

Knowledge Acquisition Session Report

CALGB – Common Data Elements

Session Date: 1/11/01

Session Time: 1:00 – 4:00 p.m.

Session Topic: Cancer and Leukemia Group B (CALGB) Common Data Elements (CDE) review

Knowledge Analysts: Bill McCurry – ScenPro, Inc. (KA Lead); Beverly Meadows – CTEP; Carolyn Pifer, Brad Knowlton – Oracle Corp.

Session Location: CALGB data operations center, Durham, North Carolina

Type of Session:

Interview

Task Analysis

Scenario Analysis

Concept Analysis

Observation

Structured Interview

Other: Presentation

Documentation: KA Session Report and Use Case Representations

General Topic Area

Use of Common Data Elements by Cancer and Leukemia Group B (CALGB)

Session Goals

- To provide a brief overview of the Common Data Elements (CDE) Project to the CALGB clinical trials staff.
- To document the CALGB staff's questions about CDEs and CDE applications.
- To review and gain feedback regarding the current CDE applications.
- To document CALGB's current process for creating case report forms.

Summary

In this session individuals from the Cancer Therapy Evaluation Program (CTEP) and from Oracle presented an overview of the Common Data Elements (CDE) Project to Cancer and Leukemia Group B (CALGB) staff. CALGB personnel asked questions about the CDE Project and about CDE-related applications. CALGB personnel then described their current process for creating case report forms and identified ways in which that process might change with the use of CDEs.

Cancer and Leukemia Group B Overview

The Cancer and Leukemia Group B (CALGB) was founded in 1955. CALGB employs almost 3000 physicians at over 185 community hospitals who collaborate in clinical research studies “aimed at reducing the morbidity and mortality from cancer, relating the biological characteristics of cancer to clinical outcomes and developing new strategies for the early detection and prevention of cancer”. Figure 1 shows the seven major disease areas CALGB is devoted to.

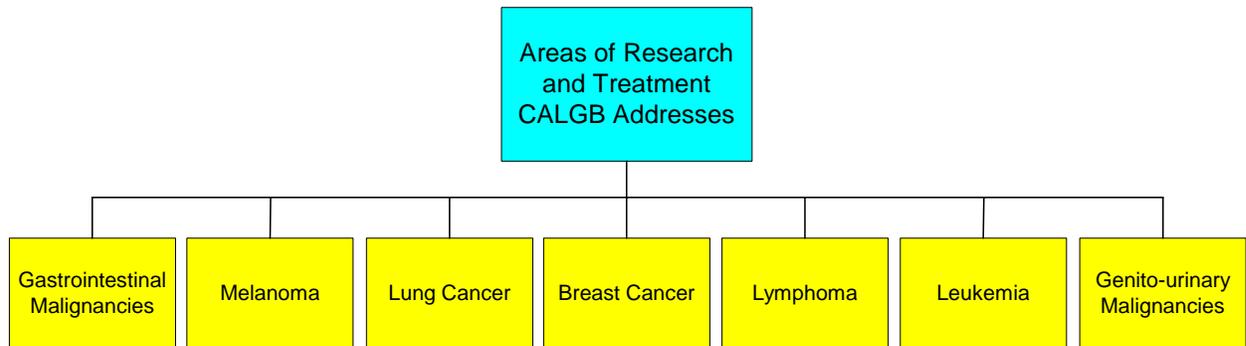


Figure 1: CALGB Focus Diseases

Funding Sources

CALGB receives its primary funding from the National Cancer Institute (NCI). It is also funded from Pharmaceutical companies, private contributions, and other cooperative groups. Figure 2 shows the funding sources of the CALGB.

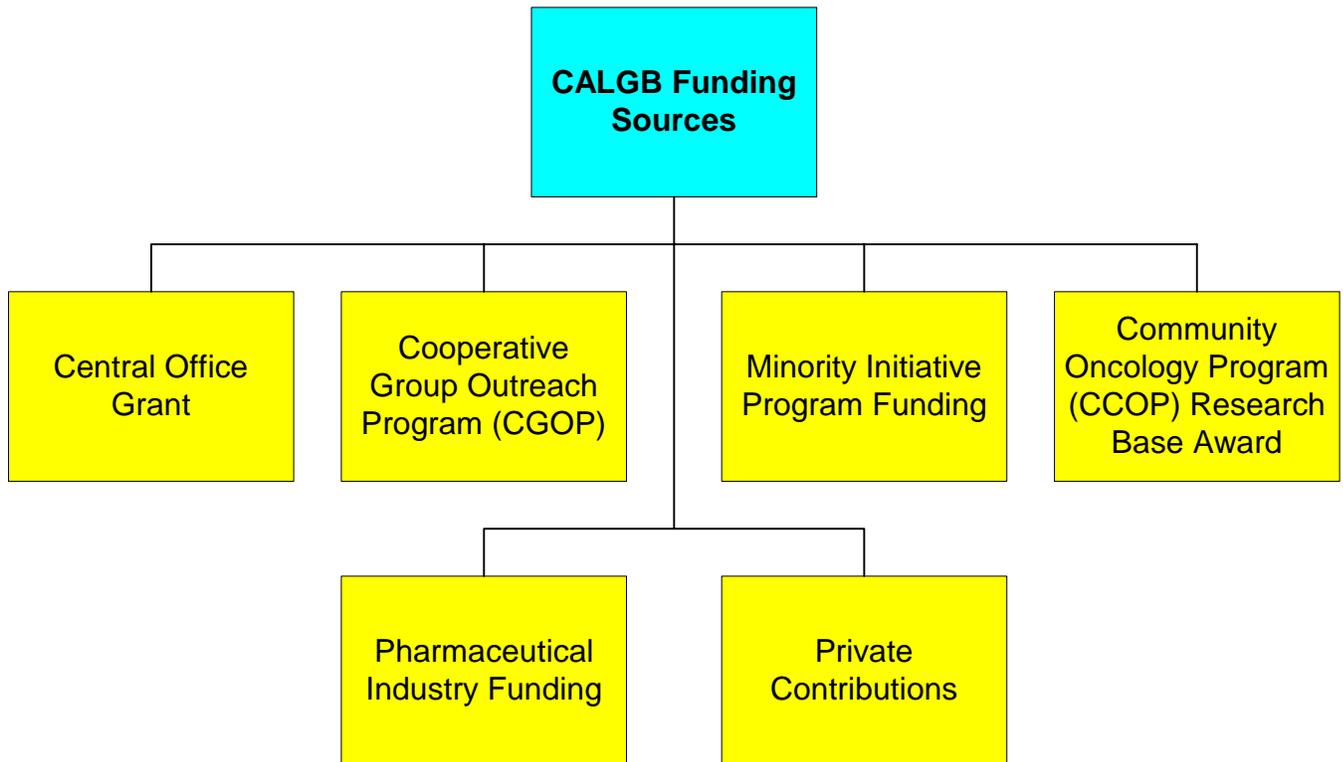


Figure 1: Cancer and Leukemia Group B Funding Sources

NCI established the Community Clinical Oncology Program (CCOP) in 1983. The CCOP program allows NCI to fund clinical research into the community setting and stimulate improvement in the quality of cancer care in the community.

CALGB Organization

The Cancer and Leukemia Group B (CALGB) has a Board of Directors composed of the Principal Investigator or designated representative from each main member institution and CCOP. Elected representation from At-Large Members, the Chair of Each Modality Committee (see below), and members of the Executive Committee (see below) also serve on the Board of Directors.

Two distinct offices manage CALGB: the Central Office and Statistical Center. Figure 3 shows each office and location.

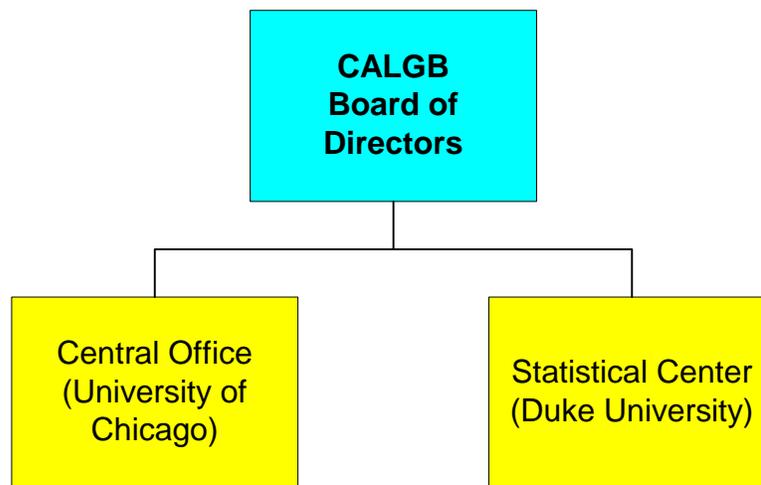


Figure 3: Two Main Organizational Branches of the CALGB

The Cancer and Leukemia Group B's Central Office is located at the University of Chicago. Its Statistical Center is located at Duke University in Durham, North Carolina.

Central Office

The Central Office manages CALGB's funding. The Central Office also represents the interests of the CALGB in its negotiations with the National Cancer Institute (NCI), pharmaceutical companies, other cooperative groups, and the public. This office regularly distributes information necessary for the conduct of Group business to participating members. The Central Office is responsible for all meeting arrangements and maintains a roster of all CALGB member institutions and participants.

The Central Office oversees the development of all clinical protocols for the CALGB. This office also ensures that the Group and its investigators are in compliance with the Office for Human Research Protection (OHRP) regulations. Figure 4 outlines the roles of CALGB's Central Office.

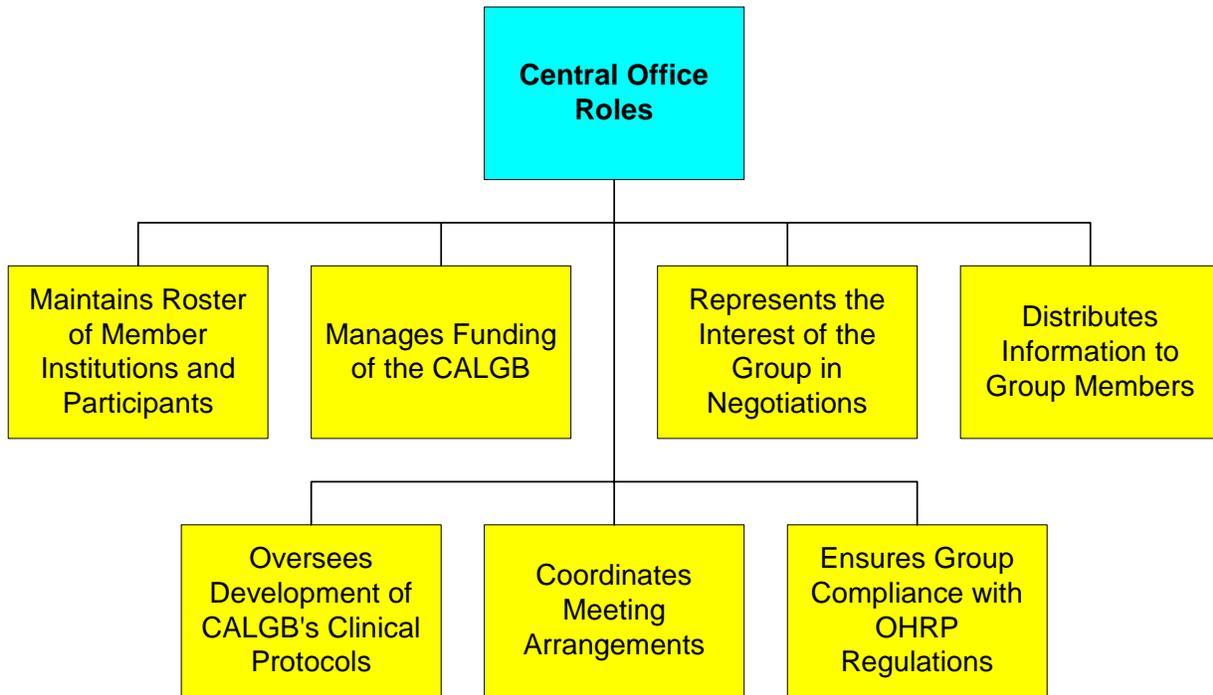


Figure 4: Roles of the CALGB Central Office

Statistical Center

The Statistical Center is comprised of three departments. Figure 5 shows each department.

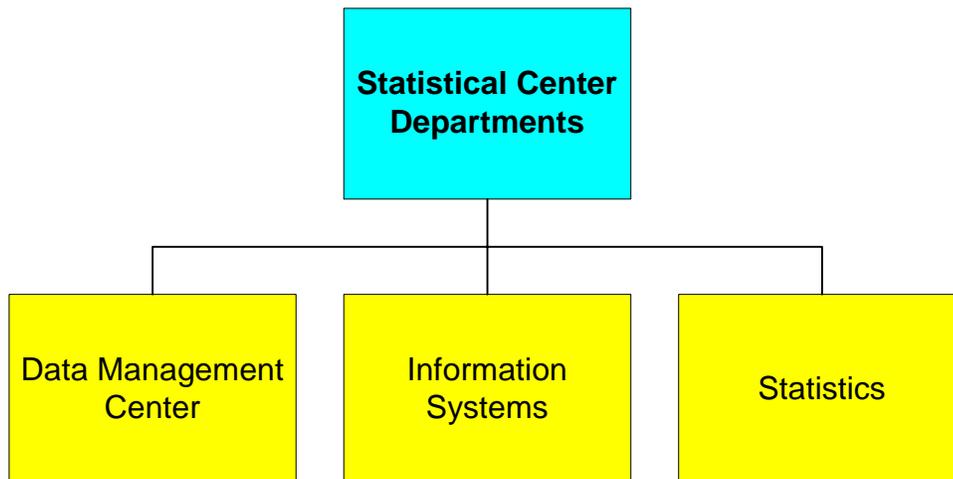


Figure 5: Departments of the CALGB Statistical Center

Roles of the Statistical Center

The Statistical Center is responsible for all data management and statistical activities within the Group.

Center Statisticians and Data Coordinators are members of all CALGB disease and modality committees and actively participate in the planning, execution and analysis of Group research. Statistical Center personnel also serve as members of the Group’s administrative committees. Figure 6 shows the main roles of the CALGB’s Statistical Center.

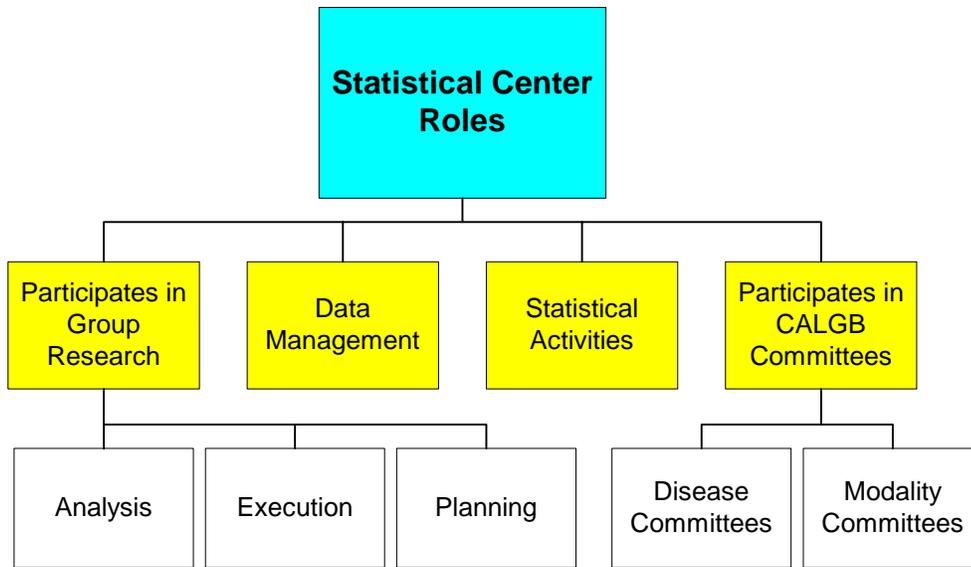


Figure 6: Roles of Statistical Center of CALGB

CALGB Institutional Membership

CALGB has defined criteria for membership in CALGB. Figure 7 shows the six types of institutions eligible for CALGB membership.

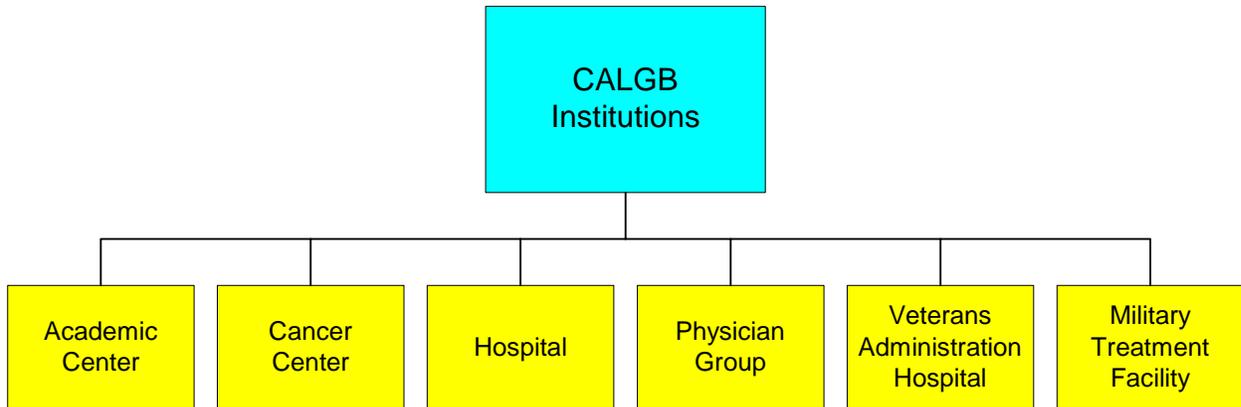


Figure 7: Types of Institutions Eligible for CALGB Membership

Figure 8 shows CALGB's membership categories.

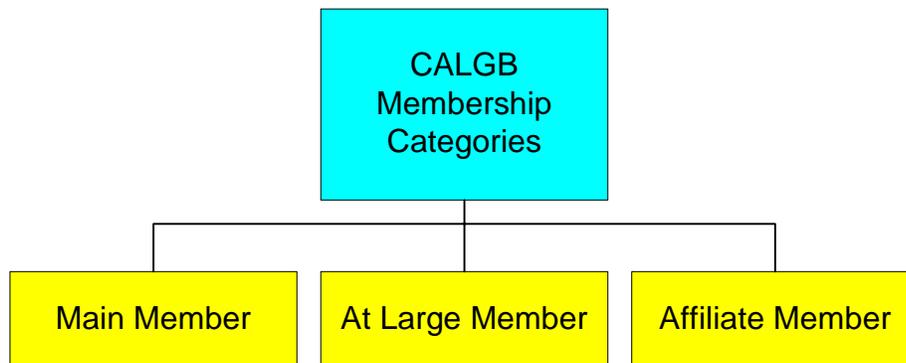


Figure 8: Categories of Institutional Membership in the CALGB

Main Member

A main member institution may have affiliate members or may be a stand-alone institution. Main member institutions must be able to have 50 registrations annually to CALGB clinical trials by the end of its second year.

At Large Member

An at large member may also have affiliate members or be a stand-alone institution. The at large member

network must be able to have 30 registrations annually to CALGB clinical trials by the end of its second year.

Affiliate Member

An affiliate member must have sponsorship of a main or at large member in order to join the CALGB and must be able to have 6 registrations per year to CALGB clinical trials by the end of its second year.

CALGB Committees

CALGB performs much of its scientific work through committees. Figure 9 shows the main committees along with individual committees.

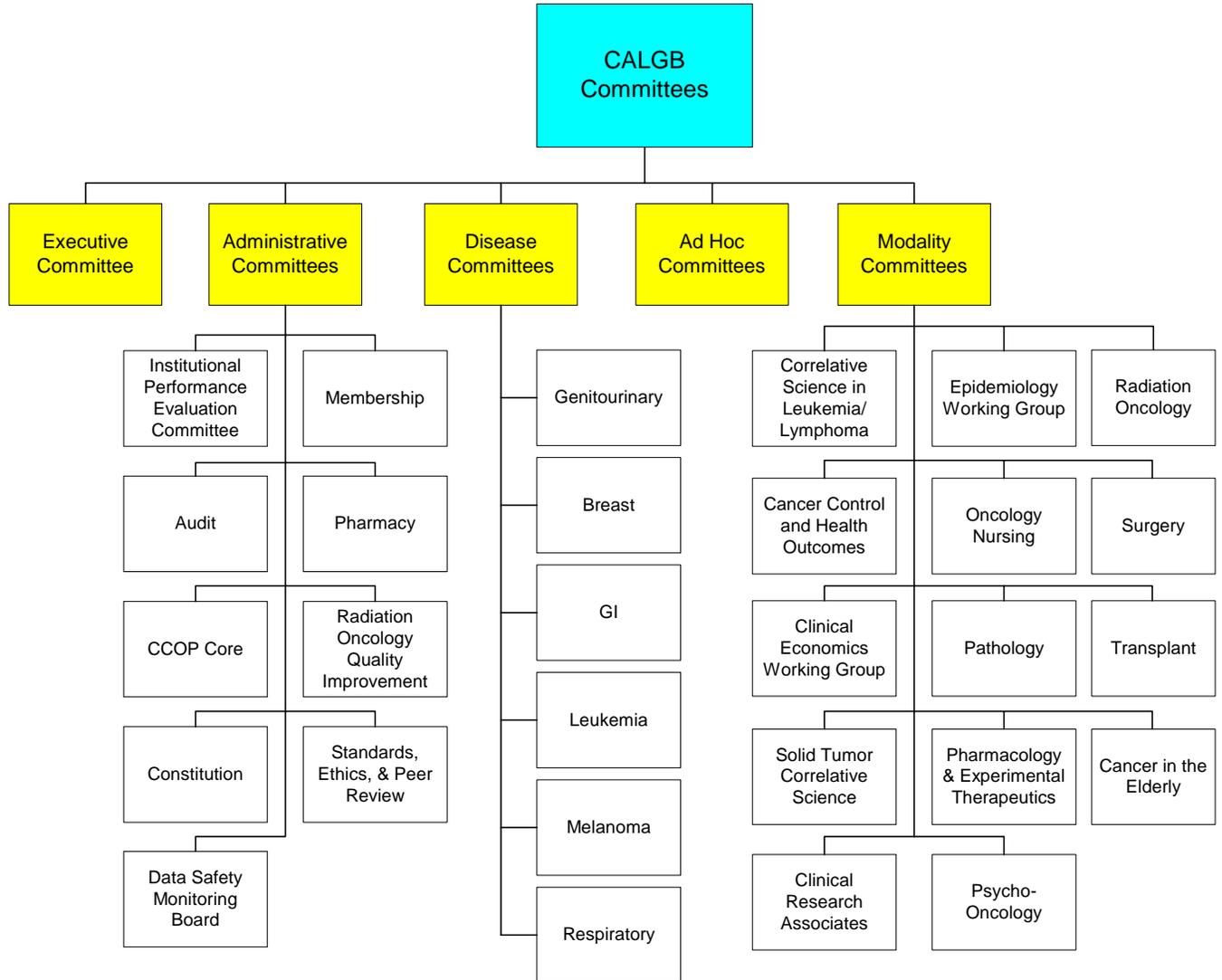


Figure 9: CALGB Committees

Executive Committee

The Executive Committee sets the scientific agenda of the group by approving protocols at the concept stage. This committee also approves the appointment of Chairs of the Disease and Modality committees. In addition, the Executive Committee is responsible for the management of Group affairs.

Administrative Committees

Each Administrative Committee is responsible for its defined area of Group administration.

Disease Committees

The Disease Committees plan, implement, and evaluate treatment studies conducted by the CALGB. Generation of CALGB protocols benefit from a “core” group made up of a senior level statistician, the Group Chair, Vice Chair or Executive Officer, and liaison members of other relevant Modality committees. The core group ensures that biostatistical and modality input occurs at the earliest stages of protocol development.

Ad Hoc Committees

Ad Hoc Scientific and Administrative committees are appointed by the Group Chair to carry out work required by the Group as needed.

Modality Committees

The Modality Committees provide expert advise to the Disease Committees about the application of treatments. Modality Committees also serve as a focus on discussion of innovative treatments. They critically assess progress in the field relevant to the design and implementation of Group studies, and perform a quality-assurance role. Additionally, Modality Committees may test new ideas in studies that accompany the treatment trials, or, in some cases, implement initial studies of novel treatment regimens

CALGB Case Report Form Development Process

A set of case report forms must accompany each clinical trial protocol. The clinicians treating patients on a trial must record and submit all patient information via the case report forms. CALGB personnel develop case report forms at the same time they develop the protocol.

Description of the Process

CALGB opens about two or three protocols per month on average. Most protocols require some case report form (CRF) development. Only one or two protocols per year require just the standard case report forms. Figure 10 shows a high level view of the CALGB Case Report Form Development Process. More detailed views of this process may be found in the use case representations attached to this report.

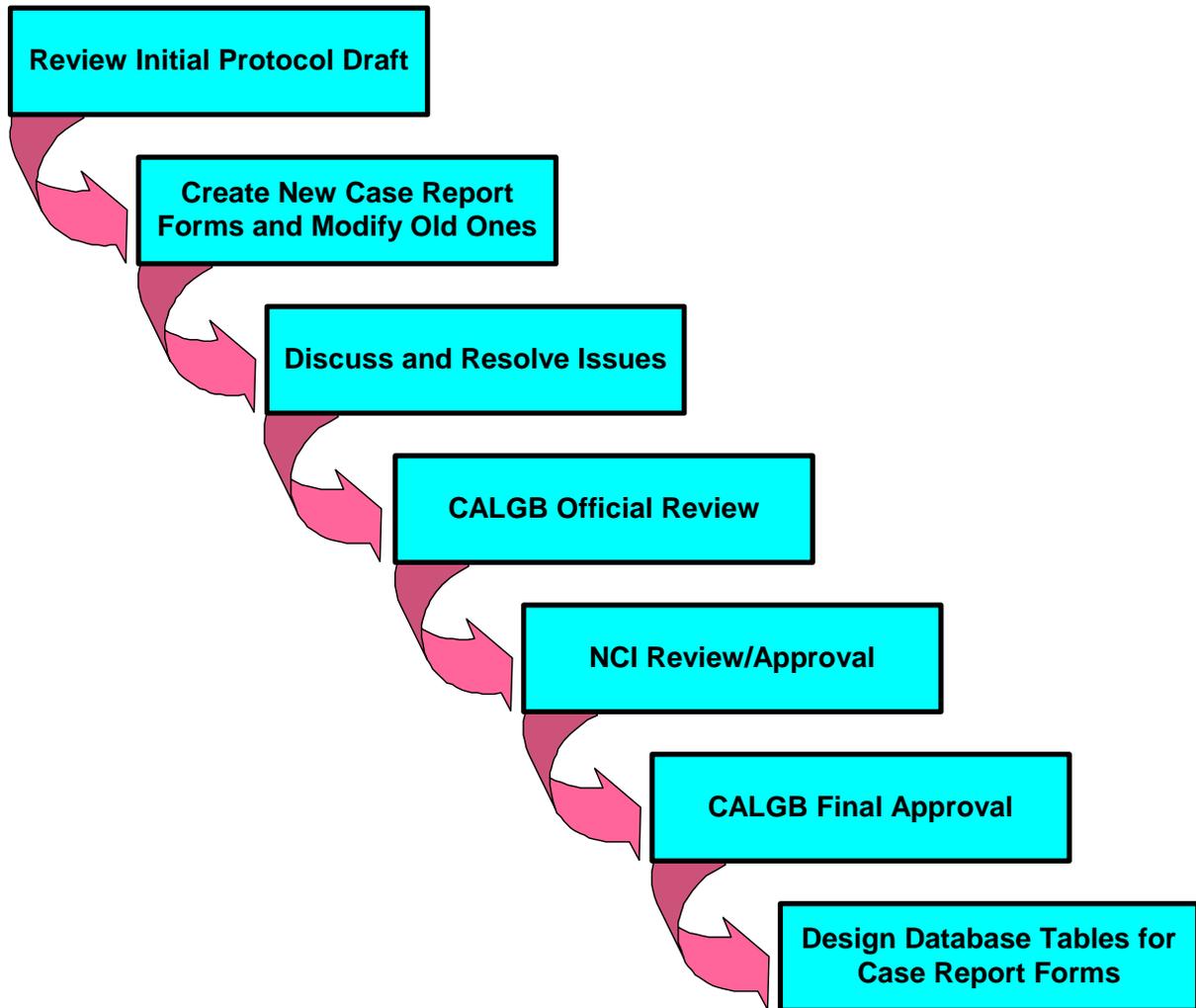


Figure 10: High Level Steps in the CALGB Case Report Form Development Process

Design New Case Report Forms and Modify Existing Forms

The CALGB Study Chair, Co-Chairs, Protocol Editor, Committee Chair and Executive Officer draft the initial protocol and submit it to the CALGB Data Operations Center. The CALGB Data Coordinator and Statisticians review the protocol draft for the following items:

- Study Endpoints
- Eligibility Criteria
- Required Data (tests and examinations)

The Data Coordinator and Statisticians identify existing case report forms that will meet the protocol’s requirements. If new or revised forms are needed, they will rough out the new forms or revisions. The Data Coordinator and Statisticians include this CRF information in written comments faxed to the Study Chair and Protocol Editor. These comments are sometimes now emailed rather than faxed.

Discuss and Resolve Issues

All the parties who drafted the initial protocol and who wrote the comments now discuss and resolve any issues that were raised. Case report form issues are addressed along with any other protocol-related issues. This issue resolution step may require a long time to complete. The amount of time depends on the complexity of the issues, the priority assigned to the protocol, and the Study Chair's responsiveness. The issue resolution step can require two months or more to complete. Simple studies and studies with a high priority will require much less time to complete this step.

Official Review

Once all the issues have been resolved, the Data Coordinator prepares the case report forms for the Official Review. During the Official Review, the following persons and groups review the case report forms and write comments within one week:

- Study Chair
- Protocol Editor
- Data Coordinator
- Statistician
- Quality Assurance Representative
- Information Systems Representative
- Clinical Research Assistant Committee
- Forms Advisory Committee
- Chair of the Oncology Nursing Committee

After all the comments are collected, the Data Coordinator manages another round of issue discussion and resolution. Issues raised during this review are typically less time-consuming to resolve than issues from the initial review.

NCI Review/Approval

Once all Official Review issues are resolved, the Data Coordinator incorporates any comments and changes into the case report forms. The Protocol Editor then submits the forms to NCI along with the protocol.

NCI may require changes to the case report forms. If those changes are drastic, CALGB will go through another Official Review once those changes are made, then resubmit the forms to NCI. If the changes are minor, the Data Coordinator prepares the forms for Final Approval.

Final Approval

If the NCI required major changes, then everyone who was part of the Official Review also participates in the Final Approval. If few changes were required, then only the following persons and groups conduct the Final Approval:

- Study Chair
- Protocol Editor
- Data Coordinator
- Statistician
- Quality Assurance Representative
- Information Systems Representative
- Forms Advisory Committee

The Final Approval may result in written comments. These are normally simple comments and minor changes. For example, a reviewer indicate a small change and write, “I approve the form with the following change.”

After the Final Approval, the Data Coordinator incorporates any remaining changes into the case report forms. Information Systems then designs database tables to accommodate the new or revised forms.

Occasionally, the Study Chair will make changes to the case report forms after Final Approval is completed. In those cases, the changes will be sent back through the Final Approval step.

Creating the Forms Documents

Throughout the entire process, whenever case report forms are revised the Data Coordinator sends the changes to the Teleform Technician. The Teleform Technician creates the actual form using either Teleform software or Microsoft Word.

Creating Standard/Master Case Report Forms

CALGB creates and approves standard case report forms using essentially the same process described above. However, no protocol is involved when creating a standard case report form, therefore no Study Chair is involved. The Data Operations Manager and the CALGB Executive Officer handle the responsibilities that would normally fall to the Study Chair in the process.

Duration of the Process

CALGB develops case report forms concurrently with the protocol in which they will be used. A number of factors affect the duration of the entire development process:

- Complexity of the issues
- The priority assigned to the protocol
- Study Chair's responsiveness
- Disease committee responsiveness
- Inter-group cooperation
- NCI negotiations
- Drug company negotiations
- Other external problems

The shortest possible duration for the entire development and approval process is about two months. Six months is a more common duration, and development of some protocols/case report forms requires one year or more.

Possible Changes Due To Common Data Element Implementation

CALGB might need to change their case report form development process in response to Common Data Element (CDE) implementation. First, CALGB personnel may identify new data elements needed while developing case report forms. CALGB Data Coordinators are most likely to identify and submit new data elements after creating new case report forms, after revising existing forms, or after resolving issues with case report forms.

Second, CALGB personnel will need to consult the currently approved CDEs when evaluating new or existing case report forms. Such consultation might occur at the following steps in the process:

- Review Initial Protocol Draft
- Create New Case Report Forms/Modify Old Case Report Forms
- Discuss and Resolve Issues
- Official Review

CALGB Questions

CALGB staff members posed questions on a wide variety of topics during the CDE presentations. This information is organized by question to aid in developing a "Frequent Asked Questions" document. A summary of the CALGB questions and the answers provided during the meeting follows.

Questions About Using Common Data Elements

Q. “If an element we need is just a one time thing, what should we do?”

A. Bev Meadows asked that the element be sent to her. It is not bad to have more elements in the CDE dictionary. The elements may be needed for the Clinical Trials Support Unit.

Q. “When trying to fill out the new CDE spreadsheet, we were uncomfortable. For example, we did not know what valid values were.”

A. Bev Meadows is willing to help people in the field understand and work with the CDE terminology and format. People with questions should contact her.

Q. “Sometimes doctors say they want a question on a case report form and the data coordinator does not know what it means. What should they do?”

A. Bev Meadows felt that the data coordinator needs to challenge the doctor to clarify the meaning. In these cases, the person in the field completing the CRF is probably just as confused as the data coordinator.

Q. “Are the archived valid values and terms the things that are used when using CDEs?”

A. No, those are simply kept on the CDE website for historical purposes and to show what was considered in developing the CDE.

Q. “Would the user have to type out words (like “negative”) when using a CRF created using CDEs?”

A. CTEP hopes to have questions on the electronic form listed with a check box. Remote data entry will have radio buttons.

Q. “We don’t have to use everything that is in the Header module on the CDE website, correct?”

A. That is correct. If you don’t need it, don’t use it.

Q. “Are you going to provide a help desk feature? Email help?”

A. There is documentation available on the web site. You may also submit questions via the comments section on the web site. Reports are run weekly from these comments, and CTEP will call you back.

Q. The forms laid out by the CDE committees don’t adhere to CALGB ways of doing things. Can we change the modules around to fit our way of doing things, or do we need to adhere to the generic form?

A. CTEP wants people to adhere to the generic form, but realizes that it won’t happen. CTEP wants people to use the terms. The decision about whether to adhere to the entire form is up to the groups. CRF questions must match the CDE wording, however.

Q. “Do we change our SOPs? Does there need to be a discussion among the groups on SOPs? Right now every group does its own thing.”

A. It will evolve. Let’s start with using the correct terms.

Q. “Why do we have terms defined differently for each disease?”

A. The terms are not defined differently for each disease. They are repeated in different areas of the database. In some cases, different diseases may have different valid values for the same data element.

Q. “Must we use all the valid values for a data element?”

A. No, only use the values you need.

Q. “Should we use our internal database terms or use the CDE valid values?”

A. You may store data in the internal database in any way you want, as long as it is communicated in and out of the organization in CDE terms. This may require a mapping table of some kind.

Q. “How do we report toxicity summaries?”

A. That is a whole different arrangement from CDEs.

Q. “Are CDE valid values always available from the CDE dictionary website?”

A. Sometimes the CDE dictionary will link you to another website that stores the valid values for a particular data element.

General Questions About Common Data Elements

Q. “Have lung cancer surgical CDEs been implemented?”

A. Later in 2001 lung and colorectal surgical CDEs will be implemented. This has taken longer than the chemotherapy CDEs.

Q. “How far beyond cooperative groups will CDEs be impacting?”

A. CTC is now widely used in the industry. The hope is that CDEs will do the same. The FDA has been reluctant to endorse CDEs strongly yet. CTEP and Oracle hope to migrate the CDE model to the ISO 9001 standard and that this will help achieve wider acceptance.

Q. “Are there any correlations between CDEs and MEDRA?”

A. The CDE group has been looking at MEDRA (Medical Dictionary for Regulatory Activities) when developing CDEs. HIPAA (Health Insurance Portability and Accountability) Act mandates the use of ICD9 (International Classification of Disease, 9th revision) and CPT (Current Procedural Terminology) codes. The Enterprise Vocabulary System (EVS) at NCI is designed to translate between these various codes and terminologies.

Q. “Is there anything like IMT codes in the CDEs?”

A. No. There is nothing like a taxonomic structure in the CDEs.

Q. “Will NCI track whether people in the field have confusion regarding certain CDEs?”

A. Yes, this will be done. CTEP has already solicited some feedback and made some improvements.

Technical Questions About Common Data Elements

Q. “Is each CDE field specified to exactly the right number of characters?”

A. They are rounded to a generally useful number of characters for simplicity.

Q. “Why is the short CDE name longer than the long CDE name?”

A. It is the difference between the database name and the name on the form. The long CDE name is the name on the form (generally more descriptive). The short CDE name is the name in the database (generally less descriptive).

CALGB Feedback and Observations

CALGB staff members also provided feedback on the CDE process and on CDE applications during the meeting. A summary of these observations follows.

Feedback About the CDE Browser

- Things look a lot easier to find in version 2.0 versus version 1.0 of the CDE Browser.
- The new version (2.0) seems to resolve many of the problems with the old browser.
- The tree structure in v2.0 is nice.
- One problem was that the tree would expand off the screen and that you couldn't scroll down to the bottom sections. (This was a browser issue.)
- If I am looking for something specific, I want to see it as a form, not in a CDE-type format.
- We want to be able to click on a module, X the items we want to use, and have the tool throw a form back at us. We want some flexibility in creating forms rather than being locked into standard forms.
- We want to be able to quickly see the standard forms that a CDE is used in. Would like a button on the element page that will list all the forms the element is used in.
- On version 1.0, did not know that the comments feature was available. It was buried.
- “Histologic Type” does not come up in the search function.
- Would like a print button or instructions for printing.

Feedback About Submitting New CDEs

- We would like to get a blank copy of the spreadsheet that Bev Meadows put together for CDE submission.
- Would like a document with all the guidelines for submitting new CDEs.
- We thought we were supposed to take the template/standard form (core items) and use them, and only add things to it if we can justify it to CTEP.
- One of the methods of submitting a CDE is the protocol submission worksheet, but we have never heard of that document.

Feedback About CDE Education

- It would be helpful to have a one-page educational piece on CDEs for study chairs and senior staff. It should have short paragraphs and be focused. It would help to see something like this from NCI.
- Everyone should be instructed in CDEs. It would be a good topic for one of the study chair workshops.

Feedback on Technical Issues

- In the next generation of database terms, text-based terms are preferred because they are more descriptive and clearer. However, they must be coded to be analyzed. Also, they could require as much as 50 times the present storage capacity, and there are storage capacity problem right now.

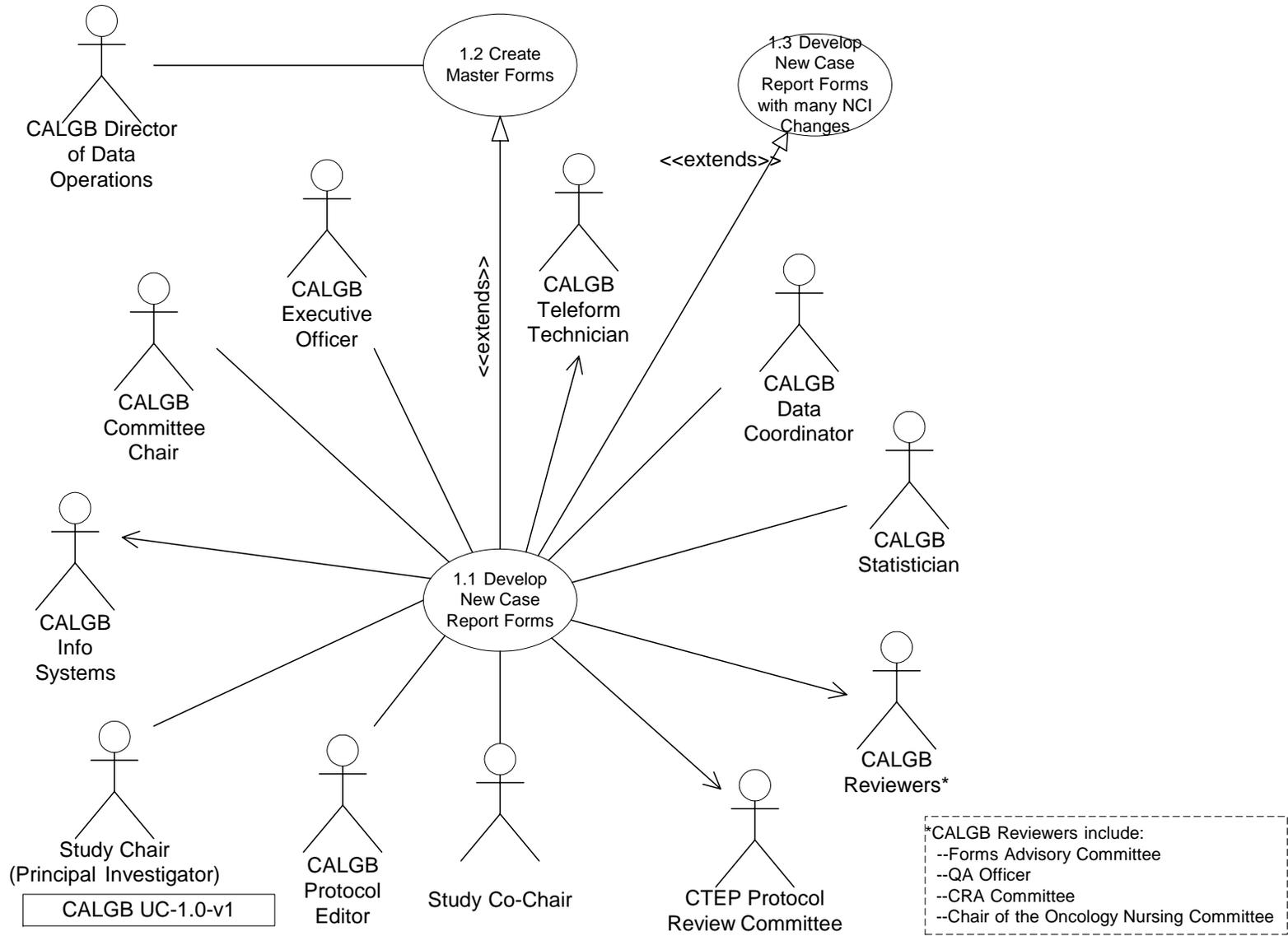
CTEP Comments and Direction

Bev Meadows from CTEP provided CALGB staff members with some comments and general direction on the development and use of CDEs. A summary of these comments follows.

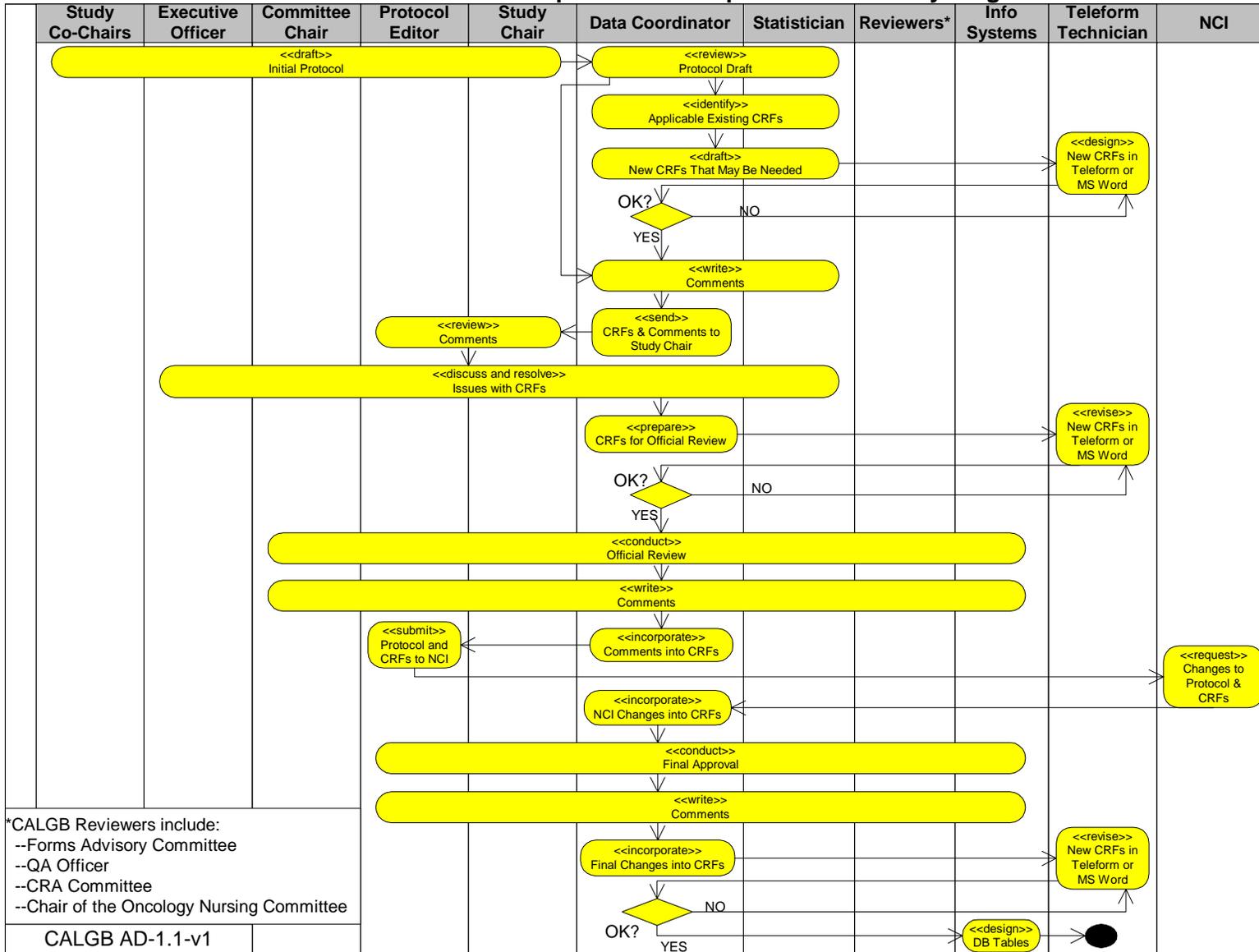
- If you want to move a whole module to another form, you can. We would like to use the exact CDE terms however. You can change the order of the terms around, but we would like to use the order/flow on the standard form as much as possible.
- The Lung Cancer CDE Committee did not discuss many of these issues about how to use the CDEs and whether to adhere to the terms versus the entire form. The Breast Cancer CDE Committee did build some specific CRFs.
- If you don't find a term you are looking for, send Bev Meadows a comment via the CDE Dictionary.

**Appendix: Use Case Representations
Of the CALGB Case Report Form Development Process**

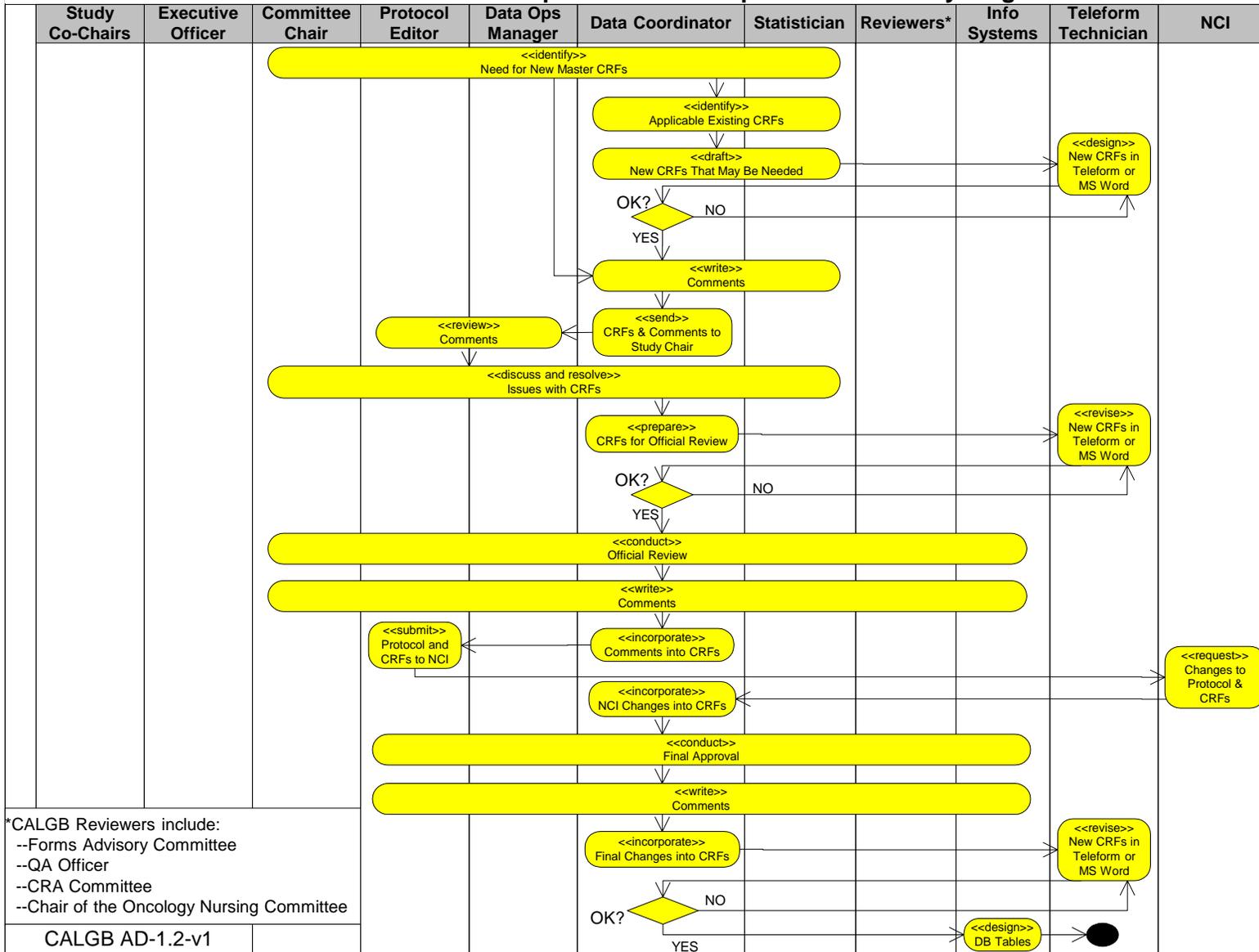
1.0 CALGB "Current" Case Report Form Development Process Use Case Diagram



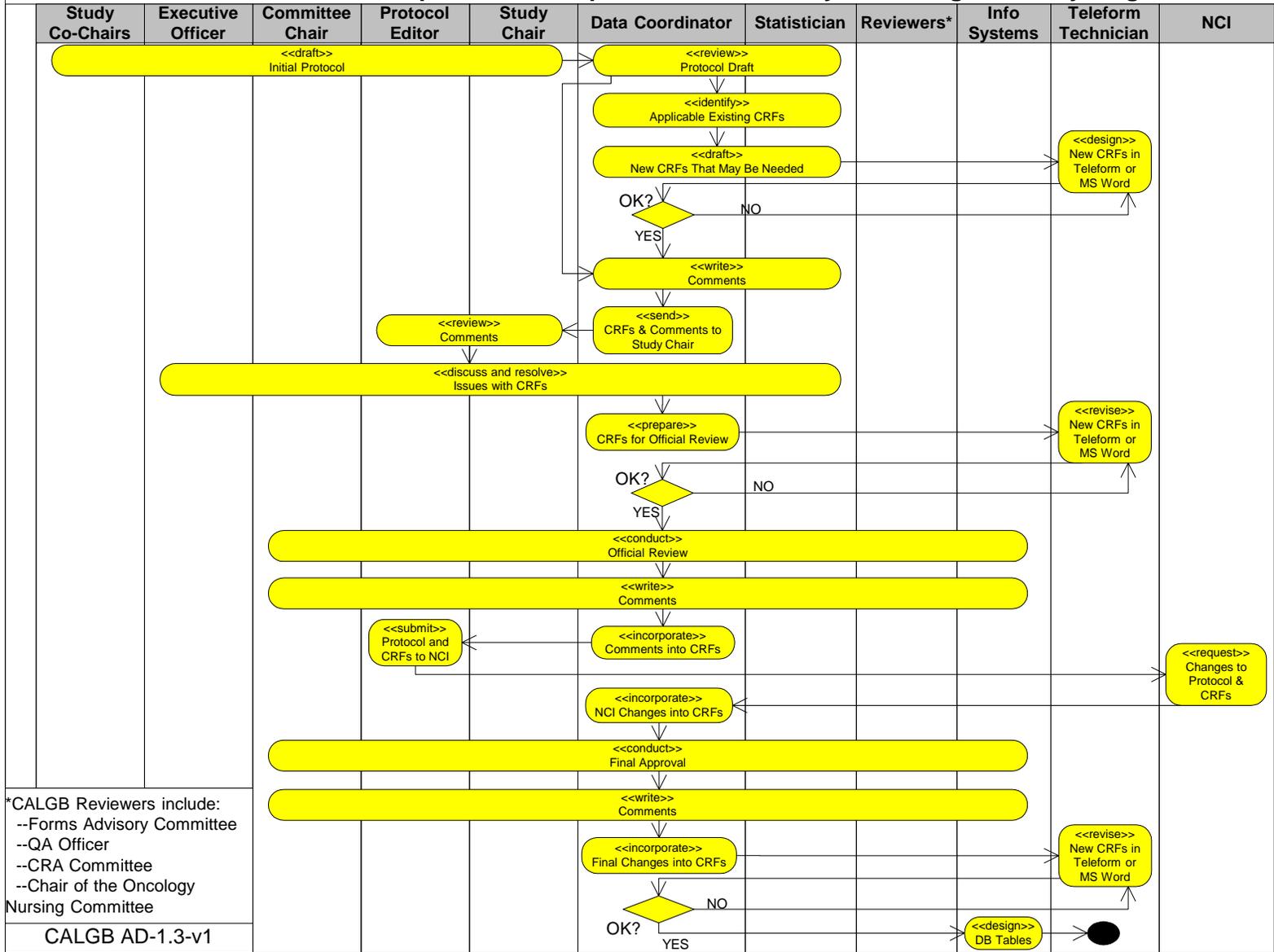
1.1 CALGB "Current" Develop New Case Report Forms Activity Diagram



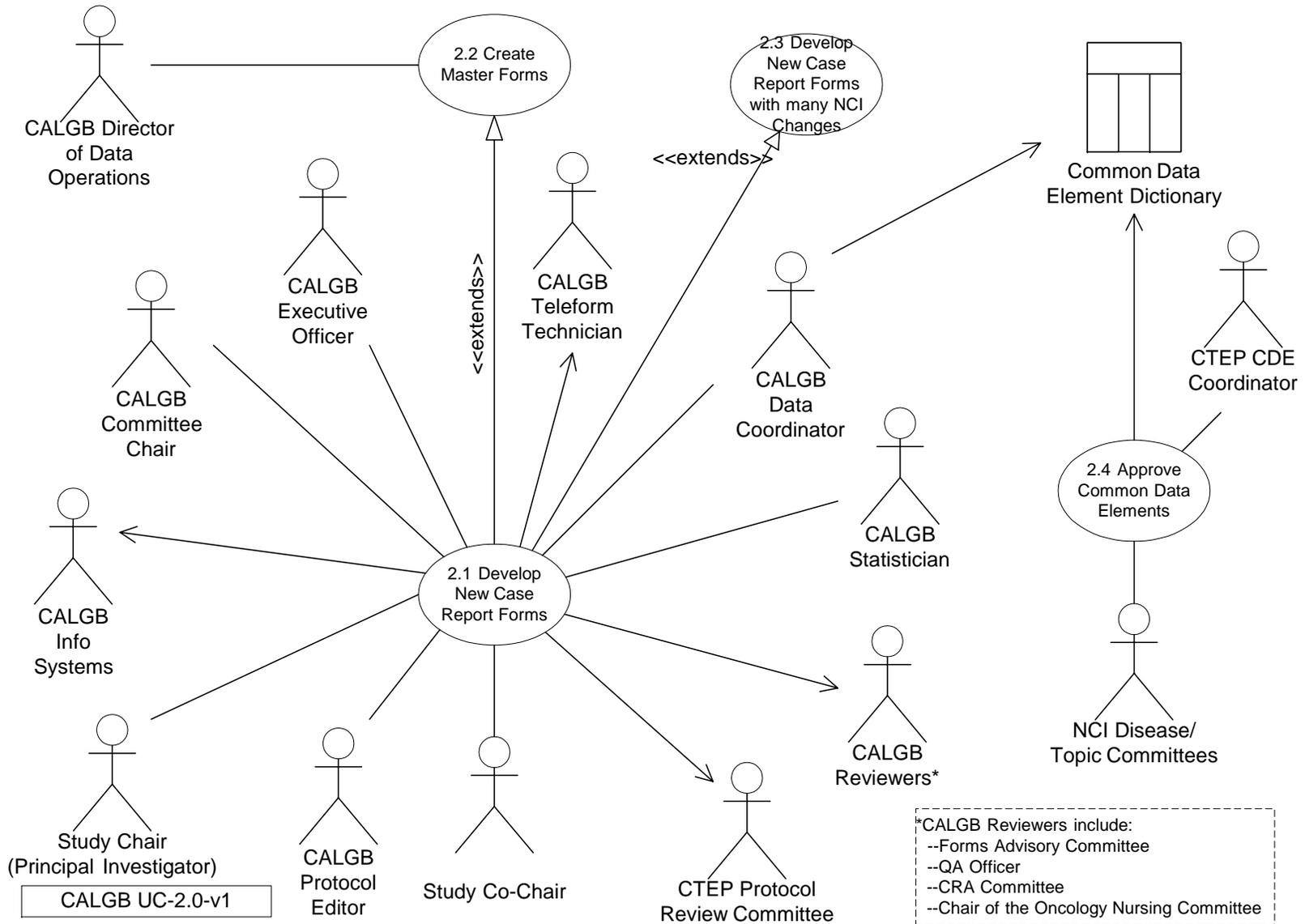
1.2 CALGB "Current" Develop Master Case Report Forms Activity Diagram



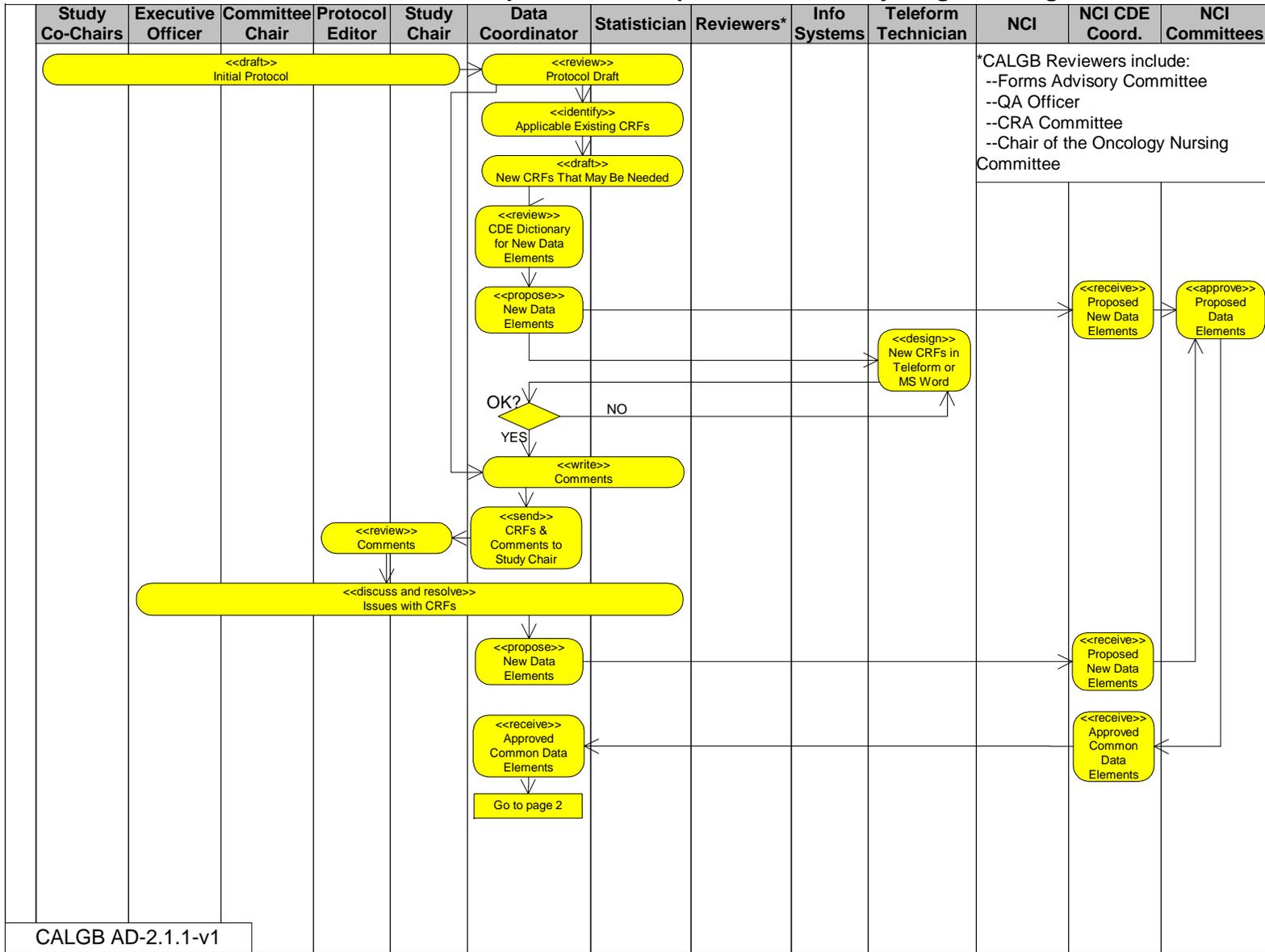
1.3 CALGB "Current" Develop New Case Report Forms with Many NCI Changes Activity Diagram



2.0 CALGB "To-Be" Case Report Form Development Process Use Case Diagram

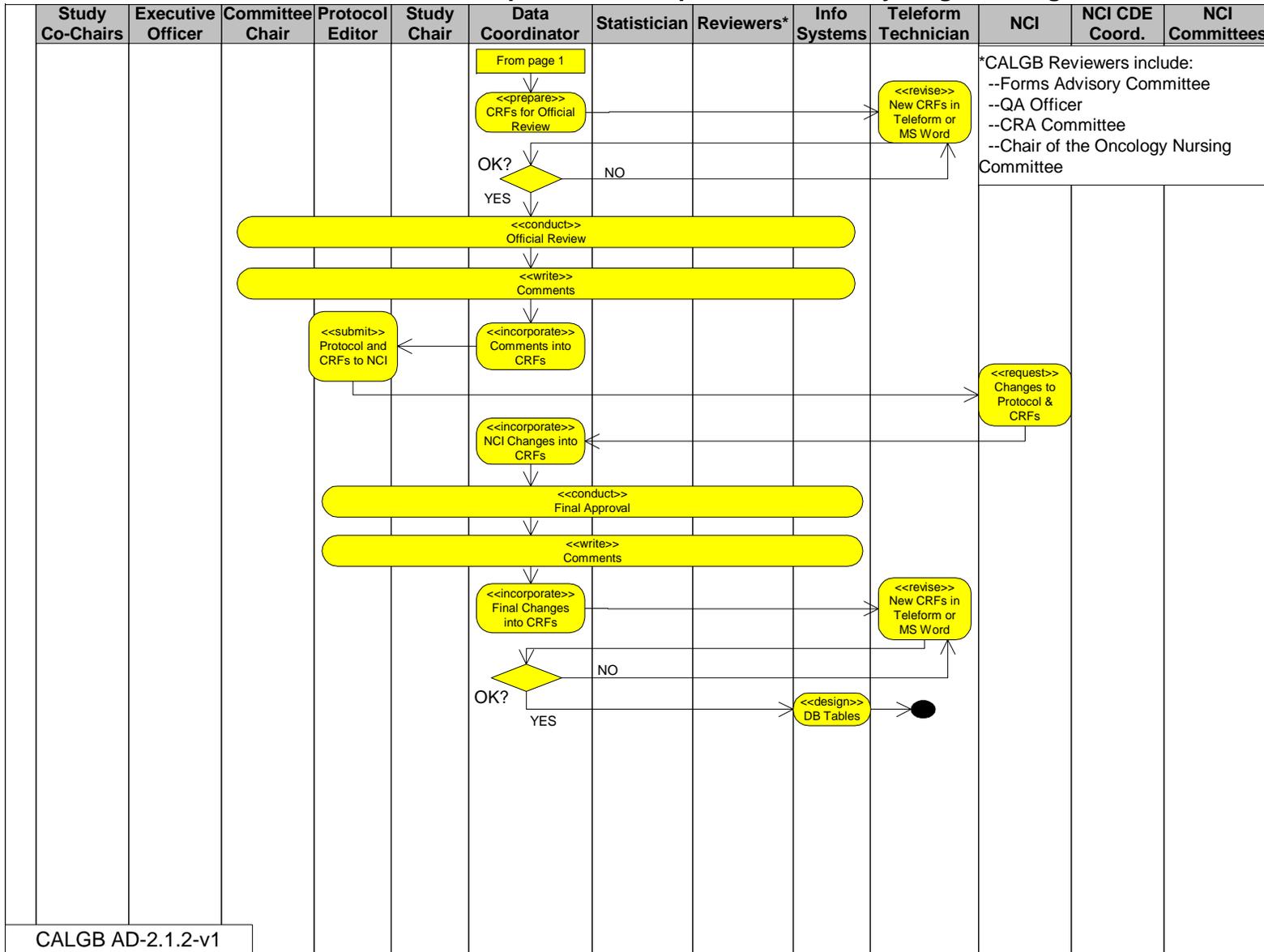


2.1.1 CALGB "To-Be" Develop New Case Report Forms Activity Diagram - Page 1

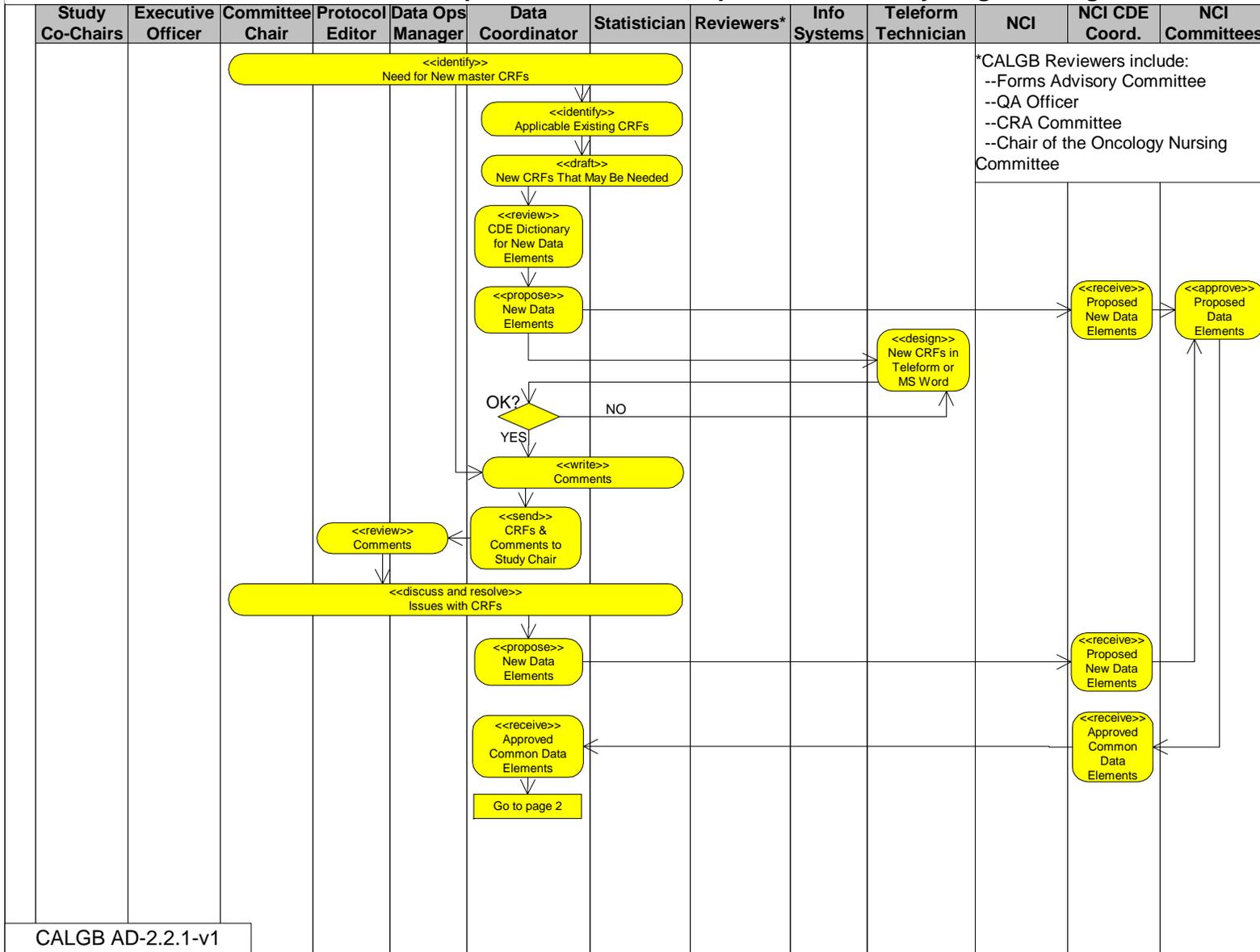


CALGB AD-2.1.1-v1

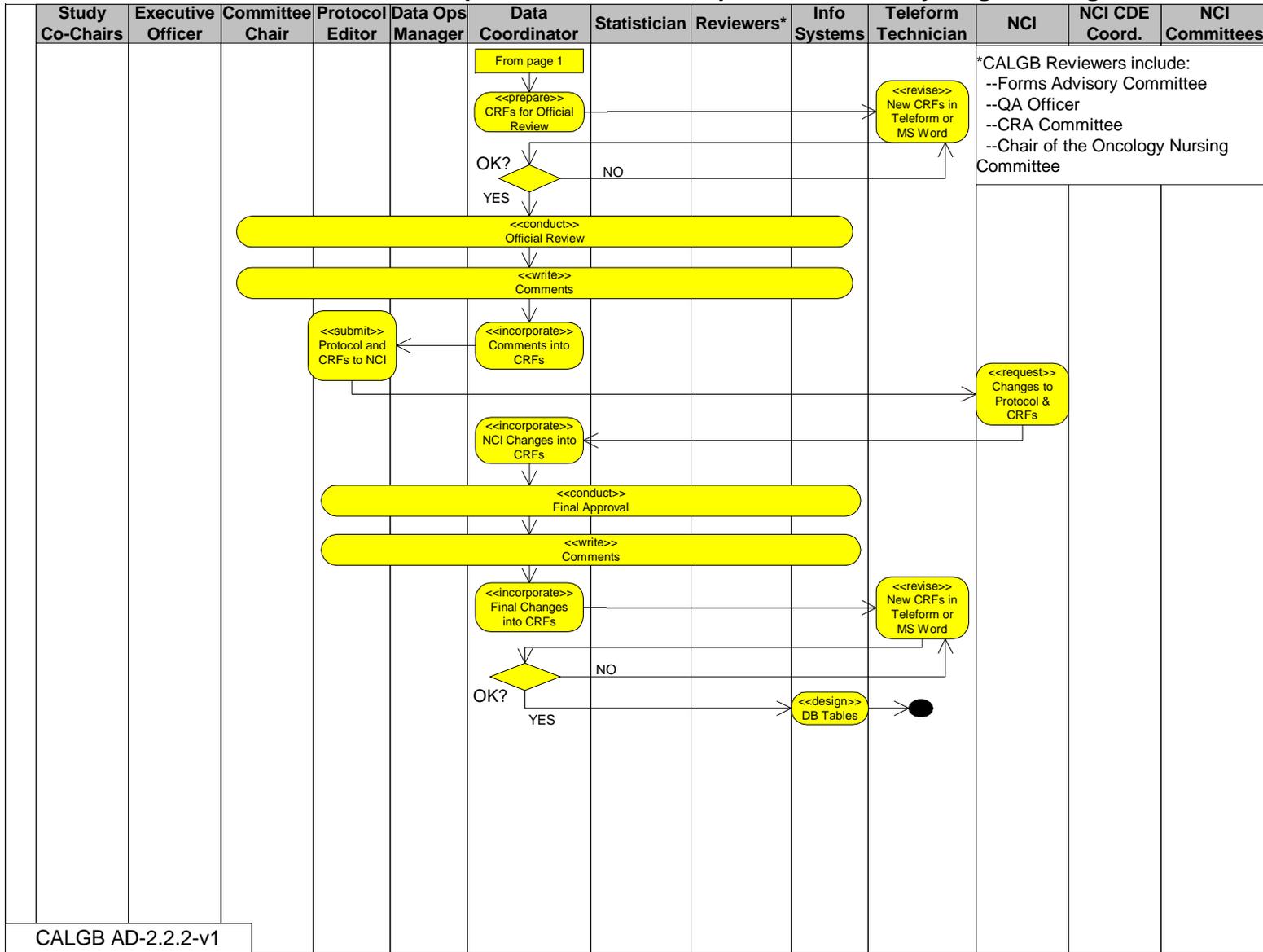
2.1.2 CALGB "To-Be" Develop New Case Report Forms Activity Diagram - Page 2



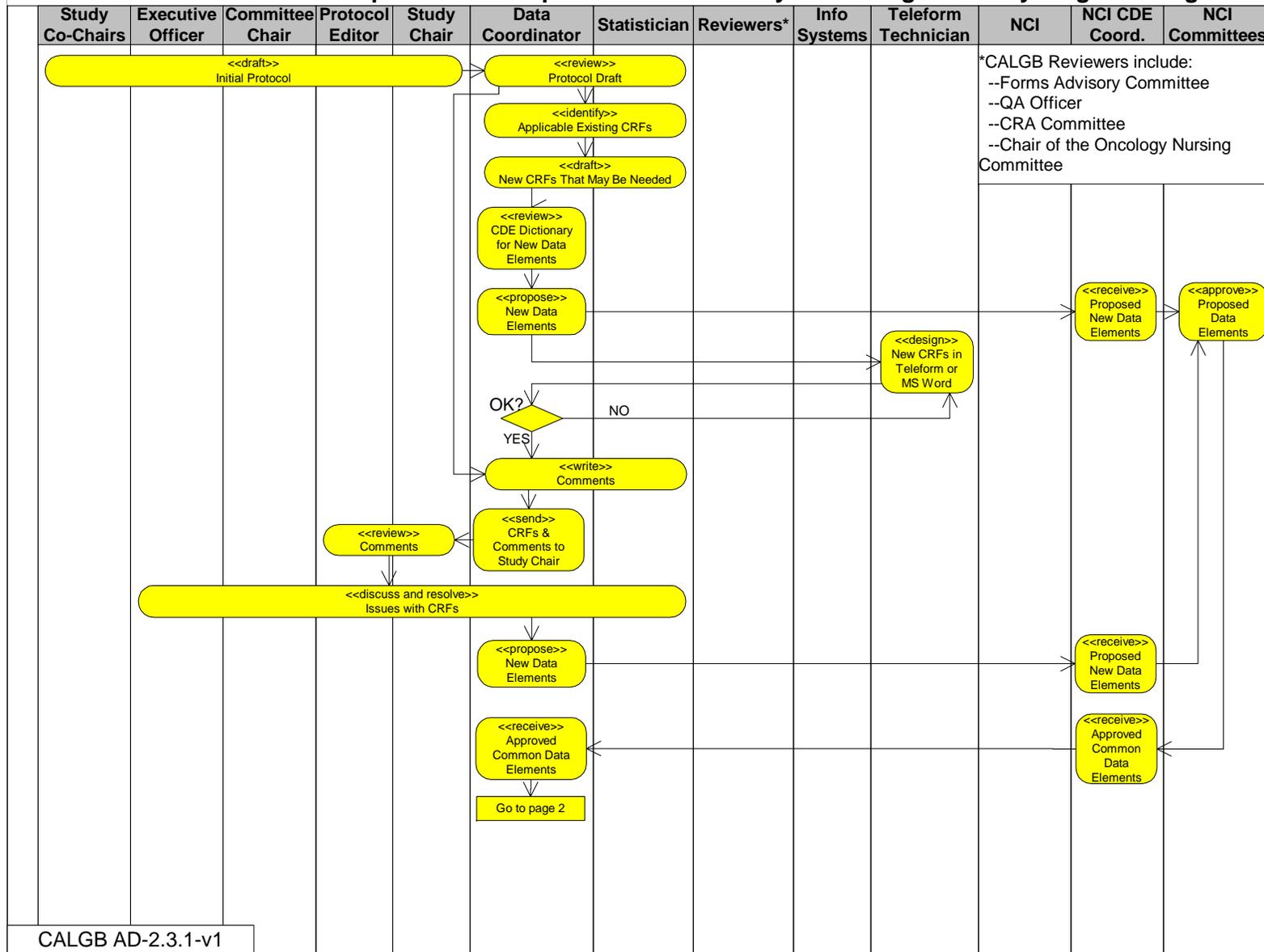
2.2.1 CALGB "To-Be" Develop New Master Case Report Forms Activity Diagram - Page 1



2.2.2 CALGB "To-Be" Develop New Master Case Report Forms Activity Diagram - Page 2



2.3.1 CALGB "To-Be" Develop New Case Report Forms with Many NCI Changes Activity Diagram - Page 1



CALGB AD-2.3.1-v1

2.3.2 CALGB "To-Be" Develop New Case Report Forms Activity Diagram - Page 2

