SDC, Materials and Methods
A. Donor surgery

The technical principles of donor surgery are detailed elsewhere (28-32). Prior to 2013 we pretreated donors with lymphocyte depleting agents (rabbit Anti-thymocyte Globulin, Sanofi Genzyme Corporation, Ridgefield, New Jersey, USA). We do not attempt donor gut decontamination in any case. Key recent considerations have been the warm dissection of the proximal portion of superior mesenteric vein (SMV) and superior mesenteric artery (SMA) with demarcation of the vasculature of the pancreas and intestine, particularly focusing on the SMV. In all cases, attempts were made to preserve the middle colic artery in continuity with the SMA with en-bloc recovery of the right hemi-colon and the entire small intestine. Cold perfusion was performed with either Belzer UW solution (Bridge to Life, Columbia, South Carolina) or a generic version thereof or Custodiol HTK (Histidine-tryptophan-ketoglutarate, Essential Pharmaceuticals, Durham, NC, USA) with the choice of perfusate being deferred to the liver procurement team. In addition to donor iliac vessels, thoracic vessels including the brachiocephalic trunk, left common carotid or left subclavian arteries were routinely recovered. Superior vena cava or subclavian veins were also recovered in selected cases when iliac vein graft was not suitable or was unavailable due to competing needs of other organ recovery teams.

B. Recipient surgery

The recipient operations have been detailed elsewhere (32) and follow the principles delineated by Dr. Starzl and colleagues (28, 29, 32, 33). We attempted to preserve healthy foregut and hindgut whenever possible. In cases of functional gastro-intestinal dysmotility, partial gastrectomy was performed, without transplantation of the stomach.
Except in the face of significant disease or technical difficulties, the infra-renal aorta and inferior vena cava were prepared for vascular anastomoses in most cases. In the event of difficult abdominal closure due to wide fascial separation, our technique of choice was to attempt fascial closure with extensive component separation bilaterally, and closure was performed jointly with dedicated plastic surgeons in all such cases.

C. Immunosuppression

Immunosuppressive therapy was quite uniform and standardized in all cases as per protocol. All patients received antibody induction therapy with anti-thymocyte globulin for a total dose of 6 mg/kg divided over 3 days starting at operation along with steroids. Maintenance immunosuppressive therapy was based on tacrolimus and steroids and the majority of patients were weaned off steroids at a year after transplant. Mycophenolate mofetil or sirolimus were not routinely used. Target levels of tacrolimus were 15 ng/ml immediately posttransplant tapering gradually to target levels of 8 - 10 ng/ml by 1 year after transplant.

D. Diagnosis and treatment of acute rejection

Diagnosis and treatment of acute rejection was always on the basis of clinical suspicion supported by endoscopic findings (34, 35) and always with histological confirmation (36). First line treatment for acute rejection was with high doses of steroids except in cases of severe acute rejection. Anti-thymocyte globulin was indicated only for steroid resistant acute rejection or severe acute rejection diagnosed ab initio. Graft enterectomy was considered in the presence of refractory rejection combined with intractable bacteremia or other evidence of translocation in a toxic appearing patient.

E. Nutritional management after transplantation
All patients completed ITX with a nasogastric tube with or without a surgically placed percutaneous enteric tube based on anatomical feasibility or underlying pathology. Gastro-jejunostomy tube was preferred in cases of functional intestinal disorders, which allowed for early institution of enteral feedings. PN was maintained until establishment of adequate enteral intake, and was discontinued after demonstration of adequate oral intake of calories and fluid.

SDC, Results

Vascular reconstruction in the 2 groups was broadly similar, without statistically significant differences between groups (data not shown).

On the donor aspect of the allograft, the donor SMA was the source of arterial inflow to the allograft in the majority of cases in both groups, with arterial extensions to the SMA used in some cases. The donor aorta in continuity with the donor SMA provided arterial inflow in 2 cases from the study group.

On the recipient aspect of the allograft, arterial inflow was from a donor arterial extension anastomosed to the recipient infra-renal aorta in over 80% of cases in both groups. In a small number of cases in each group, arterial inflow on the recipient side was from the recipient SMA with (Control group) or without (Study group) a donor extension. Arterial inflow was obtained from the iliac artery in 3 cases and from the supra-celiac aorta using multiple donor arteries as extension conduits in 1 case involving extensive aorto-iliac dissection and repair. The choice of donor artery for extension conduits varied widely, with the donor brachiocephalic trunk (18 of 55 cases) and iliac artery (15 of 55 cases) being the predominant choices.

Venous outflow to the allograft was via the donor SMV in the majority of cases in both groups, with an additional venous extension on the allograft side in only a small number
of cases in both groups. On the recipient aspect of the allograft, venous outflow was via
a donor venous extension to the recipient inferior vena cava in the majority of cases in
both groups. A small number of grafts in each group were drained into the SMV or iliac
vein with or without extension grafts.