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| **Maryland Next Gen NCLEX Test Bank Project**  **September 1, 2022** | | | |
| **Case Study Topic**:  (& stand-alone bow-tie) | Pediatric diarrhea and dehydration | **Author:** | Mary Tiso RN, MS, CNL  Community College of Baltimore County |

**Case Summary**

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| 2- year- old seen in outpatient clinic for diarrhea. RN recognizes moderate dehydration and provides oral rehydration and reevaluates client status. |

**Objectives**

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| 1. Perform a focused assessment on a pediatric client  2. Manage care for a client with fluid and electrolyte imbalance  3. Differentiate between mild, moderate, severe dehydration  4. Demonstrate understanding of standards of care for pediatric dehydration  5. Evaluate client intake and output and response to rehydration |

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| **Case Study Link** | **Case Study QR Code** |
| <https://umaryland.az1.qualtrics.com/jfe/form/SV_1ALgRKj7DwwbKPI> |  |
| **Bow-tie QR Code** | **Bow-tie Link** |
|  | <https://umaryland.az1.qualtrics.com/jfe/form/SV_2nkk8caqQOO0gx8> |

**Case References**

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| 1. Ricci, S., Kyle, T., Carman, S. (2020). *Maternity and Pediatric Nursing* (4th edition). Wolters Kluwer Health. 2. Canavan, A., Arant, B. (2009). Diagnosis and management of dehydration in children. *American Family Physicians,* *80*(7): 692-696. https://www.aafp.org/afp/2009/1001/p692.html |

**Case Study Question 1 of 6**

A 2- year- old male is brought by his father to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs). | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6°C/101.5°F axillary | |
| HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |

* Drag the 3 findings that need immediate follow-up to the box on the right.

|  |  |
| --- | --- |
| Client Findings | Top 3 Findings |
| Pulse oximeter |  |
| Stool characteristics |  |
| Temperature \* |  |
| Tear characteristics\* |  |
| Diaper rash |  |
| Urine output\* |  |
| Blood pressure |  |
| Weight |  |

**Scoring Rule: 0/1**

**Rationale:** Indicators of dehydration in children include decreased tears when crying and decreased urine output. Fever in a child can worsen dehydration due to increased insensible fluid loss. Pulse oximeter, mental status, pain, BP and weight are all within normal limits for a 2 year old. Diarrhea in a child is not concerning in and of itself without signs of dehydration.

**Case Study Question 2 of 6**

A 2- year- old male is brought by his father to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment findings show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds. | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6°C/101.5°F axillary | |
| HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |

For each factor click to indicate if the factor is consistent with mild, moderate, or severe dehydration.

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment | Mild Dehydration | Moderate Dehydration | Severe dehydration |
| Activity |  | X |  |
| Cap refill |  |  | X |
| Eyes | X |  |  |
| Heart rate |  | X |  |
| Tears |  | X |  |

**Scoring Rule: 0/1**

**Rationale**: Non sunken eyes suggests dehydration is mild. Significantly delayed cap refill > 4 seconds is consistent with severe dehydration. Irritability, mild tachycardia, and decreased tears are consistent with moderate dehydration. Given the child’s appropriate blood pressure, he is most likely experiencing moderate dehydration. If he were hypotensive that would be consistent with severe dehydration.

**Case Study Question 3 of 6**

A 2- year- old male is brought by his father to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment finding show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds. | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6°C/101.5°F axillary | |
| HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |

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

|  |  |
| --- | --- |
| The client is most likely experiencing | Select |
| Mild dehydration |
| Moderate dehydration\* |
| Severe dehydration |
| as evidenced by the | Select |
| Activity level\* |
| Capillary refill |
| Eyes |

**Scoring Rule: Rationale**

**Rationale:** Severe dehydration can be indicated by a capillary refill of greater than or equal to 4 seconds, but other assessments do not indicate severe dehydration. Eyes are typically sunken with moderate and severe dehydration. Client’s lethargy is indicative of moderate dehydration

**Case Study Question 4 of 6**

A 2- year- old male is brought by his father to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment finding show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds. | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6°C/101.5°F axillary | |
| HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |

The client is diagnosed with moderate dehydration.

* For each potential order, click to specify whether the order is anticipated or not anticipated to include in the plan of care.

|  |  |  |
| --- | --- | --- |
| Potential order | Anticipated | Not anticipated |
| IV fluid bolus |  | * X |
| Antipyretic | * X |  |
| Antidiarrheal medication |  | * X |
| Insert foley catheter |  | * X |
| Monitor intake and output | * X |  |
| Provide oral rehydration | * X |  |
| Complete Metabolic Panel |  | * X |
| Barrier cream to diaper rash | * X |  |
| Abdominal ultrasound |  | * X |

**Scoring Rule: 0/1**

**Rationale:** In moderate dehydration, IV fluids are not indicated, but oral rehydration would be the first intervention. IV Fluids are indicated in severe dehydration. Antipyretic should be administered to a febrile child who is symptomatic and at risk of worsening dehydration. Antidiarrheal agents are not the standard of care for a child with GI illness. The child may need a stool culture, but other diagnostic testing of (Ultrasound or lab draw) is not needed if the child improves with oral fluids. Foley catheter is not indicated.

**Case Study Question 5 of 6**

A 2- year- old male is brought by his father to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment finding show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds.  1030: Medicated with acetaminophen. Attempting oral rehydration. | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6°C/101.5°F axillary | |
| HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |
| **Orders** | |
| **Category** | | **Orders** | |
| Nursing | | Oral rehydration with standard oral rehydration solution: 75 mL/kg over 4 hours  Monitor intake and output | |
| Medications | | Acetaminophen 15 mg/kg PO every 6 hours PRN for fever | |
| Monitoring | | Obtain stool culture if stool is available  Obtain vital signs every 2 hours | |

The nurse receives orders.

* What should the nurse teach the client about the treatment plan? Select all that apply.
* Fever can worsen dehydration due to increased metabolic rate\*
* If the client does not improve in one hour, he will need to transfer to the emergency department
* Diarrhea can be easily transmitted via the fecal oral route\*
* The client should drink plenty of fruit juice
* Provide small frequent amounts of oral rehydration\*
* Most diarrhea in children in the US is caused by eating contaminated food
* The client should receive acetaminophen scheduled around the clock for 5 days
* Family should report to the provider if the child becomes unarousable \*

**Scoring Rule: +/-**

**Rationale:** Acetaminophen can cause hepatotoxicity if given more often that ordered or in too high of a dose and should be given as needed for fever, not scheduled over a time period. Oral rehydration should be given over 4 hours, and then the client status should be reevaluated. Admission to the emergency department is likely not warranted if the child can tolerate 4 hours of oral rehydration. A standard oral rehydration fluid should be used as it contains an appropriate ratio of essential electrolytes. Fruit juice can exacerbate diarrhea due to high sugar content. Diarrhea is often transmitted in children due to poor handwashing and not from contaminated food.

**Case Study Question 6 of 6**

A 2- year -old male is brought by his parent to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment finding show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds.  1030: Medicated with acetaminophen. Attempting oral rehydration.  1430: Retained total of 850 mL of oral rehydration and is more alert, less irritable, and has had a wet diaper and one stool | | | | | | |
| **Vital Signs** | |
| Time | 1015 | | | 1230 | 1430 |
| Temp | 38.6°C/101.5°F axillary | | | 37.2°C/99°F axillary | 37.1°C/98.8°F  axillary |
| HR | 162 | | | 145 | 123 |
| RR | 38 | | | 32 | 28 |
| B/P | 84/50 | | | 85/52 | 86/53 |
| Pulse oximeter | 96 | | | 97% | 99% |
| Pain | 0/10 FLACC | | | 0/10 FLACC | 0/10 FLACC |
| **Orders** | | |
| **Category** | | | **Orders** | | | | |
| Nursing | | | Oral rehydration with standard oral rehydration solution: 75 mL/kg over 4 hours  Monitor intake and output | | | | |
| Medications | | | Acetaminophen 15 mg/kg PO every 6 hours PRN for fever | | | | |
| Monitoring | | | Obtain stool culture if stool is available  Obtain vital signs every 2 hours | | | | |

The nurse reevaluates the client after implementing the treatment plan.

* Which findings show the treatment plan has been effective? Select all that apply.
* Blood pressure
* Pain assessment
* Temperature\*
* Mental status\*
* Urine output\*
* Stool output
* Intake\*

**Scoring Rule: +/-**

**Rationale:** Presence of urine, improved alertness, and decreased temperature are indicative that the oral rehydration and the antipyretic were effective. Blood pressure, pain and presence of diarrhea are unchanged.

**Bowtie Template**

A 2- year -old male is brought by his parent to an outpatient pediatric ambulatory clinic with a 2 day history of diarrhea.

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| **Nurses’ Notes** | |
| 1000: 2-year-old male brought in parent’s arms to outpatient clinic. Parent reports 2-3 days of diarrhea (6+ liquid stools per day), a diaper rash, decreased oral intake, and decreased wet diapers. Client appears sleepy but awake and is irritable when vital signs are taken. Few tears noted when the client is crying. The client weighs 12 kg (26.4 lbs).  1015: Assessment finding show eyes are not sunken, client’s lips are somewhat pale and dry, capillary refill time is 4 seconds. Has hyperactive bowel sounds | | | |
| **Vital Signs** | |
| Time | 1015 | |
| Temp | 38.6 axillary | |
| P or HR | 162 | |
| RR | 38 | |
| B/P | 84/50 | |
| Pulse oximeter | 96 | |
| Pain | 0/10 FLACC | |

* Complete the diagram by dragging from the choices below to specify what condition the client is most likely experiencing, 2 actions the nurse should take to address that condition, and 2 parameters the nurse should monitor to assess the client’s progress.

|  |  |  |
| --- | --- | --- |
| Action to take |  | Parameter to monitor |
|  | Condition most likely experiencing |  |
| Action to take |  | Parameter to monitor |
|  |  |  |
| **Actions to take** | **Potential conditions** | **Parameters to monitor** |
| IV fluid bolus | Hypovolemic shock | Oral intake\* |
| Oral rehydration\* | Mild dehydration | Developmental milestones |
| Transfer to emergency department | Moderate dehydration\* | Sodium level |
| Administer antipyretic\* | Severe dehydration | Capillary refill\* |
| Administer oxygen |  | Pain |

**Scoring Rule: 0/1**

**Rationale:** The child is showing signs of moderate dehydration including decreased tears, decreased urine output, pale/dry oral mucosa and irritability. He is not demonstrating hypotension or signs of shock at this time. It is the standard of care to attempt oral rehydration in an outpatient setting for moderate dehydration, but the child’s perfusion and circulation should be monitored to ensure he does not decompensate. His intake should also be closely monitored to ensure he is retaining some of the rehydration offered.