteric vessels): yes/no (months post op + treatment)

**DSA:** Class I yes/no (type and MFIs)      Class II yes/no (type and MFIs)  
(months post op + treatment)

<sup>1</sup>(Ruiz P, Bagni A, Brown R, et al. Histological criteria for the identification of acute cellular rejection in human small bowel allografts: results of the pathology workshop at the VIII International Small Bowel Transplant Symposium. Transplant Proc. 2004;36:335–337)

### Grade 0

Unremarkable histological changes that are essentially similar to normal native bowel.

### Grade Indeterminate

A minor amount of epithelial cell injury or destruction.

Less than six apoptotic bodies per 10 crypt cross sections.

Crypt injury and inflammation is usually focal.

Mixed but primarily mononuclear inflammatory population that can include blastic or activated lymphocytes.

Oedema, blunting, vascular congestion can be present but these features are not necessary for the diagnosis.

### Grade 1

Crypt injury, including changes of mucin depletion, cytoplasmic basophilia, decreased cell height with change to cuboid shape, nuclear enlargement and hyperchromasia, increased mitotic activity, hyperplasia with “U”-shaped lumen, and/or crypt destruction with apoptosis, attenuation, reparative changes, or dropout.

Six or more apoptotic bodies per 10 crypt cross sections.

Although the mucosa is intact the villus demonstrates blunting and architectural distortion.

Primarily mononuclear inflammatory population, including blastic or activated lymphocytes, eosinophils, and occasional neutrophils, involving the lamina propria or below. The inflammatory infiltrate is often mild to moderate in intensity.

Oedema and vascular congestion are often present.

## **Grade 2**

More diffuse and at a greater level crypt injury and destruction.

Six or more apoptotic bodies per 10 crypt cross sections, accompanied by foci of confluent apoptosis.

Focal superficial erosions of the surface mucosa, for example, several consecutive cells or a portion of one villous, but this is not requisite for the diagnosis.

Mixed but primarily mononuclear inflammatory population, including blastic or activated lymphocytes, involving the lamina propria or below. The inflammatory infiltrate is often at moderate to severe intensity.

Oedema, vascular congestion, and villus blunting are often present.

## **Severe: Grade 3**

Marked degree of crypt damage and destruction, which may be accompanied by crypt loss which can be prominent depending upon the duration of the rejection.

Variable level of crypt apoptosis. The adjacent viable epithelium usually exhibits rejection-associated changes, such as crypt epithelial damage.

Diffuse mucosal erosion and/or ulceration.

Marked, diffuse inflammatory infiltrate with blastic or activated lymphocytes, eosinophils, and neutrophils.

Extended severe rejection typically results in complete loss of the bowel morphological architecture. There may be a predominance of granulation tissue and/or fibropurulent (pseudomembranous) exudate, with mucosal sloughing. (exfoliative rejection). Arteritis may be evident, but this is an uncommon finding.