All you need to know about patients on renal replacement therapy

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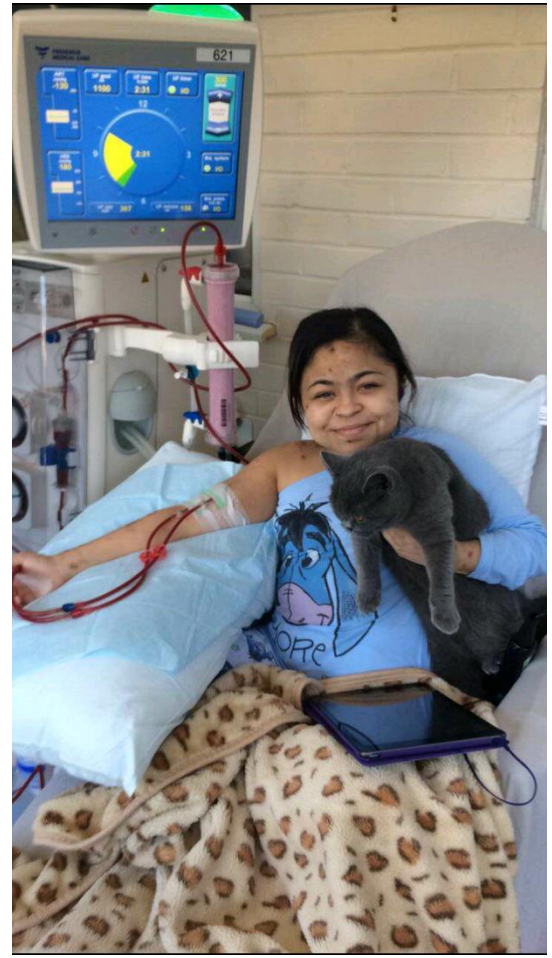
Dialysis for kidney failure

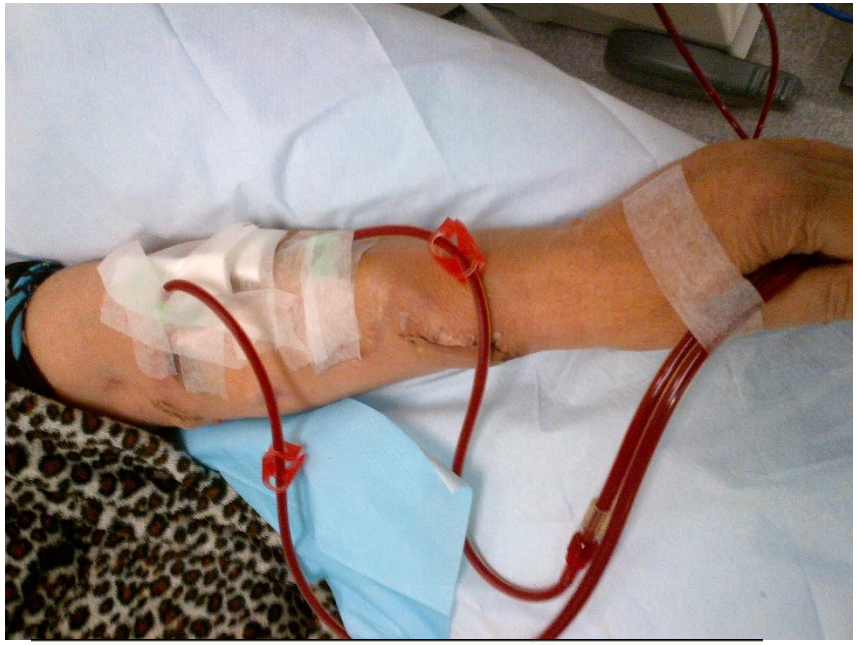
Start with eGFR around 10ml/min or less but symptom guided

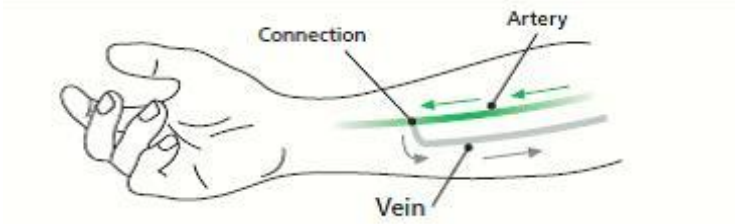
Haemodialysis: hospital, satellite unit or home



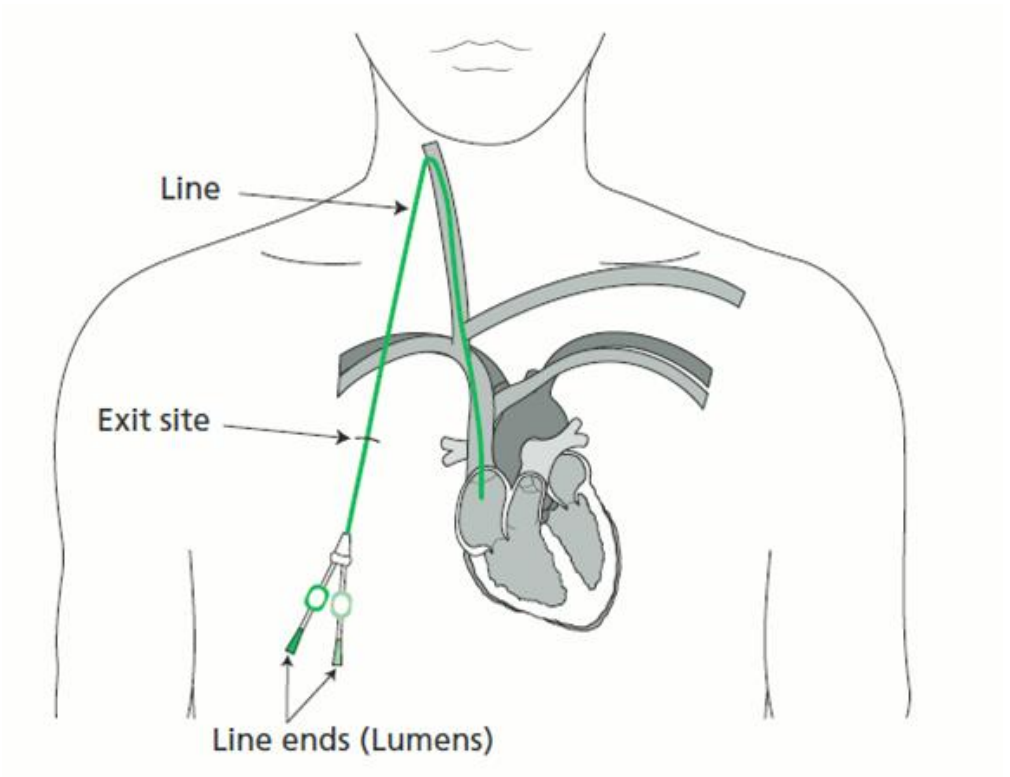
Dialysis access

AV fistula or AV graft

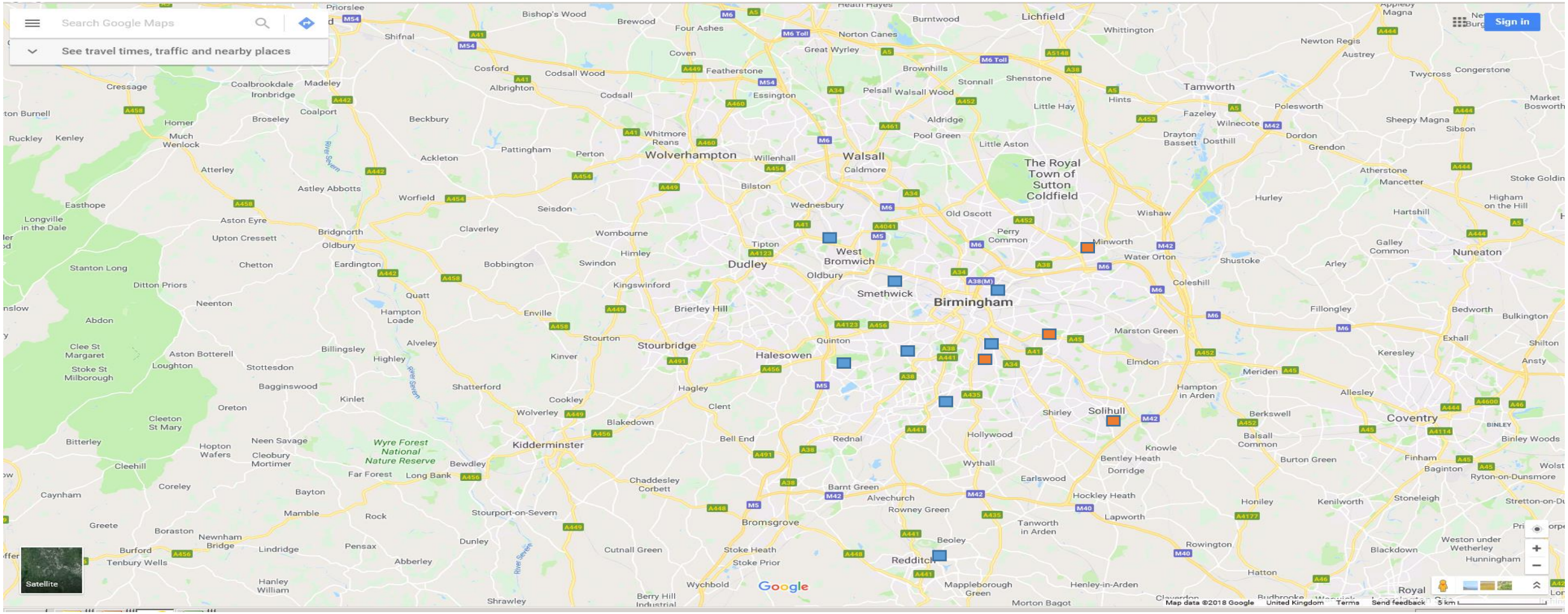




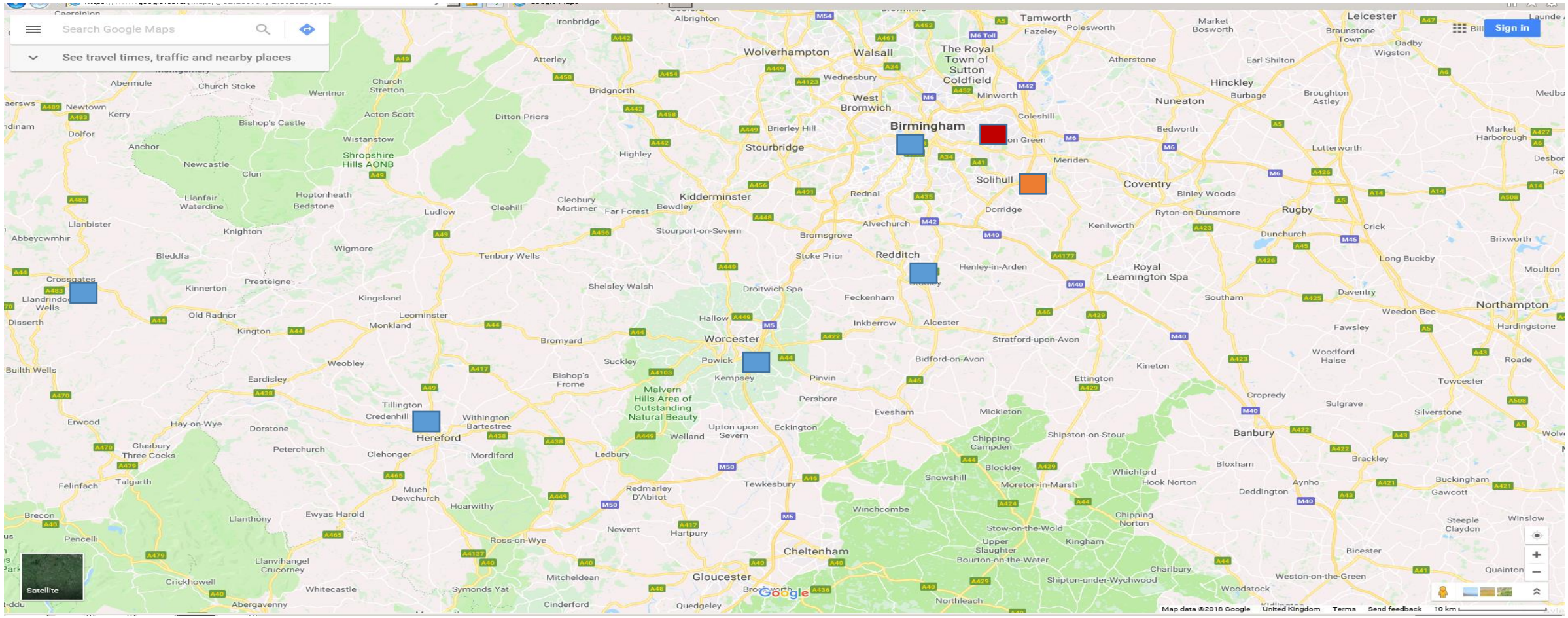
Dialysis catheter



UHB ‘Birmingham’ haemodialysis units



UHB ‘southern border’ haemodialysis units



Haemodialysis units

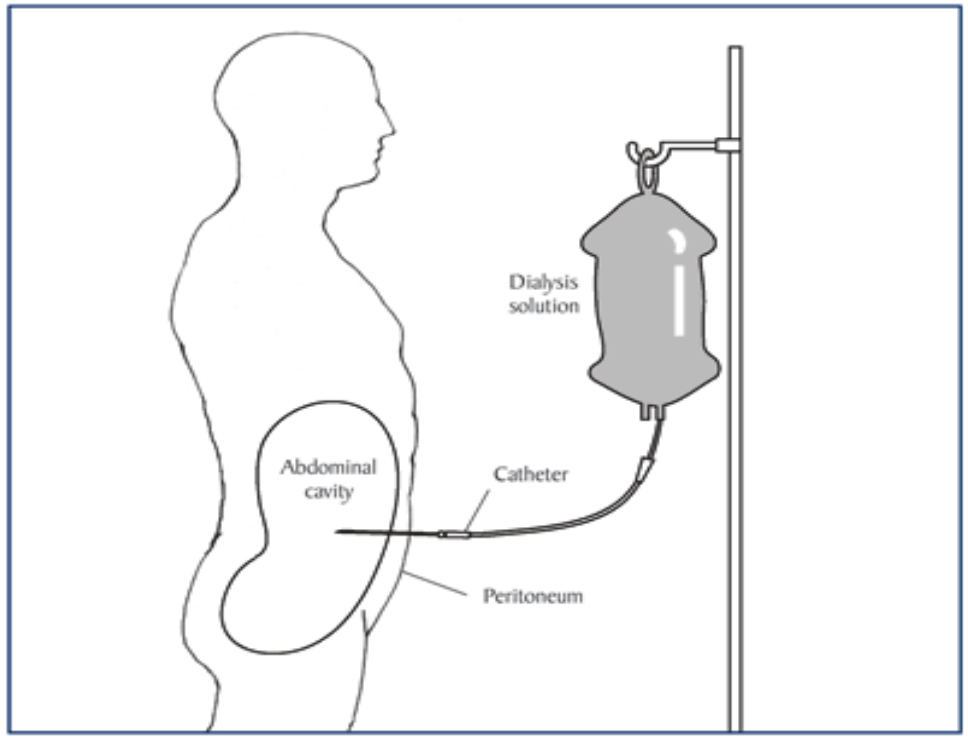
- Nurse led
- Doctor maybe once a week
- Named doctor (consultant) for the unit (often for the shift)
  - We love to be contacted!
- Varied MDT:
  - Social worker / welfare support
  - Psychological support
  - Dietetics
  - Specialised renal eg vascular access
- No diabetic care
- No primary care
- Flu vaccines in some
- Consultants will often try and project manage if possible but we aren’t very good at primary care… (really quite bad)

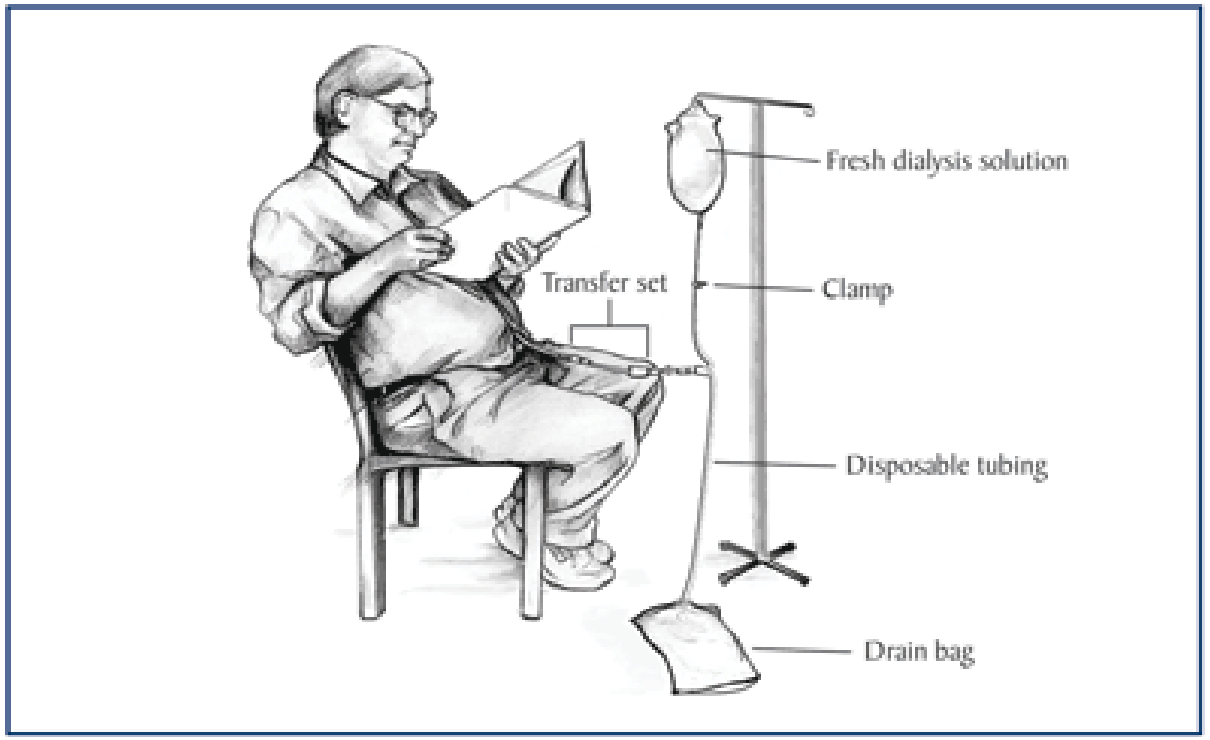
Tips for haemodialysis patients

- Bloods taken and reviewed once a month. Patients should have a copy of these
- Warfarin for AF; not as clear cut as in non-dialysis population
- Statins: no clear evidence of benefit
- BP control: really tricky
  - Much less evidence that tight control needed and very cycle dependent
- Depression really common
  - Citalopram / sertraline

- Medication:
  - Gabapentin; 300mg at night maximum
  - Furosemide used to keep residual renal function going
  - Iron given intravenous on dialysis: Hb 100-120g/l
  - Opiates, especially morphine can accumulate. Use tramadol, fentanyl and buprenorphine
  - Renavit; water soluble vitamins depleted
  - Phosphate binders….

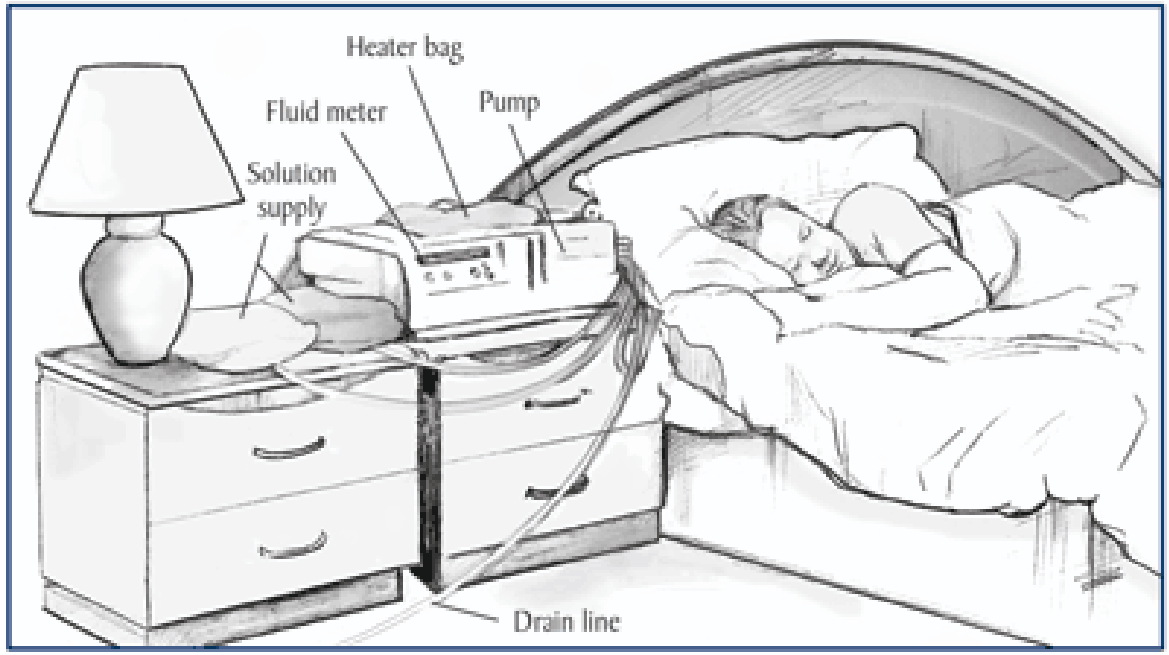
Peritoneal dialysis





Uses lining of abdominal cavity (peritoneum) as a membrane to facilitate removal of toxins

Particularly good if have some residual renal function so often therapy of choice as initial RRT if possible



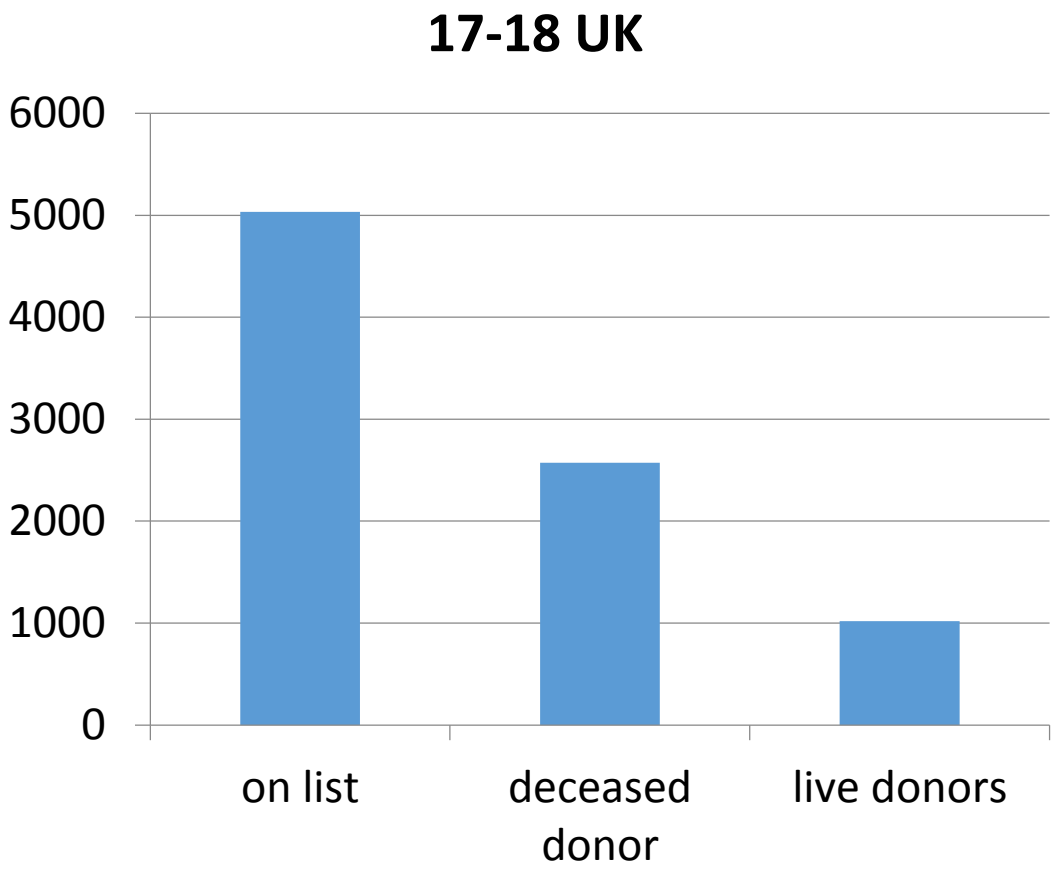
Tips for peritoneal dialysis patients

- Bloods checked at least every 3 months and reviewed
- Intravenous iron given by unit
- One or two consultants and specialised nurse team
  - We love to talk!
- CLOUDY BAGS IS ALWAYS MEDICAL EMERGENCY
- No diabetes care
- Really grateful for ongoing primary care input
- Many of same comments re drugs as HD

Renal Transplantation

- Only about 15-20% of dialysis patients active on renal tx list at any one stage
- 30% may be suitable

- Leaves very many (majority) who will never be listed…
- Wait 3-4 years from deceased donor list



Renal transplantation

- Follow up in transplant centre for first 3 months then transfer to local unit if possible
- Variable function; can have quite significant impairment then all same issues as native kidney
- Quite significantly immunosuppressed
- Post transplant diabetes too common….

Tips:

- No live vaccines
- Tacrolimus has significant interaction with macrolides. Fluconazole also an issue
- Infection risk quite significant; may need urgent review in primary care and low threshold for discussion with renal team

Special circumstances

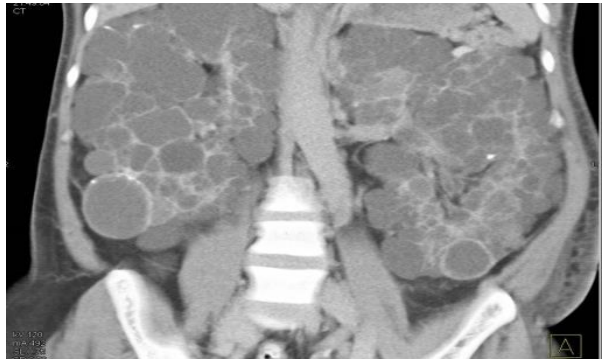
Pregnancy

CKD 5 without dialysis

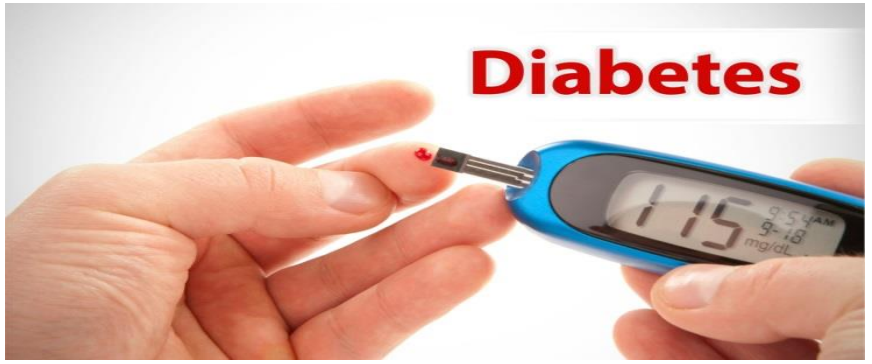
Pregnancy

- Diagnosis of renal disease
- Pre-eclampsia follow up
- Pregnancy in CKD
- How not to get pregnant

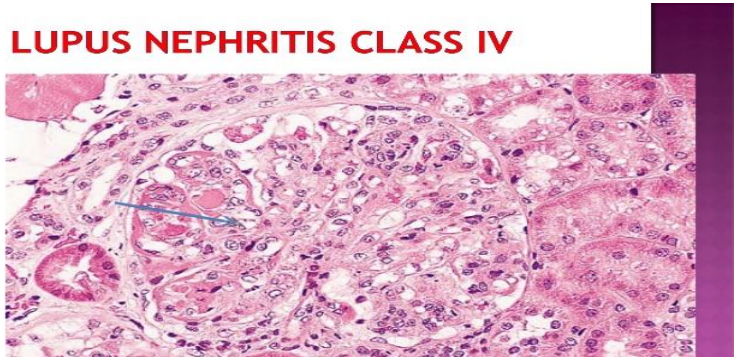
Causes of CKD in women of childbearing age



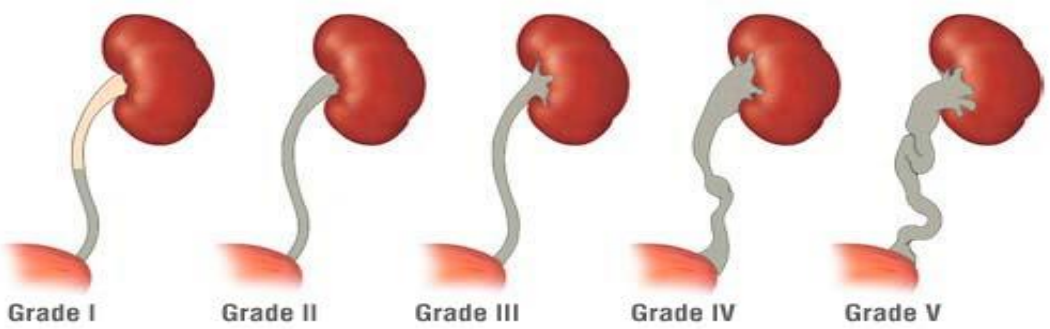
Polycystic kidneys



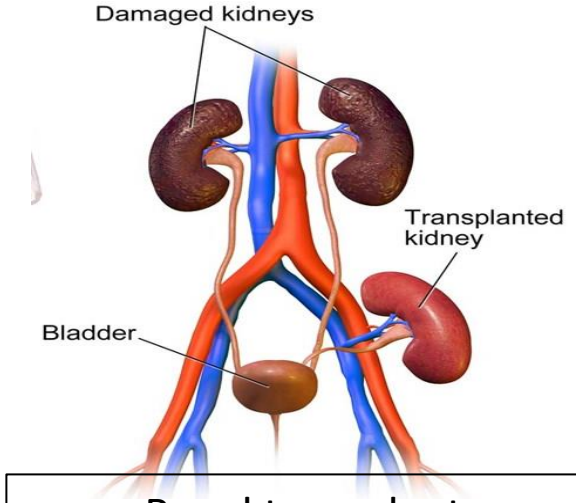
Diabetic nephropathy



Glomerular disease

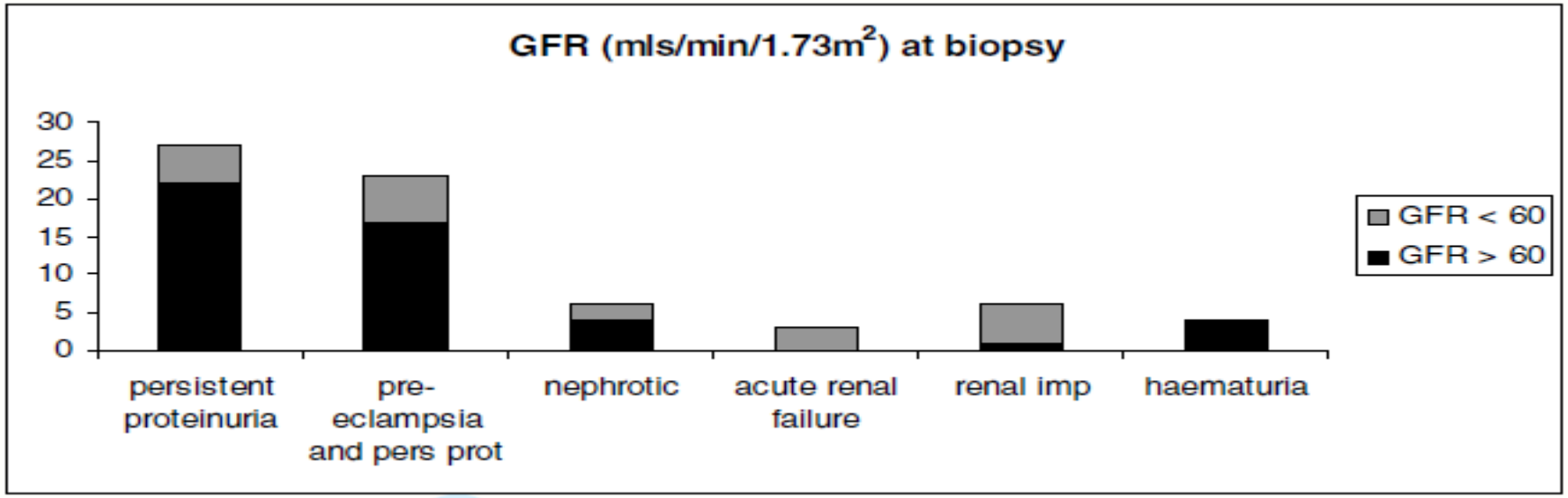


Reflux nephropathy



Renal transplant

Diagnosed in pregnancy; biopsied post partum



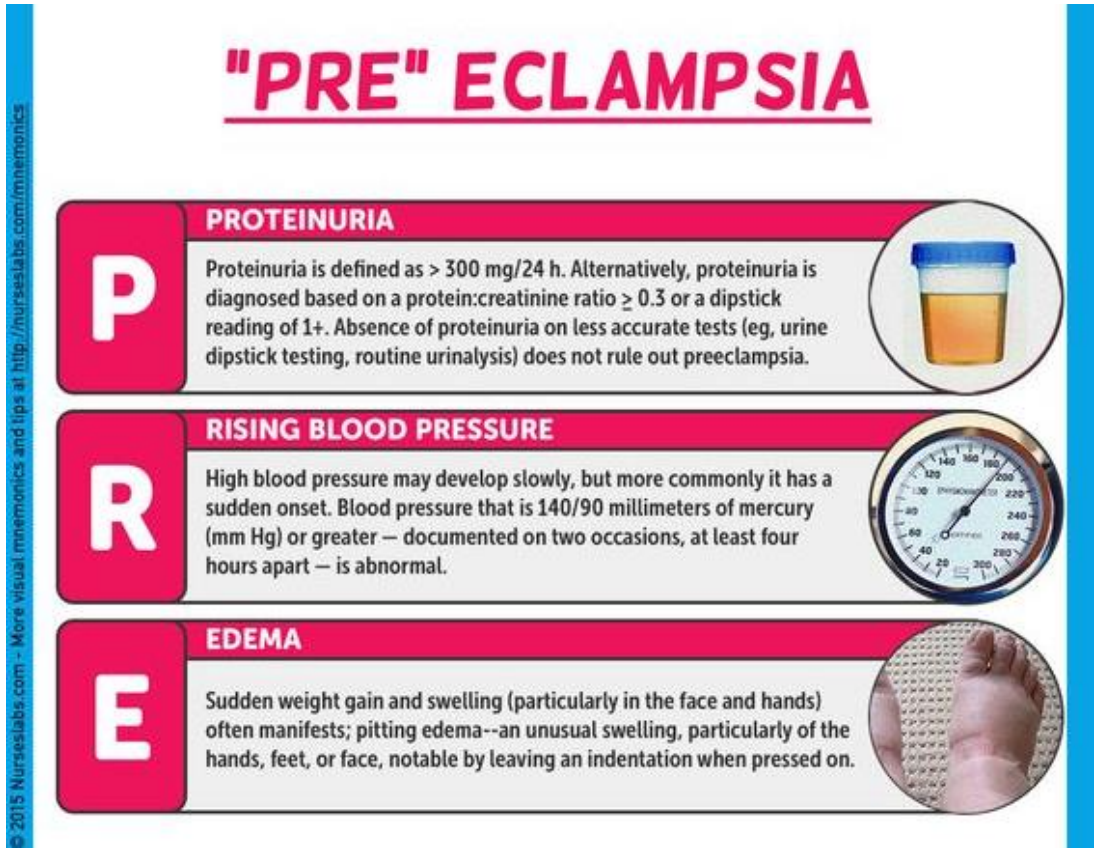
Biopsy diagnosis	n
Thin glomerular basement membrane disease	9
Primary glomerular disorder (not lupus)	42
Lupus nephritis	6
Other	16
Normal (on light microscopy)	2

CKD category	N total 47 (%)
1	5 (10%)
2	23 (49%)
3	9 (19%)
4	1 (2%)
5	9 (19%) ESRF 6 (12%)

Day and Lipkin. Nephrol Dial Transplant 2008

Pre-eclampsia follow up

- Increased risk of CKD and hypertension
- Tricky to differentiate whether underlying renal disease or ‘just’ pre-eclampsia
- Leave 3-6 months then repeat bloods and proteinuria and seek advice then if remains



Risk factors for PET

Previous PET	If severe in 2nd trimester	25-65% in subsequent
	If not severe	5-7%
Pre-gestational diabetes		RR 3.7 (95% CI 3.1-4.3)
Chronic hypertension		RR 5.1 (95% CI 4.0-6.5)
Raised BMI >30		RR 2.8 (95% CI 2.6-3.1)
Lupus		RR 1.8 (95% CI 1.5-2.1)
Antiphospholipid syndrome		RR 2.8 (95% CI 1.8-4.3)
Chronic kidney disease 1&2 CKD 3-5		RR 1.8 (95% CI 1.5-2.1) 40-60%
Multiple pregnancy		RR 2.9 (95% CI 2.6-3.1)
First pregnancy		RR 2.1 (95% CI 1.9-2.4)
Family history of PET		RR 2.9 (95% CI 1.7-4.9)
Maternal age >40		RR 1.5 (95% CI 1.2-2.0)

Bartsch et al BMJ 2016

Chronic hypertension

	% incidence	95% CI
Superimposed PET	25.9%	21.0-31.5
C section	41.4%	35.5-47.7
Pre-term delivery <37 wks	28.1%	22.6-34.4
Birth weight <2500g	16.9%	13.1-21.5
Neonatal unit admission	20.5%	15.7-26.4
Perinatal death	4.0%	2.9-5.4

Systematic review and meta-analysis
55 studies, 795,221 pregnancies

Considerable heterogeneity

Bramham et al BMJ 2014

Chronic hypertension

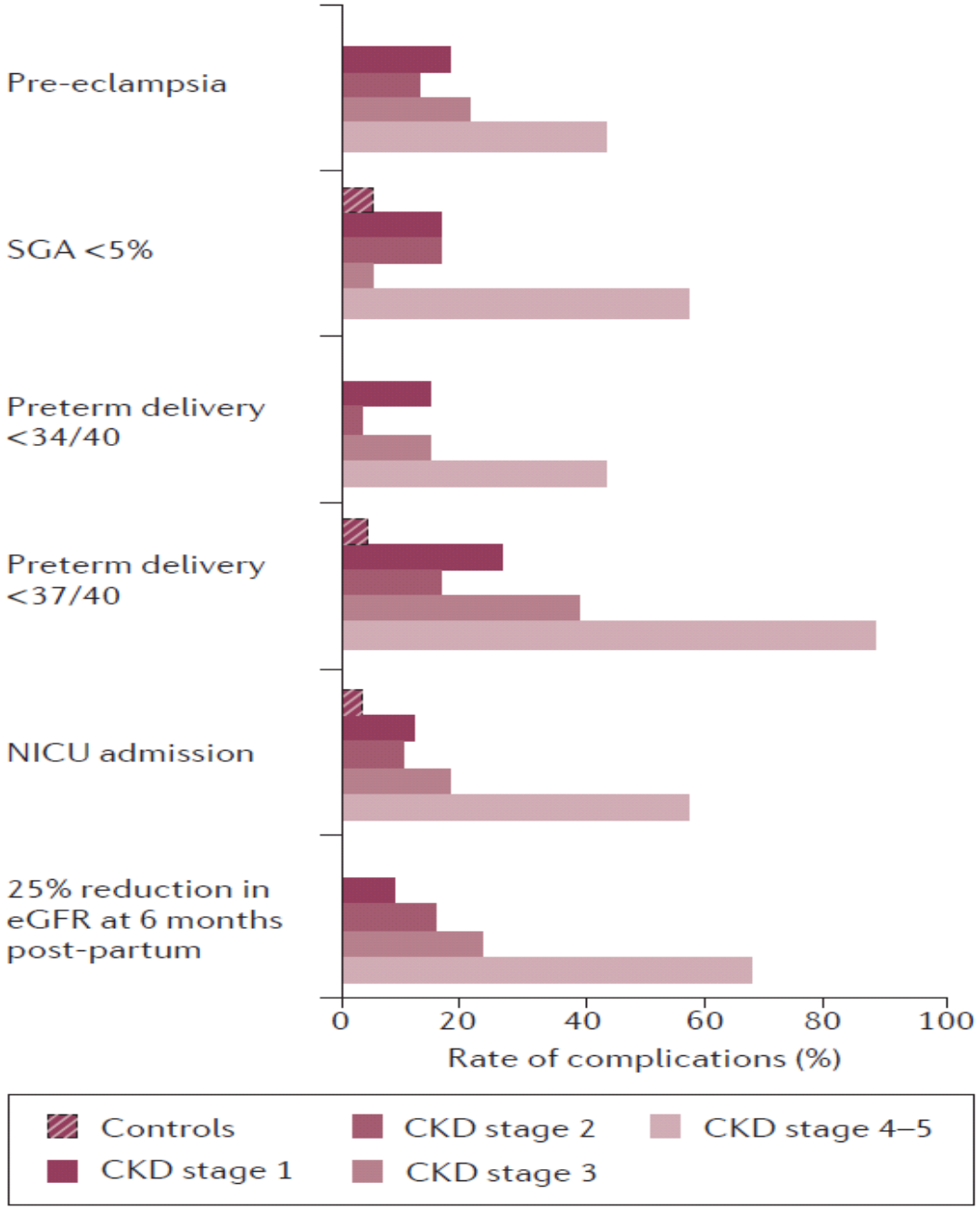
	% incidence	RR	95%CI
Superimposed PET	25.9%	7.7	5.7-10.1
C section	41.4%	1.3	1.1-1.5
Pre-term delivery <37 wks	28.1%	2.7	1.9-3.6
Birth weight <2500g	16.9%	2.7	1.9-3.8
Neonatal unit admission	20.5%	3.2	2.2-4.4
Perinatal death	4.0%	4.2	2.7-6.5

Compared with national US dataset of ‘normal’ pregnancies

Bramham et al BMJ 2014

Effects of CKD on pregnancy outcomes

- Increased risk of poor outcomes from even very mild CKD
- Worse as renal impairment worsens
- Creatinine 150-160 micromol/l onwards



Wiles et al. *Nature Rev Nephrol* 2018

Proteinuria

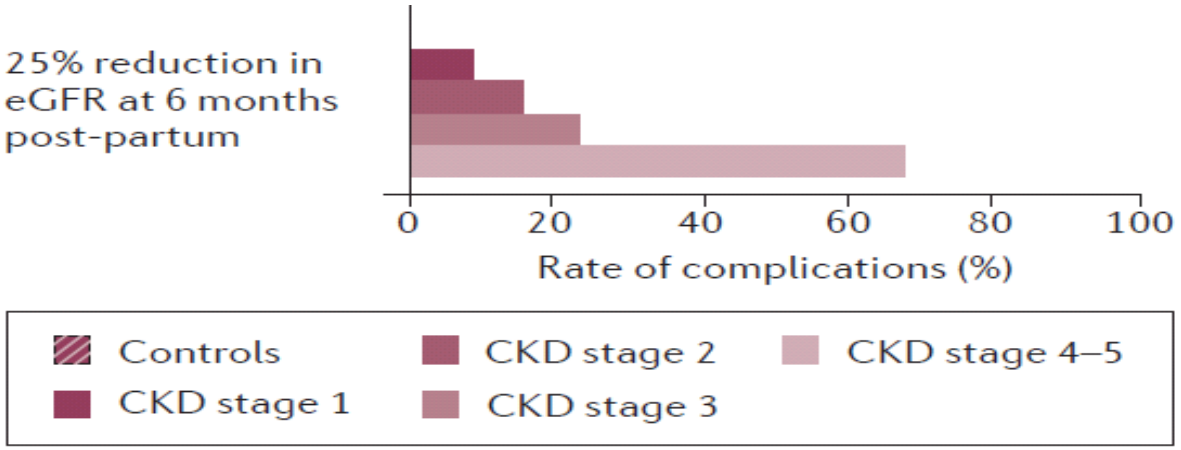
<u>Just adds a bit more risk to any level of renal disease</u>

- ACE inhibition for proteinuria
  - Keep on until know pregnant. So important for delaying renal progression
  - Risk is 2nd trimester

- Main other risk is VTE
  - Prophylactic LMWH with ACR >200
  - Start early in pregnancy (as soon as aware)
  - Continue for 6 weeks post partum

Worsening renal function

- Unlucky for it to be significant issue in mild CKD
- Can be a very significant issue in more severe disease
- Can progress to requiring dialysis in pregnancy



Wiles et al. *Nature Rev Nephrol* 2018

CKD and hypertension

	CKD No hypertension*	CKD With hypertension*
Stillbirth	1.74	7.29
SGA	2.29	7.49
Pre-term delivery	2.25	8.6

*Odds ratio cc to non CKD pregnancies

<u>Adds significantly to risk</u>

Treat to targets outside pregnancy

- <140/90 with no proteinuria
- <130/80 with diabetes or proteinuria

Webster et al *Kidney Int* 2017

What to do….

- We like to plan if possible
- **If child bearing age and on your CKD register needs discussion**
- Tertiary renal obstetric clinic at BWH with QE. Some services also elsewhere
- Pre-pregnancy counselling clinics
- Seek early and urgent advice in pregnancy

Contraception

Contraceptive	Perfect-use failure rate (%)*	Typical-use failure rate (%)*
Safe and effective methods		
Progesterone-only pill	0.3	9
Progesterone intrauterine device	0.2	0.2
Progesterone-only subdermal implant	0.05	0.05
Female sterilization	0.5	0.5
Unsafe and/or ineffective methods		
Oestrogen-containing methods (pill, patch or ring)	0.3	9
Male condom	2	18
Female condom	5	21
No method	85	85

* % couples pregnant within one year

Wiles et al. *Nature Rev Nephrol* 2018

Not for renal replacement therapy

‘conservative treatment’

- CKD disease of old and co-morbid
- Just because dialysis available doesn’t mean to say everyone with kidney failure should have
- Time consuming, exhausting, hospital admissions etc
- Should have full counselling with regards to options which renal can deal with

Care for non dialysis CKD 5

- Individualise

- Anaemia treatment; but may not be very active
- Meds as needed; trim
- Nutrition; dietary review may be helpful but aiming for QoL not perfect phosphate!
- MDT care
  - Palliative care input
  - Primary care ‘gold standard framework’

Symptoms

- Oedema: use diuretics if needed but ‘just enough’
- Itching:
  - Cold flannels
  - Treat dry skin
  - E45 Itch
  - Anti-histamines
  - Gabapentin
- Pain:
  - Avoid short acting opiates and morphine
  - Fentanyl and buprenorphine

- Expectations:
  - Often just slowly deteriorate
  - Avoid taking bloods which you are not going to act on
  - Plans around hospital admission and acute deterioration
- General symptom control in terminal illness
- Ask for advice if needed

Thank you for listening

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