Yukon-Kuskokwim HEALTH CORPORATION

Gestational Diabetes

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Gestational Diabetes

- Defined as the onset, or first recognition of abnormal glucose tolerance during pregnancy.
- Diabetes diagnosed in the second or third trimester of pregnancy that was not clearly overt diabetes prior to pregnancy

What causes GDM?

- All pregnant women are insulin resistant to some degree because of the increase of circulating growth hormone, corticotropin-releasing hormone, placental lactogen (chorionic somatomammotropin), prolactin and progesterone
- Some women's pancreas can't keep up with the production of insulin to overcome.

Prevalence

- Population dependent
- Related to underlying rates of Type II DM
  - 6-7% overall
  - Certain ethnic groups have higher rates
    - African American
    - Hispanic American
    - Native American
    - Alaska Native
    - Pacific Islander
    - South or East Asian

Why do we even care?

- Women with GDM have a higher prevalence of adverse pregnancy outcomes:
  - Preeclampsia
  - Gestational hypertension
  - Hydramnios
  - Macrosomia
  - Maternal and infant birth trauma (shoulder dystocia)
  - Operative delivery
  - Perinatal mortality
  - Fetal/neonatal hypertrophic cardiomyopathy
  - Neonatal respiratory and metabolic complications

How is it diagnosed?

- Depends on who you ask!
- ACOG – American College of OB/GYN
- IADPSG – Internal Association of Diabetes and Pregnancy Study Group
- National Institute of Child Health and Human Development Consensus Development Conference on Diagnosing Gestation Diabetes
- Cochrane review
- But: USPSTF: screen all pregnant women between 24-28 weeks of gestation!

ACOG

- 1973 study proposed the use of a 50 gram 1 hour oral glucose tolerance test (OGTT)
- Cut off varies from 130-140 depending on institution
- No one study demonstrates superiority over one cut off or another…
- If you flunk that, based on your institutional cut-off, 3 hour 100 gram OGTT. If have 2 or more abnormal values you have GDM.

IADPSG

- One step approach: 75 gram 2 hour OGTT, if you flunk one of those, you have GDM
- ADA endorsed this in 2011
- No clear benefit from this as it doubles the number of women identified as GDM but did not substantially reduces the negative outcomes are associated with GDM

That Eunice Kennedy Shriver thing

- Lack of evidence that the 2 hour OGTT was superior
- Highlighted that the increased burden of women who were diagnosed may not benefit from the increased surveillance.

Cochrane

- 2015 review: No specific screening method has been shown to be more effective than another.

So, now what

- Nothing is superior to another method.
- “OGTT is an imprecise test with poor reproducibility”
- But you have to screen everyone in pregnancy
- 26-28 weeks is the most sensitive
- 24-28 weeks acceptable
- Best to diagnose pre-existing diabetes when possible

What does YKHC recommend?

- Everyone gets 1 hour 50 gram OGTT
- Those who flunk get a fasting 2 hour 75 gram OGTT
- If you fail one of the values on that, you have GDM
- If you fail the 1 hour by 180, you have GDM
- You get a HgbA1C at your first prenatal

Okay, now you have GDM, what's next?

- Dietary and lifestyle modifications are first line
- Check blood glucose 4 times a day: fasting and 2 hours after each meal
- If <95 fasting and <120 post-prandial, good to go.
- If not, re-educate and try some more
- If continues to fail, needs pharmacological treatment.
- There is no universally acknowledged "failure of dietary and lifestyle modification" criteria. We use roughly 25% of values consistently out of range.

Consistent messaging

- Most importantly, MUST CHECK BLOOD SUGARS FOUR TIMES PER DAY!
- Keep a written log of these values
- Give them to the diabetes team on a weekly basis
- No exceptions
- Unless otherwise notified by the HROB team
- MUST CHECK SUGARS
- FOUR TIMES A DAY
- DOCUMENT IN CHART

Pharmacological Treatment

- ADA recommends insulin as first line therapy
- It does not cross the placenta
- Can achieve tight glycemic control
- Easily tailored to the patient’s specific needs

Insulin strategies

- Typical starting dose is 0.7-1 units/kg divided up into long and short acting (or intermediate acting)
- NPH has sort of been the mainstay along with regular
- But insulin glargine has been used with insulin aspart/lispro

Oral antidiabetic medication

- In one trial, 751 women with GDM were assigned randomly to insulin therapy or metformin (plus insulin if needed)
- Both groups had similar outcomes
- In another prospective trial, women randomized to metformin had lower glucose levels, less gestation weight gain and neonates with lower rates of hypoglycemia than those randomized to insulin

Metformin vs insulin

- Metformin crosses the placenta
- There has been one study that found similar developmental outcomes at 2 years of age, but there are no long-term studies on in-utero metformin exposure

Metformin vs Insulin

- There is one large meta-analysis including unpublished data that does not demonstrate superiority when metformin was compared to insulin.
- 26%-46% of women on metformin eventually require insulin
- Dosage starts at 500 mg daily with gradual increase up to 500 mg BID
- Max dose 2500-3000 mg divided into 2 or 3 doses per day.

Metformin vs Insulin

- ADA continues to recommend insulin as first line therapy
- In women who decline insulin therapy or in women in whom it would be unsafe to administer insulin, metformin is a reasonable alternative.

What about glyburide?

- Evidence suggests that glyburide should not be recommended as a first-choice pharmacologic treatment because it does not yield equivalent outcomes to insulin or metformin

Timing of delivery

- For women controlled with diet and exercise, delivery for usual indications and expectant management up to 40 +6/7 weeks is appropriate
- For women who require medication and are well-controlled, delivery is recommended between 39 +0/7 and 39 +6/7 weeks.

Post-partum follow up

- In some populations such as women from Latin American, up to 60% of women with GDM will develop overt diabetes within 5 years of index pregnancy
- Estimates are that up to 70% of all women with GDM will develop overt diabetes in their lifetime (within 22-28 years of pregnancy)
- Screen them at 12 weeks for overt diabetes
- Follow them carefully

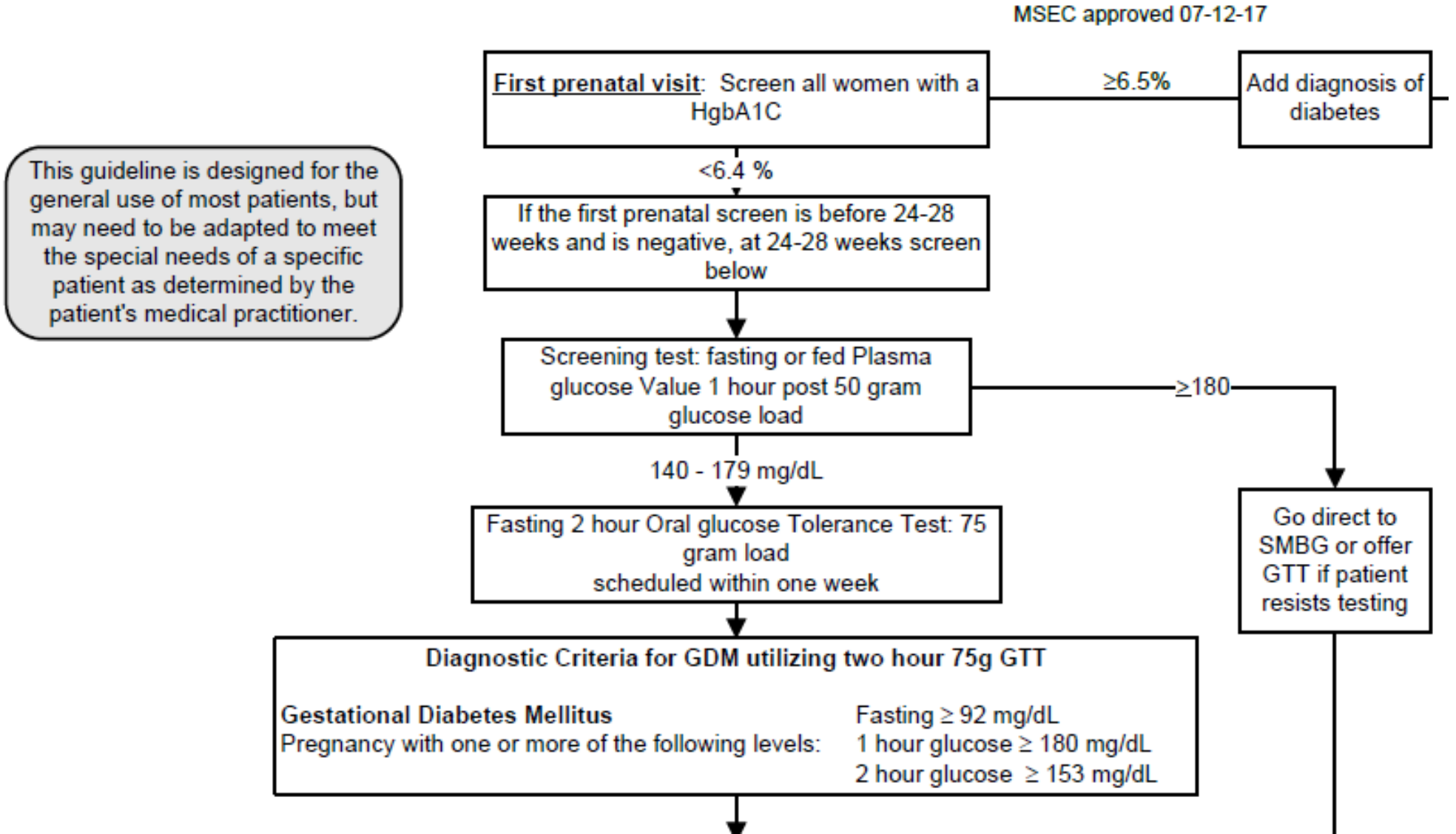
Questions?

- Beth Tressler is up next!

YKHC's GDM Screening Protocol

- A1C screen during first prenatal visit
- Fasting or fed 50 gram 1 hour GST at 24-28 weeks
  - ≥ 180 mg/dL
    - GDM Diagnosis
  - 140-179 mg/dL
    - Fasting 75 gram OGTT scheduled within 1 week
      - 1 abnormal value = GDM Diagnosis
        - Fasting > 92 mg/dL
        - 1 hour > 180 mg/dL
        - 2 hour > 153 mg/dL

YKHC's GDM Guidelines

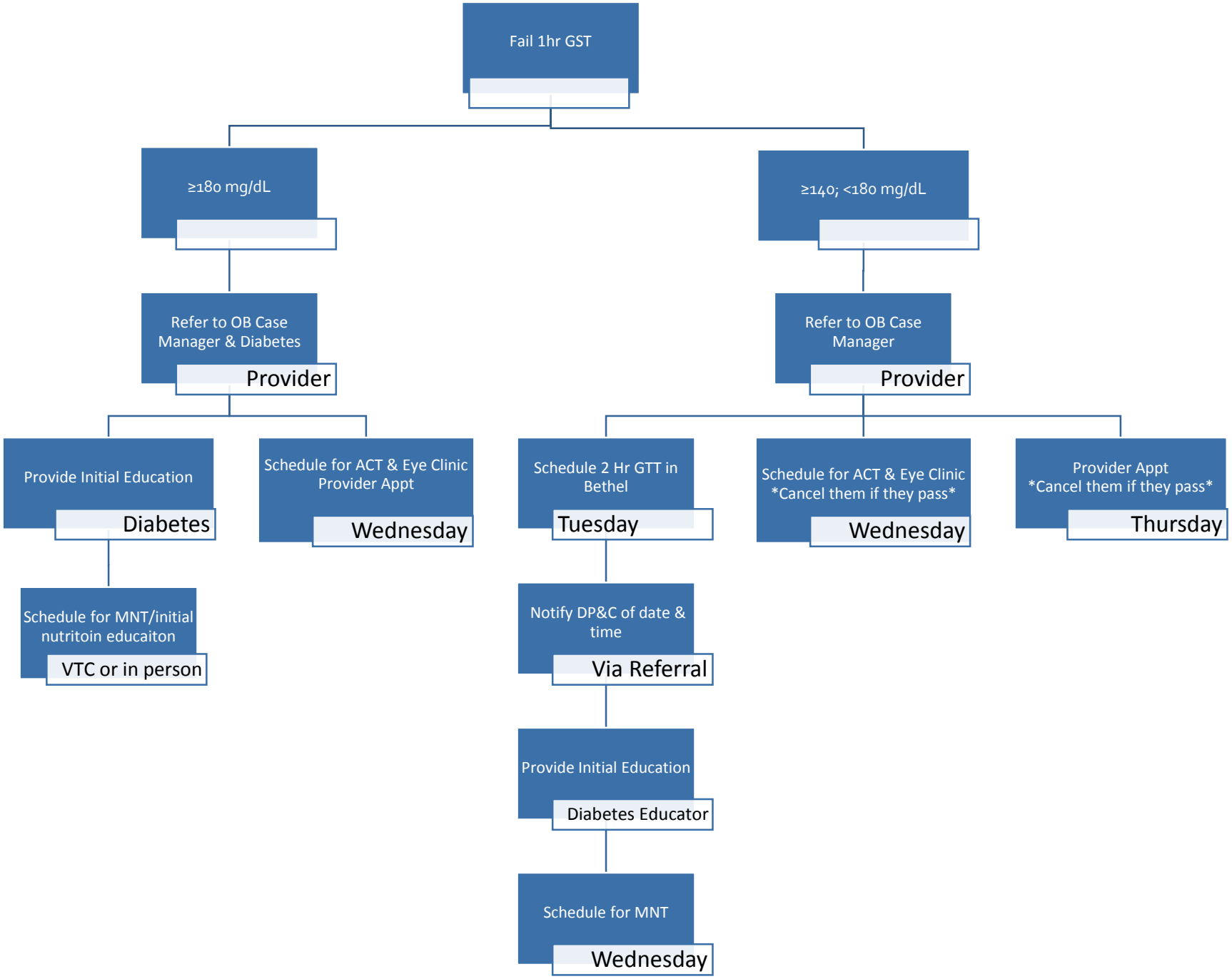


19 Months of YKHC's Data

- 900 1 hour OB Glucose Screenings
- 286 2 hour Glucose Screenings
- 150 Diagnosed GDM = 17% of pregnancies
  - 46 diagnosed GST >180 mg/dL

Diabetes Education and Support

- Provide meter, sugar log, initial education
  - Overview of the disease
  - Meter training
  - How often & when to check
  - Nutrition Education
  - Benefits of exercise
  - Weekly Expectations
- Provide medical nutrition therapy
  - Nutrition based treatment and therapeutic counseling
- Weekly contact with patient to request sugar log
  - Often multiple phone calls per week
- Present all current GDM patients at HROB


Fail 1hr GST
≥180 mg/dL
≥140; <180 mg/dL
Refer to OB Case Manager & Diabetes
Provider
Refer to OB Case Manager
Provider
Provide Initial Education
Diabetes
Schedule for ACT & Eye Clinic Provider Appt
Wednesday
Schedule for MNT/initial nutritoin educaiton
VTC or in person
Schedule 2 Hr GTT in Bethel
Tuesday
Schedule for ACT & Eye Clinic *Cancel them if they pass*
Wednesday
Provider Appt *Cancel them if they pass*
Thursday
Notify DP&C of date & time
Via Referral
Provide Initial Education
Diabetes Educator
Schedule for MNT
Wednesday

Ultimate Goal:

Healthy Babies!