

Topics: Goals, Methods, & Achievements of the HGP; Typology of Genetic Conditions; Scientific, Clinical, Ethical, and Legal Aspects of Gene Therapy; Concepts of Disease; Genetic Disabilities; Gender and Socio-economic Differences; Cultural and Ethnic Differences; Directive or Non-directive genetic counseling.

Speakers: Jeff Leiden; Julie Palmer; Dan Brock; Anita Silvers; Abby Lippman; James Bowman; Beth Fine

Phase II (Jan.–Mar. 1996): Teams of individuals, all trained in the same area of primary care, will identify and address issues specific to their area, developing course outlines, bibliography, and methodology based on grand rounds given by national expert.

Primary Care Area

Pediatrics: Genetics expert: Stephen Friend, Ethics Expert: Lainie F. Ross + fellow

Obstetrics/Gynecology: Genetics expert: Joe Leigh Simpson, Ethics Expert: Marion Verp + fellow

Medicine: Genetics expert: Tom Caskey, Ethics Expert: Greg Sachs + fellow

Family medicine: Genetics expert: Noralane Lindor, Ethics Expert: Robert Moss + fellow

Nursing: Genetics expert: Mira Lessick, Ethics Expert: Colleen Scanlon + fellow

Phase III (Apr.–May 1996): Policy issues will be identified and addressed as above for all areas of primary care, based on grand rounds given by national expert.

Policy team: Genetics expert: Sherman Elias; Ethics expert: John Lantos + trainee

Phase IV (Oct.–Dec. 1996): Presentation of content developed to new group of fellows and scholars by each of the above teams, followed by evaluation & revision.

Phase V (spring 1997): NATIONAL CONFERENCE and CME/CNE WORKSHOPS for primary caregivers, key-noted by Victor McKusick.

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References

- ¹Lippman A., Prenatal genetic testing and screening, *Amer J Law & Med* XVII, 15-50 (1991).
- ²Hofman, K.J., Tambor, E.S., Chase, G.A., Geller, G., Faden, R.R., and Holtzman, N.A., Physicians' knowledge of genetics and genetic tests, *Acad Med* 68, 625-32 (1993).
- ³Holtzman, N.A., The paradoxical effect of medical training, *J Clin Ethics* 2, 24142 (1992).
- ⁴Forsman, I, Education of nurses in genetics, *Amer J of Hum Genetics* 552-58, (1988).
- ⁵Williams, J.D., Pediatric nurse practitioners' knowledge of genetic disease *Ped Nursing* 9, 1 19-21 (1983).
- ⁶George, J.B., Genetics: Challenges for nursing education, *J Ped Nursing* 7, 5-8, (1992).

Nontraditional Inheritance: Genetics and the Nature of Science; Instructional Materials for High School Biology

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There often is a gap between the public's and scientists' views of new research findings, particularly if the public's understanding of the nature of science is not sound. Large quantities of new evidence and consequent changes in scientific explanations, such as those associated with the Human Genome Project and related genetics research, can accentuate those different views. Yet an appealing secondary effect of the unusually fast acquisition of data is that our view of genetics is changing rapidly during a brief time period, a relatively recent phenomenon in the field of biological sciences. This situation provides an outstanding opportunity to communicate the nature and methods of science to teachers and students, and indirectly to the public at large. The immediacy of new explanations of genetic mechanisms lets nontechnical audiences actually experience a changing view of various aspects of genetics, and in so doing, gain an appreciation of the nature of science that rarely is felt outside of the research laboratory.

The Biological Sciences Curriculum Study (BSCS) is developing a curriculum module that brings this active view of the nature and methods of science into the classroom via examples from recent discoveries in genetics. We will distribute this print module free of charge to interested high school biology teachers in the United States.

The examples selected for classroom activities include the instability of trinucleotide repeats as an explanation of genetic anticipation in Huntington disease and myotonic dystrophy, and the more widespread genetic mechanism of extranuclear inheritance, illustrated by mitochondrial inheritance. Background materials for teachers discuss a wider range of phenomena that require nontraditional views of inheritance, including RNA editing, genomic imprinting, transposable elements, and uniparental disomy. The genetics topics in the module share the common characteristic that they are not adequately explained by the traditional, Mendelian concepts that are taught in introductory biology at the high school level. In addition to updating the genetics curriculum and communicating the nature of science, the module devotes one activity to the ethical and social aspects of new genetics discoveries by challenging students to consider the current reluctance to test asymptomatic minors for the presence of the HD gene.

The major challenge we have faced in this project is to make relatively technical genetics information accessible to high school teachers and students and to turn the often