This is an assignment about practicing writing definitions of a relatively complex terminology using a parenthetical definition, a sentence definition and an expanded definition.  Through this assignment, students can get more familiarized with writing definitions in various levels of details for a different target audience.

**What is methemoglobinemia? (Parenthetical & Sentence Definitions)**

Methemoglobinemia is commonly known as “Blue Baby Syndrome”.  It is a medical condition, which babies appear blue due to the excess intake of nitrates from contaminated groundwater or milk formula using it.

**How can a baby develop methemoglobinemia? (Required Conditions & Visuals)**

Fertilizers used on farmlands or cow feces spread on the cattle farms for the production of manure contain a high concentration of nitrates.  After heavy rainfall or excessive watering on the field, nitrates in the fertilizer or manure can leach into the soil, which eventually contaminate the groundwater (“Blue Baby Syndrome.” *Wikipedia*).  Households, who depend on groundwater as their drinking water source, can consume water with a high concentration of nitrates.  Iron ions in the hemoglobin, which serves the function of bringing oxygen to cells in the body, can be affected by the elevated level of nitrates in the bloodstream.  As a result, babies or fetuses in mothers’ womb can develop methemoglobinemia and appear blue as shown in Figure 1.



Figure 1. Appearance of a baby with “Blue Baby Syndrome” (“Blue Baby Syndrome.” *Medical Information and Advice*)

**What are the health effects? (Examples)**

Depend on the amount of nitrates consumed, affected babies can develop various symptoms such as (“Methemoglobinemia.”):

* shortness of breath
* headache
* fatigue
* exercise intolerance
* dizziness
* seizures
* coma
* death

**Can we boil the water to remove the nitrates? (Comparison & Contrast)**

Unlike microbiological contamination of drinking water, nitrates in groundwater cannot be eliminated even after the water is rolling-boiled for a few minutes.  People, whose drinking water source is contaminated by nitrates, should consider finding alternative water sources, such as constructing a new well or using bottled water (*“*What’s In Your Well? – A Guide To Well Water Treatment And Maintenance.”).

**Works cited:**

“Blue Baby Syndrome.” *Medical Information and Advice*. N.p., n.d. http://book-med.info/syndrome/62412. Accessed September 2016.

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*“*What’s In Your Well? – A Guide To Well Water Treatment And Maintenance.” *Health Canada.* Health Canada, 2008. http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/well-puits-eng.php.  Accessed September 2016.