



Preventive Medicine Grant Writing Seminar Series

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Session 6: Data Collection, Data Entry Systems. Data Management, Storage & Quality Assurance





Informatics vs. Research Informatics

INFORMATICS

 The science of processing data for storage and retrieval.

RESEARCH INFORMATICS

• Sub-discipline within biomedical informatics which focuses on developing new theories, tools, and solutions used to translate data across the basic research. clinical trials, medical center and community practice continuum.















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	Α	в	с	D	F	F	G	н	1	L J	
1	Record ID	RZID	LNAME	FNAME	Street	City	State	Zip			
2	1	001	Jones	Joe	1900 Poplar Ave	Memphis	TN	38105			
3	2	002	Smith	Mary	9215 Oak Rd	Little Rock	AR	72002			
4	3	003	Green	John	Stage Rd	Bartlett	TN	38134			
5	4	004	Allen	Tom	1 Avenue	Jackson	MS	38108			
6	5	005	Mouse	Micky	1 Main Street	Orlando	FL	32801			
7	6	006	Duck	Donald	2 Main Street	Orlando	FL	32802			_
8	7	007	Kent	Clark	100 Hickory Lane	Smallville	KS	66605			- 1
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Types of Database Management System (DBMS) Models

Depends on how the data is organized

Flat design (Excel)

- o Presents data in a single table or list (address list)
- Fields represent all parameters (prone to duplicate data)
- o Functionality limited to storing information, manipulate fields, printing and displaying data
- Flat Models have a "One to One Relationship"

	A	В	С	D	E	F	G	н
1	Record ID	Patient ID	Last Name	First Name	Street	City	State	Zip
2	1	001	Jones	Joe	1900 Poplar Ave	Memphis	TN	38105
3	2	002	Smith	Mary	9215 Oak Rd	Little Rock	AR	72002
4	3	003	Green	John	Stage Rd	Bartlett	TN	38134
5	4	004	Allen	Tom	1 Avenue	Jackson	MS	38108
6	5	005	Mouse	Micky	1 Main Street	Orlando	FL	32801
7	6	006	Duck	Donald	2 Main Street	Orlando	FL	32802
8	7	007	Kent	Clark	100 Hickory Lane	Smallville	KS	66605
9	8	008	Lane	Lois	900 1st Ave	Metropolis	Ш	59123
10	9	009	Alice	Washington	9274 High Mountain Trail	Bend	OR	89735
11	10	010	Bill	Davis	920 Rural Route 30N	Ames	IA	49721

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Defining Different Types of Relationships													
 One to One Relationship (connects flat tables) Patient contact information and blood type Common to see these in separate tables 													
Patient Contact Information (Addresses) Patient Lab Work (Blood Type)													
	Α	В	C	D	F	F	G		Record ID	– Patient ID	Last Name	First Name	Blood Type
1	Record ID	Patient ID	Last Name	First Name	Street	City	State	Zip	1	001	Jones	Joe	A+
2	1	001	Jones	Joe	1900 Poplar Ave	Memphis	TN	38105	2	002	Smith	Mary	A+
3	2	002	Smith	Mary	9215 Oak Rd	Little Rock	AR	72002	3	003	Green	John	0+
4	3	003	Green	John	Stage Rd	Bartlett	TN	38134	4	004	Allen	Tom	B-
5	4	004	Allen	Tom	1 Avenue	Jackson	MS	38108	5	005	Mouse	Micky	A-
6	5	005	Mouse	Micky	1 Main Street	Orlando	FL	32801	6	006	Duck	, Donald	B+
7	6	006	Duck	Donald	2 Main Street	Orlando	FL	32802	7	007	Kent	Clark	0-
8	7	007	Kent	Clark	100 Hickory Lane	Smallville	KS	66605	,	008	Lano		
9	8	008	Lane	Lois	900 1st Ave	Metropolis	IL	59123	- °	000	Alico	Washington	D+
10	9	009	Alice	Washington	9274 High Mountain Trail	Bend		89735	10	010	Bill	Davis	
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Common Methods of Data Collection & Storage Software Programs Used in Database Design, **Data Management & Analysis** Integrated **Machine Readable** Statistical Integrated Desktop Enterprise Forms & Online Web-Based Data Spreadsheet Relational Database Database Analysis Mgmt Survey REDCap* Qualtrics R* FileMaker Oracle MS Excel Desktop, Server, App* SQL MediData RAVE QuestionPro SAS (Cross platform) Google Drive MySQL Epilnfo* TeleForm SPSS **MS** Access Spreadsheet Office 365 - Desktop PostgreSQL* Datalabs EDC Zoomerang (Sheets*) (PC only) Stata QuesGen SurveyMonkey JMP Apache OpenOffice* OnCore * Free (Partially reproduced from Browner et al, Designing Clinical Research 5th Edition, 2023, Table 19.1)

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