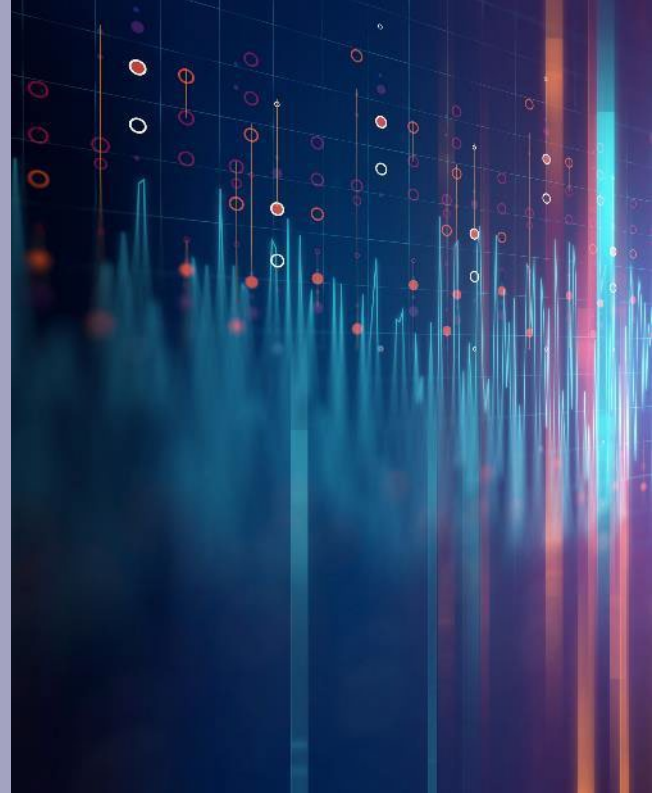




Topics in Endocrinology 2022

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Introduction

- A mix of new data, technology, guidelines along with some basic endocrine concepts relating to issues I most receive “curbside” questions about.

Agenda

Diabetes Updates

- Use of CGM
- Treatment strategies in T2DM
- New/up and coming

Testosterone diaries

Endocrine nondiagnoses

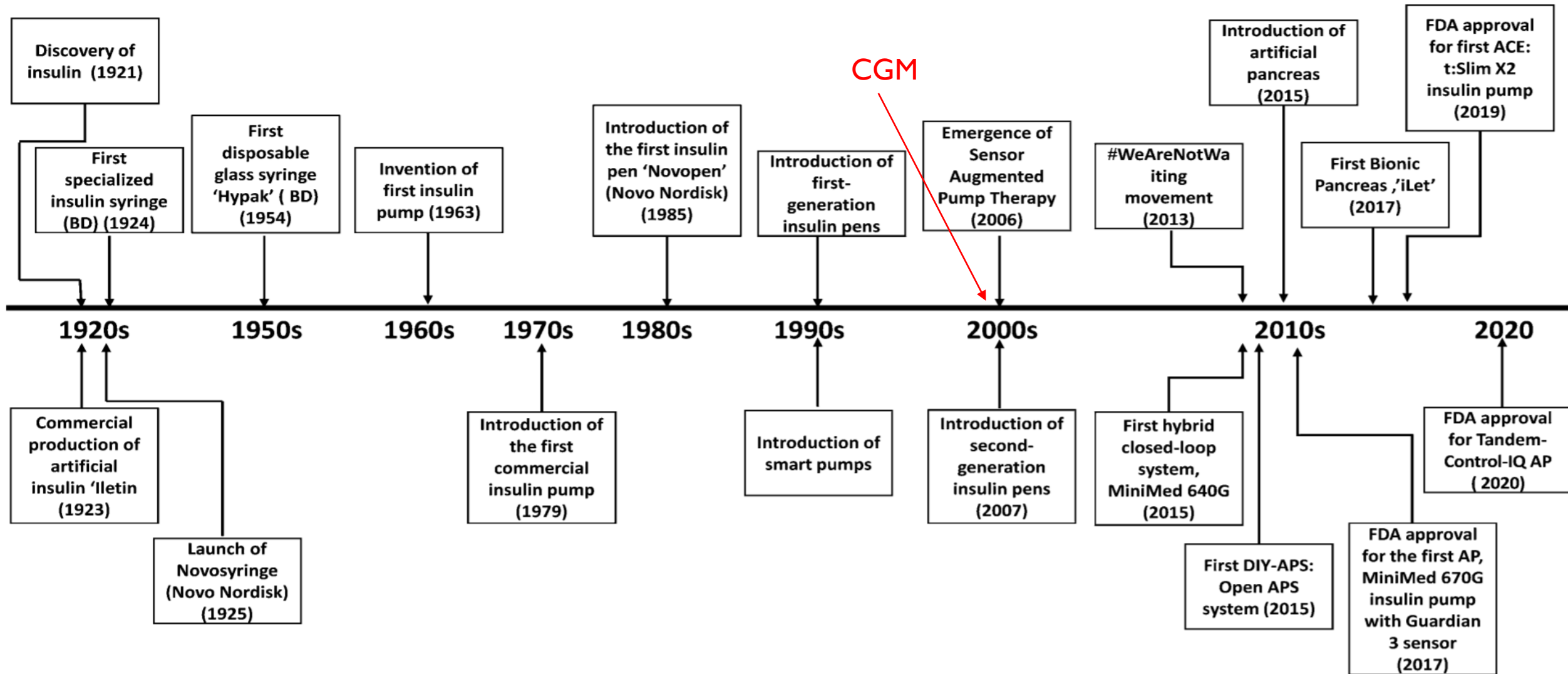
Curbside quickies?



Diabetes Update

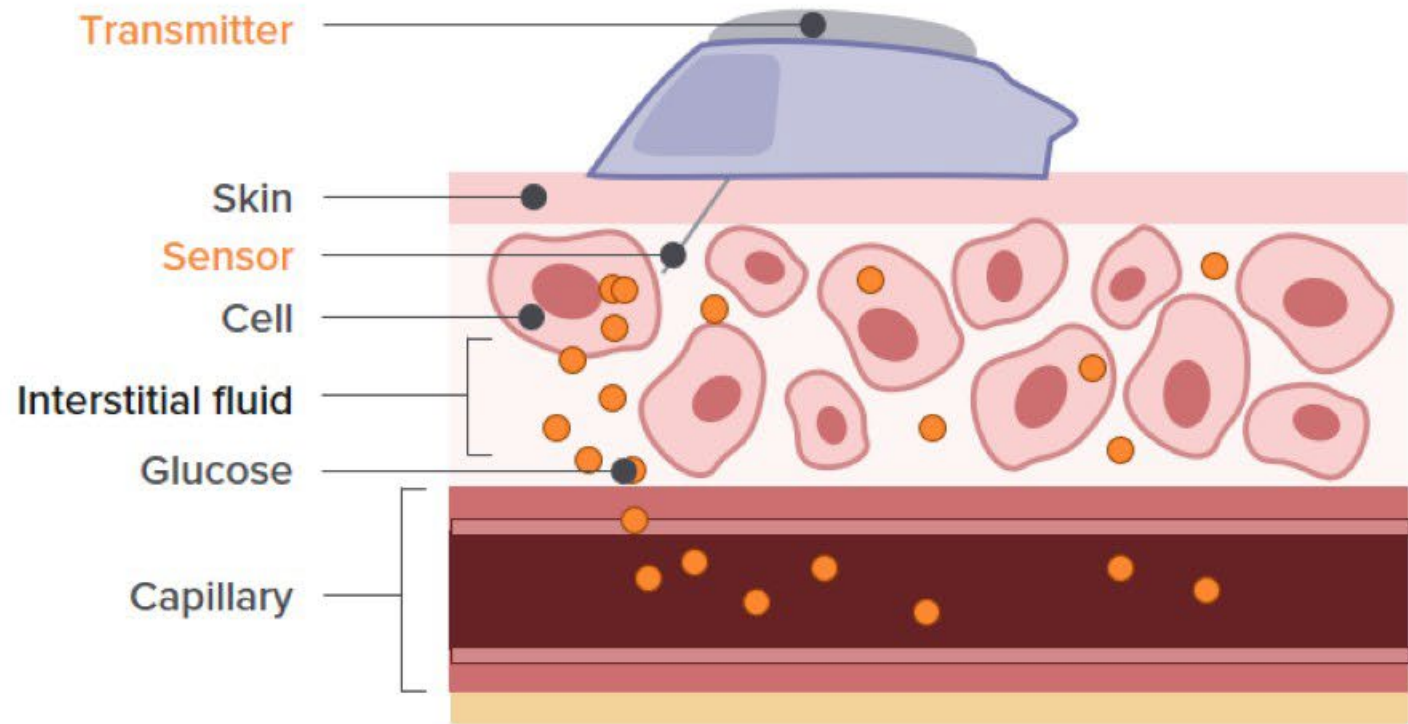
Continuous Glucose Monitoring

Timeline of Diabetes Technology



CGM: Definition/Terminology

- Professional/Personal
- Real-time CGM (rtCGM)
- Intermittently scanned CGM (isCGM): “flash” technology



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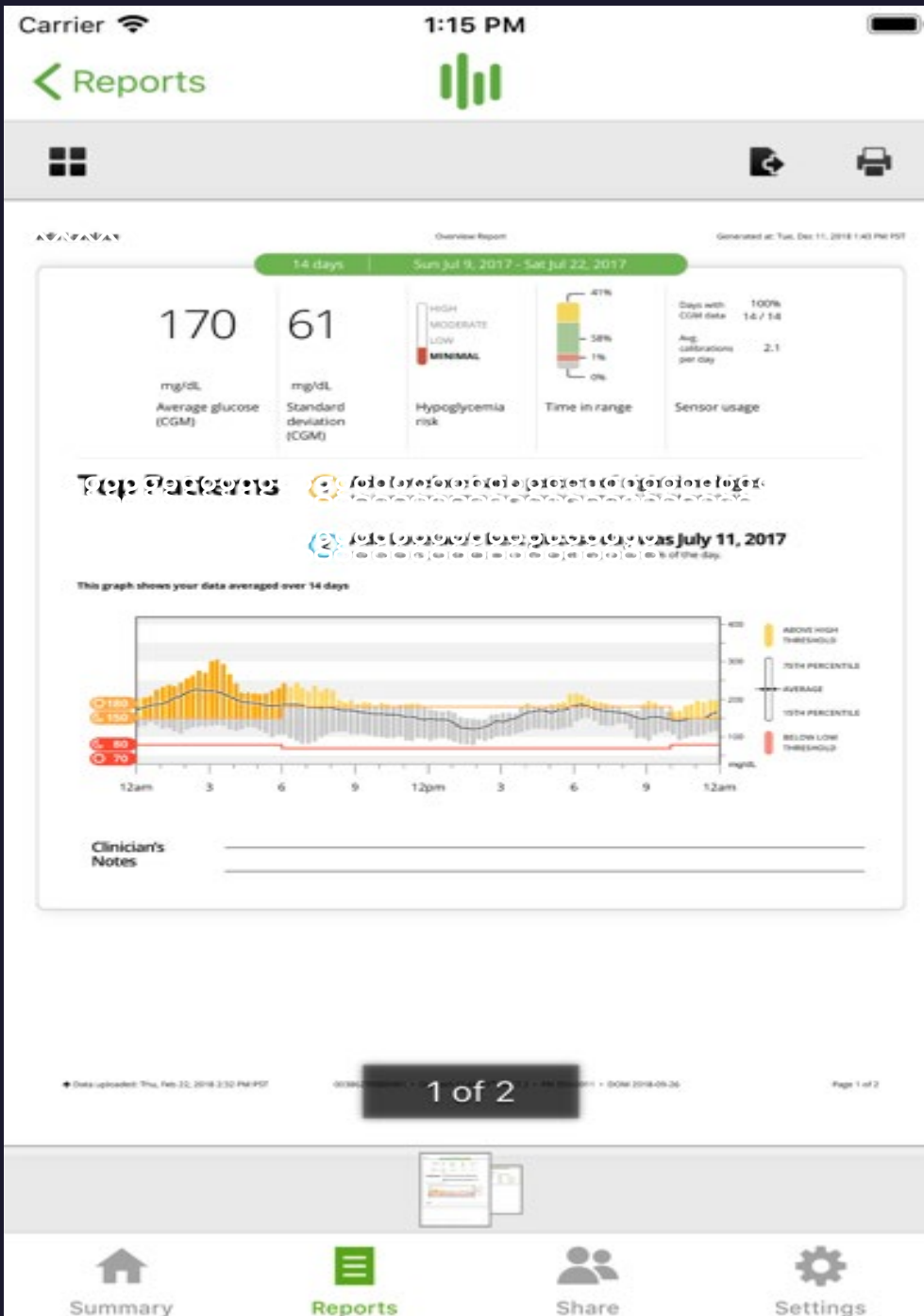
Continuous Glucose Monitoring (CGM)

- Initial attempts (1999-2010) flawed by lack of accuracy.
- Second generation CGM very accurate (MARD 8-9%)
- Randomized controlled trials have demonstrated decreased HbA1c and glycemic variability with use of CGM. In addition, studies support the use of CGM data for education and behavior modification.
- Insurance coverage gradually coming on board



Continuous Glucose Monitoring

- Who should have one?
- Type 1, Type 2 , pregnancy, hospital ????
- ADA 2021: “rtCGM or isCGM should be offered for diabetes management in adults with diabetes on multiple daily injections or continuous subcutaneous insulin infusion who are capable of using devices safely”
- MOBILE study with just basal insulin – rtCGM provides 0.5% drop A1c over 8 months leads ADA professional practice committee to conclude in 2022 that “real-time continuous glucose monitoring or intermittently scanned continuous glucose monitoring can be used for diabetes management in adults with diabetes on basal insulin who are capable of using devices safely.”



CGM- How to get started in practice

- Decide whether you just want to prescribe and interpret personal use CGM or whether you will also be doing professional use.
- Professional use requires investment/ purchase of units from one or more of the companies.
 - Transmitter, Receiver (phone), Sensors. Expiration dates (esp sensors)
 - Separate bill (95250) for applying/removing transmitter
- Personal CGM requires prescription to pharmacy or medical supply co.
 - Prior Auth usually requires verbiage in office notes. Medicare patients must be seen q 6 months
- Train patients and staff to download equipment
 - Patients can share data automatically if using phone as receiver (reduces staff time and allows for urgent access)
- Create a document regarding interpretation and bill interpretation code (95251).

CGM- Financial Issues

95250 professional CGM at
least 72 hours:

Medicare- \$56 Private \$128

95251 CGM interpretation at
least 72 hours 1.02 RVU

Medicare -\$35 Private \$97

- Can only be billed once every 30 days

Sample CGM READ

Continuous glucose monitoring analysis

Patient wears a Dexcom G6, which was downloaded for the period of time between August 8 and August 21, 2022. Average glucose is 152 with 84% of the numbers within target range and 3% hypoglycemia.

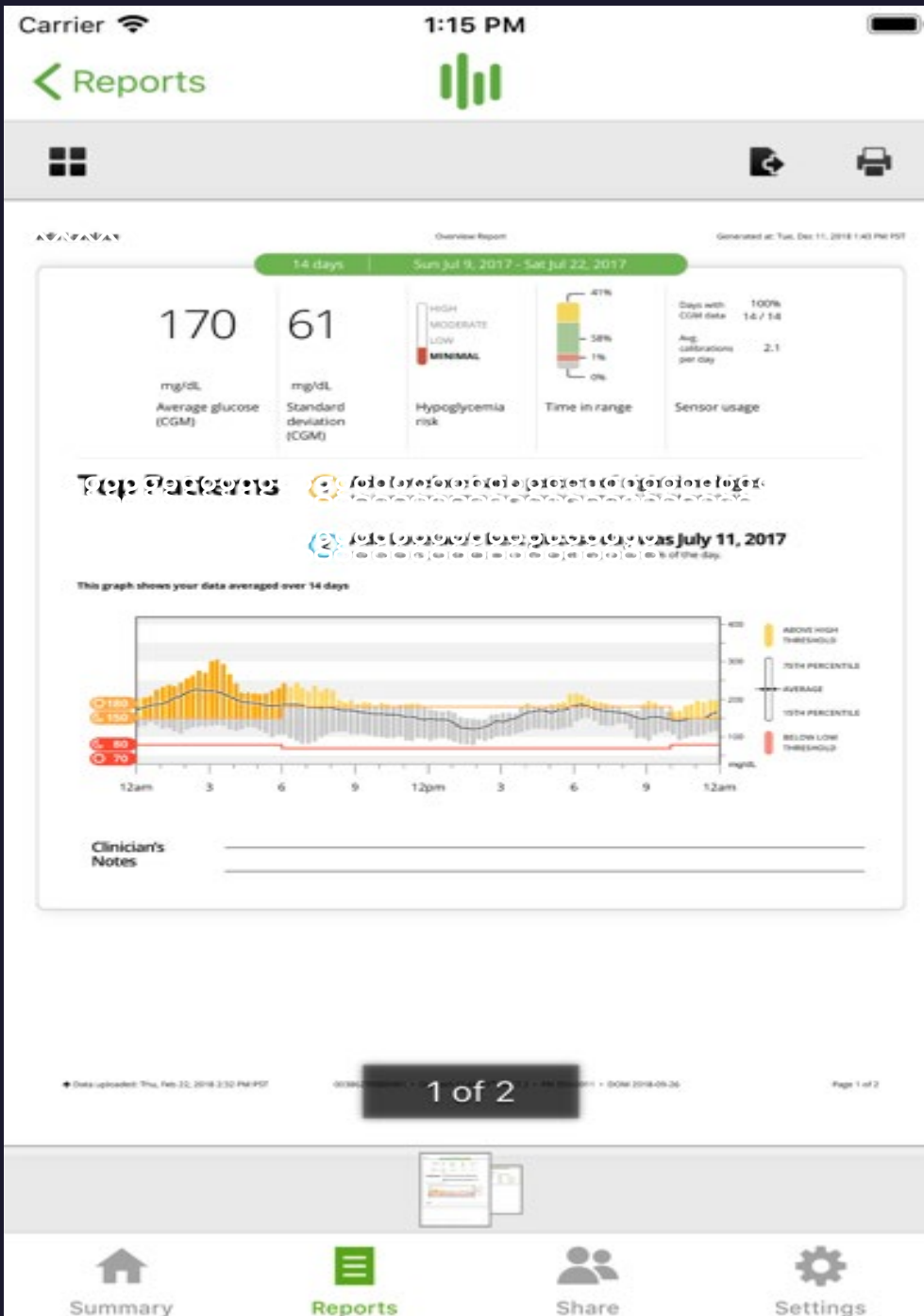
There is occasional postprandial hyperglycemia, which is typically very limited in severity and duration.

There is occasional hypoglycemia 2 to 3 hours postprandially, particularly in the late afternoon. This is typically very limited in severity and duration.

Overnight trends are typically flat, except when bedtime blood sugar is high, in which case the trend is down sloping back towards normal blood sugars.

Recommendation:

Glycemic control is very good overall with no clear need for changes to settings.



Diabetes and ASCVD

Changing Standards of Care



Diabetes and ASCVD

- A wealth of data supporting the roles of GLP1ra's and SGLT2i's in reducing risk related to heart disease.
- **ADA 2022:** GLP-1ra's and SGLT2i's, **with or without** metformin based on glycemic needs, are appropriate initial therapy for individuals with type 2 diabetes with or at high risk for atherosclerotic cardiovascular disease, heart failure, and/or chronic kidney disease”
- Joint ADA/EASD statement 2022: 4 key factors to consider in choosing therapy
 - Glycemic management
 - Weight management
 - CV risk management
 - Cardio-renal protection

GLP-1 ra's

- GLP-1 ra's lower blood sugar, lead to weight loss, lower blood pressure, and lower LDL-C
- Multiple studies showing reduced ASCVD risk
- LEADER (Liraglutide), SUSTAIN (Semaglutide), EXSCEL (Exenatide), REWIND (dulaglutide)
 - LEADER: Age >50 with CHF, CVD, CKD or Age >60 with high CV risk: 3 year study - MACE decreased 13%, other benefits
 - REWIND: Prior ASCVD event or high risk: 5 year study- MACE decreased 12%
- Same 3 meds have shown improved renal outcomes as well (can be used down to GFR-15)



SGLT2i's

- Multiple studies supporting both CV and renal benefit of this class of medication
- EMPA-REG OUTCOME (empagliflozin), CANVAS (canagliflozin), DECLARE-TIMI (dapagliflozin), CREDENCE (canagliflozin), VERTIS CV (ertugliflozin)
- All show benefit for CHF, independent of diabetes status
- MACE reduction with empa- and cana-
- Renal benefit with all except ertugliflozin
- Guidelines now support first line use in patients with CHF or CKD (albuminuria, low GFR down to 30), and potentially first line empa- or cana- in those with ASCVD or high risk for such.

Tirzepatide (Dual GLP and GIP RA)

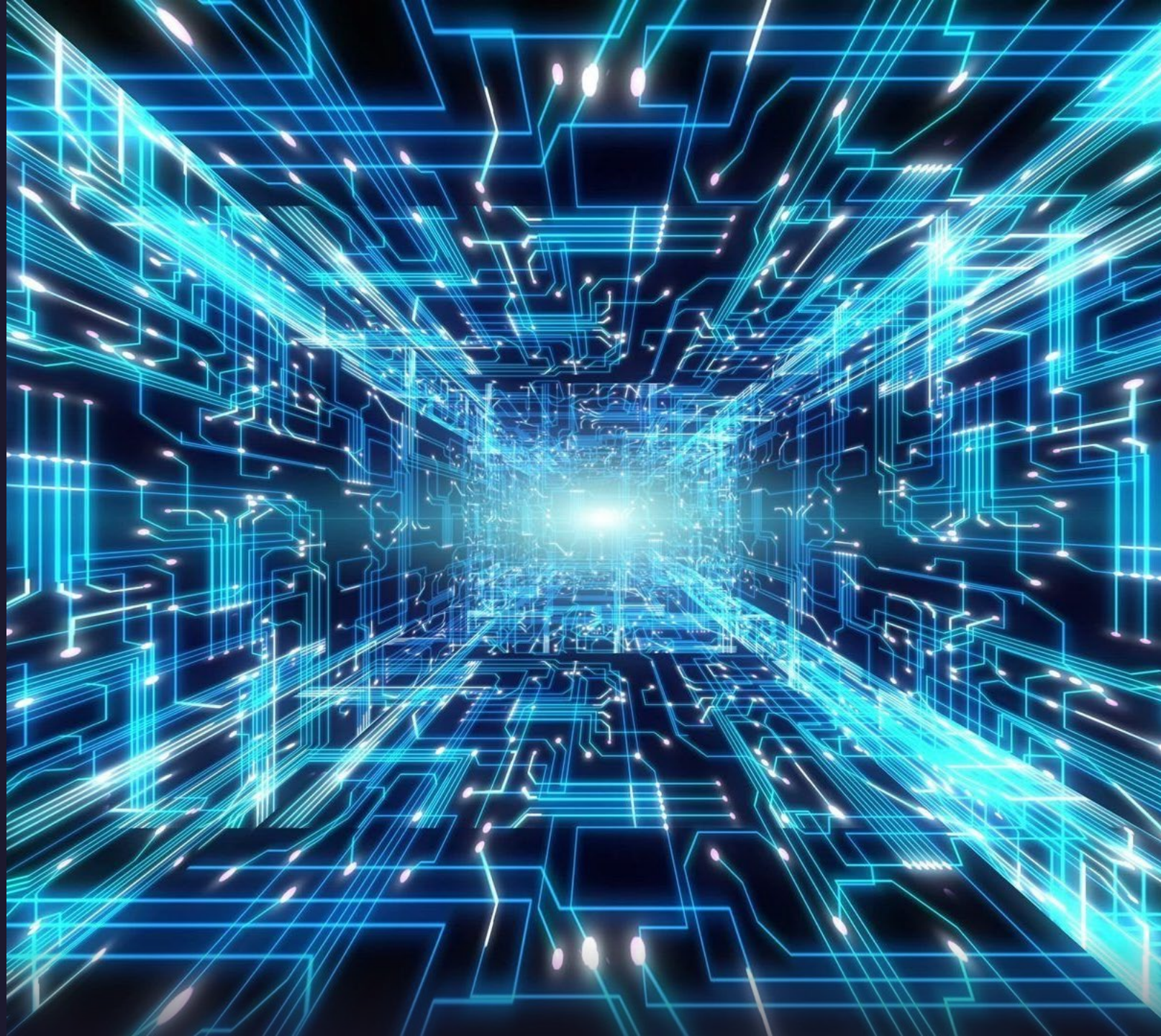
- SURPASS-1 (06/21-Lancet)
- 40 week study in 478 pts with uncontrolled T2DM
- Drop in A1c:
 - 1.87% with 5 mg
 - 1.89% with 10 mg
 - 2.07% with 15 mg
- 30-50% of patients on tirzepatide achieved A1c < 5.7%
- Mean weight loss of 15-25lbs

Tirzepatide (dual GIP and GLP RA)

- SURMOUNT-1 (07/22 NEJM) : 2500 pts with mean BMI 38 for 72 weeks
- Weight reduction of >5% seen in:
 - Placebo-35%, Tirzepatide 5 mg- 85%, 10mg -89%, 15mg- 91%
- Weight loss:
 - Placebo- 3.1%, Tirzepatide 5 mg- 15%, 10mg- 19.5%, 15mg- 20.9%
 - 57% of patients in 10/15mg dosing had >20% weight loss

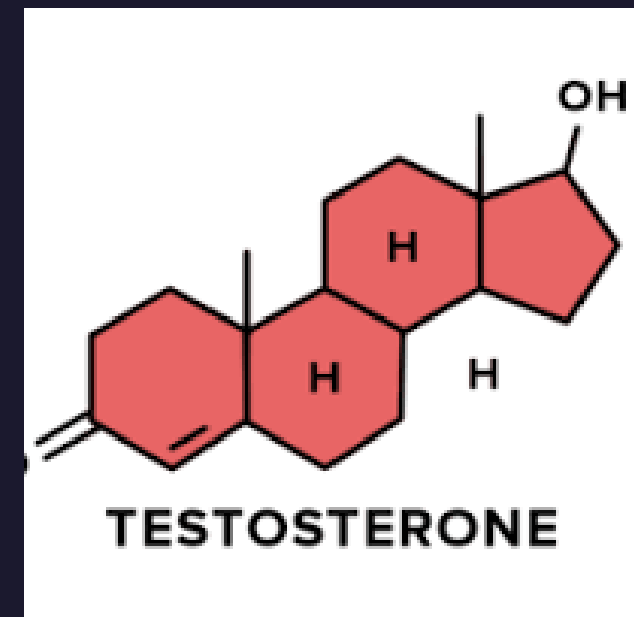
UP AND COMING

- Long acting insulins
(once weekly Icodec)
- Stem cell derived islets
- Triple GLP, GIP, Glucagon
receptor agonists
- Libre 3



Testosterone Diaries

- Who to treat?
- How to treat?
- How to monitor?



47 yo man referred with low testosterone

DOOR #1



DOOR #2



DOOR #3



57 yo male

- fatigue
- irritability/depression
- low libido

Exam-

- loss of chest hair
 - gynecomastia
 - decreased testicular size
-
- Testosterone- 112 (270-950)
 - Free Testosterone- 3.1 (6.0-73)

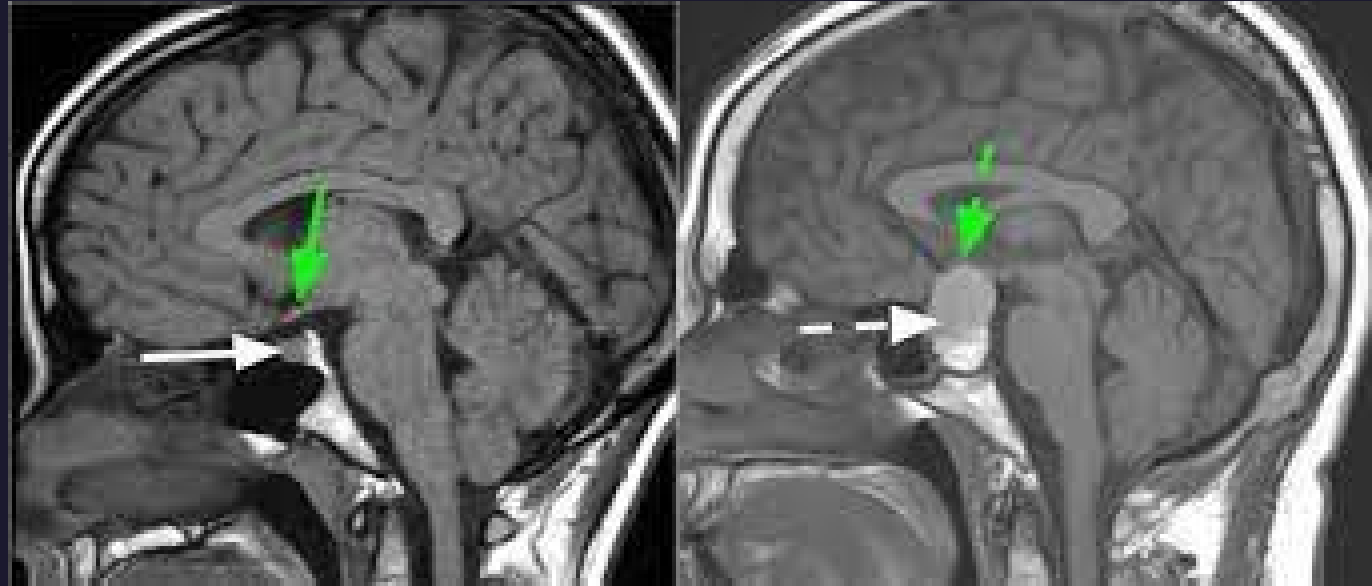


What do we want to know next?

- -LH- 3.2 (2.0-11.0)
- -Prolactin- 34 (2.1-19.6)
- -TSH- 1.4 (0.4-4.2)



Diagnosis?



Treatment ?

-surgery will not likely restore testosterone levels

Treatment options

- IM injections (peak/trough, abscess)
- SQ injections (slow)
- Topical Treatment (sharing, poor/inconsistent absorption)
 - Brand name (cost/PA, volume) vs compounded
- Pellets
- Oral (Jatenzo)

Functional Hypogonadism

- -Aging
- -Obesity
- -Depression
- -Acute illness/ Medications





Functional Hypogonadism

- Typical situation is 40+ year old male with central obesity/metabolic syndrome.
- Total Testosterone mildly depressed, often with low-normal free testosterone
- LH not elevated, Prolactin normal
- Benefit of treatment?
- Safe to treat?

Testosterone Marketing

The Benefits of TRT*
*Testosterone Replacement Therapy

BEFORE:

- Increased risk of Alzheimer's Disease
- Constant fatigue
- Depressed
- Increased fat tissue
- Increased risk of ED and low libido
- Increased risk of osteoporosis

AFTER:

- Sharper mind
- Confident
- Increased muscle mass
- Healthy heart
- Strong erections and healthy kidneys
- Strong bones
- High energy

OMC
Oregon Men's Clinic
Logan, Oregon / 541.505.8773 | oregonmenclinic.com | Bend, Oregon / 541.508.4858

Testosterone Benefits

- Improvement in QOL (mood, energy, strength): mostly applies to treatment of true hypogonadism
- Improvements in bone health, anemia, insulin resistance
- Improvement in sexual symptoms (libido, gynecomastia, beard growth)



Risks of Testosterone therapy

- Polycythemia
- Prostate stimulation (LUTS, Ca)
- DVT
- ?? Cardiac Risk

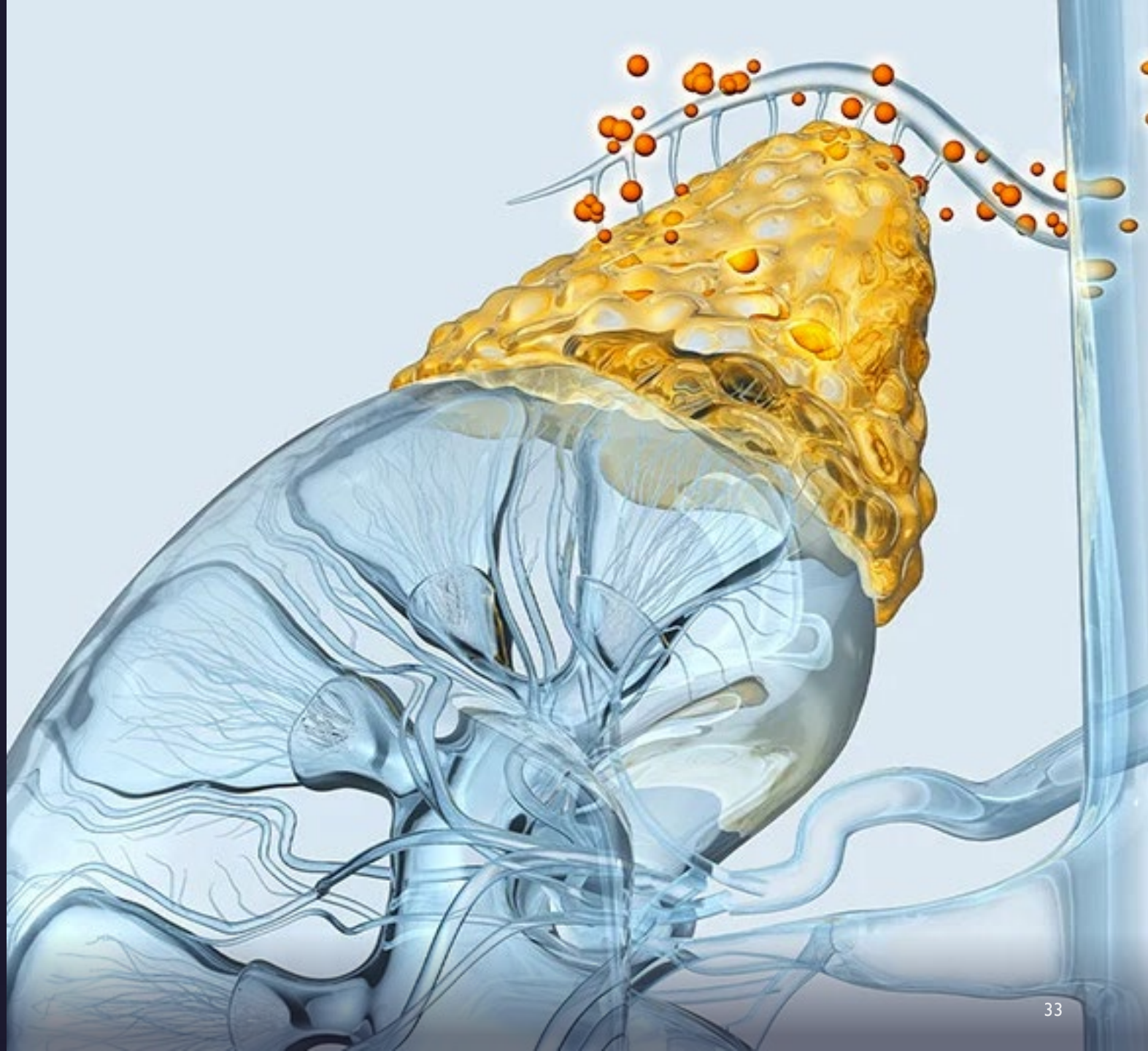


Cardiac Safety of Testosterone therapy

- Most studies focusing on treatment of functional hypogonadism.
- Murky data. Metanalyses favor no increased risk and this is increasingly becoming consensus.
- What do we do with patients on therapy that suffer an acute CV event?

Endocrine Pseudodiagnoses

Adrenal Fatigue



Adrenal Fatigue

- Naturopathic diagnosis with no pathologic basis
- Mayo Clinic: The unproven theory behind adrenal fatigue is that your adrenal glands are unable to keep pace with the demands of perpetual fight-or-flight arousal.
- Endocrine Society: Doctors urge you not to waste precious time accepting an unproven diagnosis such as adrenal fatigue if you feel tired, weak, or depressed.



32 yo female with lightheadedness, fatigue, hypoglycemia

- Seen by local ND in Bozeman, Diagnosed with adrenal fatigue 2 years prior. Using hydrocortisone in 8 doses throughout the day for total 18 mg per day.
- Initial response to treatment, but recurrence of symptoms.
- Had ER visit recently with BG in 50s. Was recommended to see endocrinologist.
- AM cortisol 3.2, ACTH -12 , BMP- normal
- ACTH Stim Test: Stimulates to max cortisol 14.7
- What is her specific diagnosis? Need MRI?
- Other cause of functional hypoadrenalism- Narcotic use.

Curbside Questions

- 1. Low TSH. Normal T4/T3.
- 2. Elevated TSH. Normal T4/T3
- 3. Hospital: Inappropriately low cortisol
- 4. Elevated Calcium, normal PTH





Summary

CGM will be standard practice in diabetes care

Metformin isn't always first in line any longer

First impressions often guide testosterone E&M

Adrenal Fatigue is not a diagnosis

*

Thank You

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