

## Laboratory Genetic Counseling Online Course

Lecture #	Lecture Title	Lecturer	Behavioral Objectives Participants will:
1	Genetic Counseling in a Clinical Laboratory	Kristen Sund	<ol style="list-style-type: none"> <li>1. Define roles for a genetic counselor in a genetic clinical laboratory</li> <li>2. Illustrate that clinical laboratories are a common work setting for genetic counselors</li> <li>3. Evaluate how genetic counselors work together with other professionals in a laboratory setting</li> </ol>
2	Preliminary Results and Other Common "Call-outs"	Kristen Sund & Jenny Holle	<ol style="list-style-type: none"> <li>1. Recognize different methods of results communication in a clinical genetics laboratory</li> <li>2. Evaluate the role of preliminary results in the laboratory and how they may differ from final results</li> <li>3. Review how genetic counseling skills assist in results communication in a laboratory setting</li> </ol>
3	Common Questions/Problems in the Lab	Jennifer Glass & Emily Wakefield	<ol style="list-style-type: none"> <li>1. Describe common laboratory questions and problems</li> <li>2. Explore why different situations in the laboratory can be problematic</li> <li>3. Give examples of solutions and actions taken by genetic counselors in the laboratory</li> </ol>
4	Microarray Reporting	Leandra Toluoso	<ol style="list-style-type: none"> <li>1. Recognize differences in microarray types and platforms.</li> <li>2. Identify resources for researching microarray anomalies.</li> <li>3. Interpret information about microarray anomalies to write a micorarray report.</li> </ol>
5	Constitutional and Prenatal Cytogenetic Testing Methodologies	Jennifer Glass	<ol style="list-style-type: none"> <li>1. Outline the history of cytogenetic testing</li> <li>2. Describe the standard procedures for common cytogenetic tests</li> <li>3. Compare different cytogenetic procedures including their strengths and limitations</li> </ol>

6	Non-invasive Prenatal Testing (NIPT)	Meredith Pastrick	<ol style="list-style-type: none"> <li>1. Discuss NIPT terminology and different methodologies.</li> <li>2. Interpret NIPT results obtained using different NIPT methodologies.</li> </ol>
7	Molecular Methodologies	Jenny Holle	<ol style="list-style-type: none"> <li>1. Review PCR and Sanger sequencing including strengths and limitations</li> <li>2. Discuss next generation sequencing and other newer molecular testing methodologies including strengths and limitations</li> </ol>
8	Exome Sequencing	Layla Shahmirzahi	<ol style="list-style-type: none"> <li>1. Describe the technical aspects of clinical exome sequencing</li> <li>2. Demonstrate potential roles for exome sequencing in clinical care</li> <li>3. Review types of filtering and bioinformatic analysis that may be involved in interpreting clinical exome sequencing</li> </ol>
9 & 10	Clinical Exome Sequencing Part 1 and 2	Jenny Holle, Kathleen Collins	<ol style="list-style-type: none"> <li>1. Discuss the clinical aspect of whole exome sequencing both before and after testing</li> <li>2. Discuss how the technical aspects of whole exome sequencing influence test interpretation</li> <li>3. Review how clinical and laboratory GC's can work together to help patients receiving whole exome sequencing</li> <li>4. Outline how technical knowledge about whole exome sequencing can influence clinical decisions such as choosing a laboratory, testing strategies, and counseling patients.</li> </ol>
11	Variant Classification and Report Writing	Erin Mundt, Jessica Connor, Emily Wakefield	<ol style="list-style-type: none"> <li>1. Review terminology and nomenclature related to variant classification.</li> <li>2. Discuss the process for variant interpretation incorporating lines of evidence used to classify variants.</li> <li>3. Discuss the importance and challenges of variant reclassification on patient care and management.</li> <li>4. Evaluate the varying roles of GC's in the process of variant interpretation and reporting.</li> </ol>
12	Oncology Testing Methodologies	Kristen Sund	<ol style="list-style-type: none"> <li>1. Differentiate between hereditary and acquired genetic changes associated with cancer</li> <li>2. Analyze the goals associated with acquired change genetic testing</li> <li>3. Identify genes associated with oncogenesis</li> </ol>

13	Ethical Issues in the Laboratory	Kristen Sund	<ol style="list-style-type: none"> <li>1. Give examples of ethical delimmas faced by genetic counselors in a clinical genetics laboratory setting</li> <li>2. Recognize the similarities between ethical issues faced by laboratory and clinical genetic counselors</li> </ol>
14	Laboratory Utilization Management	Emily Partack	<ol style="list-style-type: none"> <li>1. Describe the process and things to consider when establishing a laboratory utilization management program.</li> <li>2. Outline examples of how laboratory utilization management can impact an individual, institution, or healthcare system.</li> </ol>
15	Billing and Insurance Pre-certification	Dina Conners	<ol style="list-style-type: none"> <li>1. Assess the role of precertification in billing for genetic tests</li> <li>2. Discuss potential roles for genetic counselors in the billing and precertification process</li> </ol>
16	Laboratory Regulation	Brian Dawson	<ol style="list-style-type: none"> <li>1. Review regulatory landscape for clincal laboratories including CMS, CDC, FDA, CLIA, and CAP roles.</li> <li>2. Identify information that can be used to determine if laboratory is meeting quality standards.</li> </ol>
17	Quality Assurance/Quality Control in the Laboratory	Lori Reimer	<ol style="list-style-type: none"> <li>1. Define quality control, quality assurance, and quality improvement</li> <li>2. Identify the components of a good quality assurance program</li> </ol>
18	Clinical Versus Research Testing - The Example of Exome	Kathleen Collins, Nicole Weaver	<ol style="list-style-type: none"> <li>1. Compare and contrast the goals and potential outcomes of genetic testing in a clinical versus research setting using exome as an example.</li> <li>2. Identify the challenges and importance of choosing the correct test (clinical or research) for a given situation.</li> </ol>

19	New Test Development	Jennifer Glass	<ol style="list-style-type: none"> <li>1. Describe the necessary steps in new test development in a clinical genetics laboratory.</li> <li>2. Explore how and when genetic counselors may be involved in the new test development process</li> </ol>
20	What's the Difference? Academic vs. Industry Clinical Laboratories	Elizabeth Butler	<ol style="list-style-type: none"> <li>1. Define the different types of clinical diagnostic laboratories</li> <li>2. Recognize the similarities and differences between academic and industry laboratories</li> <li>3. Describe the benefits and limitations of each type of laboratory</li> </ol>
21	Roles of Genetic Counselors in Laboratories and Industry	Kaitlin Allsbrook, Leslie Bucheit, Jessica Connor, Abby Masunga, Kirsty McWalter, Erin Mundt, Emily Wakefield, Jody Wallace	<ol style="list-style-type: none"> <li>1. Outline the various roles that genetic counselors can take on in laboratory or industry settings.</li> <li>2. Describe genetic counseling skills and how they can be applied to a variety of different roles.</li> </ol>