“Baby Caroline” Develops Flaccid Paralysis Case Study

In June 2003, frantic parents rushed a 3-month-old female infant to the emergency room of a regional medical center in rural Tennessee. On initial examination by a triage nurse, “Baby Caroline” appeared listless with unfocused eyes and labored breathing. Her parents reported that, over the past 72 hours, the infant had grown increasingly irritable and had cried weakly and seemed unable to nurse properly. Further questioning revealed that Baby Caroline had had no bowel movements for 3 days. Within 48 hours of admission, she developed flaccid paralysis and experienced respiratory failure. The child received supportive therapy, including the use of a ventilator and administration of antitoxin. Full recovery occurred in about 4 weeks.

Epidemiologists called in to determine the source of the disease examined the child’s home. Baby Caroline’s parents stated that they were feeding her a leading brand of powdered infant formula prepared with tap water. A week or so previously, Baby Caroline started to refuse the formula, so her mother sweetened it with fresh honey from the family apiary. Additional questioning revealed that a 2-year-old sibling often “borrowed” the baby’s pacifier and played with it in the soil of the backyard. Baby Caroline’s mother admitted that she had, on a few occasions, simply retrieved the pacifier and wiped it with tissue before returning it to the infant.

* *Based on the information given here, what is the diagnosis of Baby Caroline’s illness?*
* *What culture methods could an epidemiologist use to determine the source of the causative agents of the disease?*