

REGISTRATION FORMS
THE NORDIC LIVER TRANSPLANT REGISTRY
16 - April - 2024

FORM A ACCEPTANCE

Basic

Scandia number: _____

Person number: _____

Surname: _____

First name: _____

Weight: _____ kg

Height: _____ cm

Diabetes: _____ (1: Type 1/ 2: Type 2/ 3: Type 1+2/ N: No/ NA: NA/
U: Unclassified)

Events (at any time up to acceptance):

Encephalopathy _____ (1: Grade 1/ 2: Grade 2/ 3: Grade/ 4: Grade 4/ 5: Yes,
grade unknown/ N: No/ ND: Unknown)

Variceal bleeding _____ (N: No/ ND: Unknown/ Y: Yes)

Ascites _____ (0: None/ 1: Controlled w. Medication/ 2: Refractory)

Events at acceptance on waiting list (within +/- 2 weeks):

In hospital _____ (N: No/ ND: Unknown/ Y: Yes)
(except control)

Ventilator _____ (N: No/ ND: Unknown/ Y: Yes)

Previous malignancy

Type _____ (LPD: Lymphoproliferative/ LT: Liver tumor/ ND:
Unknown/ None: None/ OT: Other)

Year _____

Comments _____

Diagnosis (see lists)

Primary diagnosis _____

Secondary diagnosis _____

Re-transpl. diagnosis _____

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FORM A cont.

At acceptance on waiting list (within +/- 2 weeks for non-acute patients, within a few days for acute patients)

Laboratory test

Hemoglobin	_____	mmol/l	_____	g/l
Thrombocytes	_____	10 ⁹ /l		
Na (Sodium)	_____	mmol/l		
INR	_____			
ASAT	_____	μkat/l	_____	U/l
ALAT	_____	μkat/l	_____	U/l
Albumin	_____	μmol/l	_____	g/l
Bilirubin	_____	μmol/l		
Creatinine	_____	μmol/l		
Urea in plasma	_____	mmol/l		
GFR	_____	ml/min 1,73m ²		
GFR method	_____	<u>(CA: Calculated, estimated/ME: Measured)</u>		
Dialysis	_____	<u>(N: No/ ND: Unknown/Y: Yes)</u>		
Alfa-1-foetoprotein	_____	μ/L	(if below 5, state 0)	
CA19-9	_____	U/mL		
CEA	_____	ng/ml		

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FORM A cont.

Virology & bacteriology

Anti-CMV _____ :- Negative/ ND: Not done/ ±: Positive

Anti-SARS-CoV-2 _____ :- Negative/ ND: Not done/ ±: Positive
(Covid-19 antibody)

SARS-CoV-2 RNA _____ :- Negative/ ND: Not done/ ±: Positive
(Covid-19)

Anti-EBV IgG _____ :- Negative/ ND: Not done/ ±: Positive

Anti-HBc _____ :- Negative/ ND: Not done/ ±: Positive

Anti-HBs _____ :- Negative/ ND: Not done/ ±: Positive

Hepatitis Bs antigen _____ :- Negative/ ND: Not done/ ±: Positive

Anti-HCV _____ :- Negative/ ND: Not done/ ±: Positive

Hepatitis C antigen _____ :- Negative/ ND: Not done/ ±: Positive

Hepatitis Delta Virus _____ :- Negative/ ND: Not done/ ±: Positive

Anti-HIV _____ :- Negative/ ND: Not done/ ±: Positive

HIV antigen _____ :- Negative/ ND: Not done/ ±: Positive

Anti-HSV _____ :- Negative/ ND: Not done/ ±: Positive

Syphilis antibody _____ :- Negative/ ND: Not done/ ±: Positive

Anti-MV IgG _____ :- Negative/ ND: Not done/ ±: Positive

Toxoplasma antibodies _____ :- Negative/ ND: Not done/ ±: Positive

Varicella zoster virus _____ :- Negative/ ND: Not done/ ±: Positive

Hep C genotypes _____

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FORM B cont.

Basic

Scandia number: _____

Person number: _____

Surname: _____

First name: _____

Tx date/initial

reperfusion(porta or
artery)

Date: _____

Time: _____

Weight: _____ kg

Height: _____ cm

Encephalopathy _____ (1: Grade 1/ 2: Grade 2/ 3: Grade 3/ 4: Grade 4/ 5: Yes,
grade unknown/ N: No/ ND: Unknown)

Ascites _____ (0: None/1: Controlled w. Medication/2:
Refractory/ND: Not done)

Artificial liver support _____ (M: Mars/ N: No/P: Prometheus)

No. of treatments _____

Ventilator _____ (N: No/ ND: Unknown/Y: Yes)

Medical care status _____ (1: Intensive care unit-bound/ 2: Cont.
(UNOS) hospitalization/ 3: Cont. medical care/ 4: At home
with normal function/ 5: Not done/unknown)

Laboratory test (obligatory for (i)MELD calculation)

Hemoglobin _____ mmol/l _____ g/lg/100ml

Thrombocytes _____ $10^9/l$

INR _____

ASAT _____ $\mu\text{kat/l}$ _____ U/l

ALAT _____ $\mu\text{kat/l}$ _____ U/l

Albumin _____ $\mu\text{mol/l}$ _____ g/l

Na (Sodium) _____ mmol/l

Bilirubin _____ $\mu\text{mol/l}$

Creatinine _____ $\mu\text{mol/l}$

Urea in plasma _____ mmol/l

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FORM B cont.

Dialysis _____ (N: No/ ND: Unknown/Y: Yes)

Pre & post pathology

Liver pre-pathology:

Liver tumor diagnosed _____ (1: Before LT/ 2: After LT (at pathology)/ 3: No)

Cumulative pre-LT treatment _____ (NO: None/ CE: Chemoembolization (TACE)/ RE: Resection/ RF: Radiofrequency/ AL: Alcohol/ CR: Cryotherapy/ RT: Radiotherapy/ SO: Sorafenib/ RZ: Radioembolization/ OT: Other)

Liver post-pathology:

Non tumoral status _____ (1: Cirrhosis (Metavir F4)/ 2: Fibrosis (Metavir F1-F3)/ 3: Normal (Metavir F0))

Malign liver tumor diagnosed _____ (N: No/ ND: Unknown/Y: Yes)

Liver tumor type _____ (CC: Cholangio carcinoma/ HCC: Hepatocellular carcinoma/ OT: Other)

Portal Tumoral thrombosis _____ (N: No/ ND: Unknown/Y: Yes)

Liver tumor comments _____

Liver tumor number _____

Liver tumor diameter (largest) _____ mm

Extrahepatic growth _____ (N: No/ ND: Unknown/Y: Yes)

Vascular invasion _____ (0: No/ 1: Macro/ 2: Micro)

Operation

Graft weight _____ g

Macrovesicular steatosis _____ (1: none/ 2: mild/ 3: moderate (30%-60%)/ 4: severe (>60%)/ N: N/A)

Microvesic steatosis _____ (1: none/ 2: mild/ 3: moderate (30%-60%)/ 4: severe (>60%)/ N: N/A)

Overall steatosis _____ (1: none/ 2: mild/ 3: moderate (30%-60%)/ 4: severe (>60%)/ N: N/A)

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Assessment of steatosis: _____ (V: Visual/ B: Biopsy/ O: Other/ U: Unknown)

Fibrosis: _____ (F0: no fibrosis/ F1: Portal, without septa/ F2: Portal, with few septa/ F3: Numerous septa without cirrhosis/ F4: Cirrhosis)

Complete reperfusion (porta and artery) Date: _____ Time: _____

Cold ischemia time (DBD/DCD) _____ hours _____ minutes

Functional warm ischemia time (DCD) _____ hours _____ minutes

Biliary anastomosis _____ (CC: Chol-cholstomy/ CD: Chol-Duod/ CJ: Chol-jejenostomy/ ND: Not Done / unknown)

By pass _____ (1: Extracorporeal by pass/ 2: Lateral clamping of the vena cava /3: Neither EC nor VCP/ 4: No/ 5: Unknown)

Arterial reconstruction _____ (N: None/ D: Donor/ R: Recipient/ NA: Not available)

Cava reconstruction _____ (C: Conventional/ S: Side-to-side cavaplasty/ P: Piggy-back/O: Other/ NA: Not available)

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FORM B cont.

Immunosuppression (during first month)

- ALG: Anti-lymphocyte globulin
- ASA: Acetic salicylic acid
- ATG: Anti-thymocyte globulin
- AZA: Azathioprin
- AZM: Azitomyacin
- BAS: Basiliximab
- BLI: Blinded drug
- CB: calcium channel blocker
- CSA: Cyclosporin-A
- DAC: Daclizumab
- EVE: Everolimus
- FK: Tacrolimus
- FOT: Fotopheres
- GAM: Gammaglobolin
- GLU: Glucocorticosteroids
- IL2: IL-2 block
- MFA: Mycophenolate acid
- MMF: Mycomophetil
- NON: None
- OKT: Anti-CD3 antibodies
- OTH: Other
- PLA: Plasmapheres
- RAP: Rapamycin
- SIR: Sirolimus
- STA: Statins
- TLI:TLI

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FORM B cont.

Early post-op. information

Lab. results within 15 days after tx:

Max bilirubin _____ $\mu\text{mol/l}$ _____ mg/dl

Max INR _____

Max creatinine _____ $\mu\text{mol/l}$

Early complications within 1 month after tx _____ (N: No/ NE: Not examined/Y: Yes)

Early complication	□	_____	Treatment
AB: Abscess	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
AL: Anastomosis leakage	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
AT: Arterial thrombosis	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
BF: Biliary fistula	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
BL: Bleeding	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
BS: Biliary collection	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
CA: Cardiac	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
CE: Cerebral	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
GA: Gastro	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
GR: Graft Related	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
IC: Infected collection	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
IF: Infection (not wound)	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
LI: Liver insufficiency	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
NC: Non-infected collection	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
NO: No major complication	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
OT: Others	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
PE: Pulmonary embolism	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)
PF: pleural effusion	□	_____	(1: medical/ 2: interventional drainage/3: reop./ 4: other)

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- | | | | |
|-----------------------------------|--------------------------|-------|---|
| PH: Phlebitis | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| PT: Portal thrombosis | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| RE: Respiratory | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| RJ: Rejection | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| RR: Reduced Renal Function | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| SS: Small for size | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| SY: Systemic | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| WI: Wound infection | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |
| WR: Wound related (not infection) | <input type="checkbox"/> | _____ | (1: medical/ 2: interventional drainage/3: reop./ 4: other) |

REGISTRATION FORMS
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FORM C FOLLOW-UP

(Minimum use: 1, 3, 5, 10, 15, 20, 25, 30 years controls)

Basic

Scandia number: _____ Person number: _____

Surname: _____ First name: _____

Weight: _____ kg Height: _____ cm

Follow-up date: _____

Laboratory test

INR _____

Albumin _____ $\mu\text{mol/l}$ _____ g/l

Bilirubin _____ $\mu\text{mol/l}$

Creatinine _____ $\mu\text{mol/l}$

GFR _____ ml/min $1,73\text{m}^2$

GFR Method _____ (CA: Calculated / ME: Measured)

Dialysis _____ (N: No/ ND: Unknown/Y: Yes)

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FORM C FOLLOW-UP cont.

Immunosuppression

Current Immunosuppression

- ALG: Anti-lymphocyte globulin
- ASA: Acetic salicylic acid
- ATG: Anti-thymocyte globulin
- AZA: Azathioprin
- AZM: Azitromycin
- BAS: Basiliximab
- BLI: Blinded drug
- CB: calcium channel blocker
- CSA: Cyclosporin-A
- DAC: Daclizumab
- EVE: Everolimus
- FK: Tacrolimus
- FOT: Fotopheres
- GAM: Gammaglobolin
- GLU: Glucocorticosteroids
- IL2: IL-2 block
- MFA: Mycophenolate acid
- MMF: Mycomophetil
- NON: None
- OKT: Anti-CD3 antibodies
- OTH: Other
- PLA: Plasmapheres
- RAP: Rapamycin
- SIR: Sirolimus
- STA: Statins
- TLI:TLI

Change in Immunosuppression?

Reason for change _____ (1: acute rejection/ 2: chronic rejection/3: intolerances/ 4: chronic renal failure/ 5: treated diabetes/ 6: treated AHT/ 7: treated hyperlipidemia/ 8: neurological complication/ 9: infection/ 10: recurrence of initial disease/ 11: viral hepatitis/ 12: de novo cancer/ 13: recurrence cancer/ 14: autoimmune hepatitis/ 15: others)

Date of change _____

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FORM C FOLLOW-UP cont.

Events (since last control)

Acute rejections	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
No of acute rejections	_____	
Recurrent disease	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Portal vein thrombosis (total)	_____	(<u>DND</u> : Doppler not done/ <u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
A. hepatica thrombosis (total)	_____	(<u>DND</u> : Doppler not done/ <u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Biliary strictures (treated)	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Liver tumor	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Liver tumor comments	_____	
Extrahepatic malignancy	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Extrahepatic malignancy comments	_____	
New onset diabetes (insulin)	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
New onset renal failure	_____	(<u>N</u> : No/ <u>ND</u> : Unknown/ <u>Y</u> : Yes)
Treatment renal failure	_____	(<u>DIA</u> : Dialysis/ <u>MTO</u> : Medical treatment/ <u>TX</u> : Transplantation)
Children (numbers)	_____	

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FORM D DEAD

Scandia number: _____ Person number: _____

Surname: _____ First name: _____

Date of death _____

Death causes (see lists)

Primary death cause _____

Secondary death _____

cause _____

REGISTRATION FORMS THE NORDIC LIVER TRANSPLANT REGISTRY

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List of diagnosis codes for first transplantation (Form A):

A1	Acute hepatic failure	Fulminant or subfulminant hepatitis	Virus A
A2	Acute hepatic failure	Fulminant or subfulminant hepatitis	Virus B
A3	Acute hepatic failure	Fulminant or subfulminant hepatitis	Virus C
A4	Acute hepatic failure	Fulminant or subfulminant hepatitis	Virus D
A5	Acute hepatic failure	Fulminant or subfulminant hepatitis	Other known
A6	Acute hepatic failure	Fulminant or subfulminant hepatitis	Other unknown
A7	Acute hepatic failure	Fulminant or subfulminant hepatitis	Paracetamol
A8	Acute hepatic failure	Fulminant or subfulminant	Other drug related
A9	Acute hepatic failure	Fulminant or subfulminant	Toxic (non-drug)
A91	Acute hepatic failure	Fulminant or subfulminant	Heat shock
A10	Acute hepatic failure	Post-operative	
A11	Acute hepatic failure	Post traumatic	
A12	Acute hepatic failure	Other	
A13	Subacute hepatitis	Virus A	
A14	Subacute hepatitis	Virus B	
A15	Subacute hepatitis	Virus C	
A16	Subacute hepatitis	Virus D	
A17	Subacute hepatitis	Other known	
A18	Subacute hepatitis	Other unknown	
A19	Subacute hepatitis	Paracetamol	
A20	Subacute hepatitis	Other drug related	
A21	Subacute hepatitis	Toxic (non-drug)	
B1	Cholestatic disease	Secondary biliary cirrhosis	
B2	Cholestatic disease	Primary biliary cirrhosis	
B3	Cholestatic disease	Primary sclerosing cholangitis	
B4	Cholestatic disease	Others	
C1	Congenital biliary disease	Caroli disease	
C2	Congenital biliary disease	Extrahepatic biliary atresia	
C3	Congenital biliary disease	Congenital biliary fibrosis	
C4	Congenital biliary disease	Choledochal cyst	
C5	Congenital biliary disease	Alagille syndrome	
C6	Congenital biliary disease	Others	
D1	Cirrhosis	Alcoholic	
D2	Cirrhosis	Autoimmune	
D3	Cirrhosis	Virus B	
D4	Cirrhosis	Virus C	
D5	Cirrhosis	Virus BD	
D6	Cirrhosis	Virus BC	
D7	Cirrhosis	Virus BCD	
D71	Cirrhosis	Combined virus C and alcoholic cirrhosis	
D72	Cirrhosis	Combined virus B and alcoholic cirrhosis	
D73	Cirrhosis	Virus E related cirrhosis	
D8	Cirrhosis	Virus Other	
D9	Cirrhosis	Drug related	
D10	Cirrhosis	Other	
D11	Cirrhosis	Unknown cause	

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List of diagnosis codes for first transplantation (Form A) – continued:

E1	Cancers	Hepatocellular carcinoma and cirrhosis	
E2	Cancers	Hepatocellular carcinoma and non-cirrhotic liver	
E3	Cancers	Hepatocellular carcinoma - Fibrolamellar	
E4	Cancers	Biliary tract carcinoma (Klatskin)	
E5	Cancers	Hepatic cholangiocellular carcinoma	
E6	Cancers	Hepatoblastoma	
E7	Cancers	Epithelioid hemangioendotelioma	
E8	Cancers	Angiosarcoma	
E9	Cancers	Secondary liver tumors - Carcinoid	
E10	Cancers	Secondary liver tumors - Other neuroendocrine	
E11	Cancers	Secondary liver tumors - Colorectal	
E12	Cancers	Secondary liver tumors - GI non colorectal	
E13	Cancers	Secondary liver tumors - Non gastrointestinal	
E14	Cancers	Other liver malignancies	
F1	Metabolic diseases	Wilson	
F2	Metabolic diseases	Haemochromatosis	
F3	Metabolic diseases	Antitrypsin deficiency	
F4	Metabolic diseases	Glycogen storage disease	
F5	Metabolic diseases	Hypercholesterolemia	
F6	Metabolic diseases	Tyrosinemia	
F7	Metabolic diseases	Familial amyloidotic polyneuropathy	
F8	Metabolic diseases	Primary oxaluria	
F9	Metabolic diseases	Protoporphyrria	
F91	Metabolic diseases	NASH	
F10	Metabolic diseases	Other Porphyria	
F11	Metabolic diseases	Crigler-Najjar	
F12	Metabolic diseases	Cystic fibrosis	
F13	Metabolic diseases	Byler disease	
F14	Metabolic diseases	Others	
G	Budd-chiari		
H1	Benign liver tumors or polycystic disease	Hepatic adenoma	
H2	Benign liver tumors or polycystic disease	Adenomatosis	
H3	Benign liver tumors or polycystic disease	Hemangioma	
H4	Benign liver tumors or polycystic disease	Focal Nodular Hyperplasia	
H5	Benign liver tumors or polycystic disease	Polycystic disease	
H6	Benign liver tumors or polycystic disease	Nodular regenerative hyperplasia	
H7	Benign liver tumors or polycystic disease	Other benign tumor	
I1	Parasitic disease	Schistosomia	
I2	Parasitic disease	Alveolar echinococcosis	
I3	Parasitic disease	Cystic hydatidosis	
I4	Parasitic disease	Other	
J	Other liver disease		
K	Not available		
L	TPN-induced cholestasis		
M	Hepatopulmonary syndrome		
N	Microangiopathy		
O	Small for size syndrome		
P	Auxillary Liver		
Q	Multivisceral transplantation		

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List of codes for death (Form D) or re-transplantation diagnosis (Form A):

A1	Intraoperative (death on table)		
B1	Infection	Bacterial infection	
B2	Infection	Viral infection	
B3	Infection	HIV	
B4	Infection	Fungal infection	
B5	Infection	Parasitic infection	
B6	Infection	Other	
C1	Liver complications	Acute rejection	
C2	Liver complications	Chronic rejection	
C3	Liver complications	Arterial thrombosis	
C4	Liver complications	Hepatic vein thrombosis	
C41	Liver complications	Early portal vein thrombosis	
C42	Liver complications	Outflow impairment	
C5	Liver complications	Primary non-function (≤ 7 days)	
C6	Liver complications	Primary dys-function (> 7 days)	
C61	Liver complications	Small for size syndrome	
C7	Liver complications	Anastomotic biliary complication	
C8	Liver complications	Non-anastomotic biliary complication	
C9	Liver complications	Recurrence of original disease	Virus B
C10	Liver complications	Recurrence of original disease	Virus C
C11	Liver complications	Recurrence of original disease	Virus D
C12	Liver complications	Recurrence of original disease	Alcoholic
C13	Liver complications	Recurrence of original disease	PBC
C14	Liver complications	Recurrence of original disease	PSC
C15	Liver complications	Recurrence of original disease	Autoimmune
C16	Liver complications	Recurrence of original disease	Budd-Chiari
C17	Liver complications	Recurrence of original disease	Other
C18	Liver complications	De novo Virus B	
C19	Liver complications	De novo Virus C	
C20	Liver complications	De novo Virus D	
C21	Liver complications	Massive hemorrhagic necrosis	
C22	Liver complications	Other viral hepatitis	
C23	Liver complications	Infection	
C24	Liver complications	Other	
D1	Gastrointestinal complications	GI hemorrhage	
D2	Gastrointestinal complications	Pancreatitis	
D3	Gastrointestinal complications	Visceral perforation	
D4	Gastrointestinal complications	Other	
E1	Cardiovascular complications	Myocardial Infarction	
E2	Cardiovascular complications	Other	
F1	Cerebrovascular complications	Intracranial hemorrhage	
F2	Cerebrovascular complications	Ischaemic stroke	
F3	Cerebrovascular complications	Cerebral oedema	
F4	Cerebrovascular complications	Cerebral infarction	
G1	Tumor	Recurrence of original tumor	
G2	Tumor	Recurrence of previously unrelated tumor	
G3	Tumor	De novo solid organ tumor	
G4	Tumor	Donor transmitted tumor	
G5	Tumor	Lymphoproliferative disease	
H1	Renal failure		
H2	Urinary tract infection		
I1	Pulmonary complications	Embolism	
I2	Pulmonary complications	Infection	
J1	Social complications	Non compliance immunosuppression	
J2	Social complications	Suicide	
J3	Social complications	Trauma	
K1	Bone marrow depression		
L1	Other		
M1	Not available		
N1	Neurological complication		
O1	NLTR pre-transplant specific causes of death	Hepatic	hepatorenal syndrome
O2		Hepatic	ascending cholangitis
O3		Hepatic	hepatocellular carcinoma
O4		Hepatic	cholangiocarcinoma
O5		Hepatic	metastasis to liver
O6		Other	extrahepatic malignancy