

Problem Based Learning Exercise
“Shawn”
Clinical Case

Scenario Part 1

A twenty nine year old mother of three presents with her 6 year old son, Shawn. She relays that Shawn’s first grade teacher said he was hyperactive and disruptive and needed to be on Ritalin®.

The medical history revealed that Shawn had several ear infections as a toddler, but had not had a sick visit since moving to this area one year ago. A well visit was performed at that time to finish immunizations needed for school. The review of body systems is normal except for the mother’s observation that Shawn had become a picky eater and sometimes complained of a stomachache.

Tasks

1. What are your initial hypotheses as to the cause of Shawn’s problems?
2. Develop a rationale to explain each hypothesis.
3. What additional information is needed to confirm or disprove each hypothesis?
4. Explain your reasoning.
5. What diagnostic tools or tests (if any) are necessary?
6. Explain your reasoning.

Scenario Part 2 Clinical

A comprehensive review of the medical history revealed that Shawn had regular and timely well child visits, and his immunization record was current. Aside from the recurrent ear infections as a toddler, the medical history was unremarkable.

The Vision & Hearing screens were within normal limits, as were the CBC, T3, T4 and TSH.

The family history revealed no ADHD or learning disabilities among extended family members. In school, Shawn is doing very well in math, but is having trouble learning to read despite an hour a day working with his father. Shawn had no problems with hyperactivity in kindergarten, but the teacher did allow for more up and down behavior. The mother states that Shawn had always been an active child, as was his 4-year-old brother Michael. Shawn has several friends both in school and in the neighborhood. This fall, he began playing soccer on a city park team.

Shawn eats three meals a day, plus a snack in the afternoon. The school provides lunch. Breakfast is cereal with milk, or frozen waffles and juice. Dinner is meat, a vegetable, and a starch. After school snacks are fruit and milk. The mother mentioned that lately Shawn had not been eating all the food on his plate.

The family is close knit. The father works as a manager and the mother stays home with the 3 children. The family moved over the summer into an older, middle class neighborhood and are in the process of renovating their home.

Tasks

1. How does this new information help you in your problem solving or decision making?
2. Are you able to reprioritize your original hypotheses?
3. What additional information would be helpful?
4. Is additional testing necessary?

Scenario Part 3

When questioned about the home renovation, Sean's mother related that the house was 75 years old. She and her husband have spent the past 6 months sanding, painting and replacing the antiquated plumbing.

Blood Lead Levels are listed in the table below. The reference or normal blood lead level range for infants and children below the age of 14 is 0.0 to 9.9 $\mu\text{g}/\text{dL}$. The reference lead level for individuals age 15 and older is 0.0 to 24.9 $\mu\text{g}/\text{dL}$.

Family Member	Lead ($\mu\text{g}/\text{dL}$)
Shawn	21
Michael (age 4)	29
Sarah (age 18 months)	35
Mother	8
Father	6

Tasks

1. What treatment (if any) is indicated?
2. What recommendations would you make to keep this problem from reoccurring?
3. What follow-up (if any) is indicated?

Problem Based Learning Exercise
“Shawn”
Generalist Case

Scenario Part 1

A twenty nine year old mother of three presents with her 6 year old son, Shawn. She relays that Shawn’s first grade teacher said he was hyperactive and disruptive and needed to be on Ritalin®.

The medical history revealed that Shawn had several ear infections as a toddler, but had not had a sick visit since moving to this area one year ago. A well visit was performed at that time to finish immunizations needed for school. The review of body systems is normal except for the mother’s observation that Shawn had become a picky eater and sometimes complained of a stomachache.

Tasks

1. What are your initial hypotheses as to the cause of Shawn’s problems?
2. Develop a rationale to explain each hypothesis.
3. What additional information is needed to confirm or disprove each hypothesis?
4. Explain your reasoning.
5. What environmental issues might be involved?
6. Explain your reasoning.

Scenario Part 2

A comprehensive review of the medical history revealed that Shawn had regular and timely well child visits, and his immunization record was current. Aside from the recurrent ear infections as a toddler, the medical history was unremarkable.

In school, Shawn is doing very well in math, but is having trouble learning to read despite an hour a day working with his father. Shawn had no problems with hyperactivity in kindergarten, but the teacher did allow for more up and down behavior. The mother states that Shawn had always been an active child, as was his 4-year-old brother Michael.

The family is close knit. The father works as a manager and the mother stays home with the 3 children. The family moved over the summer into an older, middle class neighborhood and are in the process of renovating their home.

Tasks

1. How does this new information help you in your problem solving or decision making?

2. Are you able to reprioritize your original hypotheses?
3. What additional information would be helpful?
4. How would you identify the specific environmental threats to health?

Scenario Part 3

When questioned about the home renovation, Sean's mother related that the house was 75 years old. She and her husband have spent the past 6 months sanding, painting and replacing the antiquated plumbing.

Blood Lead Levels are listed in the table below. The reference or normal blood lead level range for infants and children below the age of 14 is 0.0 to 9.9 $\mu\text{g}/\text{dL}$. The reference lead level for individuals age 15 and older is 0.0 to 24.9 $\mu\text{g}/\text{dL}$.

Family Member	Lead ($\mu\text{g}/\text{dL}$)
Shawn	21
Michael (age 4)	29
Sarah (age 18 months)	35
Mother	8
Father	6

Tasks

1. What are the toxic effects of lead and how are they manifest in humans?
2. What hypotheses can you develop to explain the difference in Blood Lead Levels among various members of the family?
3. What recommendations would you make to keep this problem from reoccurring?

Author Information

Laurine T. Charles, MHS
Coordinator of Academic Affairs
College of Health Professions
Medical University of South Carolina
45 Bee Street
P.O. Box 250701
Charleston, SC 29425
(843) 792-4103 (Phone)
(843) 792-4024 (FAX)
charlelt@musc.edu

Adapted from Mock, K. (2000). A new disease or an old enemy. In Environmental Health Case Studies. [On-line]. Available: <http://home.sc.rr.com/masverde/>

Funding provided by the South Carolina Sustainable Universities Initiative,
Patricia Jerman, Program Manager. Information available at:
pjerman@environ.sc.edu