Purpose: The purpose of the logbook is to document that the applicant has had direct and meaningful involvement in the processing, analysis, interpretation, and reporting of biochemical genetics laboratory tests and has received ongoing and appropriate laboratory supervision. The logbook cases must provide evidence of at least one year of clinical laboratory bench experience and evidence of well-rounded experience with a wide variety of biochemical genetic techniques involving all major biochemical genetic laboratory testing categories. Conditions submitted in the logbook should represent the broad spectrum of biochemical genetic diagnoses.

Submission Requirements: Logbooks must be completed in accordance with the written instructions provided in this document. Before submitting a logbook to the program director for review, the applicant must use the online data check program and correct any errors the program identifies. The specialty training director and program director will then review the logbook and electronically submit their approval to the ABMGG Administrative Office by the stated deadline. Failure to follow these procedures will result in the logbook being returned to the applicant for revision, which may delay review of the applicant’s credentials and the determination of active candidate status. In addition, late fees may be incurred.

Case Selection:

1. All specimens must have been processed in settings under an ABMGG or CCMG-accredited training program in clinical biochemical genetics.

2. Supervision for case encounters must be provided by faculty who are ABMGG-certified, ABGC-certified, or CCMG-certified. For cases obtained during rotations in outside laboratories, e.g., state newborn screening laboratories, it is recommended that supervisors be certified by their appropriate certifying board(s). All supervisors must be identified in the training program’s accreditation documents as members of the training faculty.

3. All 150 cases must be obtained during the inclusive dates of the applicant’s medical genetics training.

4. Logbook entries must reflect at least one (1) year of clinical laboratory bench experience. No more than half of the cases may be obtained in any four-month period and no more than 25 cases may be obtained in any 30-day period.

5. Each logbook entry must document the applicant’s role(s) in the testing and reporting process, including sample processing, analysis, results interpretation, and/or communication of the test results.
6. Only cases for clinical analysis may be included in the logbook. Experimental or control cases, archival material, proficiency testing, or cases that are part of laboratory quality assurance activities will not be accepted. In laboratories where state regulations do not permit unlicensed individuals to generate a clinical laboratory result, parallel testing of clinical samples between a licensed technologist and trainee may serve to fulfill this requirement.

7. A given patient or family may appear only once in an individual’s logbook, regardless of the number of specimens processed on the patient or family.

8. For applicants seeking certification in more than one laboratory specialty (and therefore submitting more than one logbook), a given patient may only appear in a single logbook, regardless of the number of specimens processed or methodology used.

Description of Logbook Headings/Columns:

- **Entry number**: Access to the logbook at the start of the training program allows applicants to enter up to 300 cases while in training. The applicant must select 150 cases to submit for logbook review. The applicant must be able to identify each case by its entry number should questions arise about an entry. Patient names and bona fide hospital or clinic numbers may not be used anywhere in the logbook. Logbooks that contain specific information regarding the identity of a patient will not be reviewed.

- **Date**: The date in month/day/year [MM/DD/YYYY] format identifies when the sample was received in the laboratory or, if relevant, the date the patient was seen.

- **Primary Laboratory Testing Category**: For each case, use the numbers 1 through 5 as outlined below to identify the single category that best describes the indication for the clinical biochemical genetic test. Observe limits per category where specified.

  **Category 1**  **Diagnostic evaluation, postnatal**: Initiated because of clinical symptoms and/or family history; or follow-up testing of abnormal newborn screening results.

  **Category 2**  **Carrier testing**: Ethnicity-based carrier screening (e.g., Tay-Sachs carrier testing) or biochemical carrier testing based on family history. It is recommended that at least 5 cases be obtained in this category. Up to five cases may represent the interpretation and/or communication of results from molecular-based (DNA) carrier testing of a metabolic disorder.

  **Category 3**  **Prenatal diagnosis**: Primary testing of prenatal samples, interpretation, and/or communication of prenatal diagnosis results generated by a referral laboratory, or maternal serum screening, i.e., AFP and other markers. It is recommended that at least 5 cases be obtained in this category. Up to five cases may represent the interpretation and/or communication of results from samples referred to another laboratory for biochemical and/or molecular-based (DNA) testing of a metabolic disorder.
Category 4  **Newborn screening:** Primary testing in a newborn screening laboratory, or interpretation and communication of newborn screening results from a state laboratory to health care providers and families. No more than 35 cases may be obtained from a state screening laboratory. It is *recommended* that at least 5 cases be obtained in this category.

Category 5  **Management/continuing care:** For follow-up testing of previously diagnosed individuals with a biochemical condition.

- **Laboratory Test/Methodology:** Specify the laboratory test/methodology performed for each case by entering the Methodology number outlined below. Observe limits per method where specified.
  1. **Amino acid analysis, quantitative;** e.g., amino acid analyzer, tandem mass spectrometry, or related method.
  2. **Organic acid analysis;** e.g., gas chromatography/mass spectrometry.
  3. **Acylcarnitines/Acylglycines;** e.g., tandem mass spectrometry or related method.
  4. **Screening Tests** (not including newborn screening): e.g., urine screening for mucopolysaccharides or oligosaccharides; or others. It is *recommended* that a minimum of 5 cases be obtained in this category.
  5. **Enzyme assay;** it is *recommended* that a minimum of 10 cases be obtained in this category.
  6. **Other analyte;** e.g., galactose-1-phosphate, carnitine, succinylacetone, very long-chain fatty acids.

- **Diagnosis:** For each case, enter the diagnosis or condition being evaluated, using the guidelines below. Logbook cases must demonstrate experience with a variety of biochemical methodologies and conditions. It is *recommended* that no more than 20 cases be for any one diagnosis and strictly *required* that no more than 35 cases be any one condition, such as phenylketonuria or galactosemia. A maximum of 100 cases may have normal laboratory findings. Note: “normal” implies that no major, clinically significant abnormalities were found. Cases being tested for management of a known diagnosis that have normal results due to treatment or clinical status (e.g., a known VLCAD deficiency patient when asymptomatic, a patient with intermittent MSUD) may be counted as “abnormal.”

  *For primary metabolic conditions:* Enter the diagnosis using the OMIM name or an OMIM alternative title. All cases representing the same condition should be entered using the same diagnosis name. For example: Enter all PKU cases as “PKU,” not “PKU” for some and “phenylketonuria” for others.

  *For results that are abnormal but not diagnostic for a specific metabolic disorder:* Enter the most likely condition underlying the abnormal result, using consistent terminology from case to case. Indicate that the results were abnormal.
Examples: Dietary artifact
Liver immaturity
Physiologic ketosis
Peroxisomal disorder, unspecified
Neural tube defect, increased risk
Trisomy, increased risk
Mitochondrial myopathy
Methylmalonic acidemia/homocystinemia
SSADH deficiency vs. drug artifact
Hyperglyceroluria (primary vs. secondary)

For results that are normal following testing for a specific metabolic disorder, initiated because of clinical symptoms, positive family history or abnormal screening result: Enter the disorder being evaluated using the OMIM name or an OMIM alternative title. For newborn screening cases with more than one disorder possible, enter the newborn screening result using standard terminology.
Examples: Elevated C3
Elevated C5
Elevated C5-OH

For results that are normal following metabolic testing for an unspecified condition: Enter “No abnormality detected” in the Diagnosis field.

- Trainee’s Roles: Check all of the boxes that indicate your role(s) in the testing, interpretation and reporting process. A breadth of experience must be reflected in the logbook. It is recommended that a minimum of three roles be specified for at least 140 cases. Observe specific limits per role where specified.

1. Sample preparation: Preparation of the sample for analysis, including dilution, analyte extraction, and other preparative steps. At least 75 cases must involve this role.

2. Sample analysis: Programming and running of instruments, chromatographic baseline review, peak identification, performance of manual assays. At least 75 cases must involve this role.

3. Interpretation of results: Evaluation of the clinical significance of findings including, where appropriate, gathering additional clinical and/or laboratory data, generating a differential diagnosis, recommending further testing, and generating a draft or final version of the written report. At least 100 cases must involve this role.

4. Oral communication of results to health care providers who requested the testing or their designated contact: a minimum of 10 cases must involve this role and at least half of these cases must involve abnormal results. However, it is recommended that at least 25 cases involve this role.

5. Oral communication of results to patients: a minimum of 10 cases is required for this role; it is recommended that at least half of these 10 cases involve abnormal results. If
institutional liability considerations prohibit trainees’ direct communication with patients, then the trainees’ presence during such communication will satisfy the requirement.

- **Supervisor**: Include the full name, degree(s), and type of certification of the supervisor who was present and was directly responsible for your activities regarding that case.