

Teacher's Diphtheria: Cause and Treatments

Instructions: Answer the following questions after reading and examining the featured items and text in the "Living Factories" part of the From DNA to Beer exhibition website. As a part of your answer, note the exhibition source(s) from which you found the answers.

1. What kind of organism causes diphtheria illness in people?

(Exhibition source: *"Intubation kit" description text; "How did they make diphtheria antitoxin?" illustration*)

Diphtheria is caused by a bacterium. [optional: clarifying bacterium is singular form of bacteria.]

2. How did the intubation kit save the lives of children with diphtheria?

(Exhibition source: *"Intubation kit" interactive and description text*)

The kit contains tools and tubes to open the airways of the children with diphtheria infection, so that they are able to breathe and prevent suffocation.

3. How did the patient receive the diphtheria antitoxin serum?

(Exhibition source: *"Injecting Diphtheria Antitoxin" illustration; "Anti-Diphtheritic Serum and syringes" products*)

The antitoxin serum was injected into a patient using a syringe.

4. What were some animals used to develop and produce the diphtheria antitoxin serum?

(Exhibition source: *Photos of guinea pigs and the laboratories; Guinea pig holder photo and "The Voges holder for guinea-pigs" illustration; Animal record card and book; etc.*)

Guinea pigs for testing serums and toxins, and horses for producing the antitoxin serum.

5. How did horses serve as "living factories" that make antitoxin medicine for people?

(Exhibition source: *"Recovering the diphtheria serum from horse blood in Marburg, Germany" illustration; "Injecting a horse with diphtheria toxin" photos; "How New York City's Health Department Makes Serums and Vaccines for the United States Army" article; Animal record book pages; "How did they make diphtheria antitoxin? Illustration"*)

The horses were injected the toxin from the diphtheria-causing bacterium, which made their immune system fight the toxin by producing antitoxin in their blood. Then the blood was drawn from the horses and processed to be made into antitoxin medicine for people.