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| **Maryland Next Gen NCLEX Test Bank Project**  **September 1, 2022** | | | |
| **Case Study Topic**:  (& standalone trend) | Gestational Diabetes | **Authors:** | Krysia Hudson, DNP, MS RN BC  Laura Lucas, DNP, APRN-CNS, RNC-OB  Erin Wright, DNP, CNM, APHN-BC, FACNM  Nicole Warren PHD, MSN, MPH, RN  CNM, FAAN  John Hopkins University |

**Case Summary**

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| A pregnant client at 26 weeks gestation is diagnosed with gestational diabetes. The learner must recognize risk factors, signs/ symptoms of gestational diabetes and provide patient education concerning diet and lifestyle modifications. |

**Objectives**

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| 1. Identify S/S of gestational diabetes 2. Identify risk factors of gestational diabetes 3. Provide care for a client experiencing gestational diabetes 4. Educate client about managing gestational diabetes 5. Evaluate understanding of nursing education |

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| **Case Study Link** | **Case Study QR Code** |
| <https://umaryland.az1.qualtrics.com/jfe/form/SV_aauYZTQ5h1pgq0e> |  |
| **Trend QR Code** | **Trend Link** |
|  | <https://umaryland.az1.qualtrics.com/jfe/form/SV_cYAq5EdHgMIXe6i> |

**Case References**

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| American Diabetes Association (2021). 14. Management of Diabetes in Pregnancy: *Standards of Medical Care in Diabetes-2021*. *Diabetes care*, *44*(Suppl 1), S200–S210. <https://doi-org.proxy1.library.jhu.edu/10.2337/dc21-S014>  ACOG. (2018). Gestational diabetes mellitus. *Obstetrics and Gynecology, 131* (20), e49-e64.  CDC. (2022). Gestational diabetes. https://www.cdc.gov/diabetes/basics/gestational.html#:~:text=Every%20year%2C%202%25%20to%2010,pregnancy%20and%20a%20healthy%20baby.  CDC. (2022) Social Determinants of Health. Retrieved from: <https://health.gov/healthypeople/priority-areas/social-determinants-health>  Davidson, S. J., Barrett, H. L., Price, S. A., Callaway, L. K., & Nitert, M. D. (2021). Probiotics for preventing gestational diabetes. *Cochrane Database of Systematic Reviews*, (4).  Johns, E. C., Denison, F. C., Norman, J. E., & Reynolds, R. M. (2018). Gestational Diabetes Mellitus: Mechanisms, Treatment, and Complications. Trends in endocrinology and metabolism: TEM, 29(11), 743–754. <https://doi.org/10.1016/j.tem.2018.09.004>  Silbert-Flagg, J. (2023). *Maternal and child health nursing.* (9th edition). Wolters Kluwer. |

**Case Study Question 1 of 6**

The nurse is caring for a client at 26 weeks gestation in the out-patient clinic.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins. | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 |
| Gestational age | 22 weeks | | 26 weeks |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C |
| P | 88 | | 88 |
| RR | 16 | | 16 |
| B/P | 124/56 | | 129/70 |
| Pulse oximeter | 98 | | 98 |
| Fundal height | 20 cm | | 26 cm |
| Fetal heart rate | 150 | | 145 |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg |

Which 3 clinical findings are **most** concerning?

* Previous vaginal deliveries
* Blood pressure
* History of large birthweight babies\*
* Maternal age\*
* Blood pressure
* Gestation
* BMI\*

**Scoring Rule: 0/1**

**Rationale:** Any individual giving birth over the age of 40, with a BMI > 30 kg/m², and sedentary lifestyle is at risk for gestational diabetes. Other risk factors include: first degree family relative with diabetes, history of polycystic ovarian disease, previous pregnancies with gestational diabetes or large birthweight babies. (ACOG, 2018) Approximately 2-10% of all pregnancies are affected by gestational diabetes (CDC, 2022)

**Case Study Question 2 of 6**

The nurse is caring for a client at 26 weeks gestation in the out-patient clinic.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins. | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 |
| Gestational age | 22 weeks | | 26 weeks |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C |
| P | 88 | | 88 |
| RR | 16 | | 16 |
| B/P | 124/56 | | 129/70 |
| Pulse oximeter | 98 | | 98 |
| Fundal height | 20 cm | | 26 cm |
| Fetal heart rate | 150 | | 145 |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg |

* Which of the following clinical findings puts the client at risk for gestational diabetes? (Select all that apply)
* Fetal heart rate
* Multigravida status
* Pre-pregnancy BMI 32 kg/m² \*\*
* Level of physical activity based on occupation\*\*
* Weight gain 2 pounds since last visit
* Previous children birthweight more than 9 lb(4kg)\*\*
* Maternal age\*\*

**Scoring Rule: +/-**

Rationale: Any individual giving birth over the age of 40, with a BMI > 30 kg/m², and sedentary lifestyle is at risk for gestational diabetes. Other risk factors include family history of diabetes, history of polycystic ovarian disease, previous pregnancies with gestational diabetes or large birthweight babies. (ACOG, 2018). The weight gain of up to a pound a week would be a typical finding. Slower weight gain is advised for clients that are obese at the beginning of pregnancy.

**Case Study Question 3 of 6**

The nurse is caring for a client at 26 weeks gestation in the out-patient clinic.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins. | | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 |
| Gestational age | 22 weeks | | 26 weeks |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C |
| P | 88 | | 88 |
| RR | 16 | | 16 |
| B/P | 124/56 | | 129/70 |
| Pulse oximeter | 98 | | 98 |
| Fundal height | 20 cm | | 26 cm |
| Fetal heart rate | 150 | | 145 |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg |
| **Laboratory Report** | |
| Lab | | Results 6/17 | | | Reference range |
| Hematocrit | | 43 | | | Males: 42-52%; Females: 35-47% |
| Hemoglobin | | 14.0 | | | Males: 13-18 g/dL; Females:12-16 g/dL |
| WBC | | 8.2 | | | 4.5 – 10.5 x 103 cells/mm3 |
| 1-hr glucose tolerance test | | 220 | | | <180 mg/dl |

The 26 week laboratory report returns.

* Complete the following sentence by choosing from the list of options.

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| --- | --- |
| The strongest evidence that the client may have gestational diabetes and requires further testing is the | Select |
| history of large babies  weight gain  1 hour glucose tolerance test\* |
| The highest care priority for this client is | managing maternal weight gain |
| stabilizing blood glucose levels\* |
| preventing macrosomia |

**Scoring Rule: 0/1**

Rationale: A glucose tolerance test (GTT) is done to screen for gestational diabetes. Stabilizing the blood glucose is the priority since it is abnormal and consistent glucose levels within the target range promote the best fetal and maternal outcomes (ACOG, 2018). Slowing weight gain is desirable but cutting calories can lead to ketoacidosis. Macrosomia (large baby) is best prevented by stabilizing blood glucose levels. The client will have to come back for a 3 hour Glucose Tolerance Test(GTT) since the client failed the 1 hour GTT. The 1 hour GTT is for screening, whereas the 3 hour GTT is diagnostic for this client. (ACOG, 2018)

**Case Study Question 4 of 6**

The nurse is caring for a client at 26 weeks gestation in the out-patient clinic.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins. | | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 |
| Gestational age | 22 weeks | | 26 weeks |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C |
| P | 88 | | 88 |
| RR | 16 | | 16 |
| B/P | 124/56 | | 129/70 |
| Pulse oximeter | 98 | | 98 |
| Fundal height | 20 cm | | 26 cm |
| Fetal heart rate | 150 | | 145 |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg |
| **Laboratory Report** | |
| Lab | | Results 6/17 | | | Reference range |
| Hematocrit | | 43 | | | Males: 42-52%; Females: 35-47% |
| Hemoglobin | | 14.0 | | | Males: 13-18 g/dL; Females:12-16 g/dL |
| WBC | | 8.2 | | | 4.5 – 10.5 x 103 cells/mm3 |
| 1-hr glucose tolerance test | | 220 | | | <180 mg/dl |
|  | | Results 6/18 | | |  |
| 3-hr glucose tolerance test | | Fasting: 122  1 hr: 190  2 hr: 160  3 hr: 155 | | | < 95 mg/dl  < 180 mg/dl  < 155 mg/dl  < 140 mg/dl |

The client takes the 3 hour glucose tolerance test and receives the diagnosis of gestational diabetes. The nurse begins to develop the plan of care.

* What additional assessment data should the nurse obtain? Select All that Apply
* Access to transportation
* 24 hour diet recall\*\*
* Assessment of salt intake
* Economic ability to purchase healthy food\*\*
* Access to supermarkets\*\*
* Location of kitchen in residence
* Assess intake of foods containing vitamin K
* Physical activity patterns\*\*

**Scoring Rule: +/-**

**Rationale:** Lifestyle changes, like diet and exercise, are successful in 70-85% of all individuals diagnosed with gestational diabetes. (Johns, et al , 2018). Knowledge of glycemic index and complex carbohydrates is important for revising diet for a person with gestational diabetes. Additionally, social determinants of health are imperative to examine in this client related to their diet, physical activity and issues that pertain (CDC, 2022). Although transportation is necessary to participate in prenatal visits, it is not a major concern. Additionally, kitchen location and vitamin K rich foods are also not the highest concern for a nurse to assess.

**Case Study Question 5 of 6**

The nurse is caring for a client at 26 weeks gestation in the out-patient clinic.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins. | | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 |
| Gestational age | 22 weeks | | 26 weeks |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C |
| P | 88 | | 88 |
| RR | 16 | | 16 |
| B/P | 124/56 | | 129/70 |
| Pulse oximeter | 98 | | 98 |
| Fundal height | 20 cm | | 26 cm |
| Fetal heart rate | 150 | | 145 |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg |
| **Laboratory Report** | |
| Lab | | Results 6/17 | | | Reference range |
| Hematocrit | | 43 | | | Males: 42-52%; Females: 35-47% |
| Hemoglobin | | 14.0 | | | Males: 13-18 g/dL; Females:12-16 g/dL |
| WBC | | 8.2 | | | 4.5 – 10.5 x 103 cells/mm3 |
| 1-hr glucose tolerance test | | 220 | | | <180 mg/dl |
|  | | Results 6/18 | | |  |
| 3-hr glucose tolerance test | | Fasting: 122  1 hr: 190  2 hr: 160  3 hr: 155 | | | < 95 mg/dl  < 180 mg/dl  < 155 mg/dl  < 140 mg/dl |

The nurse implements a dietary plan to manage the client’s diabetes during pregnancy.

* Which 3 elements should nurse most include in the dietary teaching plan?
* Encourage use of low fiber food
* Identify carbohydrates with low glycemic index\*\*
* Client should increase fat based foods while pregnant
* Recommend consultation with a registered dietician\*\*
* Should consume 2 large meals and 3 small snacks/day
* Should consume 3 small – moderate meals and 4 snacks/day\*\*
* Discuss the importance of consuming high sodium diet

**Scoring Rule: 0/1**

**Rationale:** Lifestyle changes will be the first step in intervening with a client with gestational diabetes. The correct diet plan is key. A dietician consultation would provide the best guidance in promoting a client – centric diet. Carbohydrates should not exceed 40% of calories, protein should be approximately 20% of calories (ADA, 2021). Ideally, the pregnant individual should plan 3 small- moderate meals with 4 snacks. Other things that should be included in the educational plan is how to perform finger sticks for blood glucose monitoring and when to report results to your nurse midwife or practitioner. Controlling glucose levels can also be achieved via fostering exercise. This plan should be coordinated with the provider or nurse midwife.

**Case Study Question 6 of 6**

The client diagnosed with gestational diabetes returns to the clinic in 4 weeks.

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| **Obstetrical History** | |
| 44 -year- old female identified at birth. Occupation computer programmer. Gravida 3, Term 2, Premature 0, Abortions 0, Living 2. No known allergies. Previous babies were large. First child 9 pounds (4kg), second child 10 pounds(4.5kg). Pre-pregnancy weight 175(79.3kg); Height 5’2” (157cm) BMI 32%. No other significant history or medications. | | | | | | |
| **Nurses’ Notes** | |
| **6/17.** Client gained 2 pounds ( 0.9 kg) since last office visit. Continues taking prenatal vitamins.  **7/17.** Reports self- monitoring blood glucose and taking prenatal vitamins. Blood glucose log shows levels are within target range. | | | | | | |
| **Flowsheet** | |
| Time | 5/18 | | 6/17 | 7/14 | |
| Gestational age | 22 weeks | | 26 weeks | 30 weeks | |
| Temp | 97.6F/ 36.5C | | 98.4F/36.8C | 98.4F/36.8C | |
| P | 88 | | 88 | 88 | |
| RR | 16 | | 16 | 18 | |
| B/P | 124/56 | | 129/70 | 124/66 | |
| Pulse oximeter | 98 | | 98 | 98 | |
| Fundal height | 20 cm | | 26 cm | 30cm | |
| Fetal heart rate | 150 | | 145 | 150 | |
| Weight | 181lbs/82.2Kg | | 183 lbs/83 Kg | 185lbs/83.9kg | |
| **Laboratory Report** | |
| **Lab** | | **Results 6/17** | | | **Reference range** | |
| Hematocrit | | 43 | | | Males: 42-52%; Females: 35-47% | |
| Hemoglobin | | 14.0 | | | Males: 13-18 g/dL; Females:12-16 g/dL | |
| WBC | | 8.2 | | | 4.5 – 10.5 x 103 cells/mm3 | |
| 1-hr glucose tolerance test | | 220 | | | <180 mg/dl | |
| **Lab** | | **Results 6/18** | | | **Reference range** | |
| 3-hr glucose tolerance test | | Fasting: 122  1 hr: 190  2 hr: 160  3 hr: 155 | | | < 95 mg/dl  < 180 mg/dl  < 155 mg/dl  < 140 mg/dl | |
| **Lab** | | **Results 7/17** | | | **Reference range** | |
| Glucose (serum)  Non-fasting | | 122mg/dl | | | <140mg/dl | |

The client returns in 1 month for a follow-up appointment and repeat labs.

* What conclusions does the nurse make about the treatment plan? Select all that apply
* Fetal growth pattern is appropriate.\*\*
* Serum glucose is appropriate for gestational age.\*\*\*
* The weight gain is needs further assessment.
* Dietary and exercise regimen seems to be working.\*\*
* The client will not need biophysical fetal monitoring added to the plan of care.
* Elevated glucose levels indicates that the client needs oral hypoglycemic agents.

**Scoring Rule: +/-**

**Rationale:** The patient and fetal findings indicate well controlled gestational diabetes. Dietary and exercise regimen seems to be working. The weight gain and blood glucose are appropriate. The client will still need biophysical monitoring to ensure fetal well-being.

Trend

The nurse cares for a 44-year-old pregnant female client diagnosed with gestational diabetes at 26 weeks gestation in the outpatient clinic.

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| **Laboratory Report** |
| Lab | 26 weeks | 30 weeks | Reference range |
| BUN | 18 | 20 | 10-20 mg/dL |
| Creatine (Serum) | 1.2 | 1.2 | 0.9 to 1.4 mg/dL |
| Glucose nonfasting | 182 | 122 | <140mg/dL |
| Hematocrit | 43 | 42 | Males: 42-52%; Females: 35-47% |
| Hemoglobin | 14 | 13 | Males: 13-18 g/dL; Females:12-16 g/dL |
| WBC | 8.2 | 8.4 | 4.5 – 10.5 x 103 cells/mm3 |
| Platelets | 410,000 | 420,00 | 140,000 to 450,000/ mm3 |
| Potassium(serum) | 4.2 | 4.0 | 3.5 to 5 mEq/L |
| Sodium (serum) | 140 | 138 | 135 to 145 mEq/L |
| **Urinalysis:** |  |  |  |
| Glucose | 1+ | - | Absence of glucose |
| Ketones | - | - | Absence of ketones |
| Protein | - | - | Absence of protein |

The nurse reassesses the client’s labs 4 weeks later after implementing lifestyle changes.

* Which of the following factors would indicate that the patient is improving? Select All that Apply
* Serum glucose\*\*
* Urine glucose\*\*
* Urine ketones
* Urine protein
* WBC count
* Serum creatinine

**Scoring Rule: +/-**

**Rationale:** The client had elevated serum glucose presence of glucose in urine at 26 weeks gestation. All other factors were normal. The serum glucose is now acceptable and there is no glucose in the urine.