

Practical Prescribing Pearls for diabetes medications

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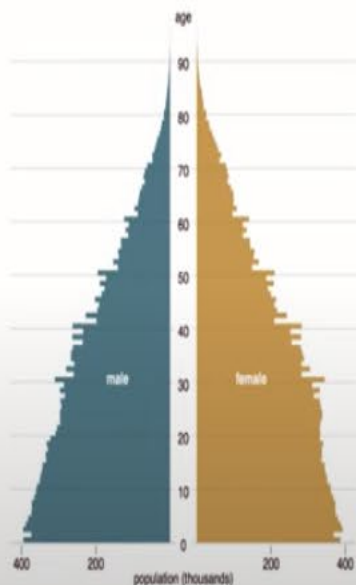
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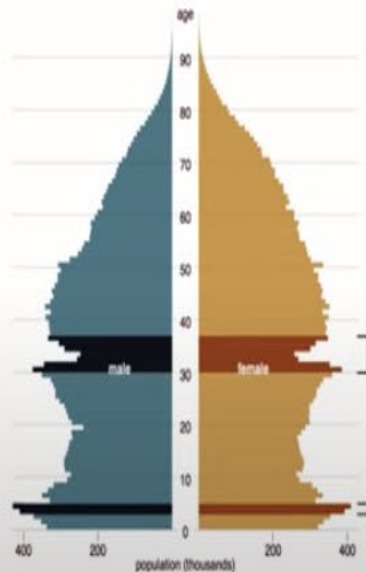


Demographic pyramid for the UK over the last 100 years. (ONS)

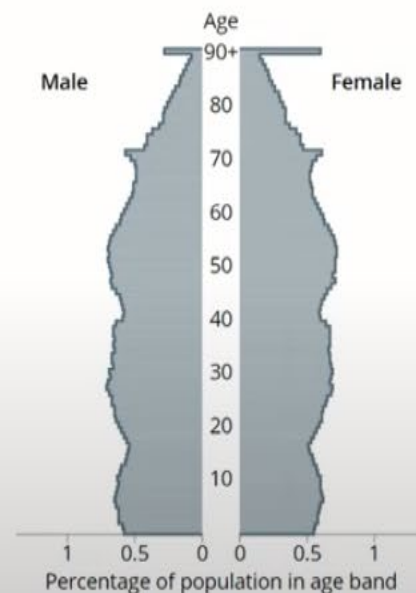
1911



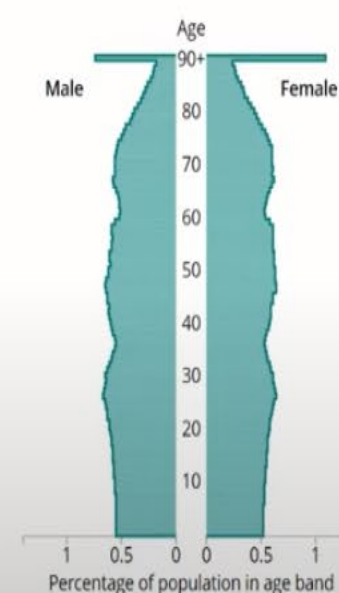
1950



2018



2038



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Play (k)



4:38 / 57:42



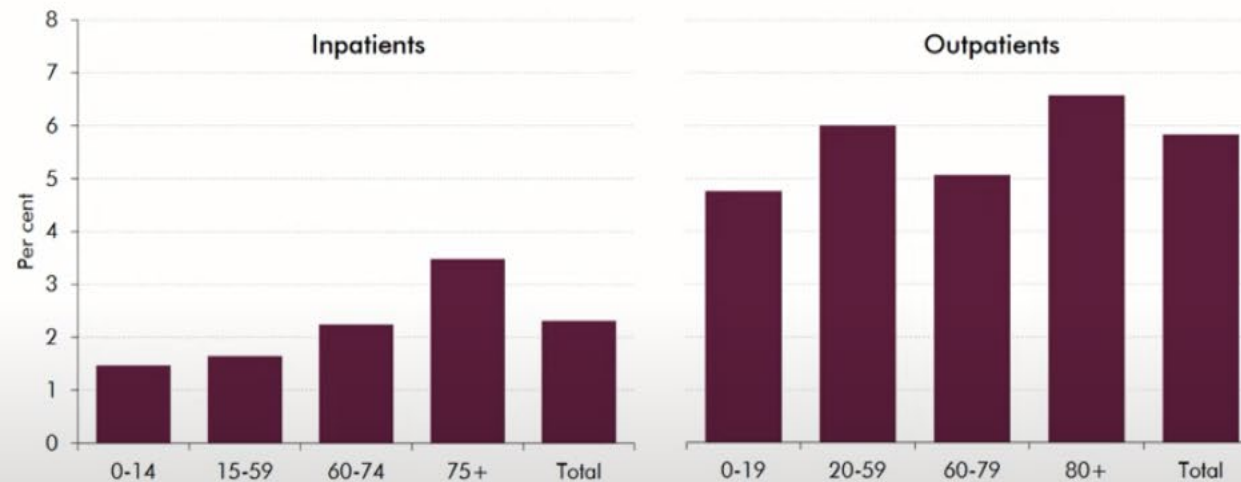
YouTube



Paradox - older aging more interventions across the lifespan



Increase in demand for services not all an age effect.
Average annual increase in utilisation by age. (OBR)



Note: Average annual growth between 2000-01 and 2013-14 for inpatients and between 2003-04 and 2013-14 for outpatients.
Source: HES, ONS

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47:35 / 57:42



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Case

- ▶ 48yo male
- ▶ Fhx
 - ▶ - Father IHD age 58, RIP age 70's
 - ▶ - Mother dementia 80's, alive increasing care needs
 - ▶ - 4 siblings
- ▶ Carpenter - self employed
- ▶ BMI - 31, Wgt 92kg
- ▶ BP 132/70, LDL 2.9, HDL 1.1
- ▶ Married, 3 children

- ▶ New DM, HbA1c - 75mmol/mmol on presentation

- ▶ Additional information?
- ▶ Initial approach?

Thoughts?

- ▶ Family history - in more detail
- ▶ Alcohol and smoking
- ▶ Activity outside work, hobbies
- ▶ Diet - refined sugar intake
- ▶ Family health
- ▶ Osmotic symptoms, Weight loss - when?

Thoughts?

- ▶ Family history - in more detail
- ▶ **Alcohol** and smoking
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- ▶ Osmotic symptoms, **Weight loss - when?**

- ▶ What do we do next?

Options

- A. Diet, exercise/activity, education review in 3 months
- B. Metformin
- C. Metformin + DPPIV (- gliptin)
- D. Gliclazide MR
- E. SGLT2 (- gliflozin) or GLP1 (- glutide) - 1st line
- F. Other treatment

Mode of Action	Class	Agents: INN (brand names)	Preparations	Dose Range
Insulin Secretagogue	Sulphonylurea (SU)	Gliclazide (Diabrezide, Diaclide) (Diamicon MR, Diaglyc, Vitile MR, Zycron MR) Glimepiride (Amaryl)	80 mg scored 30 mg MR; 60 mg MR 1 mg, 3 mg	40 to 320 mg daily 30 to 120 mg daily 1 to 6 mg daily
	Meglitinide	Repaglinide (Novonorm)	0.5 mg, 1 mg, 2 mg	0.5 to 16 mg daily
Insulin Sensitiser	Biguanide	Metformin (Glucophage) tablets & powder (Metophage)	500 mg, 850 mg, 1000 mg 500 mg	500 to 3000 mg daily
	Thiazolidinedione (TZD) (PPAR γ agonist)	Pioglitazone (Actos) Pioglitazone+Metformin (Competact)	15 mg, 30 mg, 45 mg 15 mg + 850 mg	15 to 45 mg daily 1 to 2 tablets daily
Delay Digestion	α -Glucosidase Inhibitor	Acarbose (Glucobay)	50 mg, 100 mg	50 to 300 mg daily
Incretin	Glucagon-like Polypeptide 1 (GLP-1) Receptor Agonist	Exenatide(Bydureon) Liraglutide (Victoza) Dulaglutide (Trulicity) Semaglutide (Ozempic)	2 mg 6 mg/ml sc 0.75 mg & 1.5 mg 0.25 mg, 0.5 mg, 1 mg	2 mg sc weekly 0.6 to 1.8 mg sc daily 0.75 to 1.5 mg sc weekly 0.25 to 1mg sc weekly
	Dipeptidyl Peptidase 4 (DPP4) Inhibitor	Sitagliptin (Januvia) Sitagliptin+Metformin (Janumet) Vildagliptin (Galvus) Vildagliptin+Metformin (Eucreas) Saxagliptin (Onglyza) Saxagliptin+Metformin (Komboglyze) Linagliptin (Trajenta) Linagliptin+Metformin (Jentadueto)	25 mg, 50mg, 100 mg 50 mg + 850 mg or 1000 mg 50 mg 50 mg + 850 mg or 1000 mg 2.5 mg, 5 mg 2.5 mg + 850 mg or 1000 mg 5 mg 2.5 mg + 850 mg or 1000 mg	25 to 100 mg daily 1 to 2 tablets daily 50 mg twice daily 1 to 2 tablets daily 5 mg once daily 1 to 2 tablets daily 5 mg once daily 1 to 2 tablets daily
Glucuretic	Sodium-Glucose Cotransporter 2 (SGLT2) Inhibitor	Dapagliflozin (Forxiga) Dapagliflozin+Metformin (Xigduo) Canagliflozin (Invokana) Canagliflozin+Metformin (Vokanamet) Empagliflozin (Jardiance) Empagliflozin+Metformin (Synjardy) Empagliflozin+Linagliptin (Glyxambi) Ertugliflozin (Steglatro) Ertugliflozin+sitagliptin (Steglujan)	5 mg, 10 mg 5 mg + 850 mg or 1000 mg 100 mg, 300 mg 50 mg or 150 mg + 850 mg or 1000 mg 10 mg, 25 mg 5 mg or 12.5 mg + 850 mg or 1000 mg 10 mg or 25 mg + 5 mg 5mg, 15mg 5 mg or 15 mg + 100 mg	5 to 10 mg once daily 1 to 2 tablets daily 100 to 300 mg once daily 1 tablet twice daily 10-25 mg once daily 1 tab twice daily 1 tablet once daily 5 to 15mg once daily 1 tablet once daily

Case

- ▶ 56 yo male
- ▶ Fhx
 - Father CVA 72, prostate Ca
 - Mother well
 - 2 siblings
- ▶ HSE employee
- ▶ CABG x 7 year ago, microalbuminuria, Creat 110, eGFR 55
- ▶ BMI 32, Wgt 91kg
- ▶ Metformin 1g bd, Gliclizide MR 60mg
- ▶ Retina screen - Background retinopathy Jan 2023

- ▶ HbA1c - 63 & 70 mmol/mol last 2 visits

Thoughts?

- ▶ Family history - in more detail
- ▶ **Alcohol** and smoking
- ▶ Activity outside work, hobbies
- ▶ **Diet - refined sugar intake**
- ▶ Family health
- ▶ Osmotic symptoms, **Weight loss - when?**
- ▶ **Pancreatitis**
- ▶ **UTI's or Hx of foot ulcer**

Options

- ▶ Increased gliclizde MR 90mg od
- ▶ Metformin 1g tds
- ▶ Add SGLT2
- ▶ Add GLP 1
- ▶ Add pioglitazone
- ▶ Other

Is this Type 2 diabetes patient uncomplicated?

Glycaemic Control	
<ul style="list-style-type: none">• Hba1c < 58mmols• Diet only or on 2 glucose lowering agents (not on insulin)• Normal hypoglycaemia awareness	
Controlled CV risk factors - Lipids /BP	
Renal function serum Creatinine <150umol/l or eGFR >60ml/min , No Macroalbuminuria (elderly patients with stable renal function can be consider at a different thresholds)	
Feet - Low risk or moderate risk	
Eyes - No active diabetic eye disease above background	
Autonomic neuropathy - No symptoms (with the exception of erectile dysfunction)	
GP participating in Cycle of care?	

Case 3

- ▶ 41 yo F
- ▶ Mar 2021 - SCH MAU
- ▶ FHx - negative? for DM (M:F RIP 50's and 60's CVD, sibling hypertension)
- ▶ Blood glucose 27, Wgt 132kg
- ▶ Poor diet

- ▶ Ketone 1.1 blood, +++ on urine
- ▶ Normal pH

Case 3

- ▶ Novo rapid X 1 dose
- ▶ Gliclazide MR X 1/52
- ▶ Metformin

- ▶ HbA1c 89 mmol/mol

- ▶ Education -
 - ▶ Discover Diabetes on line referral
 - ▶ Diabetes Ireland on line

- ▶ GAD antibodies positive
- ▶ C-peptide 1.38 - Mar 2021

Case 3

- ▶ Add Semaglutide 1.0mg once weekly
- ▶ June 2021 - pregnancy plans
- ▶ HbA1c 40 mmol/mol
- ▶ Stop GLP1
- ▶ Folic Acid 5mg od
- ▶ Pre-pregnancy care Wan Mahmood
- ▶ C peptide 0.42 May 2022
- ▶ Pregnancy initiated July 2022
- ▶ FTND Mar 2023

Take home points

- ▶ Elderly & Frail
- ▶ Metformin
 - 1st line
 - caution underweight, severe renal disease eGFR <30
- ▶ DPPIV
 - useful for targeting tight control
 - less useful alone in high HbA1c > 64 mmol
- ▶ Gliclizide
 - useful but declining
 - risk assess hypos

Take home points

▶ SGLT2

- modest wgt loss
- risk of urinary symptoms
- cardiology and nephrology in non diabetes setting
- ketoacidosis warning

▶ GLP1

- very popular
- should be initiated in community
- contraindication pancreatitis
- Semaglutide avoid above background retinopathy
- Liraglutide & Dulaglutide moderately useful