

Appendix 1_ Survey- TIPS Centres

Please read the statements below and press on Accept button to consent about your participation in this survey.

I have read the Participant Information Sheet and I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I understand the purposes, procedures and risks of the research described in the project.

I consent for my data and information provided to be used this project and in any other projects in the future.

I freely agree as the participant taking part in this research project as described and understand that I am free to withdraw at any time.

I understand that my involvement is confidential, and that the information gained during the study may be published but no information about me will be used in any way that reveals my identity.

I understand that I can withdraw from the study at any time without affecting my relationship with the researcher/s, and any organisations involved, now or in the future.

I. My field of specialty/sub-specialty practice:

- Gastroenterology and Hepatology
- Hepatology
- Interventional Radiology
- Others (Specify) _____
-

II. The Healthcare facility of my current practice is:

- A Tertiary referral hospital **with** liver transplantation service
- A Tertiary referral hospital **without** liver transplantation service
- A Metropolitan Hospital with 600+ beds
- District Hospital
- Private Hospital
- Rural Hospital
-

My healthcare facility of my current practice is located in:

▼ Australian Capital Territory (1) ... Tasmania (8)

Please try to be as accurate as possible when answering the questions below.
Number of TIPS procedures carried in **2019-2020** at your centre (excluding revisions):

Number of TIPS procedures carried in **2018-2019** at your centre (excluding revisions):

Number of TIPS procedures carried in **2017-2018** at your centre (excluding revisions):

Do you have any **centre specific written TIPS model of care, standard of care protocols, or clinical practice guidelines** for any aspect of TIPS listed below:

(Multiple answers are possible)

- Indications
- Patients selection
- Pre-TIPS workup
- TIPS procedure
- Postoperative complications
- Post TIPS care (first 72 hours)
- Post TIPS anticoagulants (72 hours)
- Post TIPS follow up (>72 hours)
- Others(specify) _____
- None of the above

Drag and drop or select the button below if you would like to share **your centre's clinical practice guidelines and model of care for TIPS.**

Please upload only one file (acceptable formats .pdf .docx)

In the UK, centres offering TIPS service should be performing a minimum of 10 cases per year. How many TIPS procedures do you recommend as a **minimum** to be performed at any TIPS center **per year**?

(Please move the cursor to the right)



At your center, the decision to perform a TIPS is reached by an expert team made of at least one:

(Multiple answers are possible)

- Hepatologist
- Gastroenterologist
- Interventional radiologist
- Liver Transplant Unit surgeon
- Hepatobiliary Surgeon
- Anesthesiologist
- Others(Specify) _____

TIPS: Indications

Please select from scenarios below that you consider as an indications for TIPS

(Multiple answers are possible)

A. TIPS for Portal hypertensive bleeding

- Salvage TIPS for acute gastro-oesophageal variceal bleeding refractory to endoscopic and drug therapy as defined by Baveno VI criteria, Child Pugh Score CPS <14.
- Pre-emptive(early - within 72h) TIPS in patients with acute variceal bleeding in haemodynamically stable patients with Child's C disease C9-C13 or MELD> or equal 19.
- Secondary prevention of oesophageal variceal bleeding or GOV1 gastric varices.
- Secondary prevention of gastric variceal bleeding (IGV1,IGV2 GOV2).
- For patients with bleeding from ectopic varices refractory to local and pharmacological therapies.
- For patients with bleeding from portal hypertensive gastropathy (PHG) refractory to non selective beta blockers (NSBB) and iron therapy.
- Pre-emptive TIPS for acute variceal bleeding in acute-on-chronic liver failure.

Page Break

B. TIPS for ascites, hepatic hydrothorax and hepatorenal syndrome

Please select if you consider TIPS for the following conditions:

(Multiple answers are possible)

- TIPS for patients with ascites
 - Refractory or recurrent ascites
 - Refractory hepatic hydrothorax
-

Have you performed TIPS in patients with **Hepatorenal syndrome (type 1 and/or type 2)**?

- Yes
 - No
-

Do patients with **Hepatopulmonary syndrome** benefit from TIPS?

- Yes
 - No
-

C. TIPS for Budd–Chiari syndrome

Do you perform TIPS for **Budd-Chiari syndrome (BCS)** patients at your centre ?

Yes

No

D. TIPS prior to elective non-hepatic surgery in patients with portal hypertension (prophylactic TIPS)

Do you recommend **prophylactic TIPS** in compensated cirrhotic patients undergoing **curative surgery for cancer**?

Yes

No

Are there other major **non-hepatic** surgical procedures that you would perform **prophylactic TIPS** for? If so, what?

E. TIPS and idiopathic non-cirrhotic portal hypertension (INCPH)

Do you consider TIPS for **idiopathic non-cirrhotic portal hypertension (INCPH)** or porto-sinusoidal vascular liver disease?

Yes

No

F. TIPS in portal vein thrombosis (PVT)

Do you recommend TIPS procedure for patients with **portal vein thrombosis (PVT)**?

Yes

No

Do you perform TIPS procedures in patients with **portal vein thrombosis (PVT)** in presence of **cavernous transformation of the portal vein**?

Yes

No

Indications for TIPS at your centre not mentioned (if any)

H. TIPS after Liver transplantation (LT)

Have you performed TIPS procedures in patients **post LT (liver transplantation)** at your centre?

Yes

No

Patient Selection and Pre-operative Assessments

A. Pre-TIPS assessment of hepatic encephalopathy (HE)

How do you **screen** for covert and overt **hepatic encephalopathy** at your centre prior to elective TIPS procedure?

(Multiple answers are possible)

- Paper-pencil based tests (trail making test, PHES)
 - Stroop testing
 - Critical Flicker Frequency (CFF)
 - Spectral Enhanced or quantitative EEG
 - Others (Specify) _____
-

How many HE (hepatic encephalopathy) screening test(s)-from the above list-you recommend to be carried prior to elective TIPS procedure?

(Please insert number)

B. Cardiopulmonary AssessmentHow do you evaluate **cardiac function** prior to elective TIPS insertion?*(Multiple answers are possible)*

- Cardiac History and Physical examination
 - 12-leads ECG
 - N-Terminal pro-B-type natriuretic peptide (NT-proBNP)
 - Echocardiography
 - Cardiologist consultation
 - Others (Specify) _____
-

Do you suggest **mandatory Doppler echocardiography (ECHO)** pre TIPS ?

- Yes
 - No
-

C. Nutritional Assessment

At your centre, do patients routinely undertake **nutritional assessment** prior to elective TIPS procedure?

- Yes
- No
-

At your centre, do you recommend patients for elective TIPS to undergo **anthropometric and functional assessment** for **Sarcopenia** [hand grip, Short Physical Performance Battery (SPBB), etc...]?

- Yes
- No
-

At your centre, do you recommend patients prior to TIPS to undergo **radiological screening** for **Sarcopenia** (CT, DEXA, etc..)?

- Yes
- No
-

At your centre, do you screen for **Alcohol Use Disorder** prior TIPS shunt creation?

- Yes
- No
-

D. TIPS mandatory investigations

Please, select from the list below all routine laboratory and instrumental investigations required

prior to TIPS shunt creation.

(Multiple answers are possible)

- CBC (Complete blood count)
- EUC (Electrolytes, Urea, Creatinine)
- LFTs (Liver function tests)
- Coagulation studies
- AFP (Alpha-fetoprotein)
- Ammonia
- CRP (C-reactive protein)
- Blood Cross-Match
- Liver fibroscan
- Abdominal Ultrasound
- Hepatic and Portal veins doppler
- Multiple phase CT
- MRCP (Magnetic resonance cholangiopancreatography)
- Others (Specify) _____

Contraindications

What are the **absolute contraindications** for TIPS at your centre, independent of the indication?

(Multiple answers are possible)

- Absence of vascular access
 - Significant pulmonary hypertension diagnosed on right heart catheterisation
 - Heart failure or severe cardiac valvular insufficiency
 - Rapidly progressive liver failure
 - Serum Creatinine >250umol/l
 - Severe or uncontrolled hepatic encephalopathy
 - Uncontrolled systemic infection or sepsis
 - Unrelieved biliary obstruction
 - Polycystic liver disease
 - Extensive primary or metastatic hepatic malignancy
 - Pregnancy or breast feeding
 - Others (Specify) _____
-

What **age cut-off** for any adult patient is TIPS generally considered **a risky procedure** at your centre (years)?

Procedure

1-Stents

At your centre, what **stent diameter** is preferred for TIPS?

- 8mm diameter stent
- 10mm diameter stent
- 12mm diameter stent
- Controlled expansion stents (with a "dial-able" diameter of 8 or 10mm)
- Others (Please specify) _____

2- Portal pressure gradient (PPG)

Is **portal pressure gradient (PPG)** measured routinely **pre- and post-**TIPS?

- Yes
- No

Display This Question:

If 2- Portal pressure gradient (PPG) Is portal pressure gradient (PPG) measured routinely pre- and p... = Yes

If portal pressure gradient is measured routinely, what **reduction in PPG** do you **aim for**:

- <12mmg or 20% baseline
- Others (Please, specify) _____

Display This Question:

If 2- Portal pressure gradient (PPG) Is portal pressure gradient (PPG) measured routinely pre- and p... = No

Do you measure **portal pressure gradient (PPG)**:

- Only pre-TIPS
- Only post-TIPS
- None of the above

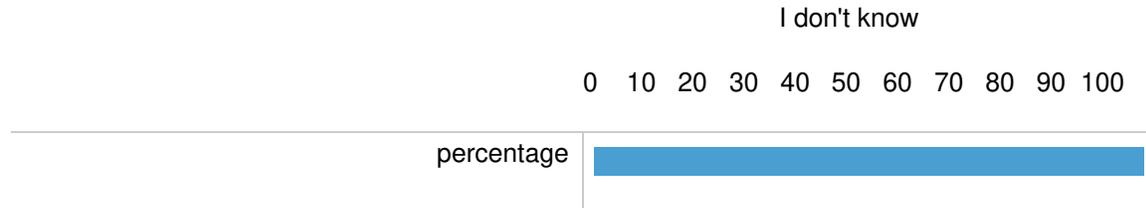
3-Access

At your centre, what preferred technique(s) utilized for **TIPS access** creation:

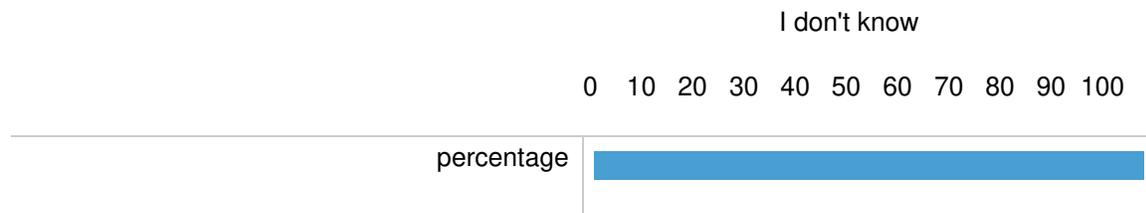
- Real time Ultrasound-guided portal vein access
- Fluroscopic-guided portal vein access
- Implants of fiducial markers
- Wedged hepatic venography with CO2 as contrast agent
- Others (Please specify) _____
- I don't know

4-Success Rates for TIPS

Please rate in general the percentage of **elective TIPS success** rate at your centre.
(Please press and drag the cursor to the right)



Rescue TIPS success Please rate in general terms the percentage success rate of rescue TIPS at your centre.



Post Operative Care

Post elective TIPS shunt creation, patient are generally referred to the following hospital units:

- Intensive Care Unit (ICU)
- General Inpatient Ward
- High Dependency Unit (HDU)
- Others (Please specify) _____

Please select routine tests performed post elective TIPS **prior discharge** or as part of **follow up**:

	<24 hours	<72 hours	>72 hours	1 month	3 months	6 months	1 year	Not performed
HE (hepatic encephalopathy) testing	<input type="checkbox"/>							
CBC(Complete blood count)	<input type="checkbox"/>							
TIPS venography	<input type="checkbox"/>							
Colour doppler ultrasonography	<input type="checkbox"/>							

A. Regular postoperative observations and treatments (<72 hours)

What **coagulation agents** and **anti-platelet drugs** do you administer post elective TIPS?
(Multiple answers are possible)

- Low molecular weight heparin (LMWH)
- Warfarin (Coumadin®)
- Aspirin (Acetylsalicylic Acid)
- Clopidogrel (Plavix®)
- Others (Please specify) _____
- None

A. Regular postoperative observations and treatments (<72 hours)

If patient develops post TIPS hepatic encephalopathy (HE), what does your management involve?

(Multiple answers are possible)

- Lactulose
 - Cessation of proton pump inhibitors
 - Rifaxamin
 - Oral BCAAs (oral branched-chain amino acids)
 - Competing spontaneous shunt embolisation
 - TIPS stent reduction
 - TIPS occlusion
 - Others (specify) _____
-

C. Post TIPS complications

What is the anticipated **discharge time** post elective TIPS insertion (uncomplicated cases)?

- within 24 hours
 - within 48 hours
 - within 36 hours
 - within 3 days
 - within 1 week
 - within 10 days
-

Select from below the **factors predictive of poor survival** after elective transjugular intrahepatic portosystemic shunt (elective TIPS) creation:

(Multiple answers are possible)

- Model for End-Stage Liver Disease (MELD) score >15
 - Child Pugh Score score (CSP) ≥ 11
 - Serum total bilirubin level > 2.5 mg/dL
 - An INR > 1.4
 - A serum creatinine level > 1.2 mg/dL
 - Serum sodium level < 130 meq/L
 - Age > 70 years
 - Others (Specify) _____
-