**Sample Reverse Bow-Tie**

**Case Study**

The nurse cares a 20-year-old female client on the medical-surgical unit who requires a blood transfusion after a splenectomy.

|  |  |  |
| --- | --- | --- |
| **Nurses’ Notes** | | |
| 1030. 1unit whole blood ordered over 4hrs. Client has mild incisional pain. No other major complaints or known allergies. Blood consent verified. IV of .9 NS infusing in R arm at 125mL/hr.  1045. PT ID, Blood ID, and transfusion order verified by at bedside with Don Able RN. Vital signs obtained. Transfusion of 1 unit O+ whole blood started.  1100. Client reported feeling SOB, then vomited. Facial flushing and audible wheezing noted. Transfusion stopped. Oxygen increased to 6L. Client remains alert and oriented. Rapid response team activated. Healthcare provider paged. | | | | | | |
| **Vital Signs** | | |
| Time | 1045 | | | 1100 |
| Temp | 97.8 | | | 98.0 |
| P or HR | 100 | | | 110 |
| RR | 20 | | | 28 |
| B/P | 100/62 | | | 88/50 |
| Pulse oximeter | 95% | | | 93% |
| Oxygen | 2L Nasal cannula | | | 2L Nasal cannula |
| **Orders** | | |
| 1030.Type and cross match for 1 unit whole blood  Infuse 1 unit whole blood over 4 hours  IV .9NS at 125mL/hr  Oxygen per nasal cannula as needed to keep pulse oximeter > 94% | | | | | | |
| **Laboratory Results** | | |
| Lab | | Results | | | | Reference range |
| Hematocrit | | 23.2% | | | | Males: 42-52%;Females: 35-47% |
| Hemoglobin | | 7.7g/dL | | | | Males: 13-18 g/dL; Females:12-16 g/dL |
| Blood type | | Antibodies in blood | | | | Transfusion Type |
| 0+ | | Anti A, Anti B | | | | 0+, O- |

**Reverse Bow-Tie Work Sheet**

**Name:**

**Instructions**

1. Consider the assigned case and complete the Bow-Tie Diagram with:
2. One condition the client is most likely experiencing (middle). This should be the condition the nurse most suspects based on history, context, signs and symptoms, or assessment findings.
3. Two actions to take to address the condition (left).Use words like administer, assist, prepare, provide, perform, request, obtain. Avoid using the term “monitor” because it comes next.
4. Two parameters to monitor the effectiveness of the actions and/or the client’s progress (right).These can be vital signs, assessments, laboratory values, or diagnostic tests used to determine if the client is improving or deteriorating.

Bow-Tie Diagram

|  |  |  |
| --- | --- | --- |
| Action to take: |  | Parameter to monitor: |
|  | Most likely condition: |  |
| Action to take: |  | Parameter to monitor: |

1. Next, complete the Other Condition Table with:
2. 3 other possible conditions that the client might be experiencing based on history, context, signs and symptoms, or the clinical presentation. These conditions should be ones that the nurse might initially suspect but could reason through why the conditions can be ruled out. Write the 3 other conditions in the middle column.
3. For each additional condition, add 1 action to take in the left column (total 3).The actions should be appropriate to treat the other listed conditions but would not be indicated or important to treat the most likely condition in the bow-tie.
4. For each additional condition add 1 parameter to monitor in the right column (total 3).The parameters should be appropriate to monitor the client’s progress for the other listed conditions but not as important or appropriate to monitor for the most likely condition in the bow-tie.

Other Condition Table

|  |  |  |
| --- | --- | --- |
| Actions to take | Potential Conditions | Parameters to monitor |
|  |  |  |
|  |  |  |
|  |  |  |

III. Put it all together and list all 4 conditions (most likely and other), 5 actions, and 5 parameters in the table Complete Bow-Tie Table.

Complete Bow-Tie

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Action to take: | |  | | Parameter to monitor: | |
|  | | Most likely condition: | |  | |
| Action to take: | |  | | Parameter to monitor: | |
| Actions to take | | Potential Conditions | | Parameters to monitor | |
|  | |  | |  | |
|  | |  | |  | |
|  | |  | |  | |
|  | |  | |  | |
|  | |  | |  | |

**Possible Answers**

Bow-Tie Diagram

|  |  |  |
| --- | --- | --- |
| Action to take:  Administer epinephrine |  | Parameter to monitor:  Airway |
|  | Most likely condition:  Anaphylactic transfusion reaction |  |
| Action to take:  Administer a fluid bolus |  | Parameter to monitor:  Level of consciousness |

Other Condition Table

|  |  |  |
| --- | --- | --- |
| Actions to take | Potential Conditions | Parameters to monitor |
| Administer diuretics | Acute hemolytic transfusion reaction | Hematuria |
| Administer antipyretics | Febrile nonhemolytic transfusion reaction | Temperature |
| Administer antibiotics | Septic transfusion reaction | Blood cultures |

Complete Bow-Tie

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Action to take:  Administer epinephrine | |  | | Parameter to monitor:  Airway | |
|  | | Most likely condition:  Anaphylactic transfusion reaction | |  | |
| Action to take:  Administer a fluid bolus | |  | | Parameter to monitor:  Levels of consciousness | |
| Actions to take | | Potential Conditions | | Parameters to monitor | |
| Administer epinephrine | | Anaphylactic transfusion reaction | | Level of consciousness | |
| Administer a fluid bolus | | Acute hemolytic transfusion reaction | | Airway | |
| Administer diuretics | | Febrile nonhemolytic transfusion reaction | | Hematuria | |
| Administer antipyretics | | Septic transfusion reaction | | Temperature | |
| Administer antibiotics | |  | | Blood cultures | |