



A Reusable Web Portal for Complex Data



This Talk



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- A Reusable Web Portal for Complex Data?
 - ▣ What does this title really mean?



This Talk Defined



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- A Reusable Web Portal
 - ▣ All content comes from a DDI metadata Repository
 - ▣ Deployable by different organizations
 - ▣ Different organizations supply their own DDI content
 - ▣ Configurable



This Talk Defined



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- For ~~Complex~~ Data
 - ▣ Collected over time
 - ▣ That could be longitudinal
 - ▣ Connected to source questions
 - ▣ Derived from other variables
 - ▣ Linked to concepts



This Talk



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- “A configurable web Portal where all content comes from DDI metadata which different organizations can deploy and supply their own DDI content for data that could be collected over time, longitudinal, connected to source questions, derived from other variables, and linked to concepts”



- Briefly describe repeated data with DDI
- Powering a web Portal with
 - ▣ DDI descriptions of Repeated Data
 - ▣ Survey specifications
- Configuration options of the reusable Portal



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Repeated Data in DDI

Comparing Data

Sweep 1 data

Sweep 2 data

*M2_P1_AGGREGATE DATA_N=4963_9-22-10.sav [DataSet1] — PSPPIRE Data Editor

B1S	B1SA61A	B1SA61B	B1SA61C	B1SA61D	B1SA62A	B1SA62B	B1SA6	B1SA6	B1SA6	B1SA6
2	2	2	2	2	2	2	2	1	2	2
3	1	3	3	3	2	2	2	2	2	2
6	2	2	2	1	2	2	2	2	2	2
.
5	1	5	5	1	2	2	2	2	2	2
0	3	2	4	2	2	2	2	2	2	2

*M2_P1_AGGREGATE DATA_N=4963_9-22-10.sav [DataSet1] — PSPPIRE Data Editor

B1S	B1SA61A	B1SA61B	B1SA61C	B1SA61D	B1SA62A	B1SA62B	B1SA6	B1SA6	B1SA6	B1SA6
2	2	2	2	2	2	2	2	2	1	2
3	1	3	3	3	2	2	2	2	2	2
6	2	2	2	1	2	2	2	2	2	2
.
5	1	5	5	1	2	2	2	2	2	2
0	3	2	4	2	2	2	2	2	2	2

Describe Relationships within Data

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- Previous slide was a great visualization of repeated data
 - ▣ I can't make a PowerPoint slide every time a researcher has a question about a dataset
 - ▣ More than 2 datasets, the slide would become modern art
- How can data be related using DDI?



DDI Metadata Standard



Conceptual Variable

Represented Variable

Variable



ConceptualVariable

RepresentedVariable

*M2_P1_AGGREGATE DATA_N=4963_9-22-10.sav [DataSet1] — PSPPIRE Data Editor

B1S	B1SA61A	B1SA61B	B1SA61C	B1SA61D	SA62A	B1SA62B	B1SA6	B1SA6	B1SA6	B1SA6
2	2	2	2	2	2	2	2	1	2	2
3	1	3	3	3	2	2	2	2	2	2
6	2	2	2	1	2	2	2	2	2	2
.
5	1	5	5	1	2	2	2	2	2	2
0	3	2	4	2	2	2	2	2	2	2

*M2_P1_AGGREGATE DATA_N=4963_9-22-10.sav [DataSet1] — PSPPIRE Data Editor

B1S	B1SA61A	B1SA61B	B1SA61C	B1SA61D	B1SA62	B1SA62B	SA6	B1SA6	B1SA6	B1SA6
2	2	2	2	2	2	2	2	1	2	2
3	1	3	3	3	3	2	2	2	2	2
6	2	2	2	1	2	2	2	2	2	2
.
5	1	5	5	1	2	2	2	2	2	2
0	3	2	4	2	2	2	2	2	2	2

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Portal Examples

Colectica Portal

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- Built on Colectica Repository and DDI Lifecycle
 - ▣ DDI 3 metadata format and descriptions
- Holistic views built up from metadata items
 - ▣ Study or Series
 - ▣ Comparable variables
 - ▣ Questionnaire and question routing
- Allow users to easily experience the advanced features in DDI Lifecycle



Repeated and Longitudinal Support

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- DDI Lifecycle supports harmonization
- We have great descriptions of longitudinal data in DDI Lifecycle
- Portal builds views from the metadata items
 - ▣ Concordance tables
 - ▣ Visualize data across time



Longitudinal Support

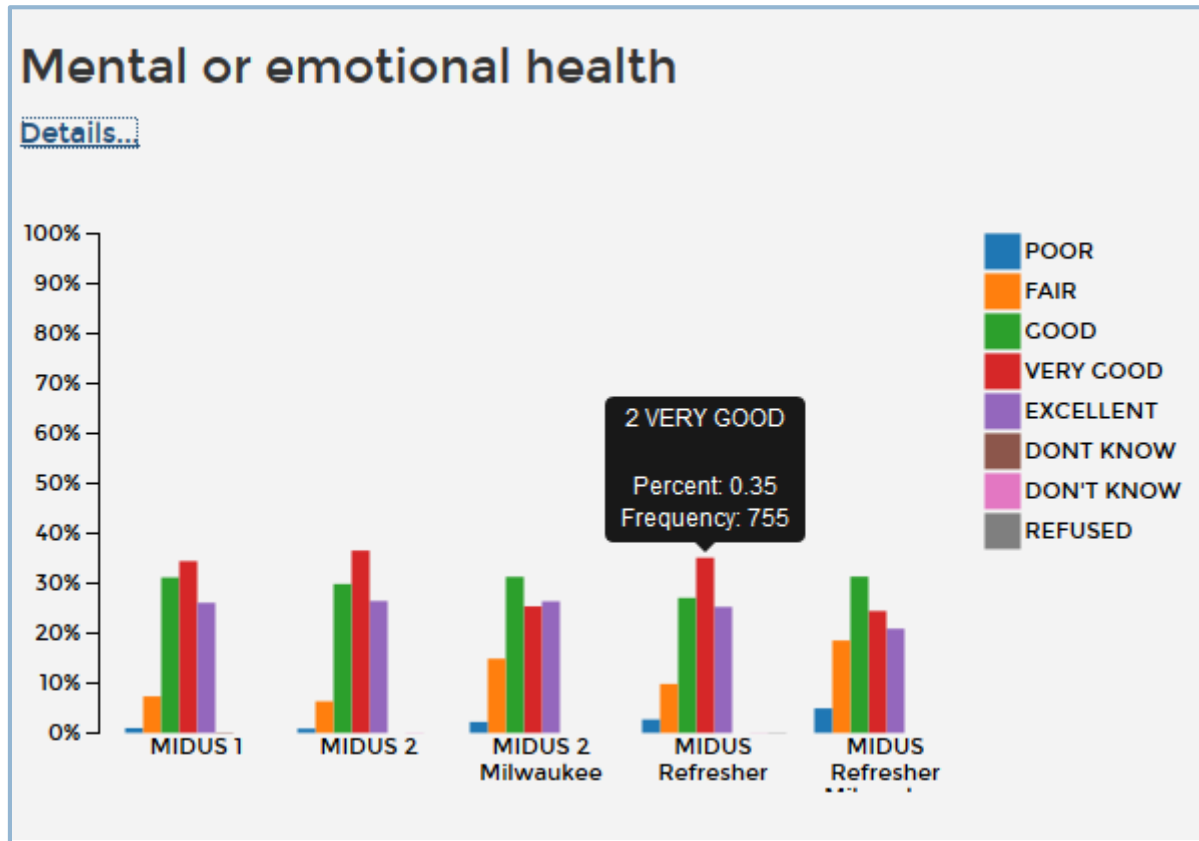
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Home Search Explore Basket 0				
	MIDUS 1	MIDUS 2	MIDUS 2 Milwaukee	MIDUS Refresher
★ Physical health	A1PA4	B1PA1	BACA1	RA1PA1
★ Mental or emotional health	A1PA5	B1PA2	BACA2	RA1PA2
★ Self-evaluated health	A1PA6	B1PA3	BACA3	RA1PA3
★ Days work limited by health	A1PA7	B1PA4	BACA4	RA1PA4
★ Unable to work, physical, mental	A1PA7A	B1PA4A	BACA4A	RA1PA4A
★ # of Days physical	A1PA7BA	B1PA4BA	BACA4BA	RA1PA4BA
★ # of Days mental	A1PA7BB	B1PA4BB	BACA4BB	RA1PA4BB



Longitudinal Support

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Compare Data Types

	MIDUS 1 AIPD1	MIDUS 2 B1PG1	MIDUS 3 C1PG1	MIDUS 2 Milwaukee BACG1	MIDUS Refresher RA1PG1	MIDUS Refresh Milwaul RAAC
A LOT	1			1		
SOMEWHAT	2	2	2	2	2	2
A LITTLE	3	3	3	3	3	3
NOT AT ALL	4	4	4	4	4	4
DONT KNOW	7					
REFUSED/MISSING	8					
VERY		1	1		1	1
DON'T KNOW		7	7		7	
REFUSED		8	8		8	



Search within views

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- DDI items and their relationships create a large graph of metadata
- Portal allows searching within subsets of this metadata graph
- For example, searching for:
 - ▣ Variables in particular studies or series
 - ▣ Questions in specific survey questionnaires
 - ▣ Concepts measured in datasets



Search within views

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Study

- ☐ MIDJA Biomarkers
- ☐ MIDJA Survey
- ☐ MIDUS 1 Project 1
- ☒ MIDUS 1 Project 2
- ☒ MIDUS 2 Project 1
- ☐ MIDUS 2 Project 2
- ☐ MIDUS 2 Project 3
- ☐ MIDUS 2 Project 4
- ☐ MIDUS 2 Project 5
- ☐ MIDUS Milwaukee 1
- ☐ MIDUS Refresher
- ☐ Milwaukee Refresher Sample
- ☐ TestStudy1

RefineReset

Variable

[Home](#) / [Search](#) / [Variable](#)

Enter a search query above to



Data

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- DDI Lifecycle has very precise data descriptions
 - ▣ Very easy ingest process of documented data files
- Manage data with the Portal
 - ▣ Variable baskets
 - ▣ Data downloads
- Data subsets
 - ▣ Custom DDI for the extract
 - ▣ Custom Codebook documentation



Data




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This basket contains 4 items.

[Download PDF](#) [Download DDI 3.2](#)

[Download CSV](#) [Download SPSS](#)

Data (4 variables)

- ★  **RA1SF5E**
Approach physical health - Stay fit or don't worry
- ★  **A2DFI1**
Argument/disagreement-How much did it risk health of someone you care?
- ★  **RAASC6E**
Approach physical health - Stay fit or don't worry



Data and Longitudinal Data







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- DDI Lifecycle has very precise data **and** longitudinal descriptions
- Longitudinal data subsets
 - ▣ Add harmonized variable to the basket
 - ▣ Include all variables across datasets
 - ▣ Merge case or record identifiers



Data and Longitudinal Data

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Data (5 variables)	
★ 	B1PA3 Health compared to others your age
★ 	A1PA6 Self-evaluated health
★ 	BACA3 Compare overall health to oth your age
★ 	RA1PA3 Health compared to others your age
★ 	RAACA3 Compare overall health to others your age
Represented Variables (1)	
★ 	A1PA6 Self-evaluated health



Question context

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- DDI Lifecycle has very precise question descriptions
- Display question context
 - ▣ What surveys was the question asked in?
 - ▣ What questions were around this question in the questionnaire?



Question context

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pms_instr01

12 questions...

qi_11_a
Is the husband paid weekly, monthly, or is he self-employed?
▼

qi_11_a_i
Does he employ 10 or more persons?
▼

qi_11_a_ii
Does he supervise others (e.g. foreman, manager, charge-hand?)
▼

134 questions...



Questionnaire logic

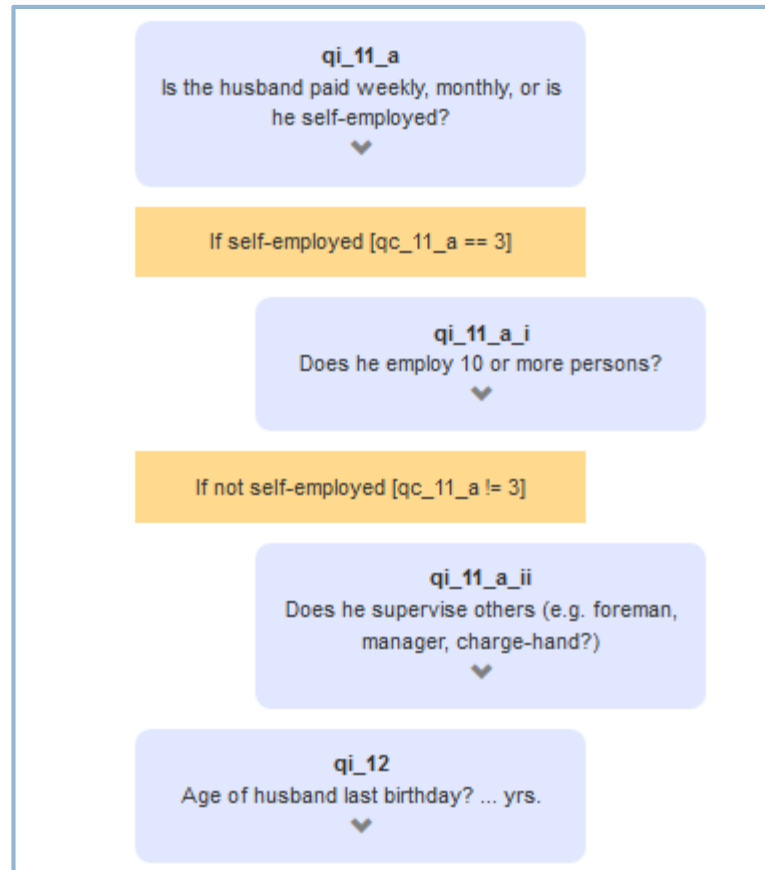
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- DDI Lifecycle has very precise questionnaire descriptions
- Display questionnaire logic
 - ▣ Conditions and skip patterns
 - ▣ Questions
 - ▣ Sections



Questionnaire logic

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Configuration

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MIDUS

Search

Explore

Basket 0

Admin

Help

Feedback

dan@colectica.com

ANALYTICS

Dashboard

Reports

System Status

ACCOUNTS

Users

SITE SETTINGS

Site Information

Agencies

Item Types

Languages

SERVICES

File Storage Service

Dashboard

Home / Admin / Dashboard

160

Users

148,952

Items

556,036

Item Revisions

5.2.5477

Software Version

Item Counts

	Variable Statistics	86,055
	Categories	21,585
	Variables	21,042
	Reusable Missing Values	8,935
	Code Sets	5,879
	Represented Variables	3,804
	Concepts	1,090

Views (past 30 days)

Item	Count
A1PA4 Physical health	72
A1PA4 Physical health	46
MIDUS 2 Project 1	27

Views by User (past 30 days)

User	Count
jkirsch2@wisc.edu	531
glove@wisc.edu	407
bradler@wisc.edu	256
m.samra91@gmail.com	182

Searches (past 30 days)

Query	Count
blood pressure	31
physical health	20
rate current health	13
depression	9

6/8/2016



Built On

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- .NET Core
 - ▣ Open Source – MIT and Apache licenses
 - ▣ Windows, Mac and Linux
- ASP.NET Core works everywhere
- Colectica Portal works everywhere
- <https://github.com/Microsoft/dotnet>



Takeaway

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- DDI Lifecycle contains very descriptive metadata
 - ▣ Build a system on it
- Reusable Portals are possible
 - ▣ No need for one off projects
 - ▣ DDI Lifecycle can power them





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Thank you

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