Common Errors

ClinicalTrials.gov "Basic Results" Database

Principles for Using the Basic Results Database

- Submitted data are used to develop basic tables for the public display
- Tables must be interpretable by people not familiar with each particular study
- Labels for rows, columns, and units of measure must be meaningful and precise

1-09-09

- The following slides illustrate common types of errors that we have identified thus far in submitted records
- We have anonymized the data to avoid identification of Responsible Party
- We have omitted actual drug/intervention names and instead use "Experimental Drug X" or similar titles. This would not be acceptable in an actual record.

Language and Formatting Tips

- Spell out term when first used, acronym in parentheses
- Use precise language
 - Do not use "proportion" unless providing a ratio
 - Do not use "rate" unless providing a quantity in relation to another unit (e.g., participants per unit time)
 - If simply reporting the number of participants, use "number" for Measure Type
- In general, spell out symbols such as
 - "Percentage" rather than "%"
 - "Number" rather than "No." or "#"
- Use decimal points (not commas) for the "decimal separator" and commas (not periods) for the "thousands separator"

Types of Errors Covered

- Participant Flow
- Reporting Measures
 - Reporting Scales
 - Defining Categories
 - Reporting Time-to-Event Data
- Baseline Measures
- Outcome Measures
- Statistical Analyses
- Adverse Events

Participant Flow

Lack of Internal Consistency

DRAFT

Participant Flow

- Number STARTED should be consistent with "Enrollment, Actual" in protocol section
 - Correct "Enrollment, Actual" (or explain inconsistencies in Pre-Assignment Details)
- If more than one Period, number COMPLETED for each Period should equal number STARTED for next Period (or explain loss or addition of participants)
- If "Milestones" are defined, number for each "Milestone" must be
 - Less than or equal to number STARTED Period (or number that achieved previous Milestone)
 - Greater than or equal to number COMPLETED Period (or number that achieved subsequent Milestone)

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Participant Flow: Overall Study

	Placebo	Drug X
STARTED	301	299
Received First Dose	300	280
COMPLETED	298	295
NOT COMPLETED	3	4

Number of participants in a milestone ("Received First Dose") within a period cannot be less than the number COMPLETED (or greater than the number STARTED)

Participant Flow: First Period

	Placebo	Drug X
STARTED	301	299
COMPLETED	291	285 🗲 -
NOT COMPLETED	10	14

Number of participants STARTED in second period of Participant Flow needs to be the same as number COMPLETED in the first period

Participant Flow: Second Period

	Placebo	Drug X	
STARTED	298	290 -	
COMPLETED	288	278	
NOT COMPLETED	10	12	

EXAMPLE: Dose Escalation – <u>Different</u> Participants Receive Each Dose (Public View)



^[1] Dose level given only after lower dose was successfully administered

^[2] Dose level given only after lower dose was successfully administered

^[3] 2 participants were paired with each dose level of Drug X

EXAMPLE: Dose Escalation– <u>Same</u> Participants Receive Each Dose (Public View)



Reporting Measures

Reporting Scales Defining Categories Reporting Time-to-Event Data

Reporting Scales

How to Report a Scale: Helpful Hints

- Measure Title
 - Specific name of scale
 - Spell out acronym, add acronym in parentheses
- Measure Description
 - Construct/Domain if not clear from Measure Title
 - e.g., pain, quality of life
 - Range and direction of scores (e.g., 0 is best; 10 is worst)
 - Optional: Type of scale
 - e.g., continuous, ordinal
- Unit of Measure
 - Use "participants," if applicable (i.e., for categorical data)
 - Use "units on a scale" or "scores on a scale," if no other units (i.e., for continuous data)



BEFORE Revision (Data Entry View)

Study-Specific Baseline Measure Title & Baseline Measure Description

BEFORE Revision

Baseline Measure Description information *not* provided.

<u>Baseline Measure Title:</u> *	Study Specific Characteristic 💌
Study-Specific Baseline	If the Baseline Measure Title is "Study-Specific", please enter a brief descriptive name for the measure.
<u>Measure Title:</u>	GOG Peformance Status
Baseline Measure Description:	Additional information such as details about the collection method or participant population, if different from Overall Number of Baseline Participants.
	[No Text Entered]
<u>Measure Type:</u> *	Number 💌
Measure of Dispersion:*	Please select "Not Applicable" if the Measure Type is "Number". Please do NOT select "Not Applicable" for other measure types.
	Not Applicable
<u>Unit of Measure:</u> *	Participants
OK Cancel	Delete

Acronym ("GOG") expanded

AFTER Revision (Data Entry View)

Baseline Measure Description

AFTER Revision Baseline Measure Title:* Study Specific Characteristic 🗸 Study-Specific Baseline If the Baseline Measure Title is "Study Specific", please enter a brief descriptive name for the measure. **Measure Title:** Gynecological Oncology Group (GOG) Performance Status Baseline Measure Description: Additional information such as details about the collection method or participant population, if different from Overall Number of Baseline Participants. 5-point, ordinal scale specifying patient's ability to perform activities from O (fully active) to 4 (completely disabled, no self-care). Measure Type:* Number Measure of Dispersion:* Please select "N licable" if the Measure Type is "Number". Please do NOT select "Not Applicable" for other measure types. Not Applicable Unit of Measure:* Participants Cancel OK | Delete Added text about the scale Range: "5-point, ordinal"

- Directionality: "0 (fully active) to 4 (completely disabled...)"
- Construct/Domain: "patient's ability to perform activities"

BEFORE & AFTER Revision (Data Entry View)

Category Title

BEFORE Revision



		Brief description added to indicate "directionality"
A	TER Revision	
	Category Title* 0 - Fully Active	Added 2 categories to represent full range
	Category Title* 1 - Restricted Strenuous Activity, Ambulator	
	Category Title* 2 - Ambulatory, Difficulty Walking	
	Category Title* 3 - Limited Self-Care, Partly Confined to Bec	
	Category Title* 4 - Completely Disabled, No Self-Care	ſ

AFTER Revision (Public View)



Defining Categories

How to Define a Category: Helpful Hints

- Provide informative Category Titles
- Typical characteristics
 - Mutually exclusive (non-overlapping) categories
 - Comprehensive categories, covering the full range of possible results
- For categories based on continuous measures, provide thresholds when possible

- Especially for 2 categories (i.e., dichotomous measures)

How to Define a Category: Helpful Hints (continued)

- If multichotomous or continuous data are converted to dichotomous, explain the algorithm
- Outcomes such as "improved" and "responders" are actually implied dichotomous categories that represent change over time
 - Best to report *both* possible outcomes (e.g., "improved" and "not improved")
 - Explain the derivation of data in Measure Description
 - Provide time period of assessment e.g., baseline & 6 weeks
 - E.g., How was it determined who was "improved" and "not improved"?







BEFORE Revision (Data Entry View)

Unit of Measure



AFTER Revision (Data Entry View)

Unit of Measure



BEFORE & AFTER Revision (Data Entry View)

Outcome Data

BEFORE Revision

Posted	Primary Outcome: Nausea ; Units: Improved [8 Weeks]		
Nausea *	Placebo		Investigational Drug X
Number		Number	
Units: Improved 40		70	
AFTER Revision	Ļ		Added "Not Improved" category and data for number of participants
Posted	Primary Outcome: Number of participant	s improv	mausea scale ; Units: Participants [8 Weeks]
Number of participants	Placebo		Investigational Drug X
improved on nausea scale *		Nun	nber
Improved 40 Units: Participants 60 Units: Participants 60		70 30	

Primary Outcome Measures Neuros

AFTER Revision (Public View)

Outcome Measure Name and Measure Description

Fillinally Outcome Measure.	Nausea
Measure Type	Primary
Measure Name	Number of participants improved on nausea scale
Measure Description	Nausea scale range: 1 (severe) to 10 (none), ordinal. Change: score at 8 weeks minus score at baseline. "Improved" = greater than 3-point difference in score.
Time Frame	8 Weeks
Safety Issue	No



Secondary Outcome Measure: Pain Assessment by Patient

Measure Type	Secondary	
Measure Name	Pain Assessment by Patient	
Measure Description	Mean change in pain assessment: Mean of last 5 assessments by patient while on study drug using a 5-point scale (0=no pain; 4 = worst pain).	
Time Frame	15 weeks	
Safety Issue	No Incomplete descr How was "mean calculated? (e.g.	iption: change" 15 week

calculated? (e.g.,15 week mean minus baseline mean")

Measured Values

	Drug X, Low Dose	Drug X, High Dose
Number of Participants Analyzed	207	210
Pain Assessment by Patient		
[units: units on a scale]	-0.53 ± 0.07	-0.71 ± 0.08
Mean ± Standard Error		

AFTER Revision (Public View)

Secondary Outcome Measure: Pain Assessment by Patient

Measure Type	Secondary
Measure Name	Pain Assessment by Patient
Measure Description	Mean of last 5 assessments by patient while on study drug minus assessment at baseline, using the 5-point NIH Pain-P Scale (0=no pain; 4 = worst pain).
Time Frame	Baseline and 15 weeks
Safety Issue	No Updated Measure Description

Measured V	Values
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Updated Time Frame

	Drug X, Low Dose	Drug X, High Dose
Number of Participants Analyzed	207	210
Pain Assessment by Patient		
[units: units on a scale]	-0.53 ± 0.07	-0.71 ± 0.08
lean ± Standard Error		
Baseline Pain Assessment		
units: units on a scale]	3.75 ± 0.09	3.78 ± 0.09
Mean ± Standard Error		
Mean of Last 5 Pain Assessments		
[units: units on a scale]	3.22 ± 0.06	3.07 ± 0.07
Mean ± Standard Error		31
	Number of Participants AnalyzedPain Assessment by Patient[units: units on a scale]Mean ± Standard ErrorBaseline Pain Assessmentunits: units on a scale]Mean ± Standard ErrorMean of Last 5 Pain Assessments[units: units on a scale]Mean of Last 5 Pain Assessments[units: units on a scale]Mean ± Standard ErrorMean of Last 5 Pain Assessments[units: units on a scale]Mean ± Standard Error	Number of Participants AnalyzedDrug X, Low DosePain Assessment by Patient [units: units on a scale]-0.53 ± 0.07Idean ± Standard Error-0.53 ± 0.07Baseline Pain Assessment units: units on a scale]3.75 ± 0.09Mean ± Standard Error3.75 ± 0.09Mean of Last 5 Pain Assessments [units: units on a scale]3.22 ± 0.06Mean ± Standard Error3.22 ± 0.06

Reporting Time-to-Event Data

How to Report Time-to-Event Data: Helpful Hints

- Data can be reported as continuous (e.g., median survival) or as categorical (e.g., 5-year survival)
- If data collection is incomplete, a possible approach:
 - At a minimum, report number who reached the "event"
 - Report time of last measurement (use the Outcome Measure Time Frame data element)
 - E.g., Median length of follow up with range
 - Report preferred descriptive statistic for those who achieved the "event" (e.g., median time to event)
 - Do not use a statistic that cannot be computed (e.g., if median cannot be computed, report a different percentile or choose another metric)

Secondary Outcome Measure: Progression-Free Survival

Measure Type	Secondary
Measure Name	Progression-Free Survival
Time Frame	Time of initial response to documented tumor progression
Safety Issue	No



AFTER Revision (Public View)

Time Frame: Added time of assessment

1-09-09

Secondary Outcome Measure: Time to Tumor Progression

Measure Type	Secondary		
Measure Name	Time to Tumor Progression		
Time Frame	Time of initial tumor progression up to 36 months		
Safety Issue	No Analysis Population Descr		tion
		uescribes results at 36 mont	ns

Population Description

36 of the 48 total participants had documented tumor progression by the 36-month assessment.

Measured Values

aataaariaa tar
ion-free survival
y month
35



Baseline Measures

Invalid Data in Total Column

Invalid entry: e.g., provide values for the "mean" and "standard deviation" for all participants

Baseline Measures

	Drug X	Drug Y	Total
Heart Rate at Rest			
[units: beats per minute]	72.3 ± 2.7	71.9 ± 3.1	0 ± 0
Mean ± Standard Deviation			

Outcome Measures

Logic of Tables Precision of Information

Logic of Outcome Measure Tables

- Define rows (measures or counts) and columns (arms or comparison groups) to be logically consistent
- Cells (data) represent measures or counts derived from participants within arms or groups
 - Measure Type (and Measure of Dispersion) needs to be consistent with data being reported
 - Unit of Measure must be consistent with values
 - Absolute values are preferable to percentages

Measured Values

	Drug X, Week 10	Drug X, Change from Week 10 to 18
Number of Participants Analyzed	8 <mark>8</mark>	80
Treatment Satisfaction Questionnaire After 18 Weeks of Treatment [units: scores on a scale] Mean ± Standard Deviation	81 ± 17.46	7.9 ± 12.16
	lr rc N	nconsistency between column ows: Measure at week 10 and Measure "after 18 weeks of trea

Not informative

Primary Outo me Measure: Pharmacokinetics

Measure Type	Primary	Not clear how to interpret this		
Measure Name	Pharmacokinetics	Outcome Measure table • Time Frame: 6 Weeks		
Measure Description		Units: Weeks		
Time Frame	6 Weeks	Outcome Data: 6		
Safety Issue	No			
Measured Values				
		Investiga nal Drug X		
Number of Participant	ts malyzed	1		
Pharmacokinetics		6		
[units:weeks]				

Measured Values

	Intervention X	Control
Number of Participants Analyzed	28	27
Hours Per Day of Sleep		
[units: average hours per day]	823 ± 92	864 ± 106
Mean ± Standard Deviation		
	Inconsistency "average hours Data: value pro	between Units of Measure s per day," and Measure ovided is greater than the

total number of hours in a day

Measured Values

	Drug X, 20 mg	Drug X, 40 mg
Number of Participants Analyzed	175	179
[units: participants]		
Number of Participants with ADHD	50	12
[units: participants]		
Percentage of Participants with ADHD	0.257	0.062
[units: participants]		
	Is this 0.25	7 percent or 25.7 percent?
Inconsistent unit – should be "Percentage"	s	



Precision of Outcome Measure Information

- Outcome Measure Title, Description
 - Name and description of measure must be informative to people not familiar with study
 - If categorized, need description of categories
 - Use *neutral* words in Title (e.g., "treatment response" rather than "improvement" or "increased response")
- Units should directly reflect data in the table
- Viewers of the table should be able to understand what the numbers represent

In of

BEFORE Revision (Public View)

Secondary Outcome Measure: Potentially Clinically Significant Heart Rate

	Measu	іге Туре	Secondary			licates measure i	is
	Measu	ire Name	New 24-Hour Holter Mo	onitoring Ale	rts	inder of dierts	
	Measure Description New Holter monitoring alerts are defined as those alerts that occurred post- randomization and were not present at			st at			
			baseline		it at	22 of what?	
	Time F	Frame	Visit 3 (Week 15) • Participants			S	
dicates "r	number	Issue	Yes				
participants"							
Drug X Dr		Drive Y, Lyw Dose	Drug Y, High Dose				
	Nun per of Participants Analyzed		174	194	174		
	New 24-Hour Holter Monitoring Alerts		22	19	16		
	[units: participants]						

AFTER Revision (Public View)

Secondary Outcome Measure: Potentially Clinically Significant Heart Rate

	Measure Type	Secondary		Outo	Outcome Measure	
	Measure Name	New 24-Hour Holter Me	New 24-Hour Holter Monitoring Alerts with			on
	Measure Description	Number of participants with 1 or more alerts. New Holter monitoring alerts are defined as those alerts that occurred post- randomization and were not present at baseline				
	Time Frame	Visit 3 (Week 15)			ad	
Unit of Mea	ty Issue	Yes at least 1 alert				
	asured Values					
			Drug X	Dry Y, L w Dose	Drug Y, High Dose	
	Nur ber of Participants Analyzed		174	194	174	
	New 24-Hour Holter Monitoring Alerts [units: participants]		22	19	16	

Secondary Outcome Measure: Use of Community Health Resources



AFTER Revision (Public View)

Secondary Outcome Measure: Use of Community Health Resources







 Name should be shorter than Description.
 Inconsistent information in Name (e.g., "Severe Toxicity and Disease Progression") and Description ("Disease Progression" only).

Secondary Outcome Measure: Assess

Measure Type	Secondary
Measure Name	Assessment of Safety of 10 Dose Levels of Drug X Following 5 Cycles, Consisting of a 2- Week Exposure Period Followed by a 1-Week Rest Period, as Measured by Severe Toxicity and Disease Progression
Measure Description	Number of Participants with Disease Progression
Time Frame	Any three during 5 cycles and 30 days thereafter
Safety Issue	Yes

Clarify how "disease progression" is measured.

Primary Outcome Measure: Maximum Tolerated Dose (MTD)

Measure Type	Primary		
Measure Name	Maximum Tolerated Dose (MTD)		
Measure Description	MTD, as measured by unacceptable toxicity, is exceeded if >33% participants experienced Dose Limiting Toxicities (DLT)		
Time Frame	15 Weeks		
Safety Issu	Yes		
Mismatch among Measure			

Name, Description, and Data Dose Dose Dose Dose Dose Level 5 Level 1 Level 2 Level 3 Level 4 mber of Participants Analyzed 9 4 9 9 9 ximum Tolerated Dose (MTD) its: participants] Experienced DLT 3 2 1 0 5 Dose Level <MTD 0 4 0 9 0 Dose Level =MTD 9 0 0 0 0 9 Dose Level >MTD 0 0 0 9

Statistical Analyses

Measured Values

			Investigation	al Drug	Outcome Measure reported as categorical data (five categories of
Number of Participants Analyzed			96		"response") but Statistical Analysis provided as dichotomous data ("Overall Response Rate = Number Responded / Total Participants")
Response to Drug X [units: participants]					
	Complete Response		2		Need information on how the 5
	Partial Response		18		categories were "collapsed" into 2
	Stable Disease		34		were used in calculating the "Overall
	Increasing Disease				Response Rate"?).
	Unevaluable		6		
Statistical Analysis 1 for Reponse to Drug X					
Groups		ational Drug X			
Overall Response Rate 0.21					
95% Confidence Interval 0.12 to 0		0.33			

56

BEFORE Revision (Public View)

Groups compared ("week 10" vs. "change from week 10 to 18") not a logical t-test		
Measured Values		
	Drug X, Week 10	Drug X, Change from Week 10 to 18
Number of Participants Analyzed	88	80
Treatment Satisfaction Questionnair After 18 Weeks of Treatment [units: scores on a scale] Mean ± Standard Deviation	81 ± 17.46	7.9 ± 12.16
r		

Statistical Analysis 1 for Treatment Satisfaction Question After 18 Weeks

Groups	Drug X, Week 10 vs. Drug X, Change from Week 10 to 18
Method	Paired t-test
P-Value	0.0018
na	4.684
95% Confidence merce	2 080 to 7.730
	without an Estimation Parameter (e.g., mean difference, hazard ratio)

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BEFORE Revision (Public View)

Measured Values

			Early Discharge	Standard Discharge	
	Number of Participants	analyzed	100	100	
	Parental Stress				
	[units: points on a Likert scale]		9.3 ± 1.2	7.8 ± 2.1	
	Mean ± Standard Deviat	ion	A	A	
 Statistical Analysis Parental Stress 					
	Groups	Ea Vischarge	vs. Standa <mark>rd Dischar</mark>	ge	
	Method	ANOVA			
	P-Value	0.05			
	Mean Difference (Net)	9		·	

Measured Values

	Drug X	Placebo
Number of Participants Analyzed	125	120
Visual Analogue Scale (VAS) Pain Assessment at 1.5 Hours		
[units: scores on a scale]	0.57 ± 0.08	1.12 ± 0.10
Least Squares Mean ± Standard Error		

Statistical Analysis 1 for Visual Analogue Scale (VAS) P

Groups ^[1]	Drug X vs. Placebo
Method ^[2]	Linear mixed model
P-Value ^[3]	<0.01

Reported Statistical Test not directly related to reported Outcome Measure

^[1]Additional details about the analysis, such as <u>null hypothesis</u> and power calculation:

Effect onset is defined as half the time between initial assessment time indicating statistical significance and the previous assessment time.

^[2]Additional information, such as whether or not the p-value is adjusted for multiple comparisons and the a priori threshold of significance:

2-sided statistical tests at 0.05 significance level

Adverse Events

How to Report Adverse Events: Helpful Hints

- Report two different tables Serious and Other
 - Do not report any serious adverse events in the Other Adverse Events table
 - Note that a single type of Adverse Event Term (e.g., "asthma") may appear in both the Serious and Other tables
 - If possible indicate the level of severity to distinguish "serious" from "other" adverse events (e.g., "asthma – mild and moderate" in the Other table; "asthma – severe" in the Serious table)
- If no adverse events occurred, enter "0" for the Total Number Affected data elements
 - Do not enter 0 if you do not mean to imply that no adverse events occurred