HEPATITIS B, C AND HIV DETECTION AND MANAGEMENT IN PATIENTS REQUIRING DIALYSIS *(Previously SESLHDPR/226)*

1. Purpose	To detect and prevent Blood Borne Virus (BBV) in dialysis patients, and kidney failure patients planned for dialysis.
2. Risk Rating	Medium
3. National Standards	1 – Clinical Governance (applies to all documents) 3 – Preventing and Controlling Healthcare Associated Infection 4 – Medication Safety 5 – Comprehensive Care
4. Employees it Applies to	Medical and nursing staff who provide care to dialysis patients – Kidney failure with replacement therapy (KFRT)

5. PROCESS

Definitions

HBsAg: Hepatitis B surface antigen
anti-HBs: Hepatitis B surface antibody
anti-HBc: Hepatitis B core antibody
anti-HCV Hepatitis C antibody
HBeAg: Hepatitis B envelope antigen
HBV: Hepatitis B Infection
HBV DNA: Hepatitis B viral load
HCV: Hepatitis C Infection
HCV PCR: Hepatitis C viral load
HIV: Human Immunodeficiency Virus
BBV: Blood borne virus
ESKD: End stage kidney disease
HBV Susceptible: anti-HBc negative, anti-HBs negative and HBsAg negative.
HCW: Health Care Worker
KFRT Kidney Failure with Replacement Therapy (formerly known as 'ESKD')

5.1 RESPONSIBILITIES TO PATIENTS

- Staff must ensure all dialysis patients have a baseline screening for HCV, HBV and HIV.
- Staff must ensure the patient consents to testing as part of local procedure guidelines SESLHDPD/330 *Blood Borne Virus Testing*
- Staff must ensure all consenting haemodialysis patients receive the Hepatitis B vaccination unless they are HBsAg or anti-HBc positive.
- Vaccinations must be documented in the patients' medical record and medication chart.
- Prompt notification of any seroconversion to the Director of Renal Medicine and the patient's nephrologist so that further investigations can be carried out to confirm this.
- Any case of acute and chronic viral hepatitis, diagnosed on a clinical basis supported by acute elevation of liver enzymes, and/or diagnosed on evidence of seroconversion to markers of

Hepatitis B, C or D, are to be notified on clinical suspicion by the attending doctor by telephone in accordance with the *SGH CLIN343* and the *Public Health Act 2010 (NSW)*

- Cases of acute HIV are to be notified by the attending doctor to the Public Health Unit, see section 5.7.
- Spouses and carers of BBV positive patients must have information available to manage their own exposure, and Hepatitis B vaccination.
- Link patients who test positive to a BBV to appropriate care for confirmatory testing, treatment and care.

5.2 EMPLOYEE RESPONSIBILITIES REGARDING OWN BBV STATUS

- All staff must comply with the requirements of policy NSW Health PD2022_030 *Occupational Assessment, Screening and Vaccination Against Specified Infectious Diseases*. Management plans must be put in place for non-responders and non-participants.
- All BBV infected healthcare workers must be familiar practice requirements within NSW Health PD2019_026 *Management of health care workers with a blood borne virus and those doing exposure prone procedures.*
- If a HCW is exposed to blood or other body substances, the directive NSW Health PD2017_010 *HIV, Hepatitis B and Hepatitis C – Management of Health Care Workers Potentially Exposed* must be followed.

5.3 UNIVERSAL SCREENING PRE DIALYSIS OR AT THE START OF DIALYSIS OR ON TRANSFER FROM ANOTHER UNIT

1) Screening includes Hepatitis B surface antigen (HBsAg), Hepatitis B surface antibody (Anti-HBs), Hepatitis B core antibody (Anti-HBc), Hepatitis C antibody (Anti-HCV), and HIV Antibody.
2) Test HBV DNA if Anti-HBs negative and Anti-HBc positive to exclude Occult HBV.
3) Test HBV DNA if ABsAg positive.
4) Test 'HCV PCR qualitative' if Anti-HCV positive.

5.4 ROUTINE SCREENING FOR PREVALENT DIALYSIS PATIENTS

1) All dialysis patients must be screened regularly:
   - 6 monthly Anti-HCV
   - 6 monthly HBsAg, and serum transaminases.
     - If anti-HBc positive at baseline with anti-HBs positive and HBsAg negative, then test yearly only for HBsAg.
2) Routine ongoing screening of HIV is not required unless susceptible. Only test for HIV if person is assessed as being at risk. See the National HIV Testing Policy for indications for HIV testing.

5.5 INITIATION OF HEPATITIS B VACCINATION

- If Hepatitis B surface Antibody (anti-HBs) is negative or < 10 International units/L, and anti-HBc and HBsAg negative then vaccination should be initiated –'Susceptible immunity'.
- If a patient has 'natural immunity' (HBsAg negative, anti-HBc positive, anti-HBs positive), vaccination is not required, but routine screening is required.

- If a patient has 'vaccinated immunity' (HBsAg negative, anti-HBc negative, anti-HBs ≥10 International units/L), monitor and give boosters where required following routine screening.

5.6 HEPATITIS B VACCINATION IN END STAGE KIDNEY DISEASE

- Higher doses of Hepatitis B vaccination (double dose) are required in patients with KFRT related to immunodeficiency.
- The *Australian Immunisation Handbook* recommends the following for this group of patients:
  - Adults should be given either:
    1) 1mL of *adult formulation* intramuscularly in each arm at each schedule point (double dose on each occasion) at zero, one, two and six months, **or**
    2) 1mL of *dialysis formulation* vaccine at each schedule point (single dose of double strength), at zero, one and six months (*three* dose schedule).
  - Initial post-vaccination serology should be taken four to eight weeks after completion of the primary course.
  - If adequate anti-HBs levels (≥10 International units/L) are not reached on serological testing four to eight weeks after the third dose, a *fourth dose* (booster dose) is suggested by *The Australian Immunisation Handbook* to confirm non-responder status.

5.6.1 Non-Responder

- People who are non-responders after receiving the booster should be tested for Hepatitis B virus infection. If negative, they are recommended to receive two more doses of Hepatitis B vaccine one month apart. Count the fourth booster dose as the first of the three repeat doses. Re-test the person for anti HBs levels at least four weeks after the last dose.
- Regular re-testing (every six to 12 months) is recommended and booster doses given if anti-HBs < 10 International units/L.
- Non responders should be informed that they are not protected.

5.7 NOTIFICATION OF HEPATITIS AND HIV

- Any case of acute and chronic viral hepatitis, diagnosed on a clinical basis supported by acute elevation of liver enzymes, and/or diagnosed on evidence of seroconversion to markers of Hepatitis B, C or D, are to be notified on clinical suspicion by the attending doctor by telephone in accordance with the SGH CLIN343 *Notifiable Diseases, Responsibilities for Notification and Management of Contact - Staff, Patients, Relatives and Visitors – SGH* and the *Public Health Act 2010 (NSW)*.
- Any new HIV diagnosis must be notified by the attending doctor to the local Public Health Unit in accordance with the *Public Health Act 2010 (NSW)*.

5.8 ISOLATION

- Standard Precautions must be applied at all times.
- Dialysis machines should be fitted with an external transducer to protect the pressure lines of external circuitry. The fit to the pressure monitor should be tight to minimise the risk of wetting. If wetting occurs then the transducer should be replaced *(CARI 2018)*

5.8.1 Hepatitis B

Infected patients (HBsAg positive) must be isolated for haemodialysis and use a dedicated machine. Where there is no separate room available, patients should be separated from the

mainstream haemodialysis activity on dedicated machines (*Clinical Excellence Commission 2020 & CARI 2018).*

Patients (anti-HBs titre ≥10 International units/L) may undergo haemodialysis in the same area as an HBsAg positive patient or may serve as a geographic barrier between HBsAg positive and susceptible patients. When HBV positive patients are not being dialysed, the room/area may be used for uninfected patients after cleaning and disinfection.

5.8.2 Hepatitis C

Isolation of haemodialysis patients and machines is not required but should be considered in a high prevalence area where seroprevalence of HCV positive patients is >30% (Clinical Excellence Commission 2020) or >15% *(CARI 2018)*, or where an outbreak of HCV has not been possible to contain *(CARI 2018).*

5.8.3 HIV

No haemodialysis isolation required *(Clinical Excellence Commission 2020).*

5.9 ALLOCATION OF HCW TO BBV POSITIVE PATIENTS

- Dialysis staff caring for BBV infected patients should not care for susceptible patients at the same time. If staff have to care for both BBV infected and susceptible patients rigorous attention to infection control precautions is required.
- A HCW who is susceptible to HBV should not care for HBsAg positive patients.

5.10 DOCUMENTATION

- Dialysis Patient Screening and Hepatitis B Vaccination Procedure
- Haemodialysis Serology Monitoring Chart
- Document on approved medication chart

6. Cross References	National HIV Testing Policy NSW Health PD2022_030 *Occupational Assessment, Screening and Vaccination Against Specified Infectious Disease* NSW Health PD2019_026 *Management of health care workers with a blood borne virus and those doing exposure prone procedures.* NSW Health PD2017_010 *HIV, Hepatitis B and Hepatitis C – Management of Health Care Workers Potentially Exposed* NSW Health PD2013_043 *Medication Handling in NSW Public Health Facilities* SESLHDPD/330 *Blood Borne Virus Testing* NSW Health PD2017 013 *Infection Prevention and Control Policy* SESLHDPR/685 *Outbreak Management* SESLHDPR/343 *Hand hygiene, hand care and bare below the elbows* SGH CLIN343 *Notifiable Diseases, Responsibilities for Notification and Management of Contact - Staff, Patients, Relatives and Visitors – SGH*
7. Keywords	Hepatitis, dialysis, blood-borne virus (BBV)

8. Document Location	Haemodialysis
9. External References	1. ashm.org.au (2020) National HIV Testing Policy v1.5. Retrieved 18/8/2021 http://testingportal.ashm.org.au/files/ASHM_National%20HIVTestingPolicy_2020_HIV_.pdf 2. Australian Immunization Handbook: https://immunisationhandbook.health.gov.au/ and https://immunisationhandbook.health.gov.au/vaccination-procedures/after-vaccination#reporting-to-immunisation-registers 3. CARI Guidelines (2018) “Infection Control for Haemodialysis Units” Centers for Disease Control (2001) "Recommendations for Preventing Transmission of Infections Among Chronic Hemodialysis Patients." MMWR Morbidity & Mortality Weekly Report **50**(RR-5). https://www.cdc.gov/dialysis/guidelines/index.html 4. Centers for Disease Control (2006) "A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States 5. Centres for Disease Control and Prevention (1993) "Recommendations of the Advisory Committee on Immunization Practices (ACIP): Use of vaccines and immune globulins in persons with altered immunicompetence." Retrieved 19/02/2010 from http://www.cdc.gov/mmwr/PDF/rr/rr4204.pdf 6. Clinical Excellence Commission, 2020, Infection prevention and control practice handbook. Clinical Excellence Commission, Sydney, Australia. 7. European Association for the Study of the Liver (2017). “EASL 2017 Clinical Practice Guidelines on the management of hepatitis B infection” Journal of Hepatology 67(2): 370-398 8. Public Health Act 2010 No 127 https://www.legislation.nsw.gov.au/#/view/act/2010/127 accessed 24 July 2019 9. Recommendations of the ACIP Part II: Immunization of Adults." MMWR Morbidity & Mortality Weekly Report **55**(RR-16). 10. Soi, V., & Soman, S. (2019). Preventing Hepatitis B in the Dialysis Unit. *Adv Chronic Kidney Dis, 26*(3), 179-184. 11. Terrault, N., Lok, A, et al (2018) “Update on Prevention, Diagnosis, and Treatment of Chronic Hepatitis B: AASLD 2018 Hepatitis B Guidance” Hepatology 67(4), 1560-99
10. Consumer Advisory Group (CAG) Approval	Not Applicable
11. Aboriginal Health Impact Statement	The Aboriginal Health Impact Statement does not require completion because there is no direct or indirect impact on Aboriginal people. Aboriginal and Torres Strait Islander people are recommended to receive Hepatitis B vaccination if non-immune, therefore this detection and management protocol is appropriate. Approval: T22/
12. Implementation and Evaluation Plan	**Implementation:** The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH

	CGD report. Staff in-services. CBR to be read and signed off by dialysis staff under the supervision of the clinical nurse educator. **Evaluation:** Renal nurse educators to teach staff. Staff to read and sign they have read the CBR. Documentation can be audited at any time
13. Knowledge Evaluation	**Q1: What baseline BBV screening is required for new dialysis patients?** *A1: Staff must ensure all dialysis patients have a baseline screening for HCV, HBV and HIV* **Q2: What is the criteria to initiate a Hepatitis B vaccination in a KFRT patient?** *A2: If Hepatitis B surface Antibody (anti-HBs) is negative or < 10 International units/L, and anti-HBc and HBsAg negative* **Q3: What are the isolation requirements for HBsAg positive dialysis patients?** *A3: Infected patients (HBsAg positive) must be isolated for haemodialysis and use a dedicated machine. Where there is no separate room available, patients should be separated from the mainstream haemodialysis activity on dedicated machines.*
14. Who is Responsible	Director Medicine Stream

Approval for: HEPATITIS B, C AND HIV DETECTION AND MANAGEMENT IN PATIENTS REQUIRING DIALYSIS	
Nurse Manager (SGH)	Meredith Birth, A/Clinical Services Manager Medicine, and Cancer Date: 23.03.2022
Nurse Manager (TSH)	Nicole Wedell, Co-Director Nursing and Operations Program 2 Date: 01.08.2022
Medical Head of Department (SGH)	A/Prof Amany Zekry, Director Medical Stream Date: 01.08.2022
Medical Head of Department (SGH / TSH)	A/Prof George Mangos, HoD Renal Medicine Date: 01.08.2022
Safe Use of Medicines Committee (SGH)	Chairperson: A/Prof Winston Liauw Date: 11.08.2022
Safe Use of Medicines Committee (TSH)	Chairperson: Dr Huong Van Nguyen Date: 07.09.2022
Executive Sponsor	A/Prof George Mangos, HoD Renal Medicine Date: 01.08.2022

Contributors to BR	**Contribution**: Elizabeth Josland, Renal Supportive Care CNC
	Consultation: A/Prof Amany Zekry, Head of Gastroenterology and Hepatology, Director of Stream of Medicine SESLHD

Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author (Position)	Revision Due
Aug 2022	0	New – SESLHDPR/226 rescinded	Elizabeth Josland, Renal Supportive Care CNC	Aug 2025

General Manager's Ratification	
Name: Angela Karooz (SGH)	Date: 02.09.2022
Name: Vicki Weeden (TSH)	Date: 05.09.2022