The CKD4/5 Patient. What's going on? Practical Advice

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Renal CME, GLMS
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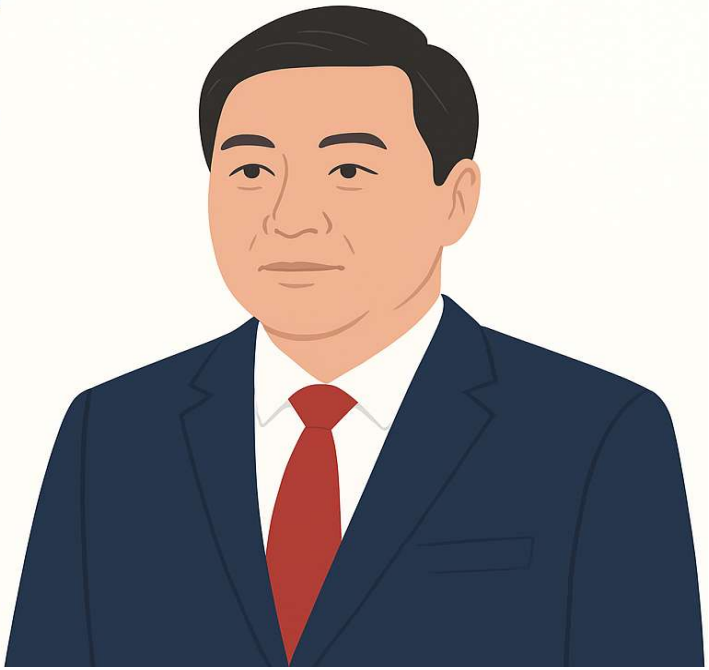
Mr KL

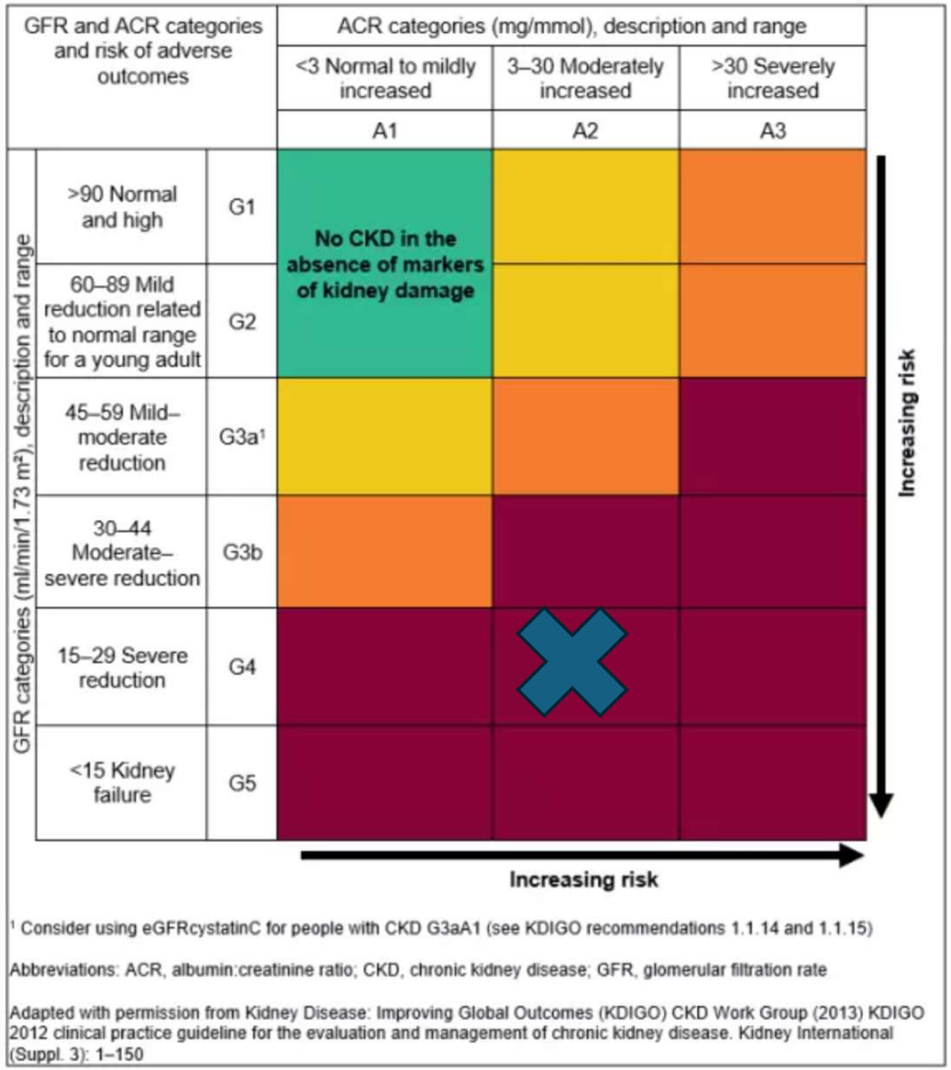
Case Study

- 52-year-old Chinese New Zealander, living in East Auckland
- Owns a succesful family-run business
- Two university-aged children
- Busy schedule, little time for health management



Presents for prescription renewal

- **Hypertension** (10 years)
- **Type 2 Diabetes** (15 years, suboptimal control, HbA1c ~80 mmol/mol)
- -retinopathy and required x2 laser therapy
- **BMI 32**,
- Ex-smoker
- Mild ankle swelling, BP: 160/95mmHg
- **Bloods:** eGFR 28 mL/min/1.73m^2 Hb 128g/L
- Urine ACR: 250 mg/mmol → CKD Stage G4A2



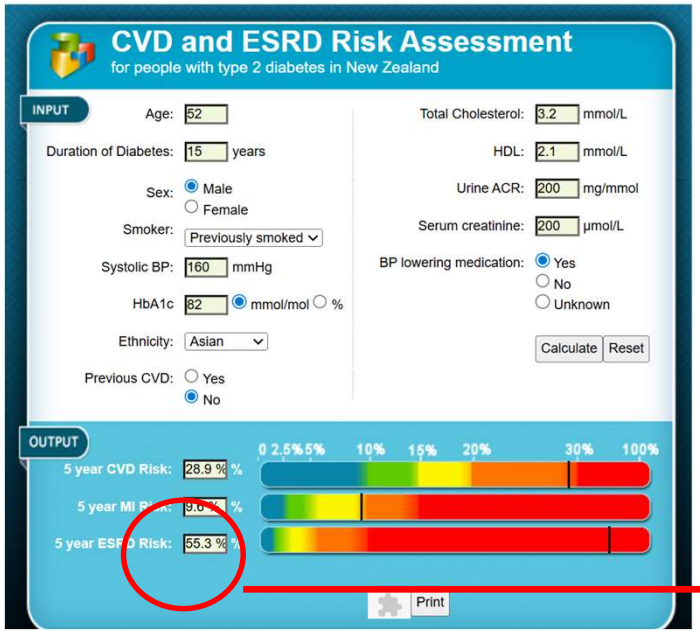
[1] Consider using eGFRcystatinC for people with CKD G3aA1 (see KDIGO recommendations 1.1.14 and 1.1.15)

Abbreviations: ACR, albumin:creatinine ratio; CKD, chronic kidney disease; GFR, glomerular filtration rate

Adapted with permission from Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group (2013) KDIGO 2012 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International (Suppl. 3): 1–150

Calculating Risk of Progression

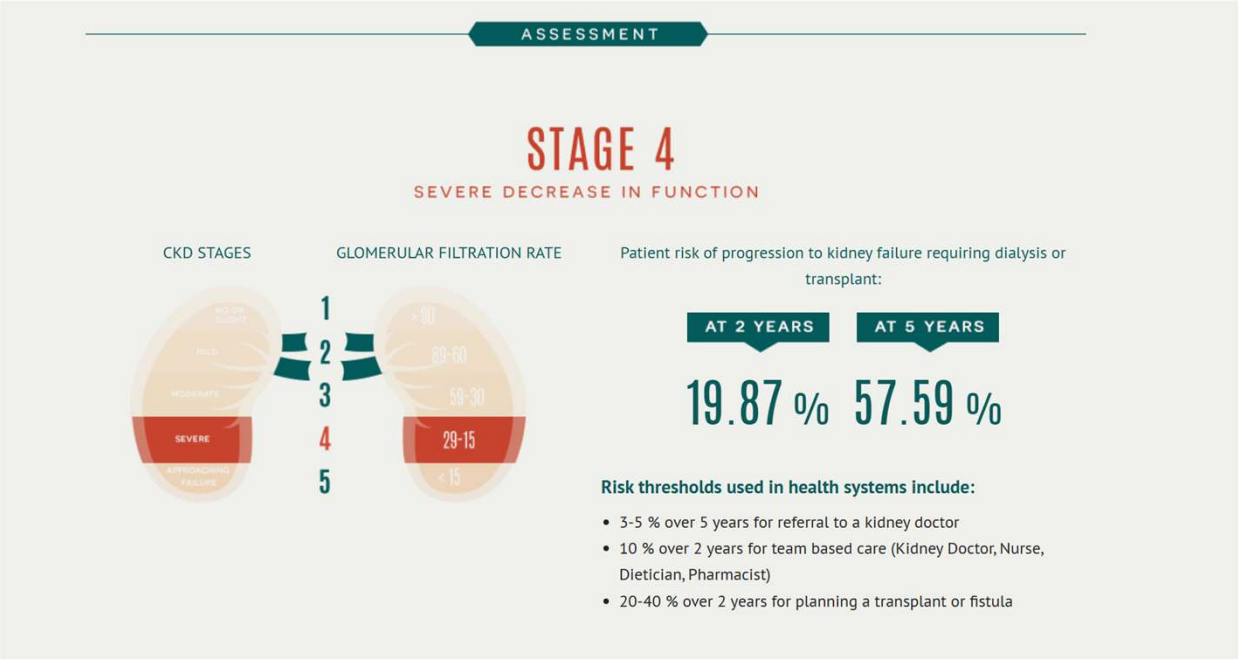
- CVD Risk Assessment www.nzssd.org.nz



5 year ESKD risk 55.3%

The Kidney Failure Risk Equation

- https://kidneyfailurerisk.com



What would you do for him?

- ACE inhibitor and SGLT-2,
- Adjust diabetes meds
- Stop metformin?
- Stop any Egfr dependent regular medications
  - –> need to look up, nephrologists don’t carry in their heads *
- Avoid NSAIDs
- Refer to Renal

Drugs to be mindful of when eGFR <30

DOACs

Dabigatran, Rivoroxiban 15mg od, stop at egfr 15.

Metformin – stop, risk of lactic acidosis, esp if intercurrent illness

Sulphonylureas – dose reduce,

Insulin – often need dose reduction when eGFR goes lower

Empagloflozin dose reduce 25mg-> 10mg

ACEi/ARBs – try hard to continue max dose if potassium allows

Bendrofluazide ineffective -> change to chlorthalidone (effective anti-HTN in CKD4 in CLICK Trial) or use frusemide for diuretic

Clexane – treatment dose 1mg/kg once daily (from bd)

Morphine – avoid

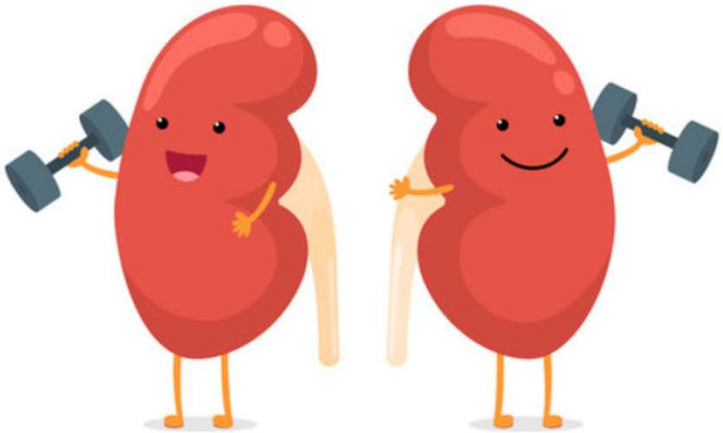
Colchcine – dose reduce

Gabapentin- dose reduce

Digoxin – dose reduce, check levels

In practice, always check NZF when prescribing for eGFR <30.

DCKD Treatment Targets



Maximum RAS Blockade possible
SGLT2 Inhibitor
Any other meds to achieve **BP 130/80**
Hba1c <55
Statin to keep Tot. **Chol <5**
Finerenone

When to refer to local renal service?

Request non-acute nephrology assessment if:

- eGFR declining by more than 10 within previous 12 months.
- eGFR less than 30 in a patient without diabetes.
- *eGFR less than 45 in a patient with diabetes and persistent significant albuminuria*.
- uACR >70
- uACR > 30 and haematuria
- Diagnostic or management uncertainty
- More than 30% increase in creatinine after starting ACE inhibitor or ARB therapy, or on dose change

What is the purpose of the referral?

- To exclude a reversible cause,
- To manage sequalae of kidneys that don't work properly,
- To discuss whether RRT would be suitable or if Conservative care is a better choice
- To prepare for dialysis and transplant work up

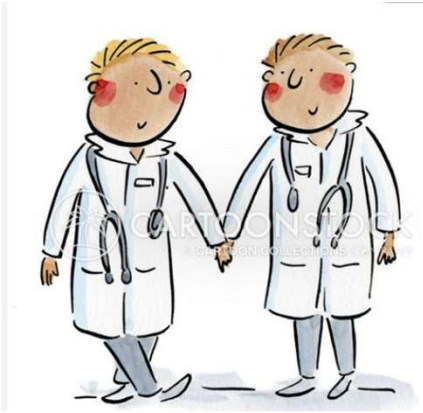
What to include on referral to local renal service

- What is their functional status
- Your opinion about whether they would be a dialysis candidate,
- Consider using a risk calculator The Kidney Failure Risk Equation
- **Hydration status**
- **MSU**, uACR, Blood Pressure
- Information about: prostate symptoms, systemic symptoms (weight loss, arthralgia, rash etc), excessive NSAIDs

Case Study update – 18 months later

- Recurrent admissions for fluid overload
- eGFR dropped to 12 mL/min/1.73m^2
- Poor diabetes control, anaemia, bone disease
- **Symptoms:**
- Nausea, severe tiredness, pruritus
- Struggles to keep up with work

GP Shared Cares in CKD4/5



- Reinforce dietary messages– Fluid, salt, potassium restriction
- Adjust Binocrit dose
- Psycho-social support
- Immunisations *
- Help with Blood pressure medication adjustment
- Help with diuretic and fluid balance management
- Ongoing Management of CV risk (lipid control, smoking cessation support, lifestyle eg, green prescription)

Immunisation for adults pre-dialysis, on dialysis or pre-/post-kidney transplantation

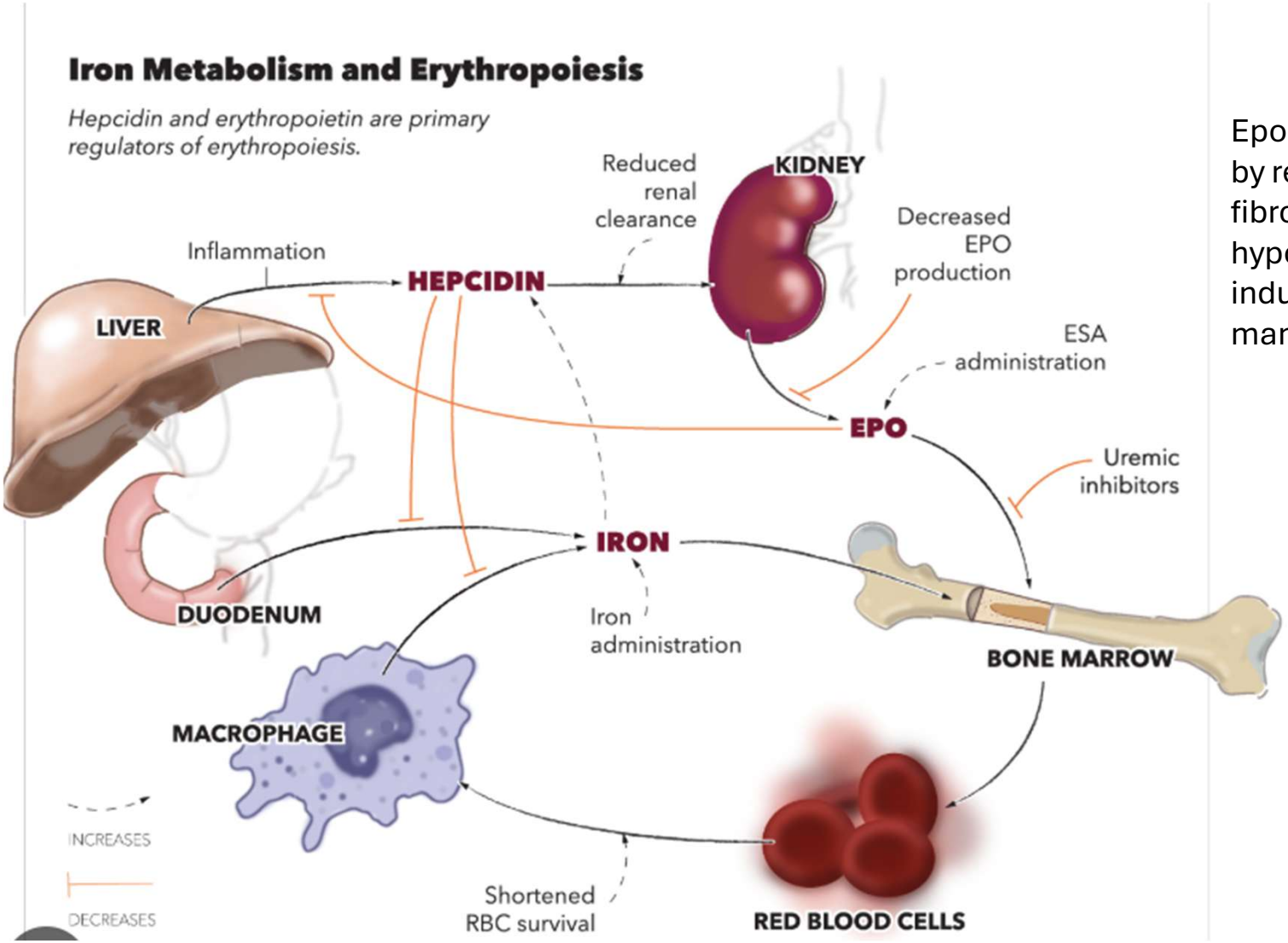
Immunisation Advisory Centre

Vaccine	Additional notes	Recommended schedule	Pre-dialysis	On dialysis	Pre-transplant	Post-transplant
Haemophilus influenzae **type b Hib (Act-HIB/Hiberix)**		• Administer one dose	Recommended NOT FUNDED	FUNDED	FUNDED	FUNDED
Hepatitis A (Havrix)	Give on the advice of renal specialist or transplant team	• Administer two doses at least 6 months apart	NOT FUNDED	NOT FUNDED	FUNDED	FUNDED
Hepatitis B (Engerix-B)	Give on the advice of renal specialist or transplant team Check serology 4 weeks after 3rd dose: • if non-immune, seek advice from renal specialist or transplant team	If pre-dialysis (20mcg) • Administer one 20mcg dose at each visit at 0, 1, 6 month intervals If on dialysis or pre-/post-transplant (40mcg) • Coadminister two doses of 20mcg/mL (i.e. 40 mcg) at each visit at 0, 1, 6 month intervals If accelerated schedule requested by specialist or transplant team pre-transplant e.g. active on deceased donor list(40mcg) • Coadminister two doses of 20mcg/mL (i.e. 40mcg) at each visit • Administer three doses at 0, 1, 2 months	Recommended NOT FUNDED	FUNDED	FUNDED	FUNDED
Herpes zoster Recombinant ZV (Shingrix)	Recommended for adults from the age of 18 years.	• Administer two doses, at least 2–6 months apart	FUNDED • Aged 65 years • Aged 18 years+ for those with end-stage kidney disease (CKD 4 or 5) or pre- or post- solid organ transplant			

Vaccine	Additional notes	Recommended schedule	Pre-dialysis	On dialysis	Pre-transplant	Post-transplant
Human papillomavirus HPV (Gardasil 9)	Recommended for males and females 18–45 years of age inclusively	**If pre-dialysis, on dialysis, or pre-/post-transplant:** • Administer three doses at 0, 2, and 6 month intervals **If accelerated schedule requested by specialist or transplant team pre-transplant (funded <27 years), e.g. active on deceased donor list:** • Administer three doses at 0, 1, and 2 month intervals	**FUNDED** **Up to 27 years of age (standard or accelerated schedule)**			
			Recommended NOT funded **27–45 years**			
Influenza	Annually, during the funded Influenza Immunisation Programme Two doses are recommended in the first year post-transplant but only the first dose is funded Influenza vaccination is recommended but not funded for household and other close contacts of pre-dialysis, dialysis, pre- and post-transplant patients	**If pre-dialysis, on dialysis, or pre-transplant:** • Administer one dose annually **If post-transplant:** • Wait until 3 months post-transplant unless at high-risk of infection: ○ If at high risk of infection, e.g. during influenza epidemic, wait until 1 month post-transplant • Administer one funded dose annually ○ In the first-year post-transplant a second purchased influenza vaccination can be administered 4 weeks later to maximise the person's immune response to the vaccine ○ In subsequent years only one dose is required annually	**FUNDED**	**FUNDED**	**FUNDED**	**FUNDED**
Meningococcal A,C,W,Y (MenQuadfi)	Prescription required for second primary dose	• Administer two doses at least 8 weeks apart • Schedule a precall for a booster dose every 5 years	**NOT FUNDED unless on immunosuppressive therapy for longer than 28 days**	**NOT FUNDED unless on immunosuppressive therapy for longer than 28 days**	**FUNDED**	**FUNDED**
Meningococcal B 4CMenB (Bexsero)	Can be co-administered with any other vaccine	• Administer two doses 8 weeks apart • Schedule a precall for a booster dose every 5 years +	**NOT FUNDED unless on immunosuppressive therapy for longer than 28 days**	**NOT FUNDED unless on immunosuppressive therapy for longer than 28 days**	**FUNDED**	**FUNDED**
Pneumococcal PCV13 (Prevenar 13)	If Pneumovax23 has been administered before Prevenar 13, wait one year to give Prevenar 13	• Administer one dose	**Recommended NOT FUNDED**	**FUNDED**	**FUNDED**	**FUNDED**

Vaccine	Additional notes	Recommended schedule	Pre-dialysis	On dialysis	Pre-transplant	Post-transplant
Pneumococcal 23PPV (Pneumovax 23)	Administer Pneumovax23 a minimum of 8 weeks after Prevenar 13	**If aged 18 years to under 60 years:** • Administer one dose • Schedule a precall for the second dose in 5 years • Schedule a precall for the third/final dose 5 years after second dose or at age 65 years, whichever is later **If aged 60 years or older:** • Administer one dose • Schedule a precall for second/final dose in 5 years	Recommended NOT FUNDED	FUNDED	FUNDED	FUNDED
Polio IPV (Ipol)	Check immunisation history for a primary course of three polio containing vaccines	**If unsure of polio immunisation history** • Administer three doses with a minimum of 4 weeks between each dose	FUNDED	FUNDED	FUNDED	FUNDED
SARS-CoV-2 (COVID-19)	A third primary dose of mRNA-CV is recommended for severely immunocompromised individuals Third dose should be given 8 weeks after second dose See Immunisation Handbook in relation to timing for current/planned immunosuppressive therapies	**If pre-dialysis, on dialysis, or pre-transplant:** • Administer vaccine doses following the recommended schedule for the available COVID-19 vaccine **If post-transplant:** • Wait until 3 months post-transplant, unless earlier administration indicated by specialist • Administer vaccine doses following the recommended schedule for the available COVID-19 vaccine	FUNDED	FUNDED	FUNDED	FUNDED
Tetanus/diphtheria/ pertussis Tdap (Boostrix)	Check immunisation history for a primary course of three tetanus/diphtheria containing vaccines	**If unsure of tetanus/diphtheria immunisation history** • Administer three doses with a minimum of 4 weeks between each dose **If has a confident recollection of completed tetanus/diphtheria immunisation** • Administer one Tdap at age 45 years if less than four documented tetanus containing vaccine doses • Administer one Tdap at age 65 years	FUNDED	FUNDED	FUNDED	FUNDED

Vaccine	Additional notes	Recommended schedule	Pre-dialysis	On dialysis	Pre-transplant	Post-transplant
Measles/mumps/ rubella MMR (Priorix)	Individuals born in 1969 or later who do not have two documented doses of MMR vaccine, or on the Advice of renal specialist or transplant team	**If less than two documented doses** • Complete a documented course of two MMR doses • Administer up to two doses at least 4 weeks apart,[a,b,c] • Doses as advised by renal specialist or transplant team	FUNDED	FUNDED	FUNDED for individuals who meet the eligibility criteria CONTRAINDICATED from 4 weeks pretransplant	CONTRAINDICATED
Varicella (chickenpox) VV (Varivax)	Give on the advice of renal specialist or transplant team	• Administer two doses at least 4 weeks apart [a,b,c,d]	Recommended NOT FUNDED	Recommended NOT FUNDED	FUNDED for individuals who meet the eligibility criteria CONTRAINDICATED from 4 weeks pretransplant	CONTRAINDICATED



Epo is produced by renal interstial fibroblasts, in a hypoxia inducible manner