
Double the Impact with Half the Work: Linking MedDRA and WHO Drug Indication coding

George B. Stoms

Vital Systems, Inc.

George.Stoms@VTLsys.com

(847) 458-2900 x222

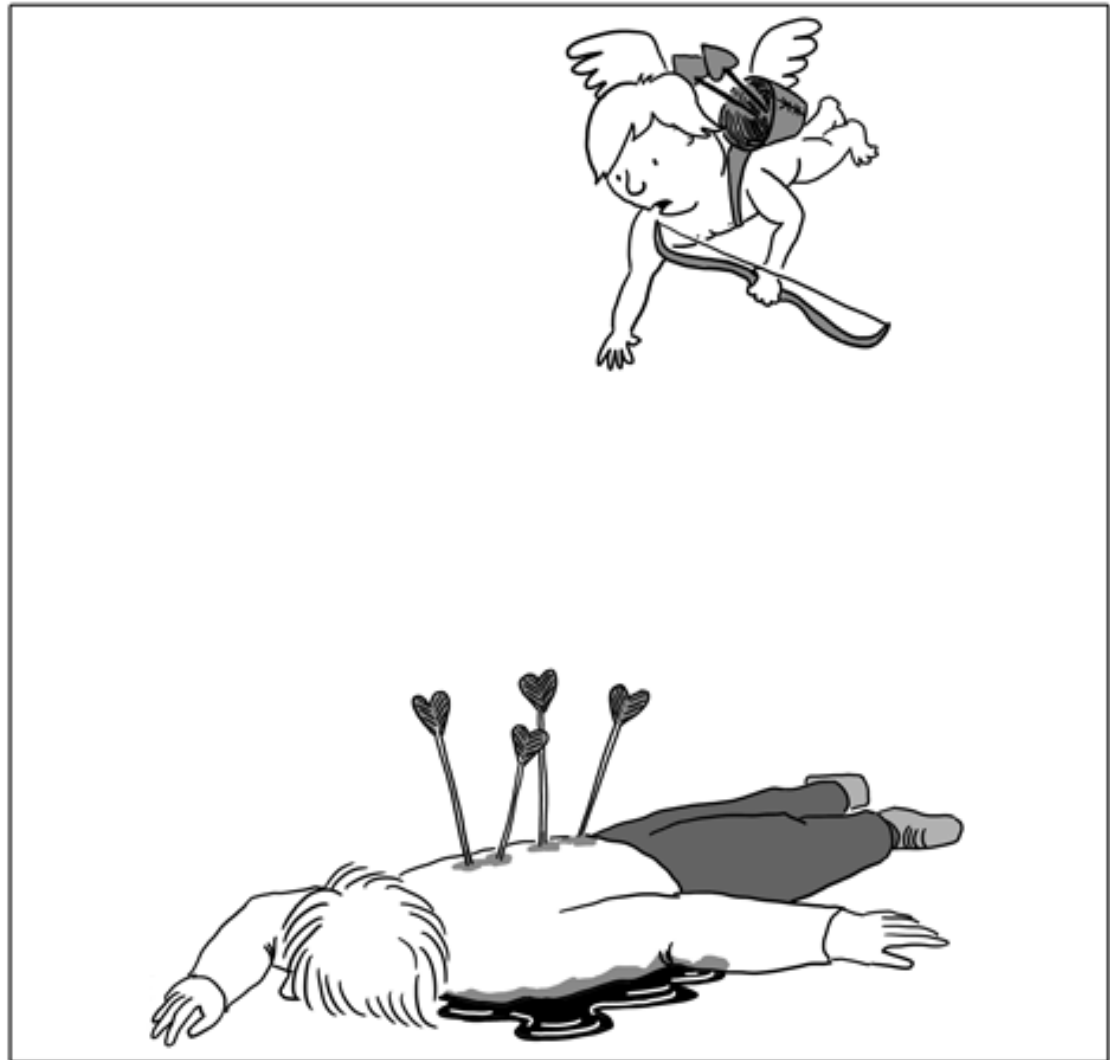
Before we begin...

It's easy to forget
the ***purpose***
of our efforts...



Before we begin...

Or
to keep
doing
and
doing
and
doing
what
used
to work...



...Hello? Gary?

The Life Span of Clinical Data

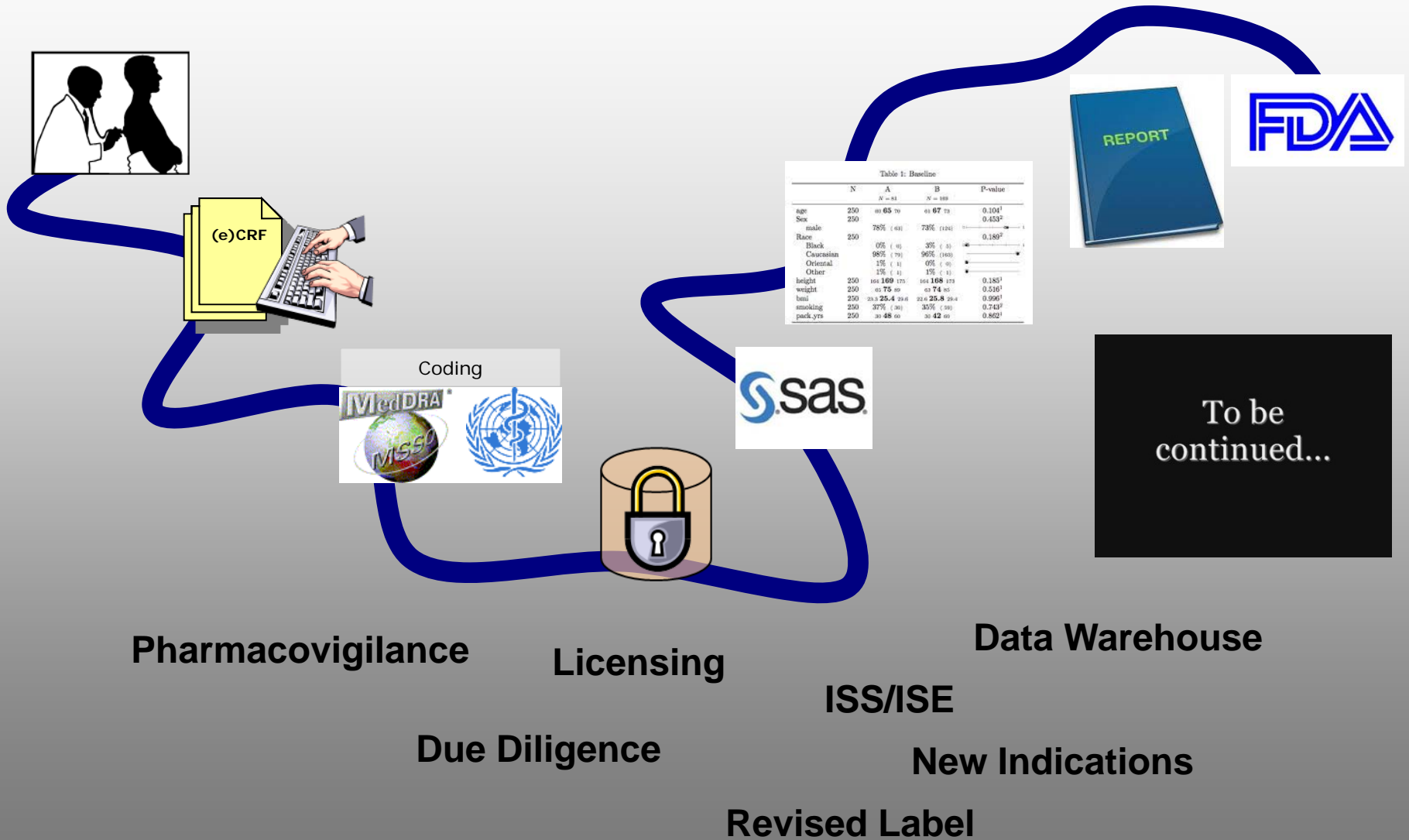
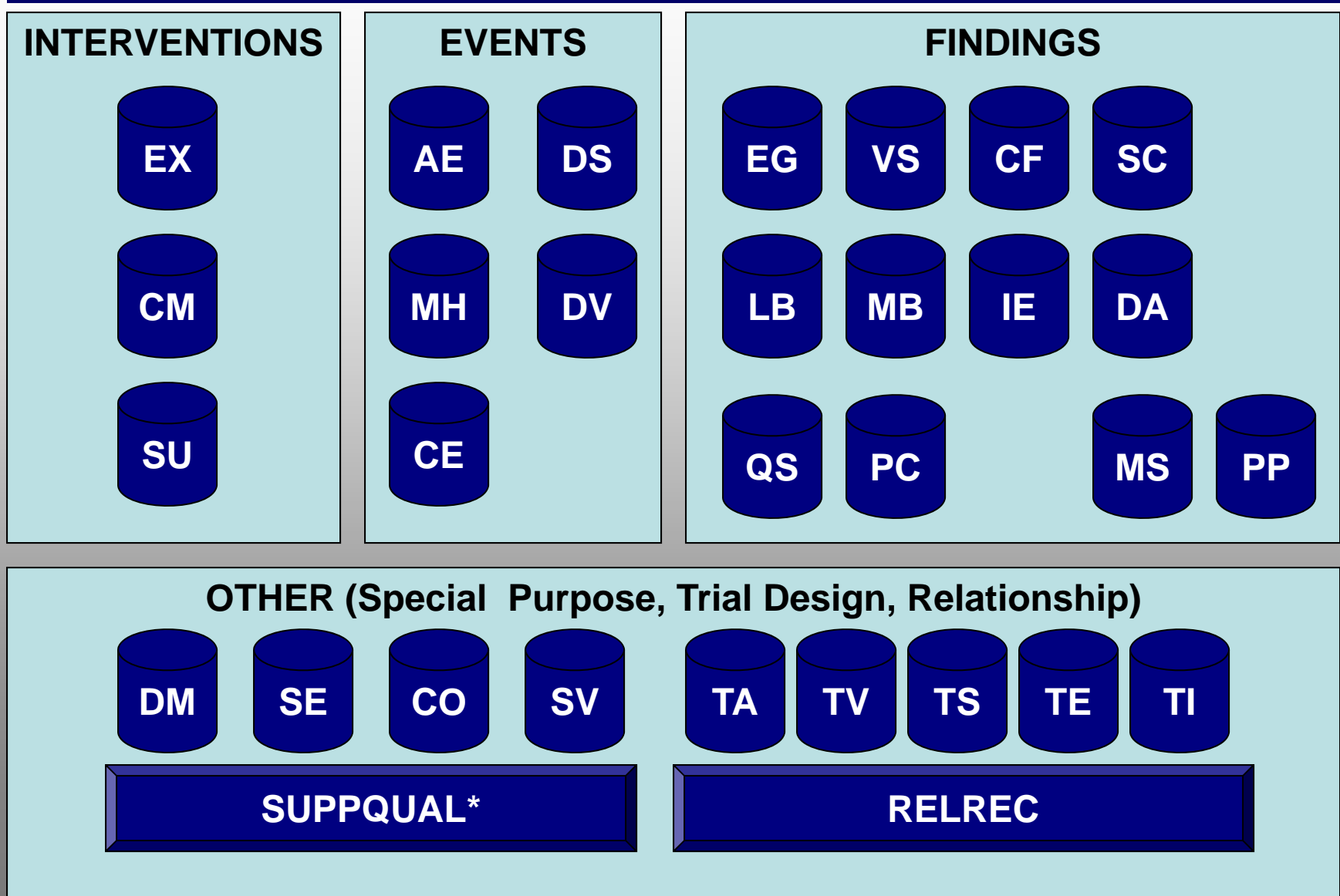


Table 1: Baseline

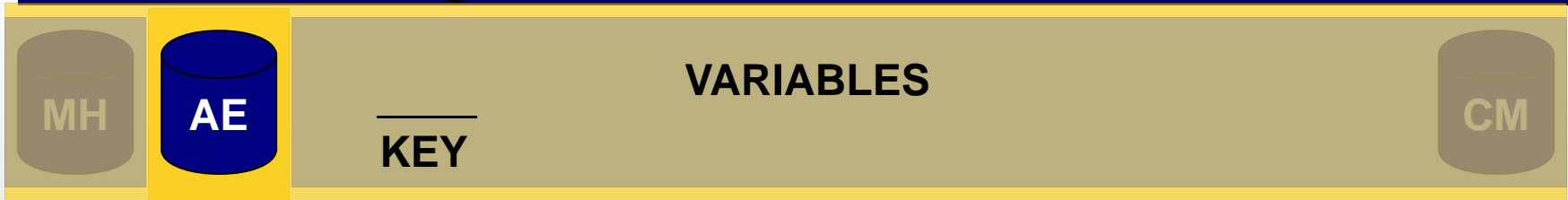
	N	A	B	P-value
	N = 42	N = 100		
age	250	00 65 70	00 67 73	0.101 ¹
Sex	250			0.453 ²
male		78% (41)	73% (124)	
Race	250			0.189 ³
Black		0% (0)	3% (3)	
Caucasian		98% (79)	96% (100)	
Oriental		1% (1)	0% (0)	
Other		1% (1)	1% (1)	
height	250	104 169 173	104 168 173	0.185 ³
weight	250	00 75 80	00 74 80	0.516 ³
time	250	22.3 25.4 28.0	22.0 25.8 28.4	0.996 ³
smoking	250	30% (20)	30% (20)	0.743 ³
pack.yrs	250	00 48 60	00 42 60	0.862 ³

Clinical Data Domains

SDTM IG 3.1.2



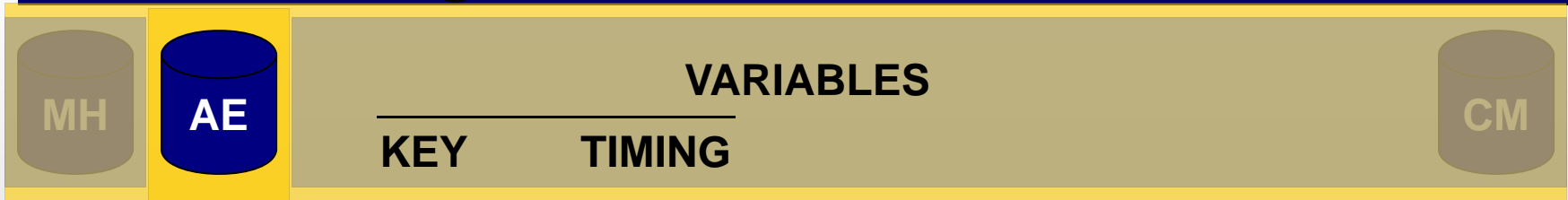
The Coding Domains



Key Variables

- STUDYID
 - DOMAIN
 - USUBJID
 - AESEQ
- Together, these variables form a “KEY”:
an identifier that locates a unique record “address”

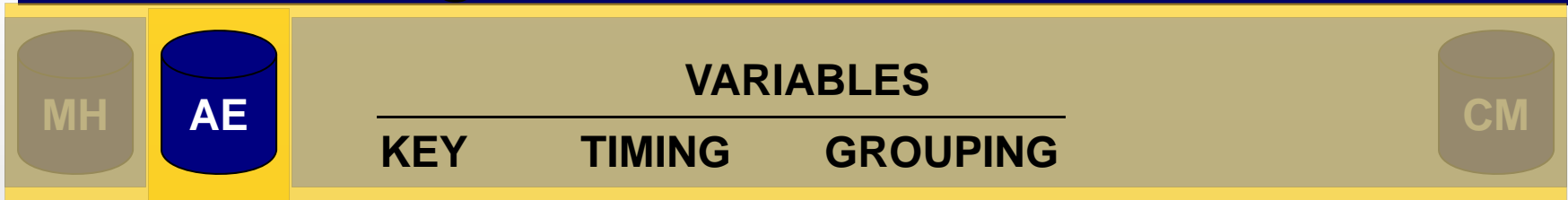
The Coding Domains



Timing Variables ISO 8601 format (allows levels of precision)

- AESTDTC & AEENDTC
 - Event Start & Stop Date
- AEDUR
 - present only if recorded on CRF, blank if derived
- AESTDY & AEENDY
 - Study Day, non-zero, derived from DM:RFSTDTC
- AESTRF & AEENRF
 - Gross timeframe relative to a reference date range.
 - Allowable values: BEFORE, COINCIDENT, UNKNOWN, or AFTER *

The Coding Domains

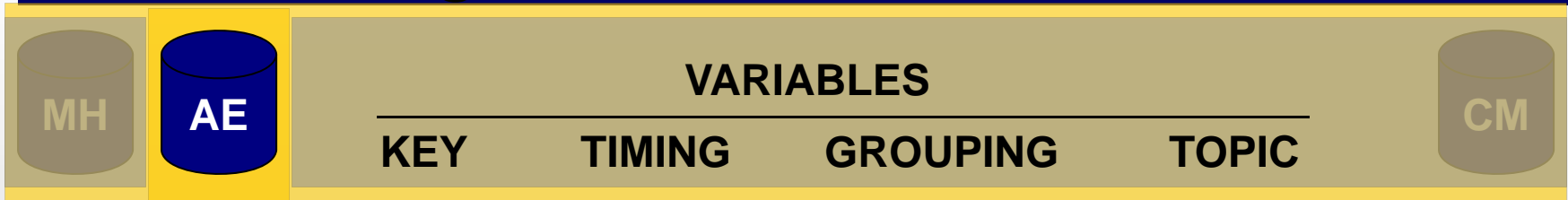


Grouping Variables

–used for grouping within the domain

- AEGRPID
 - Grouping within subject
- AECAT, AESCAT
 - Grouping across subjects

The Coding Domains



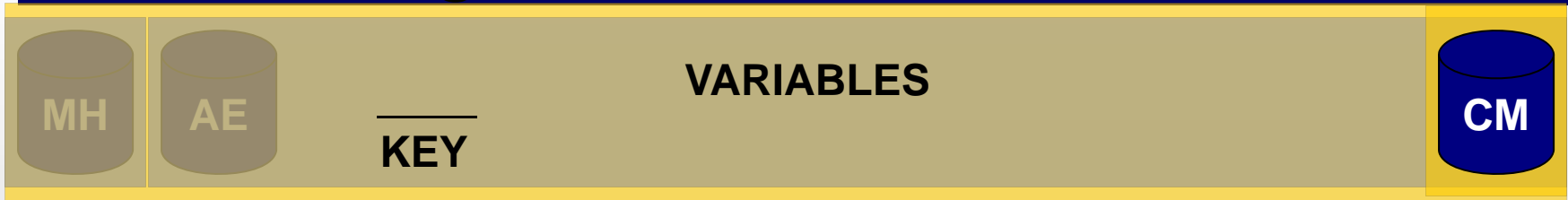
Topic Variables

- AETERM verbatim
- AEMODIFY sponsor terminology
- AEDECOD dictionary preferred term
- AEBODSYS dictionary body system
- AESER Y if serious, requires one or more reasons in AESCONG, AESDISAB, AESDTH, AESHOSP, AESLIFE, or AESMIE (other medically important serious medical event) – if Y, requires additional categories in the domain SUPPQUAL or SUPPAE

- AEOCCUR Y if data “should be” solicited by prompt to subject
- AEPRESP Y if pre-specified list on CRF
- AESTAT if pre-specified list, was question asked of subject
- AEREASND reason if prompt was not asked



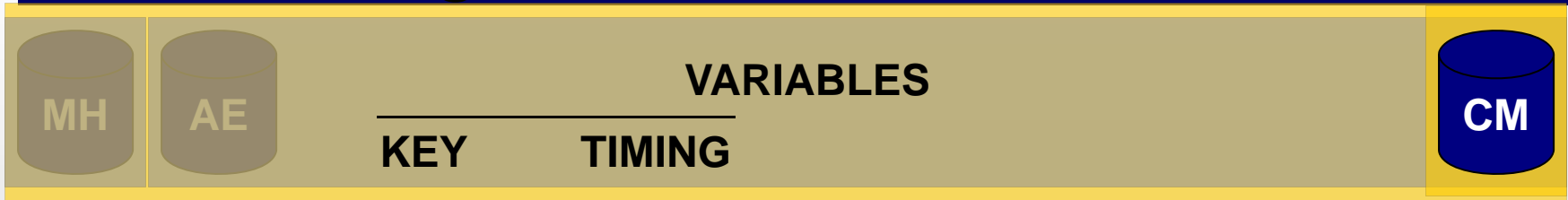
The Coding Domains



Key Variables

- STUDYID
- DOMAIN
- USUBJID
- CMSEQ
 - Together, these variables for a “KEY”:
an identifier that locates a unique record “address”

The Coding Domains



Timing Variables ISO 8601 format (allows levels of precision)

- CMSTDTC & CMENDTC
 - Medication Start & Stop Date
- CMDUR
 - present only if recorded on CRF, blank if derived
- CMSTDY & CMENDY
 - Study Day, non-zero, derived from DM:RFSTDTC
- CMSTRF & CMENRF
 - Gross timeframe relative to a reference date range.
 - Allowable values: BEFORE, COINCIDENT, UNKNOWN, or AFTER *

The Coding Domains



Dosing Variables

- CMDOSE dose without units (eg: 200)
- CMDOSTX dose range without units (eg: 200-400)
- CMDOSU units (eg: mg)
- CMDOSFRM dose form (eg: TAB)
- CMDOSFRQ dose frequency (eg: BID)
- CMDOSTOT total daily dose without units, in same units
- CMROUTE dose route (eg: ORAL)
- CMDOSRGM dose regiment / schedule

The Coding Domains



Topic Variables

- CMTRT verbatim
- CMMODIFY sponsor terminology
- CMDECOD dictionary preferred term
- CMCLAS dictionary class value
- CMCLASCD dictionary class code (or MULTIPLE)
- CMOCCUR Y if data “should be” solicited by prompt to subject
- CMPRESP Y if pre-specified list on CRF
- CMSTAT if pre-specified list, was question asked of subject
- CMREASND reason if prompt was not asked
- CMINDC indication should match
AETERM, AEMODIFY or AEDECOD



Coding Dictionaries & Strategies



Preferred Term

SOC

Preferred Name

ATC



... Indication?

- **A**natomical
 - The organ or system on which a drug acts
- **T**herapeutic (& Pharmacological)
 - Indication for typical use(s)
 - Pharmacological Form
- **C**hemical
 - Compound structure and properties

Coding Dictionaries & Strategies



Preferred
Term
SOC

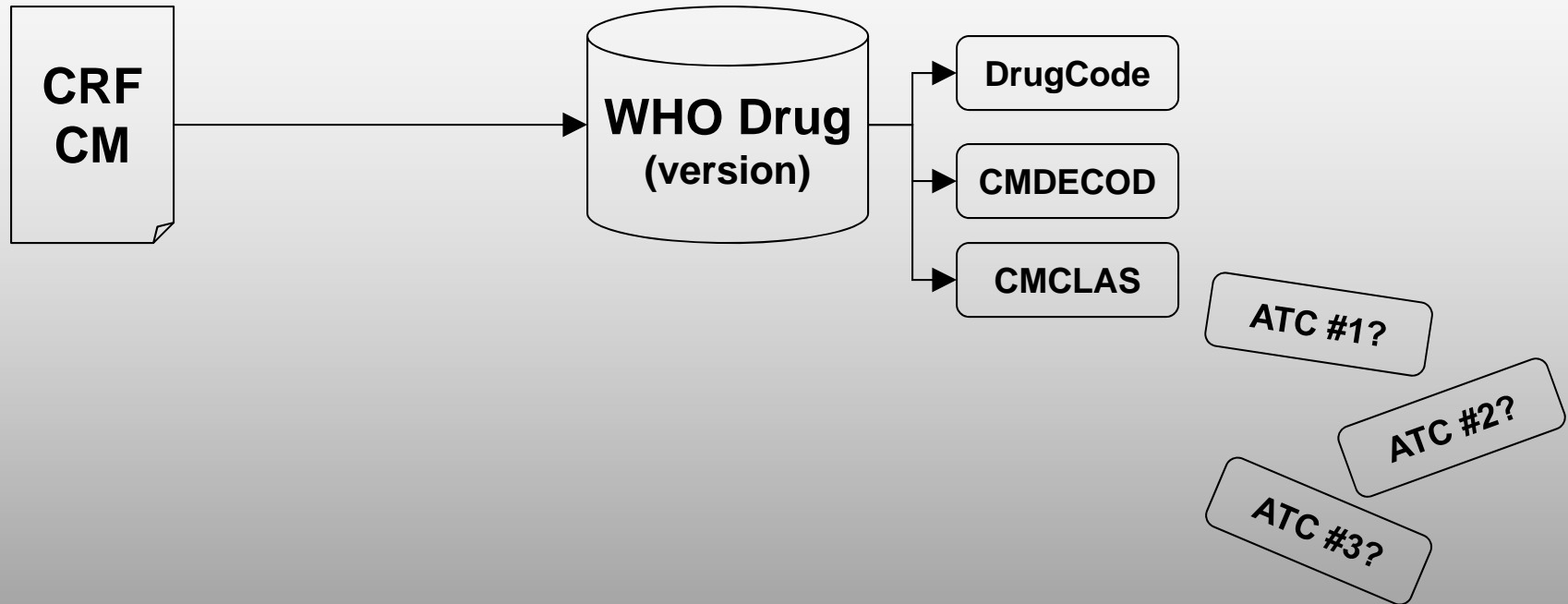
Preferred
Name
ATC



... Indication?

- Possible reasons for use:
1. Medical History
 2. Adverse / Clinical Event
 3. Prophylaxis
 4. Recreational

CM Coding to ATC...



Medications in a given Drug Class

CDISC SDTM: ATC codes

“By knowing the dictionary and version used, the reviewer will be able to obtain intermediate levels in a hierarchy (as in MedDRA), or a drug’s ATC codes (as in WHO Drug). *The dictionary version should be listed in the Comments column of the Define data Definition document.*”

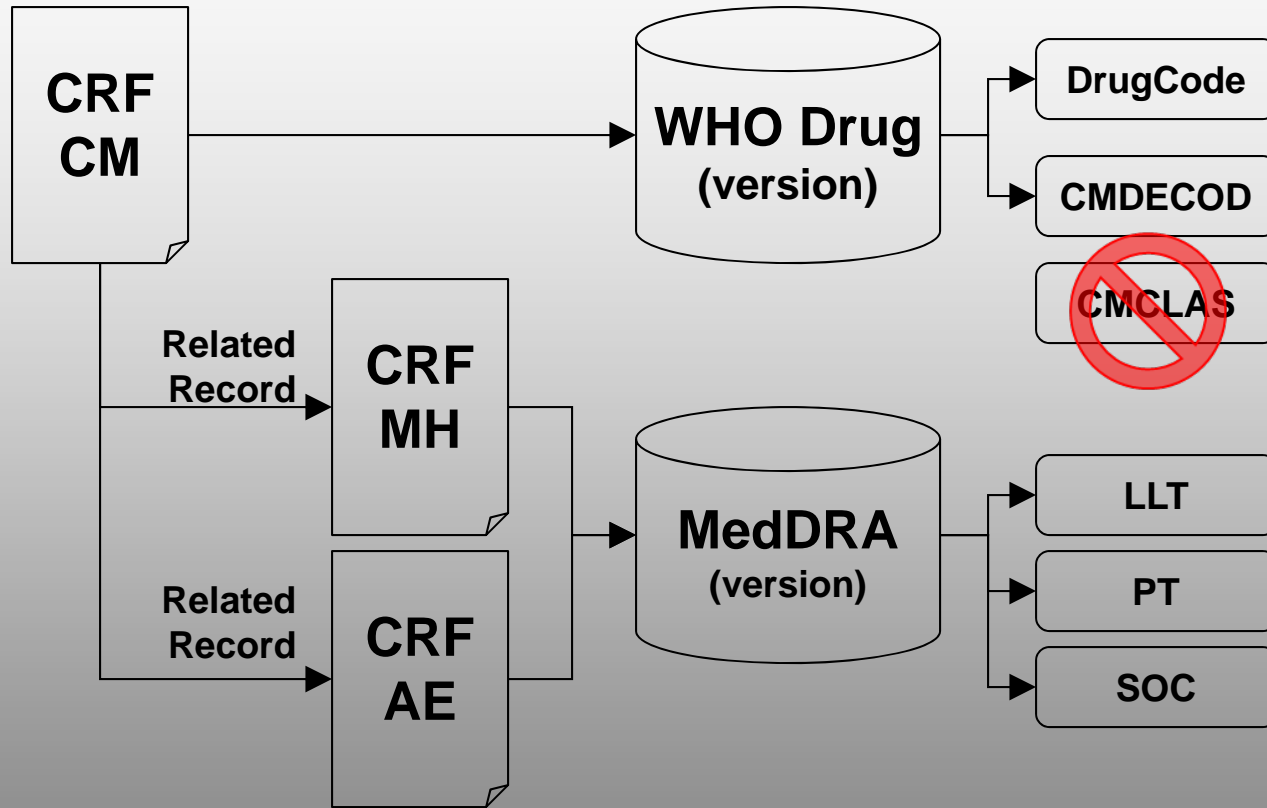
- Implementation Guide **3.1.1**

- “CMDECOD with the drug’s generic name, and CMCLAS with the drug class **only if the dictionary used codes drugs to a single class. When using WHODRUG, for example, CMCLAS would not be filled since a drug may have multiple classes.**”
- “Use only when the dictionary used codes to a single class. If using a dictionary that allows links to multiple classes, then omit CMCLAS from the dataset. For example, sponsors who use WHO Drug, which allows links from a medication to multiple ATC codes, would not include CMCLAS.”

- Implementation Guide **3.1.2**

- “CMDECOD with the drug's generic name, and CMCLAS with the drug class **used for the sponsor’s analysis and summary tables. If coding to multiple classes, follow assumption 4.1.2.8.1 or omit CMCLAS.**”

CM Coding to ATC...



Medications taken for...

Related Records Domain

RELREC

How does RELREC Work?

Key Variables

- RDOMAIN
- USUBJID
- IDVAR
- IDVARVAL
- RELTYPE
- RELID

Relationships require at least two records for related domains (N for # of domains)

Records with the same RELID are related across two or more domains.

Multiple records may be related within each domain (eg: two meds for one AE)

Can also be used to link to other/multiple domains (eg: AE-LAB-CM, for PK: PP-PC)

Related Records Domain

RELREC

STUDYID	RDOMAIN	USUBJID	IDVAR	IDVARVAL	RELTYPE	RELID
XX-USA-01	AE	1001	AESEQ	8		1
XX-USA-01	CM	1001	CMSEQ	4		1
XX-USA-01	AE	1001	AESEQ	9		2
XX-USA-01	CM	1001	CMSEQ	5		2
XX-USA-01	AE	1001	AESEQ	11		3
XX-USA-01	CM	1001	CMSEQ	8		3
XX-USA-01	CM	1001	CMSEQ	9		3
XX-USA-01	AE	1001	AESEQ	12		4
XX-USA-01	AE	1001	AESEQ	13		4
XX-USA-01	CM	1001	CMSEQ	10		4

Double the impact with half the work!



Now... What will you do with all of your spare time???

References

- CDISC Implementation Guide, IG v3.1.2
- Relationships Between CDISC Variables Linking Domains (RELREC),
Susan Fehrer and Russ Lavery, 2007 NESUG
- A Special SDTM Domain RELREC and its Application
Changhong Shi and Beilei Xu 2011 PharmaSUG