

Data Management Plans

Patrick Murphy
Director of Research Informatics
Family Health International
DMID/ICSSC

What is a Data Management Plan?

- ✦ A written document that describes plan for collecting and managing data throughout the life of a study.
- ✦ Similar in nature and scope to a statistical analysis plan or a clinical monitoring plan.

What Information Should be Reviewed to Write A DM Plan

- ✦ **Study Protocol**
 - The study protocol defines how and why the study is being conducted. This document is key to understanding the study.
- ✦ **Study Manual/Monitoring Plan**
- ✦ **CRFs**
- ✦ **Data coming from external sources, e.g., laboratory data**

Who is the Target Audience of a DM Plan?

- ◆ Data managers
- ◆ Data programmers
- ◆ Query staff
- ◆ Project Leader
- ◆ Clinical Monitors
- ◆ Statisticians
- ◆ Site staff

DMID DM Plan Template

- ◆ Provided in Workshop Notebook Appendix

DMID DM Plan Template Contents

Item	Topic	Description
1	Database Design Specifications	Defines the database design requirements (i.e., data system security, back-up/disaster plan, data confidentiality and storage) and study information.
2	Annotated CRF	The database definition tool, describing the various names and attributes for all fields defined in the database.
3	Case Report Form (CRF) or Electronic Case Report Form (eCRF)	The primary data collection tool, ensuring all required data is accurately collected in the required sequence.
4	Data Quality Plan	A plan for verifying the accuracy of the data collected. The plan includes sections for automated data validation procedures and monitoring reports.
5	Data Validation Procedures	Subset of the Study Data Quality Plan; defines each automated validation that must be programmed in the database.
6	Study Reports Definitions	Listing of the required data reports, timing or triggers for report release and defines the contents and format of each report. It is used to program the reports.
7	Database Validation Test Plan	Plan for validating the study database setup and definitions, and report programming.
8	Study Site Preparation	Describes the equipment, connections, supplies and anything required by the site to efficiently transmit data.

DMID DM Plan Template Contents

9	Source Document and CRF Completion Guidelines	Guidelines for entering data into the study source documents and CRF; used to train the site data collecting personnel.
10	Data Entry Guidelines	Documents the rules and strategies used in manually entering and correcting data at the time of data entry
11	Study Data Assumptions (Optional)	Documents the rule and strategies used in manually entering and correcting data at the time of data entry
12	Data Dictionary Coding Conventions	Documents the coding dictionaries that will be utilized for a clinical study, the data variables that will be coded, the coding conventions that will be used for coding and the coding process that will be followed.
13	Serious Adverse Event (SAE) Data Reconciliation Process	Explains the process of SAE reconciliation between the Safety Reporting Database and the clinical study database.
14	Data Discrepancy Management Process	Describes the process and interactions between the sponsor site and investigator site for defining and correcting data errors.
15	Database Close Out Process	Describes the required documentation for the release of clinical data from production, into analysis.

What Information Should be Contained in a DM Plan? (1)

- ◆ Definition of Source Data/Documents
- ◆ Data Capture/Case Report Forms
- ◆ Data Transfer
- ◆ Data Entry System/Validation
- ◆ Data Entry/Filing
- ◆ Data Querying
- ◆ Data Set Creation
- ◆ Data Storage/Archiving

What Information Should be Contained in a DM Plan? (2)

- ◆ External Data (e.g., lab data)
- ◆ Protocol Violations
- ◆ Serious Adverse Events
- ◆ Coding of Medical Terms
- ◆ DSMB and IND reports
- ◆ Data Assessments
- ◆ Data Audits

GCP Document Filing

Section	Document	Invstgr. Files?	Sponsor Files?
8.2.2	Sample CRF	Yes	Yes
8.3.2	Revisions of CRFs	Yes	Yes
8.3.13	Source documents	Yes	No
8.3.14	Signed, dated, completed CRFs	Copies	Originals
8.3.15	Documentation of CRF corrections	Copies	Originals
8.3.24	Signature sheet	Yes	Yes

Table 1- FHI Staff

Role:	Name
Clinical Principal Investigator:	Lut Van Damme
Behavioral Principal Investigator:	Amy Corneli
Project Manager:	Jennifer Deese
Clinical Monitors:	Haddie Kiernan Elan Reuben Crystal Dreisbach
Research Informatics Director:	Patrick Murphy
DM Lead:	Lisa Saylor
Data Managers for Regional Sites:	Lisa Saylor Margaret Farrell-Ross
Associate Data Managers for Regional Sites:	Denise Wynn
Data Discrepancy Manager:	TBD
Data Programmers:	Lalitha Venkatasubramanian Min Xu
Database Designer:	Pam Kellogg
Clintrial™ and DM Net Administrators:	Luis Bravo Justin Dash
Biostatistics Director:	Doug Taylor
Lead Biostatistician:	Wes Rountree

Title: 10015 –FEM-PrEP Data Management Plan	Version: 0.85
--	----------------------

Date Last Revised: 9 July 2008	
---------------------------------------	--

Page: 2 of 38

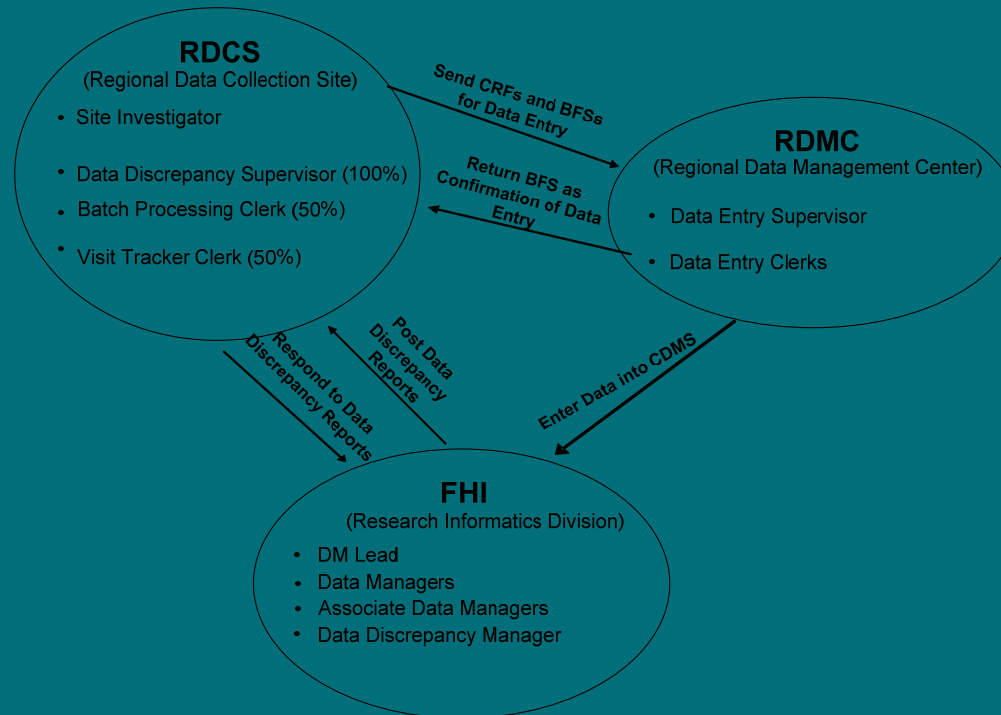
Table 3 - Participant Ranges

Country, City	Site/Center Number	Projected Participant Enrollment Totals	Screening/Participant Number Ranges
Kenya, Bondo	10217	700	10000-19999
Malawi, Blantyre	10229	350	30000-39999
Malawi, Lilongwe	9992	300	40000-49999
South Africa, Cape Town	10208	750	50000-59999
South Africa, Pretoria	10209	750	60000-69999
Tanzania, Arusha	10222	413	70000-77750
Tanzania, Moshi	00490	137	77751-79999

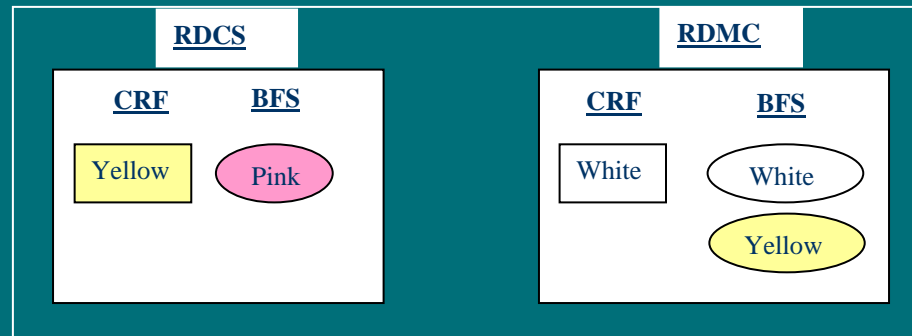
Terms and Abbreviations

Term	Meaning
1st Data Entry	The initial entry of the case report form (CRF) data into FHI's Clinical Database Management System.
21 CFR Part 11	United States Code of Federal Regulations for Electronic Records
21 CFR Part 11-compliant	Following the procedures specified in the United States Code of Federal Regulations for Electronic Records
2nd Data Entry or Verification	Second entry of the CRF data into Family Health International's (FHI) Clinical Database Management System.
FHI Associate Data Manager	This person is a part of FHI's Research Informatics Division. He/she are assigned as backup support for the data managers. This person is responsible for assisting with the day to day support efforts of the regional staff.
Batch	A set of completed CRFs transferred from the regional data collection site (clinic) to the regional data management center for data entry.
BFS - Batch Flow Sheet	A tracking form used to group and organize CRFs for up to 10 participants for data entry.
BPC – RDCS Batch Processing Clerk	This person is located at the regional data collection site. He/she are responsible for the initial review of the CRFs after completion at the regional data collection site, preparing the CRFs for data entry, and for creating and maintaining a set of participant binders for the clinical trial.
CDMS – Clinical Database	FHI's CDMS is Clintrial™. The software was developed by

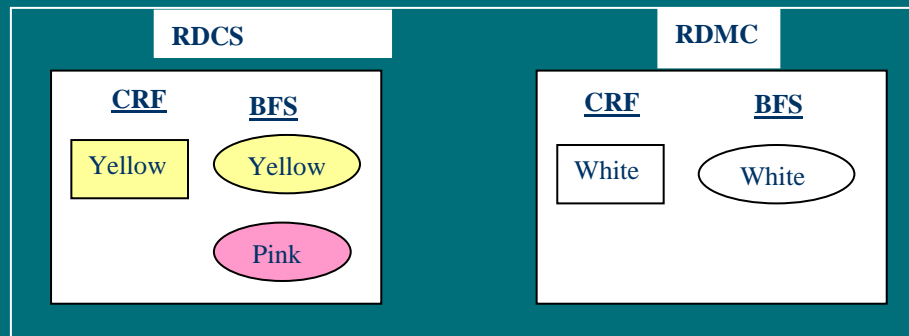
Flow Chart Between Entities



Before Data Entry



After Data Entry



Responsibilities by CRF

Lab CRF	CRF Completed By	CRF Entered By	White CRF	Yellow CRF	Pink CRF*	Resolve Discrepancies	Quickly Communicate Results to Sites	End of Study
PCR	ITM, Antwerp, Belgium	ITM	ITM	RDCS	NA	DDM, ITM	ITM will contact Sites and FHI Clinical Study Staff with results.	White CRFs to FHI.
OLA	ITM	ITM	ITM	ITM	NA	DDM, ITM	NA	White CRFs to FHI.
TENO	UZ Gasthuisberg, Leuven, Belgium (ITM staff may assist)	ITM	ITM	UZ	NA	DDM, ITM	CMs will reports results to the SI.	White CRFs to FHI. DM Net reports to the RDCS.
GRT* and PRT*	Gladstone Institute, San Francisco, CA	FHI	FHI	Independent Physician (identified by the SI)	Gladstone Institute	DDM, CM and Gladstone	FHI will notify SI that CRFs have been sent to their Independent Physician	Yellow CRFs to RDCS after the study has been unblinded.

List of Appendices

Appendix A: CRF List

CRF Titles	CRF Name	Number of Pages
Adverse Event	AE	1
Behavioral	BEH	2
Chemistry Blood Tests	CHEM	1
Eligibility Criteria	ELI	1
Enrollment	ENROL	1
Enrollment Informed Consent Comprehension Quiz	ENRQUIZ	1
Final Status	FINAL	1
Follow-up Visit	FU	1
Genotypic Resistance Testing	GRT	1
Hepatitis B Vaccination	HBVAC	1
HIV	HIV	1
Medical/Surgical History	MEDHX	1
Medication/Therapy	MT	1
Off Product Behavioral	OPB	1
OLA	OLA	1
PCR	PCR	1
Phenotypic Resistance Testing	PRT	1
Physical Exam	EXAM	1
Pregnancy Outcome	PREG	1
Product Interruption/Restart	PIR	1
Product Supply	SUP	1
Protocol Violation	PV	1
Screen/S2 Laboratory	SCR52LAB	1
Screening	SCREEN	1

Sample Forms-Batch Flow Sheet

Appendix B: Standard Batch Flow Sheet

FSN FEM-PrEP BATCH FLOW SHEET										
BPC completes Prior to Sending Batch to the RDM C										
Center # _____		Date: ____/____/____ <small>dd mon yyyy</small>		Total CRFs Sent: _____		Total DDFs Sent: _____		Sent by (initials): _____		Comments: _____
Screening #										SUM
AE										
BEH										
CHEM										
ELI										
ENROL										
ENRQUIZ										
EXAM										
FINAL										
FU										
HBVAC										
HIV										
MEDHX										
MT										
OPB										
PIR										
PREG										
PV										
SCR52LAB										

RDCS

Data Collection Activities:

1. Fill out CRFs.
2. Collect samples and send them to off-site lab.
3. Transcribe lab results on the laboratory CRFs.

Prior to Data Entry:

1. Complete BFS.
2. Send (W) CRF and (W) & (Y) BFS to RDMC.
3. File (Y) CRFs in participant binders.
4. File (P) BFS in 'Batch Sent for Data Entry' folder.

After Data Entry:

1. Match (Y) BFS with the (P) BFS and file them in the "Batch Flow Sheets for Forms Entered" folder.

Lab Samples and transport forms

Lab Result Cards

Local Labs

1. Receive samples from RDCS.
2. Test samples.
3. Complete lab results card.
4. Send results card to RDCS.

(W) CRFs and (W) & (Y) BFS

(Y) BFS

RDMC

Prior to Data Entry:

1. Receive (W) CRF and (W) and (Y) BFS from RDCS.
2. Review CRFs and document on BFS.

Data Entry:

1. Enter CRF Data into Clintrial.
2. Document data entry on BFS.

After Data Entry:

1. Complete BFS.
2. Send (Y) BFS to RDCS.
3. File (W) CRF in participant binders.
4. File (W) BFS in the "Batch Flow Sheets for Forms Entered" folder.

Legend

- CRF: Case Report Form
 (W): White copy
 (Y): Yellow copy
 (P): Pink copy

Instructions for Detailed Processes

Appendix J: Data Discrepancy Responsibility and Filing Tables

Requesting a Manual Data Discrepancy		
	Who describes the issue	Who updates the database
When an issue is discovered that prevents CRF from being entered into Clintrial™	Regional Data Entry Supervisor	Not Applicable
When an issue is discovered after data entry by the Site staff	Authorized Site Staff	Data Discrepancy Manager
When an issue is discovered after data entry by FHI study staff	FHI Study Staff	Data Discrepancy Manager

Versioning

Title: 10015 –FEM-PrEP Data Management Plan	Version: 0.85
Date Last Revised: 9 July 2008	Page: 38 of 38

Appendix M: DM Plan Version History

VERSION	DATE	REVIEWED/ APPROVED	ROLE	COMMENT

Appendix N: FEM-PrEP SOP and Work Instruction Version History

VERSION	SOP TITLE	EFFECTIVE DATE	SUPERSEDES	SENT TO SITES

Source Data/Documents

- ◆ Document where data is first captured
- ◆ Define your source documents
- ◆ Important for monitoring
- ◆ Important for participant files

Case Report Forms

- ◆ A CRF can be a source document if the CRF is the initial document where data is recorded
- ◆ Formatted electronic data entry screens meet the definition of CRFs
- ◆ Electronic CRFs must meet the same requirements as paper CRFs (audit trail, conformity with source data)
- ◆ Electronic Data Capture (EDC) has many definitions

Electronic Data Capture (EDC)

- ◆ “Source data captured initially into a permanent electronic record” - CDISC Standards & Electronic Source Data within Clinical Trials, version 1.0, page 13, 20 NOV 2006
- ◆ “The direct entry of clinical data into a computer database (either a PC, laptop, or other such device) during a clinical trial. This may partially or wholly replace data capture in a paper CRF.” - EDM forum, 2004, slide 50, France, 2004

Electronic Data Capture (EDC)

- ◆ “Information that is first recorded on paper by the investigator’s staff or the patient, is subsequently entered into a computer at the investigator’s site, and it delivered electronically to the sponsor or sponsor’s representative (such as a CRO) without a hand-written case report form.” - The eClinical Form and PhRMA EDC/eSource Taskforce “The Future Vision of Electronic Health Records as eSource for Clinical Research”, version 1.0, September 14, 2006, page 11

Data Transfer

- ◆ How will the CRFs be transferred from the sites to the data entry office?
- ◆ Will lab data be provided in Excel files or other data structure?
- ◆ Sponsor should always retain the original CRF data.

Data Entry System/Validation

- ◆ What type of data entry system will be used?
- ◆ Will validation follow an SOP?
- ◆ Where will system be located?
- ◆ How will data be backed up/restored?

Data Entry/Filing

- ◆ How will you assure accurate data entry?
- ◆ If double data entry used, how will discrepancies be resolved?
- ◆ Double data entry requirements
- ◆ Describe filing systems at sites and data management centers
 - Identify equipment that needs to be purchased

Filing System



Research Informatics

Data Querying

- ◆ Will your data be systematically cleaned?
- ◆ How will you document changes to your CRFs?
- ◆ How will you document changes to your database?
- ◆ Coordinate schedule with monitoring visits, DSMB reports, interim analyses, study closeout

Data Storage/Archiving

- ◆ Where will CRFs be stored during and after the study?
- ◆ How will data sets be created/controlled during and after study?
- ◆ Original documents should be stored in a secure (locked) room or file cabinet.
- ◆ Document procedures for granting access to database servers.
 - System controls
 - Username/Passwords
- ◆ It is important that the data and audit trail are easily accessible for audit.

When Should a DM Plan be Updated?

- ◆ When the Protocol is amended
- ◆ Addition or removal of a site
- ◆ New CRF added to the study
- ◆ When data handling process changes
- ◆ Yearly review by data manager; only need sign-off if major changes have occurred

Data Plan Conclusions

- ◆ A Data Management Plan helps define the process and document your procedures
- ◆ Have SOPs and WIs to support the DM Plan
- ◆ Review the study protocol
- ◆ Communicate with the study team

Create Flowchart of Data, Forms, and Lab Samples

Breakout Session

Create a flowchart for data management for the following study. On the flowchart, indicate the following:

- Data management center, sites, and labs
- Filing of different plies of CRFs
- Flow of different plies of CRFs
- Forms used to track CRFs, lab samples
- Flow of lab samples and results

Please use different color pens to help make your flowchart more understandable.

Please leave extra space because we will use this flowchart in another breakout session.

Example Study Description

Data will be collected on 2-ply CRFs at 4 sites within a country. One of the sites will also serve as the data management center (DMC). Each participant will have blood samples drawn and sent to one central lab. Lab results should be sent to the site and to the DMC. CRFs should be filed at the DMC and at the sites. Lab results will be used for participant care.