

Problem Based Learning Exercise
“Mal de la Rosa”
Facilitator Notes

Scenario 1

Plausible Hypotheses

1. Infectious agent
2. Immune reaction (hives, contact dermatitis)
3. Dietary deficiency

Additional Experiments

1. Examine exudate from lesions for infectious agents
2. Determine prevalence across socio-economic boundaries
3. Determine whether consuming a balance diet reverses progression of the condition
4. Determine whether particular foods were more or less effective at moderating symptoms
5. Look for common source of exposure to plants, animals and chemicals

Scenario 2

Plausible Hypotheses

1. The corn contained an infectious agent that caused the disease
2. Fresh food contained a substance which was absent from the corn based diet and was therefore responsible for causing the condition in its absence

Ethical Issues

1. Human subject experimentation
2. Consent to be a research subject
3. Incentives such as pardons

Studies to disprove microbe hypothesis

1. Examine whether the condition appeared to spread from one person to another with prolonged exposure
2. Examine the corn based diet for evidence of infectious agents
3. Study whether fecal or blood exposure increased incidence

Scenario 3

Conclusions

1. Pellagra was not transmitted by exposure to blood or body fluids taken from pellagrins.
2. Infectious agents did not cause the condition.

Ethical Considerations

1. Human subject experimentation
2. Investigator participation in experimentation

Modern Epidemiologic Studies

1. Laboratory testing
2. Investigation for susceptible animal model
3. Double blind clinical trials to evaluate interventions
4. Evaluation of risk factors using case controls
5. Long term population studies
6. Study disease distribution, determinants and frequency
7. Study patterns of occurrence
8. Case control studies
9. Cohort studies

Cause

Niacin deficiency – researched extensively by Drs. Joseph Goldberger and W. Henry Sebrell. In 1937, researcher Conrad Elvehjem found that nicotinic acid (niacin) prevented and cured pellagra in dogs.

Scenario 4

Social Reform Issues

1. Tension between individual autonomy and responsibility to protect populations
2. Social justice – treating like cases in like manner
3. Truth-telling in information exchange and decision and policy making

Objectives

Upon completion of this exercise, students should be able to:

1. Identify types of epidemiologic studies that are performed in the investigation of threats to the public health.
2. Discuss ethical issues related to epidemiological studies in general and human experimentation in particular.
3. Describe the tension that can exist between the right to individual autonomy and the obligation to develop public policy and public health policy.
4. Discuss social reform issues generated by population-based decisions and policies developed from epidemiologic data.

Resources

Dewitt Stetten, Jr. Museum of Medical Research
<http://www.nih.gov/od/museum/goldberger/main.html>

Supercourse Epidemiology, the Internet and Global Health
<http://www.pitt.edu/~super1/>

Epidemiology links
<http://www.idrc.ca/library/document/gis.html>

Etheridge, E.W. (1972) The butterfly caste: A social history of pellagra in the south. Greenwood Press, Westport, CN.

Park, Y.K., Sempos, C.T., Barton, C.N., Vanderveen, J.E. & Yetley, E.A. (2000) Effectiveness of food fortification in the United States: The case of pellagra. American Journal of Public Health, 90(5), 727-38.

Rajakumar, K. Pellagra in the United States: a historical perspective. Southern Medical Journal, 93(3), 272-7.

Isaac, S. (1998) The “gauntlet” of pellagra. International Journal of Dermatology, 37(8), 599.

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

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