

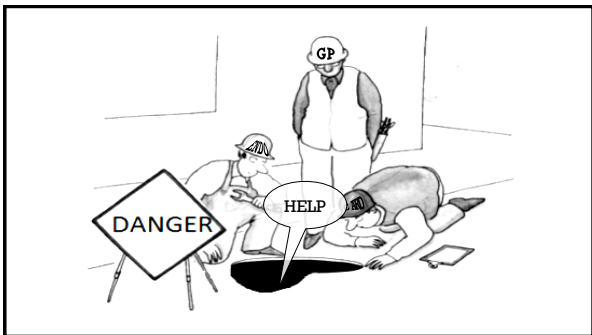
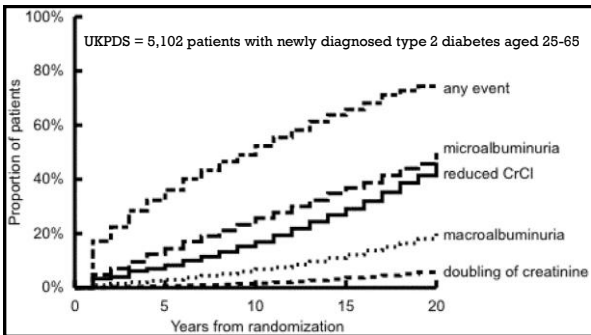
Professor Merlin Thomas  
Department of Diabetes, Monash University

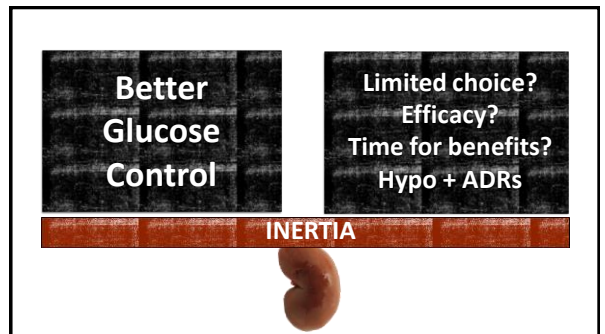
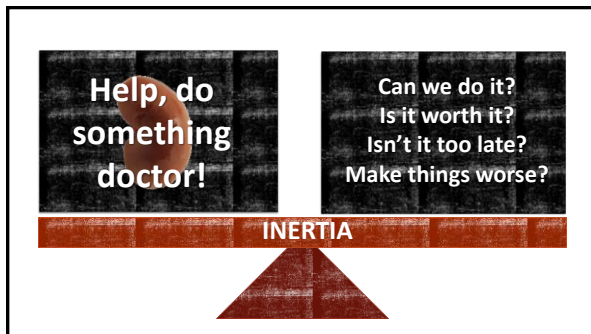
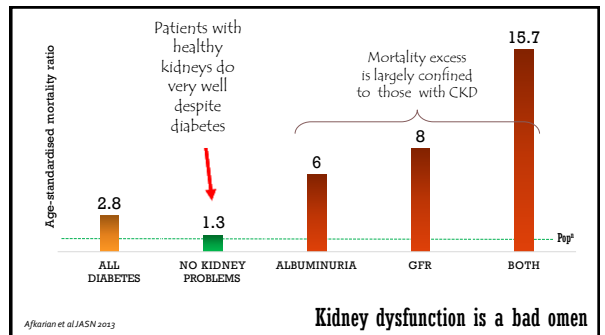
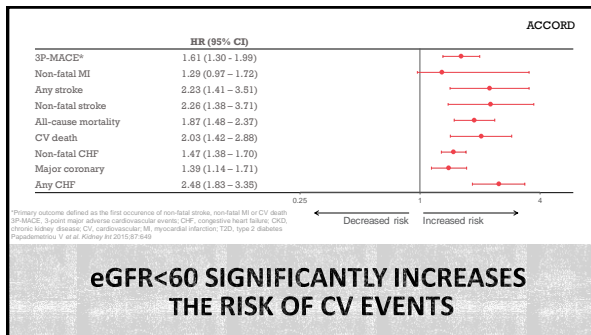
# MANAGING GLUCOSE LEVELS IN PATIENTS WITH DIABETES & CKD

25% --- ↓ **GFR**

↑ **ACR** --- 32%

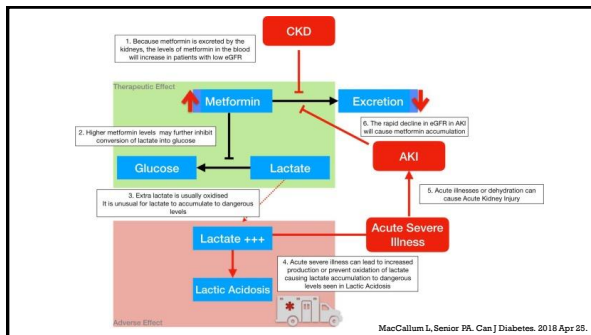
48% ---  
52% --- **DKD**





- ALL GLUCOSE LOWERING DRUGS  
HAVE SOME LIMITATIONS IN CKD
- Metformin**
  - Sulphonylureas**
  - Pioglitazone**
  - Insulin**
  - GLP-1R agonists**
  - SGLT2 inhibitors**
  - DPP4 inhibitors**

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**METFORMIN** can be a safe option for patients with CKD, assuming that the dosage is adjusted individually.

eGFR	<30*	30-45*	45-60*	60-90	90+
IR (bd)	250	500	500/1000	1000	1500
XR (qd)	500	1000	1500	2000	↑

\*Avoid metformin if renal function is unstable or expected to become unstable

### SICK-DAY Management

In patients with CKD, stop metformin when there is a risk for lactic acidosis, acute kidney injury or hypoxia.

Stop metformin on the day of major surgery, and recommenced if GFR does not deteriorate post-op

Patients with eGFR >30 mL/min/1.73 m<sup>2</sup> may continue taking metformin prior to contrast procedure

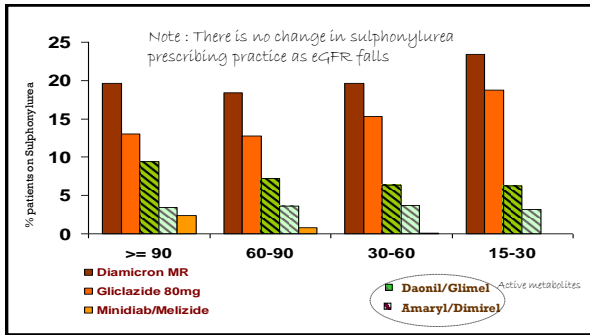
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Sulphonylureas should be used with caution because the risk of hypoglycaemia increases substantially

In general, initial doses of sulphonylureas should be half of those used for those with normal renal function, and doses should be increased more slowly.

Gliclazide should be used instead of glyburide or glibenclamide, as it is associated with a reduced frequency of hypoglycaemia

	Gliclazide ER	Glibenclamide (glyburide)	Glipizide	Glimepiride
	Diamicon MR®, Glyade MR®, Oziclide MR®	Daonil®, Glime®	Melizide®, Minidiab®	Amaryl®, Dimirel®, Aylide®, Diapride®, Glimepiride Sandoz®
		Active metabolites		Active metabolites
60	Initial and maintenance doses should be conservative to avoid hypoglycaemia	Contraindicated eGFR <60	Caution	Contraindicated eGFR <60
30		Should be avoided if eGFR <30		

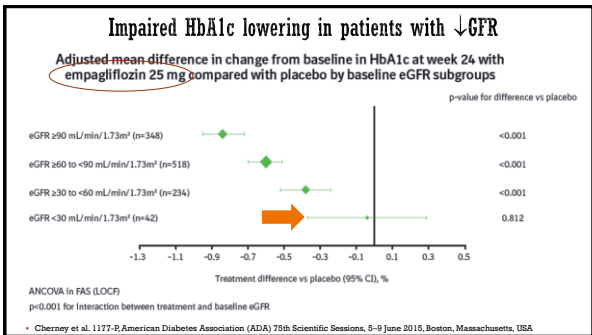


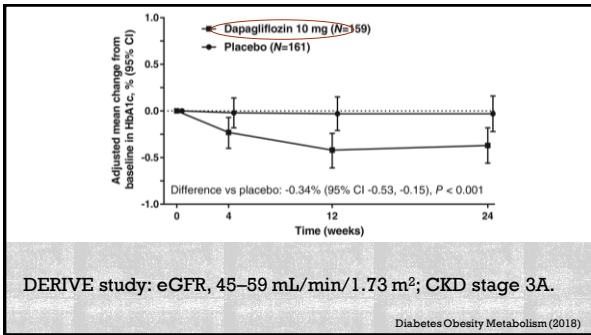
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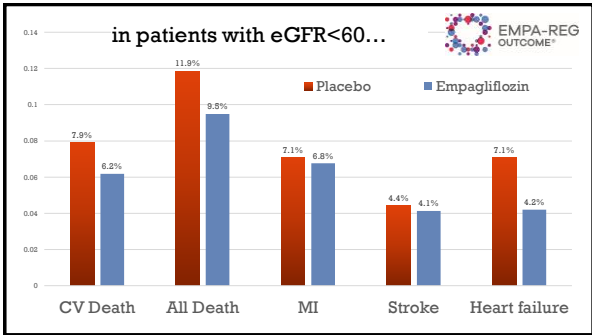
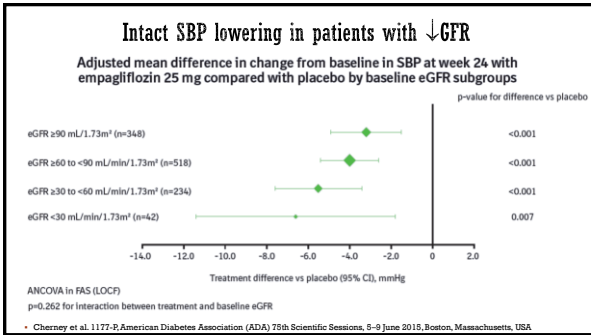
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**EMPAGLIFLOZIN (Jardiance, Glyxambi)**  
 Contraindicated in patients with eGFR<45

**DAPAGLIFLOZIN (Forxiga)**  
 Contraindicated in patients with eGFR<60

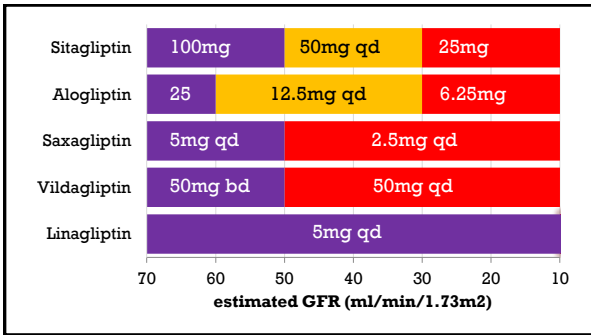


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- ☒ SGLT2 inhibitors
- ☒ **DPP4 inhibitors**

**DPP4 INHIBITION IN PATIENTS WITH CKD**

- ✓ Effective glucose lowering at all GFR
- ✓ Reduced risk of hypoglycaemia
- ✓ Easy to use & no titration
- ✓ Minor or no side effects
- ✓ No interaction with usual care
- ✓ No adverse effects on CV risk



**Appropriate  
Targets**  
Not just glucose

**Careful choices**  
Low dose MET  
DPP4 inhibitors  
± SGLT2 inhibitors

