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Chapter 10: Quality Assurance Activities

10.1 Overview

The CITT Executive Committee has primary responsibility for assuring that the quality of the data collected and reported in the CITT are of a consistently high quality. Many factors contribute to the quality of the data, from the design of the study and procedures to the analytic methods employed.

10.2 Quality Assurance Features

The major quality assurance features of the CITT are listed below:

1. Intensive training and certification of CITT clinic site personnel before recruitment and data collection begin
2. Yearly re-training and re-certification of CITT clinic site personnel
3. Standardization of procedures used to diagnose CI
4. Standardization of treatment techniques, instructional sets, and recording of subject performance for all treatment groups
5. Standardization of data collection forms and procedures
6. Masking of the examiner for all outcome measures
7. Masking of subjects in the 2 office-based treatment groups
8. Maintaining strict adherence to study protocols
9. Development of protocols to maximize follow-up and retention of study subjects
10. Central concurrent processing of data to detect problems in data collection as they arise
11. Data querying for missing, invalid, and suspect responses
12. Specific data analysis to identify incorrect or fraudulent data collection processes
13. Yearly Full Investigator Group meetings to share information among CITT investigators and personnel
14. Site visits to CITT clinic sites
15. Regular reporting on the performance of all CITT clinic sites
16. Monthly telephone conferences of CITT personnel to review methods and discuss problems

10.3 Certification

The purpose of the certification requirements in the CITT is to assure that procedures are performed in accordance with CITT protocol in each Clinic Site. The Executive Committee and its designees will supervise certification procedures and issue certification documents.

Prior to enrolling any CITT subjects or collecting any CITT data, each CITT clinic site should have at least two individuals certified to serve in each of the following roles: Site Coordinator, Unmasked Examiner, Masked Examiner, and Vision Therapist. All CITT personnel will be required to update their certification on a yearly basis.
10.3.1 Certification Procedures

Prior to the beginning of the recruitment stage of the study, a training and certification meeting will be held at the Pennsylvania College of Optometry. All investigators will be required to attend this meeting and be certified in their respective responsibilities before recruitment can begin. The Pennsylvania College of Optometry will provide the clinical facilities, instructional video and instrumentation essential to conduct the training/certification program. Each CITT Clinic Site will send at least one person to be certified in each of the key CITT tasks. Training and recertification will also take place, as needed, during Full Investigator Group (FIG) Meetings in years 02-04. Full certification is valid for one year.

In the event an investigator joins a CITT Clinic Site after the initial training and certification meeting, he or she will be certified for the appropriate tasks by completing the following after obtaining approval for certification from the CITT Executive Committee (see below):

1. Reviewing a videotape of the training (Vision Therapist only)
2. Taking and passing a written examination
3. Demonstrating the proper procedures to the Executive Committee approved representative who is certified to perform the task

The entire process will be supervised by the Principal Investigator (PI).

To obtain approval for certification, the following procedures must be followed:

1. The site’s PI completes a certification application.
2. The completed application along with the applicant’s biographical sketch is sent to the Data Coordinating Center, Attention Lynn Mitchell. This material can be sent via fax, US mail, or electronically as an attachment to an email.
3. Ms. Mitchell polls the members of the CITT Executive Committee. The ballot will ask each member his or her preference on who should perform the actual certification testing (the site PI, the site’s investigator who is currently certified in that position, a member of the Executive Committee, or staff of the Data Coordinating Center).
4. Ms. Mitchell informs the site’s PI of the Executive Committee’s decision. If approved, training materials, a conflict of interest form and a CITT Manual of Procedures (the later two for new investigators only) will be sent to the applicant. In addition, the appropriate testing materials will be sent to the Executive Committee approved representative who is to perform the hands-on test.
5. After testing is completed, all testing materials and the completed conflict of interest form are returned to the Data Coordinating Center. Once received and processed at the DCC, an email confirming certification will be sent to the applicant and the site PI.

Each person certified in at least one of the key tasks listed below is assigned his or her certification initials (e.g., MMS) by the Data Coordinating Center. To distinguish investigators with the same initials, a number will be added to the end. The number 1 will be used for the first occurrence of each set of initials and incremented by 1 for each duplicate set of initials. These certification initials are entered on all CITT forms.
10.3.2 Certification of Unmasked and Masked Examiners

Key procedures:
1. Human Subjects Issues
2. Administration of CITT Symptom Survey
3. Cover Testing
4. Near Point of Convergence
5. Positive and Negative Fusional Vergence
6. Accommodative Amplitude
7. Accommodative Facility
8. Completion of all relevant CITT forms

The specific protocols for conducting each test used during the eligibility and masked examinations are described in detail in Chapter 4. Training for administration of the CITT Symptom Survey, cover test, near point of convergence, fusional vergence testing, accommodative amplitude, and accommodative facility, will require the following:

1. Attendance at a CITT training session concerning the CITT design and methods, forms completion, and data inspection.
3. Knowledge of the CITT data recording forms.
4. Demonstration of the ability to correctly perform the procedures.
5. Demonstration of the ability to correctly record the results.
6. Completion of a written examination on the administration and scoring of the procedures.
7. Human subjects and HIPAA training.

The CITT Executive Committee recommends that each CITT Clinic Site have at least two people certified for administration of the eligibility and masked examinations. After satisfactory completion of all requirements, verification of certification is issued and forwarded by the Data Coordinating Center to the site PI and newly certified site personnel. Study personnel are re-certified at the FIG meeting each year.

10.3.3 Certification of Vision Therapists

Key procedures:
1. Human Subjects Issues
2. Completion of CITT Vision Therapy form
3. Understanding/ knowledge of masking protocol
4. Understanding/ knowledge of retention protocol
5. All Treatment Procedures
   a. Pencil Push-up Procedure
   b. VT/Orthoptics Procedures
      • Brock String
      • Barrel Card
      • Vectograms (Clown)
      • Computer Orthoptics (RDS)
      • Life Saver Cards
      • Loose Lens Accommodative Facility
      • Letter Chart Accommodative Facility
      • Aperture Rule
      • Eccentric Circles
      • Loose Prism Facility
      • Binocular Accommodative Facility
   c. Placebo VT/Orthoptics
      • HTS Accommodation
      • Ductions
      • Monocular Brock String
      • Bailey Lovie Monocular Activity
      • Red Green Playing Cards
      • Visual Closure
      • Red Lens Activities
      • Hess Lancaster
      • HTS Vergence
      • Bernell-O-Scope
      • Binocular Yoked Prism Rock
      • After-Image Transfer Testing
      • Cyclodeviation: Double Maddox Rod Test
      • Modified Thorington
      • Figure Ground
      • Visual Spatial
      • Necker Cube Software

The specific protocols for conducting each therapy procedure are described in detail in Chapters 7-9. Training for administration of all procedures for Home-based Pencil Push-up therapy, Home-based Pencil Push-ups with Computer VT/Orthoptics therapy, Office-based VT/Orthoptics, and Office-based Placebo VT/Orthoptics will require the following:
   1. Attendance at a CITT training session concerning the CITT design and methods, forms, completion, and data inspection
   2. Knowledge/understanding of the CITT Manual of Procedures, especially Chapters 7-9
   3. Knowledge of the CITT data recording forms
   4. Demonstration of the ability to correctly perform the procedures
   5. Demonstration of the ability to correctly record the results
   6. Completion of a written examination on the administration and scoring of the procedures
   7. Human subjects and HIPAA training

The CITT Executive Committee recommends that each CITT clinic site have at least two people certified for administration of any treatment arm. After satisfactory completion of all requirements, verification of certification is issued and forwarded by the Data Coordinating Center to the site PI and newly certified site personnel. Study personnel are re-certified at the FIG meeting each year.
10.3.4 Certification of Clinic Site Coordinators

Key procedures:
1. Understanding/knowledge of all relevant modules in CITT database
   a. New subject
   b. Visit schedule
   c. Report generation
2. Assessment of eligibility
3. Randomization using the CITT new subject module
4. Understanding/knowledge of masking protocol
5. Understanding/knowledge of retention protocol
6. Completion of all CITT forms
7. Transmission of forms to the Data Coordinating Center
8. Human subjects and HIPAA training

The CITT Site Coordinator’s role is critical to the smooth day-to-day operation of the CITT Clinic Site. Training for Site Coordinators will concentrate on data quality control, subject education skills, human subjects’ issues, scheduling, use of scheduling software, assessing subject eligibility, subject randomization using the CITT randomization module, masking protocol, retention strategies, problem solving, and organizational ability. Training for Site Coordinators will require the following:

1. Attendance at a CITT training session concerning the CITT design and methods, forms completion, and data inspection
2. Knowledge/understanding of the CITT Manual of Procedures
3. Knowledge of all CITT forms
4. Demonstration of the ability to review forms for quality of data collection
5. Demonstration of the ability to randomize subjects using the CITT new subject module of the CITT database
6. Demonstration of the ability to access the CITT website for subject education
7. Demonstration of the ability to enter and edit subject data in the CITT scheduling module
8. Completion of a written examination
9. Human subjects and HIPAA training
10. Understanding / knowledge of masking protocols
11. Understanding / knowledge of retention protocols

The CITT Executive Committee recommends that each CITT Clinic Site have at least two people certified for the duties of the Site Coordinator. After satisfactory completion of all requirements, verification of certification is issued and forwarded by the Data Coordinating Center to the site PI and newly certified site personnel. Study personnel are re-certified at the FIG meeting each year.
10.4 Standardization of Diagnosis and Treatment Techniques

Convergence insufficiency (CI) is defined as: 1) CI Symptom Score > 16, 2) exophoria that is greater at near than at distance, 3) a remote near point of convergence, and 4) decreased positive fusional vergence (PFV) at near. Protocols for each of these measures are given in Chapter 4. Yearly certification will be used to maintain these standards.

Step-by-step instructions for both the vision therapist and subjects in each treatment group are given in Chapters 7-9. All CITT Vision Therapists must be certified to administer the treatments.

10.5 Standardization of Data Collection Forms

The DCC participated in the design of all data collection forms and coordinates modifications to existing forms. The DCC also supplies the CITT clinic sites with forms, which assures that the current versions of all forms are used.

Table 10-1 includes a list all CITT forms along with information on when the form is completed and by whom.
### Table 10-1 CITT Study Forms – When Completed and by Whom

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<thead>
<tr>
<th>Form</th>
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<th>Weekly&lt;sup&gt;a&lt;/sup&gt;</th>
<th>4 wk</th>
<th>8 wk</th>
<th>12 wk</th>
<th>6 mnth</th>
<th>12 mnth</th>
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</table>

<sup>a</sup>Through 12 week active treatment phase

<sup>b</sup>At eligibility for eligible subjects who refuse participation or as needed for randomized subjects who wish to withdrawal from the study

<sup>c</sup>Same parent/guardian must complete form.

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**LEGEND:**

- S = Subject
- P = Parent / Guardian
- E = Examiner
- ME = Masked Examiner
- SC = Site Coordinator
- VT = Vision Therapist

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10.6 Masking of Subjects and Examiners

During the CITT Planning Project we developed several precautions to prevent unmasking of either the subject or the masked examiner. Before each follow-up visit, the site coordinator will greet the subject and review the importance of masking. Subjects will be instructed not to discuss the treatment they are receiving with the masked examiner. The site coordinator will temporarily hold any vision therapy equipment that the subject brings with them. If a subject should have a question, the therapist or the site coordinator will be available to answer the question. If neither of these individuals can answer the questions, the unmasked, principal investigator will be available to help the subject. The masked examiner will not have access to any records. These records will be locked in a file cabinet located in the site coordinator’s office. The masked examiner will only have a data collection form for the current masked examination visit.

The room in which all therapy visits take place will be located in an area physically separated from the area in which other study investigators practice. This will eliminate the potential problem of a study investigator becoming unmasked.

Any subject who is symptomatic (CI Symptom Score \( \geq 16 \)) after 12 weeks of treatment will be referred to a non-CITT investigator. To aid in prescribing treatment, this referred doctor will be unmasked to treatment assignment. This doctor will review alternative treatment options with the subject.

Subjects will be officially unmasked to treatment assignment only when all active subjects have completed their 12 month follow-up visit. At that time, the site coordinator will arrange an appointment, either face-to-face or by telephone, during which the principal investigator will disclose treatment assignment to both the subject and his/her parent/guardian and answer any questions that arise.

10.7 Protocol Violations

Protocol violations include but are not limited to:

- Sending Informed Consent documents to DCC
- Sending data forms to DCC with names not concealed
- Entering incorrect eligibility information in the New Subject module (i.e. obtaining randomization information for an ineligible subject)
- Performing examination or therapy visit outside the acceptable time window
- Falsification of data
- Allowing uncertified examiner to obtain information for data form
- Failure to properly track and document subject activity
- Office-based vision therapy/placebo vision therapy visits less than 55 minutes in length

When a protocol violation has been identified by DCC personnel, the Principal Investigator and Site Coordinator will be immediately contacted by the DCC PI. The information will also be forwarded to the Study Chair, and all members of the Executive Committee. If necessary, Ms. Mitchell and Dr. Scheiman will schedule a conference call with the site’s personnel to discuss
the situation. All protocol violation information will also be reported to members of the DSMC during the face-to-face meetings.

10.8 Maximizing Follow-up and Retention

10.8.1 Missed Visits

To avoid missed follow-up visits, the CITT Site Coordinator will make every attempt to schedule the subject early in the visit window as designated by the Data Coordinating Center, so that if necessary the subject can be rescheduled within the visit window.

For weekly treatment visits, consistency is important so every attempt should be made to have the subject scheduled for the same day each week. If a treatment visit is missed, it is important to reschedule for another day that week following the acceptable time frame guidelines as shown in Table 6-1 in Chapter 6.3.1.

If any visit is missed, the Site Coordinator will reschedule the subject for a visit as soon as possible. If the subject fails to attend the make-up visit, the Site Coordinator will call the subject at least three times per day until the subject is rescheduled. If this fails, the CITT Site Coordinator will also try to contact the subject by mail and notify the site’s Principal Investigator (who will also try to contact the subject by phone). If the subject still does not respond, the Site Coordinator will attempt to contact the subject through the additional contact information provided by the subject or his parent/guardian.

If these attempts are not successful the Study Chair should be notified and a decision will be made on a case-by-case basis to determine how to proceed.

10.8.2 Retention

Retention of subjects is critical for the success of the study. To improve retention we have developed the following strategies:

1. If only one parent is present, it is important that the CITT investigator be sure that this parent/guardian is able to make a consent decision for the family prior to randomization. When in doubt, it is advisable to have the parent return home and discuss the study with his/her spouse before making a decision.
2. Birthday cards will be sent within one week prior to each subject’s birthday and seasonal cards will be sent to subjects as appropriate.
3. Items such as a gift certificate for video rental, CITT T-shirt, ball cap, or a novelty toy will be distributed after each treatment visit. Excellent compliance for treatment and masked examination visits will be rewarded with a more significant gift item. For example, a perfect visit record with no missed appointments and all appointments within windows will receive the highest value gift item. Individual clinic sites will control the types of incentive items and the distribution schedule.
4. A payment of $20 will be made for the eligibility exam, each completed treatment visit/phone appointment, and the completed masked examinations after weeks 4 and 8 in order to defray the traveling, child care, and other expenses associated with a study visit.
5. Payments will be given incrementally (after the eligibility examination and after each masked examination).

6. A payment of $50 will be paid to each subject/guardian for the primary outcome examination after 12 weeks of treatment and for the 6- and 12-month follow-up examinations. We chose a higher payment for these visits because they are not part of routine eye care.

7. A quarterly newsletter will be generated by the Site Coordinator and Principal Investigator of each CITT Clinic. These newsletters will be distributed to the local CITT subjects.

8. CITT clinics will offer sufficient appointment times with the Vision Therapist and Masked Examiner so that it is possible to be flexible and schedule appointment times that are convenient for subjects (e.g., late afternoons, early morning, evenings, and Saturdays).

9. Subjects in the office-based groups (VT/Orthoptics and Placebo VT/Orthoptics) will be telephoned the day prior to their weekly scheduled therapy appointment to remind them of the visit.

10. Subjects in home-based groups (Pencil Push-up therapy and Pencil Push-up with Computer VT/Orthoptics) will have nine scheduled phone appointments. During this phone appointment, the Vision Therapist will review the home therapy log, questions the subject about the home therapy, answer questions about the therapy, and encourage compliance.

11. Subjects will be reminded of each upcoming masked examination at the previous week’s therapy/phone appointment. In addition, the Site Coordinator will call the subject the day before the masked examination is scheduled to occur.

12. If a subject misses a visit, the Site Coordinator will reschedule the subject for a visit as soon as possible and within the visit window (i.e., the subject will be called as soon as it is clear that the subject is not merely late for the appointment). If the subject fails to make the appointed visit, the Site Coordinator will call the subject three times daily until the subject is rescheduled. If this fails, the Site Coordinator will also 1) try to contact the subject by mail (a postcard will be sent advising the subject to call and reschedule) and 2) notify the site’s Principal Investigator (who will also try to contact the subject by phone). If the subject still does not respond, the Site Coordinator will attempt to contact the subject through the additional contact information provided by the parent/guardian. The Site Coordinator will continue to try to contact the subject at least once per week until contact is made. If these attempts are not successful the Study Chair should be notified and a decision will be made on a case-by-case basis to determine how to proceed.

13. The Site Coordinator will periodically review the appointment book. Special attention will be paid to no-shows, cancellations, and reschedules to determine if a pattern emerges that can be addressed.
10.8.3 Retention for Long-term Follow-up

All patients will be followed for 12 months after completion of the 12 weeks of treatment. Clinical sites will encourage retention in this phase of the study using the following techniques:

1. The CITT Site Coordinator will call subjects every other month after completion of treatment so that there is never more than a two-month period of time without contact. During these telephone calls, the Site Coordinator will answer any questions.
2. During the months of no phone contact, the Site PI and Study Coordinator may choose to send postcard reminders.
3. The CITT Site Coordinator will send a quarterly CITT newsletter (developed by the Study Chair’s office) to each subject.
4. When applicable, the CITT Site Coordinator will send a birthday card and holiday greeting cards so that patients will periodically be reminded of the study.
5. The Site PI and Study Coordinator may develop other methods of assuring long-term retention. Methods found to be well-received by study subjects will be shared with other sites.

10.9 Data Quality

The DCC staff is responsible for all of the data processing in CITT, and for timely editing, resolution of problems, and reporting. Concurrent data processing is important for providing feedback to each individual involved in data collection and subject care in order to assure that the procedures specified in the protocol are interpreted and applied correctly. In addition, the DCC developed a set of data analytic routines meant to identify patterns in the data that might indicate incorrect or fraudulent data collection processes.

10.9.1 Processing Data Forms

Data forms from each clinic site will be sent to the DCC via fax. Upon arrival at the DCC, each form will be stamped by the fax machine with the date received. A transmittal log will be required with each set of forms sent. This log will contain a list of all forms sent to the DCC. The Project Coordinator will compare the transmittal log with the received data forms. Any discrepancies will be noted on the transmittal log. When completed, the transmittal log will be faxed back to the Site Coordinator to confirm receipt of data forms and for remediation of any discrepancies. The Project Coordinator will then log into the data entry tracking table of the CITT database the receipt of each data form.

10.9.2 Data Entry

Data entry will be accomplished within the data entry module of the CITT database. Access to this module will be limited to personnel of the DCC. The module will consist of two sections: data entry forms and a tracking data table. Forms for data entry will mimic as much as possible the actual paper forms.
Double data entry will be used to ensure a high degree of accuracy, and it will be completed by the data entry operators at the DCC. As data are entered, the date and time of entry will be recorded in the data record. Dynamic comparison of data values will occur as the data are entered for the second time. That is, when the new data value entered disagrees with the data value entered on the first pass, the operator will be queried as to the discrepancy and given the option to retain the first value entered or to change the field to this new value.

The tracking data table will contain a record for each form entered consisting of the date of receipt, date of data entry, date of edit report, date edit report returned, and date edit resolved. This information will be used to monitor quality control of the data entry process. In addition, these data will be used to track the progress of any given subject form in the DCC. At the time of enrollment, an email message will be sent to the CITT Project Coordinator to indicate the enrollment of a new subject. Weekly, a number of reports will be generated to track both subjects enrolled in the study and the data forms of the enrolled subjects (see Table 3-2).

10.9.3 Data Editing

At the completion of the second entry, the module will automatically send the data record through an edit routine. Edit reports will be generated containing missing information or information that lies outside predetermined limits. The edit report will contain the subject’s identification number, visit date, form type, and the item number and type or error for each problem detected (i.e., missing value, range check, illegal character, etc.). Data on the form that requires no editing will not be included on the edit report. This report will be faxed to the clinic Site Coordinator by the Project Coordinator. As part of the edit report creation, information will be added to the data entry tracking table indicating that an edit was generated. When the edit has been reconciled, the completed edit report form will be returned to the Data Coordinating Center. Changes to the data form stored at the DCC, as indicated by the Site Coordinator, will be made by the DCC Project Coordinator who will initial and date the form upon making the correction. The date received will be logged into the data entry tracking table in the CITT database. The completed edit report will be attached to the form and the form will be returned for data entry. After corrections have been made to the database, the corrected forms will be filed in the subject’s individual file at the DCC. The CITT Project Coordinator will work with each clinic Site Coordinator to reconcile edits as quickly as possible, preferably within a one-week period. Data are posted to the working database at the time of second data entry, if no edits are required, or at the time of edit reconciliation.

10.10 Data Transmission Expectations

It is important that data transmissions either from the clinic site to the DCC, within the DCC, or from the DCC to the clinic site occur in a reasonable time frame. Table 10-2 outlines the target time frame and the maximum allowable time frame for specific CITT tasks. Continually exceeding the maximum allowable time frame can constitute the need for a site visit.

This information will be generated monthly as part of the Study Update Report sent to the Study Chair. The Principal Investigator and Site Coordinator will be contacted by the Study Chair and the DCC Principal Investigator if the clinic site has maximum times which fall beyond the
acceptable values in two consecutive months. During the start-up phase of the study, the
Executive Committee will decide the penalties associated with various degrees of noncompliance
with these expectations.

Information relating to the movement of data forms within the DCC will be tabulated monthly as
part of the DCC internal check-up report sent to the Study Chair and NEI representative.
Information from the previous month data audit will be included. This same information will be
sent quarterly to members of the Data and Safety Monitoring Committee.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Target time interval</th>
<th>Maximum time interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time from new subject entered until forms transmitted to the DCC</td>
<td>1 day</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from subject randomization until initial training visit completed</td>
<td>7 days</td>
<td>30 days</td>
</tr>
<tr>
<td>Time from form completion until received at DCC</td>
<td>1 day</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from form received until logged at DCC</td>
<td>2 days</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from form logged until entered at DCC</td>
<td>2 days</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from form entered at DCC until edit report (if applicable) transmitted to site</td>
<td>1 day</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from edit report sent to site until resolution received at DCC</td>
<td>7 days</td>
<td>14 days</td>
</tr>
<tr>
<td>Time from edit resolution receipt until logged at DCC</td>
<td>1 day</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from edit resolution logged until entered at DCC</td>
<td>2 days</td>
<td>3 days</td>
</tr>
<tr>
<td>Time from missing form identified until received at DCC</td>
<td>2 days</td>
<td>3 days</td>
</tr>
</tbody>
</table>

### 10.11 Data Audits

During study months of recruitment and active treatment (approximately months 10 through 30),
data audits will be performed on a monthly basis. During months 31 through 42 when only long-
term follow-up examinations will be performed, the data audits will occur on a bi-monthly basis.
For each data audit, a random sample of 10% of the forms received since the last audit (at least 3
forms but no more than 20 forms) will be drawn by the project programmer. For each form
selected, the data values entered in the database will be compared to the data values indicated on
the form. Audits will be performed by two DCC personnel with one person reading the data
value from the database while the other confirms the value on the data form. All DCC personnel
will be expected to participate in these audits. Reports on the percent of fields with
discrepancies, the type of data fields most likely to disagree, etc. will be generated and shared
monthly with the Study Chair and with DSMC members during scheduled meetings. If the percent disagreement for any data field exceeds 1%, audits of that particular field will be performed for all records entered to date. Where necessary, interventions with the Data Entry Operator will be performed by the DCC PI. If however, the problem(s) appear to be associated with readability of text on the forms, discussions will be held with CITT personnel responsible for completing the specific data form. If necessary, the form will be redesigned to improve the ability to transcribe the data field correctly and enter it into the database.

10.12 Data Security

Completed data forms will be housed in locked filing cabinets located in the Project Coordinator’s office. Each subject will have a separate file. Access to the files will be limited to the DCC PI and the Project Coordinator.

To guard against unauthorized access to the data in the CITT database system, all shared use computer systems will be protected with passwords that will be changed approximately every 90 days. In addition, access to the CITT database will be limited to only those persons with the appropriate passwords which are separate from those required for use of the computer system. The password used to access the CITT database will consist of eight characters (including letters, numbers and symbols), randomly generated by the software program.

An additional security measure involves a lock-out feature. This feature will only allow the user three attempts to successfully log-on to the database with the appropriate password. If the user fails to perform log-on correctly, access will be denied and an automatically generated e-mail will be sent the authorized user stating that a lock-out has occurred. The e-mail will reveal an 8 digit password and instruct the user to contact the DCC Project Coordinator, Tracy Kitts @ 614-247-8832. The authorized user must be able to provide the Project Coordinator with their first and last name, facility phone number on file and the 8 digit password provided from the lock-out e-mail. Once the authorized user is correctly identified, the Project Coordinator will unlock the computer system and activities can resume.

Datasets will be backed up to a network server and a ZIP disk daily to prevent loss. The ZIP disk will be stored off-site each night. In addition, data from the server are transferred to tape on a monthly basis and stored off-site to prevent loss.

10.13 Full Investigator Group (FIG) Meetings

FIG meetings are an important method of quality assurance. These meetings provide a means of sharing information among CITT investigators and personnel. The CITT Chair and the DCC work together to organize meetings, prepare reports and presentations. An important function of the FIG meetings is to motivate CITT personnel to be precise in following the CITT protocols for each test and treatment procedure. It can be a challenge for experienced clinicians and therapists to modify their customary clinical approach. In order to conduct examination and therapy procedures in a standardized manner, and to record results in an unaccustomed format. The members of the CITT Executive Committee want CITT personnel to feel vested enough in
the CITT to be motivated to modify their clinical practice so that CITT can collect the most standardized, accurate, and complete data possible.

**10.14 Site Visits to CITT Clinic Sites**

Site visits are necessary to assure that there is standardization of procedures, that the CITT clinic site personnel have been adequately trained, that the CITT clinic site facilities meet all standards, and that subjects and their data are being managed as specified in the protocol. The site team will also provide assistance to the clinic site in solving logistical problems by conveying efficient, accurate solutions used in one clinic site to other clinic sites.

Site visits will be performed by the Study Chair, Dr. Scheiman, or his representative along with DCC Principle Investigator, Ms. Mitchell or the DCC Project Coordinator, Tracy Kitts.

Each clinical site will be visited at least once during the enrollment phase of the study. Additional site visits may be scheduled as needed. The necessity for such site visits will be determined by the Study Chair, the DCC Principal Investigator or it may be requested by the site PI.

**10.14.1 Scheduling and Preparation**

Before the site visit, the Project Coordinator will generate a list of enrolled subjects, a list of CITT personnel certified in each role, and a list of all data forms received for each enrolled subject. In addition, recent performance reports such as the recruitment and retention reports will be reviewed to generate areas of concern. An agenda for the site visit will be developed by the Study Chair with input from the DCC.

The site visit should be scheduled so that the CITT clinic site staff members may arrange their day appropriately, usually a month or more in advance. A copy of the site visit agenda is sent to the clinic site Principal Investigator. The Principal Investigator or Site Coordinator informs the site visit team of any local scheduling constraints. The site visitors re-arrange the agenda to meet the scheduling constraints of the CITT clinic site.

The site visit team will prepare for the visit by reviewing recent performance reports. These materials are used to make a list of outstanding issues.

**10.14.2 Conduct of the Visit**

Site visits will generally begin in the morning and require 1½ days. Strict adherence to the protocol is stressed throughout the site visit.

General areas of review during the site visit are:
1. CITT clinic site staff, facilities, and equipment
2. Up-to-date CITT documentation, including the Manual of Procedures and protocol memoranda
3. Data audit (i.e. an inventory of all study subject binders will be performed to ensure the proper storage of all data forms including the verification of informed consent)
4. Storage and access to CITT files, including proper storage of signed consent forms and handling of edit statements
5. Flow of subjects through examinations and treatment sessions
6. Observation of unmasked and masked examinations
7. Observation of the procedures to ensure protection of masking
8. Observation of therapist during an Office-based VT/Orthoptics and Office-based Placebo VT/Orthoptics treatment appointment
9. Observation of the procedures used by the Site Coordinator to make sure all data are complete and accurate
10. Meeting with the Principal Investigator to discuss recruitment and retention issues
11. Meeting with all other CITT clinic site staff to discuss any relevant issues

10.14.3 Site Visit Reports

Within one week of completion of the site visit, the DCC representative to the site visit team will send his/her written summary to the Study Chair. These impressions along with those of the Study Chair will be synthesized. Within one month of completion, the Study Chair will send a written summary in draft form to the clinic Principal Investigator and Site Coordinator for comment. The final version will be sent to the same individuals, the CITT Executive Committee, and NEI Representatives. A copy is also maintained in the library of CITT documentation in the CITT Study Chair’s office. These reports will be made available to the Data and Safety Monitoring Committee.

10.15 Clinic Site Performance

The DCC, Study Chair, and Executive Committee will monitor performance data from each site (e.g., number of edit queries, number of missed visits) on at least a monthly basis in order to identify any performance issues. Appropriate procedures will be reviewed with the study personnel.

Each site will be given a report card documenting their performance in the areas of eligibility testing, enrollment, retention, data edits, and timing of data transmissions (see Section 10.15.1). Report cards will be given after every 4 months of enrollment. A site’s report card will include the median and range of values obtained from all nine sites along with the actual value and rank (among the 9 sites) for that specific site. For example, the average monthly enrollment during the current “grading period” will be determined for each site. These averages will be ranked and the median will be determined. For all areas except 10-11, values will be ranked from highest to lowest. A site’s report card would then include the median, range and their rank.

10.15.1 Areas assessed

Area 1: Average Monthly Eligibility Testing

Area 2: Average Monthly Enrollment
Area 3: Percentage of visits attended in window

Uses information from all visits (weekly office-based visits, weekly phone contacts and masked examinations)

Area 4: Percentage of subjects retained

Area 5: Percentage of forms that did not require an edit

Does not include treatment documentation on therapy record and office-based home log sheets

Area 6: Percentage of therapy record and office-based home log sheets with treatment properly documented

Area 7: Percentage of home log sheets collected

Area 8: Percentage of academic performance forms collected

Applies to forms collected after the masked examinations at week 12, month 6 and month 12

Area 9: Percentage of monthly conference calls attended by site personnel

Includes participation in PI, vision therapy and site coordinator conference calls

Area 10: 75th percentile of the distribution of time from form completion at site until received the Data Coordinating Center (DCC)

Area 11: 75th percentile of the distribution of time from edit sent to site until edit resolution received at the DCC

Area 12: Number of subject schedules that are not updated at least weekly

10.16 Conference Calls

10.16.1 Executive Committee Conference Calls

Scheduled once per month and chaired by the study chair.

10.16.2 Principal Investigator Conference Calls

Scheduled once per month during the enrollment and active treatment phases of the study and chaired by the study chair.
10.16.3 Therapist Conference Calls

Therapist conference calls will be scheduled monthly during the active treatment phase of the study and chaired by the Study Coordinator, Karen Pollack. Conference calls will continue during the long-term follow-up period on an as needed basis.

10.16.4 Site Coordinator Conference Calls

Site Coordinators conference calls will be scheduled monthly and chaired by Lynn Mitchell, DCC PI during the enrollment and active treatment phases of the study. The calls will be scheduled as needed during the long-term follow-up phase.