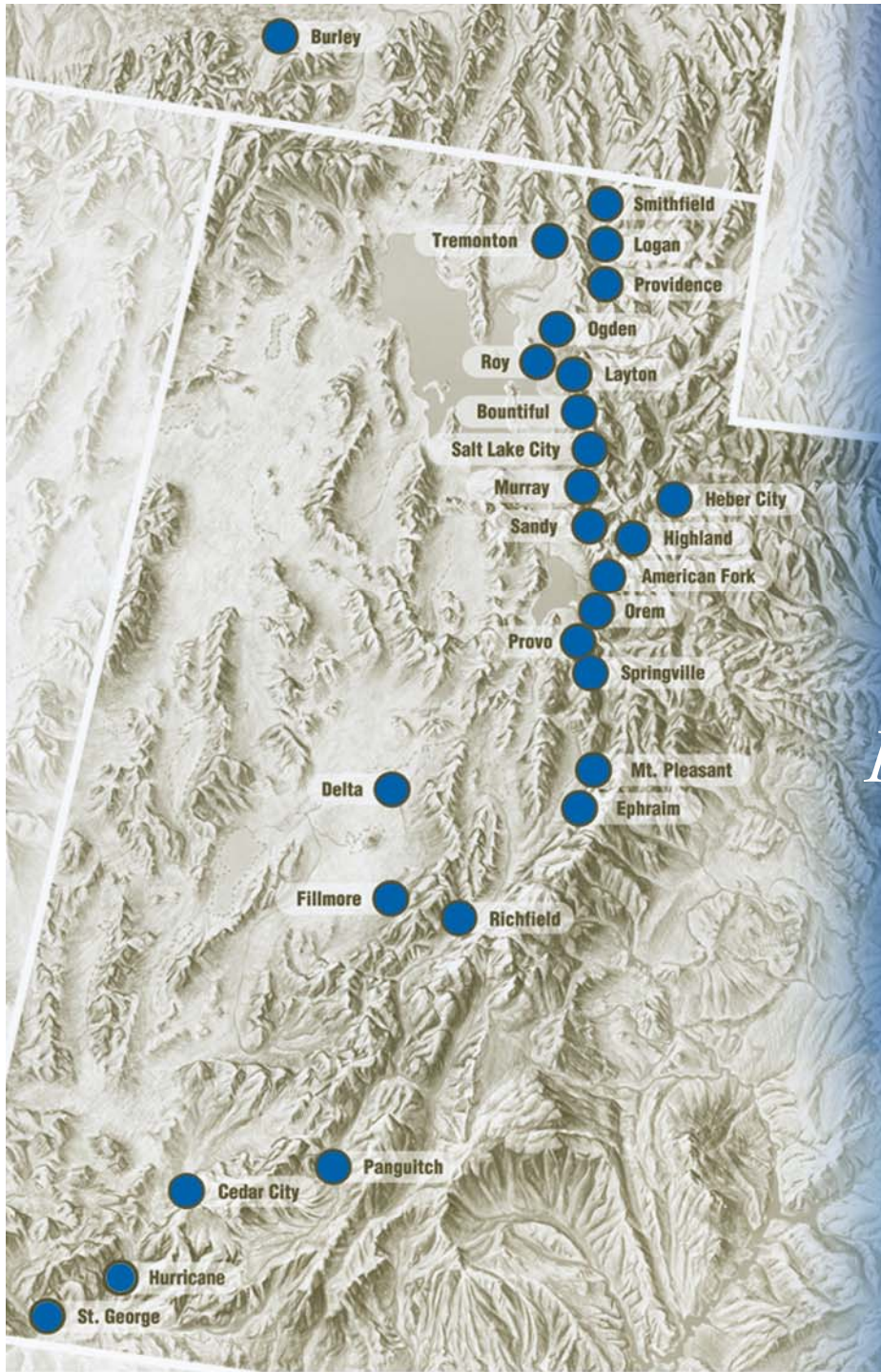


# The Role of IT in Mental Health Integration

*ACMHA Summit 2009*

**John Wadsworth**  
*Data Architect*  
*Intermountain Healthcare*



# Intermountain Healthcare

*Est. 1975*

*22 hospitals  
130 clinics*

*SelectHealth: >500,000  
enrollees*

*Intermountain Medical Group*

*650 physicians  
300 primary care physicians*

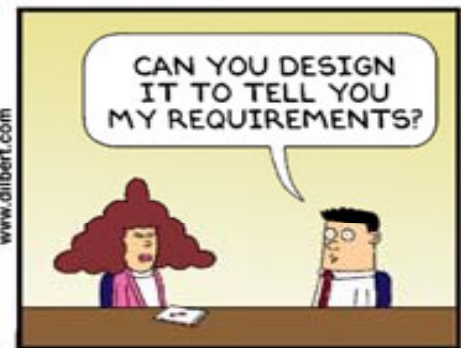
*\$6 billion organization  
30,000 employees*



# IT Success Factors in Mental Health Integration

- Communication
- Data Capture
- System Interoperability
- Meaningful Reporting

# Communication



# Communication

- Do your clinicians speak 'IT?'
  - Electronic Medical Record vs. Enterprise Data Warehouse?
- Does IT speak ...'clinical?'
  - What's a PHQ9? H & P? Vanderbilt? SSRI?
- Does IT understand the clinical process they support?
  - 3 clicks? You're out!
  - IT solutions must *support* clinical work flow

# Data Capture



# Data Capture

- Scanning better than nothing, but not by much
- Text may add value
  - Difficult to search effectively (Message Log)
- Code it, please!
  - Mental Health packet
  - Coded fields in web forms
- Standards *already* exist...use them
  - Standard codes ICD-9, CPT, E&M, GC3, etc.
  - Allows multiple sources for data capture (claims, billing, Rx, EMR)



- Select Patient
- Web Forms
- Clinical Notes
- Problems
- Rx
- Allergies
- Lab
- Micro
- Message Log
- Report Manager
- Demographics
- Height/Weight
- Vital Signs
- ECG
- HotText
- Web Kids
- E-Resources
- Need Help?
- Password
- CD Info

Webforms

Date: 1/26/2007 16:51

Note Type:  Form:  
Clinician: CANNON, WAYNE HALES

Note Status:  POC: 
 Encounter:

Please note that this feature should not be used to document on a hospital patient. Resort to current hospital documentation processes until further notice.

<b>Asthma</b>	<b>Diabetes</b>	<b>Preventive/Social Hx</b>	<b>Function/Disability</b>	<b>Mental Health</b>	<b>POC Labs</b>
<b>SOAP Note VR</b>	<b>Physical Exam</b>	<b>ROS</b>	<b>PMH</b>	<b>Surgical-Hospital Hx</b>	<b>Family Hx</b>

Weight(lb):  [0 kg]    Height(in):  [0 cm]    Temp(F):  [-17.8C]

SBP:  HR:  SaO2:   
 DBP:  RR:  O2 LPM:  WC:  in

BMI:     BSA: 0.000    Pain Score:

Comments:

Allergies: (+ = New, - = Inactive, a = Active)

(a) Amoxicillin; Reaction(s): Urticaria (Hives)

(a) Peanut

Meds: (+ = New, - = Inactive, a = Active)

(a) Aspirin (Andylate), 325mg, Tablet, 1 TABLET, PO, QD, Qty: 100, Refill:

(a) Zocor (Simvastatin), 20mg, Tablet, 1 TABLET, PO, QHS, Qty: 90, Refill:

(a) Altace (Ramipril), 5mg, Capsule, 2 CAPSULE (HARD, SOFT, ETC.), PO

Problems: (+ = New, - = Inactive, a = Active, r = Reviewed)

(a) Depression

(a) Asthma

(a) Heart failure

(a) Diabetes



▼ TEST, ALERT RES Home Ph: (801) 442-3600 DOB: 05/05/1955 Last Ht: 165.1cm Work Ph: MRN: 3128124 Logou  
 Age: 51Y Sex: M Last Wt: 49.90kg Cell Ph: MMI: 540958523 Option

- Select Patient
- Web Forms
- Clinical Notes
- Problems
- Rx
- Allergies
- Lab
- Micro
- Message Log
- Report Manager
- Demographics
- Height/Weight
- Vital Signs
- ECG
- HotText
- Web Kids
  
- E-Resources
- Need Help?
- Password
- CD Info

Comments

**Webforms**

Date: 1/26/2007 16:51  
 Note Type: Progress Notes Form: SOAP Note for Voice Recognition   
 Note Status: Preliminary/Signable POC: IHC Health Center - Bryner Clinic  Encounter: Not Encounter Related

**PHQ-9 Questionnaire**

SNo.	Over the last 2 Weeks, how often have you been bothered by any of the following problems?	Not at All(0)	Several Days(1)	More than Half the Days(2)	Nearly Every Day(3)
1.	Little interest or pleasure in doing things	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Feeling down, depressed or hopeless	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Trouble falling/staying asleep; sleeping too much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Feeling tired or having little energy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Poor appetite or overeating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Feeling bad about yourself, or that you are a failure, or having let yourself down or your family down	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Trouble concentrating on things, such as reading the newspaper or watching TV	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Moving or speaking so slowly that other people could have noticed. Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Thoughts that you would be better off dead or of hurting yourself in some way	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A.	How difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	<input type="radio"/> Not difficult at all	<input type="radio"/> Somewhat difficult	<input type="radio"/> Very difficult	<input type="radio"/> Extremely difficult
B.	In the past two years have you felt depressed or sad most days, even if you felt okay sometimes?	<input type="radio"/> Yes	<input type="radio"/> No		

**Mood and Anxiety/Sleep**

**Pediatric Only**

# Data Sources

- HELP2 (EMR, EHR)
  - Problem lists, web forms, coded fields
- Claims
  - ICD-9 dx and CPT codes
- Billing
  - ICD-9 dx and CPT codes
- Pharmacy
  - Orders and fills for prescriptions

# System Interoperability

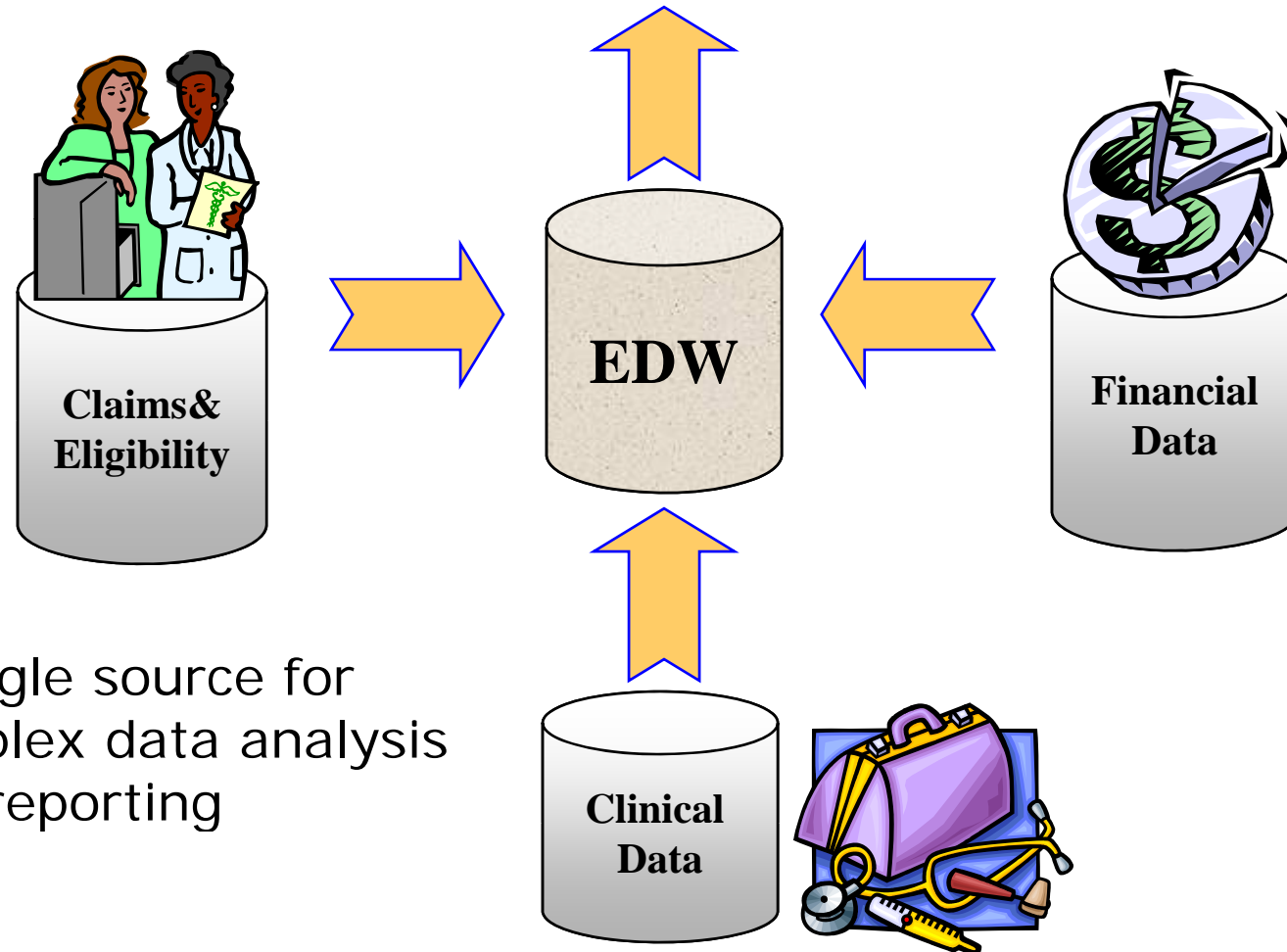


# System Interoperability

- Care Management Tool and HELP2
- Select Health care managers
  - Facets and HELP2 → Did we learn anything?
- Make ‘em talk or make ‘em walk
- Stand-alone apps better than no apps
- Data warehouse may add value

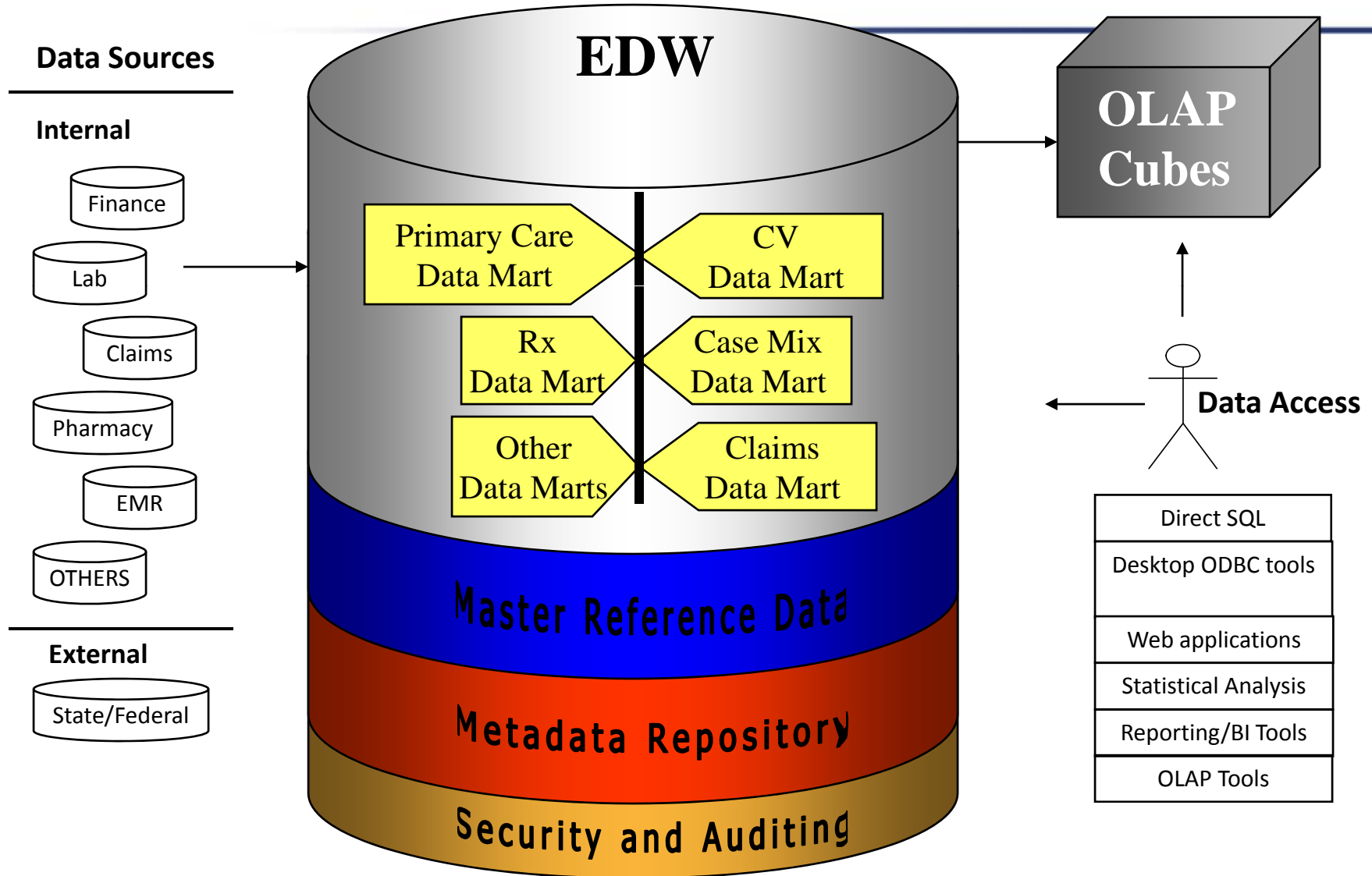
# The Vision: Data Integration

## *Integrated Reporting and Analysis*



A single source for  
complex data analysis  
and reporting

# EDW: Conceptual Architecture



# Meaningful Reporting

- Who needs the data?
  - PCP? Mental Health specialist? Care Manager?
- What data do they need?
- When should data be reported?
  - Quarterly, monthly, daily?
- What is the purpose of the report?
  - PCP scorecard?
  - Patient care?

# Patient Assignment to Primary Care Provider (PCP)

- Count visits of each patient with each PCP they saw during reporting period
  - Data sources are weighted scores to follow business requirements
- Tie → PCP with most recent visit wins
- Follow same process for APRN, psychiatrist, psychologist and LCSW assignment.
- Challenge to do the same for Care Managers → Cannot bill

# Not All Reports Are Welcome



**Intermountain Primary Care Clinical Programs: Patients with Depression**  
 Reporting Period starting: 01-OCT-07  
 Provider:

EMPI	LAST_NM	FIRST_NM	IDX_MRN	Age	PCP last non mh	PCP last mh	Last phq9	severity	symptom	phq9 count	PHQ9 Trend	Days btw PHQ9	last mh visit	prvdr type	inpt dt	Inpt Cnt	er dt	er cnt	Payor	Complexity	RX order dt	RX o
<a href="#">540220204</a>			1221750	34	9/23/08	9/23/08	9/23/08	27	9	1									SELECTHEALTH		9/23/08	VENL HC
<a href="#">356192</a>			1454751	27	9/9/08	8/20/08	8/14/08	26	9	2	4	9							SELECTHEALTH		8/20/08	GABA
<a href="#">540004242</a>			1004242	62	9/23/08	9/11/08	8/11/08	26	9	4	7	26	9/18/08	Other	7/16/08	2			SELECTHEALTH	D	9/2/08	DESIF HC
<a href="#">540038780</a>			1038780	30	9/10/08	8/12/08	8/13/08	26	9	3	17	211							Private/Charity		8/12/08	DUL HC
<a href="#">540144229</a>			1139801	42	8/13/08	4/21/08	4/22/08	26	9	7	7	227							IHC Contracted		8/13/08	GABA
<a href="#">540610503</a>			1716221	47	1/10/08	12/19/07	12/20/07	25	8	1									Private/Charity		12/19/07	ALPR
<a href="#">540020742</a>			1020742	58	9/24/08	1/15/08	1/15/08	24	8	1									IHC Contracted		9/24/08	ALPR
<a href="#">540122390</a>			1123248	13	3/12/08	2/13/08	1/23/08	24	8	1									Private/Charity			
<a href="#">544781163</a>			5144162	21	2/14/08	1/22/08	1/23/08	23	9	3	12	48							Private/Charity		12/5/07	DUL HC
<a href="#">1285201</a>			3494203	22	12/6/07	12/6/07	12/7/07	22	8	2	0	402							Private/Charity		12/6/07	FLU HC
<a href="#">540006409</a>			1006409	35	2/28/08	2/28/08	2/29/08	22	7	2	-5	345							IHC Contracted			
<a href="#">540006597</a>			1006597	19	9/15/08	3/21/08	1/23/08	22	9	3	5	235	4/15/08	PSYCHOL					SELECTHEALTH		8/5/08	SER HCL
<a href="#">550154270</a>			9161109	50	9/15/08	5/29/08	5/29/08	22	8	1									Private/Charity		5/29/08	BUPROPI
<a href="#">350904</a>			2054329	24	9/25/08	8/28/08	8/28/08	21	8	2	-6	21							Private/Charity		8/28/08	FLU HC
<a href="#">251405</a>			2124075	40	9/25/08	5/10/08	4/24/08	21	7	1									SELECTHEALTH		5/10/08	BUPROPI

All Visits (1 year)

VISIT_DT	PRVDR_ID	CLINIC_NM	MED_DIR_REGION	LAST_NM	FIRST_NM	PRMRY_SPLTY_CD	PRVDR_TYPE_CD	PT_TYPE_CD
9/16/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
9/8/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
9/3/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
9/2/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
8/25/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
8/1/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
7/21/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
6/24/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
5/27/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
5/12/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
4/14/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
4/2/08	4440	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
3/25/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
3/10/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/27/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/19/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/15/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/11/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/8/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
2/7/08	25235			Johnson	Marc			MH-I
1/22/08	3248			Van Uiterk	Dennis	PSY	PSYCHOL	MH-O
1/22/08	4448	Intermountain Medical Group - Layton	URBAN NORTH	Porter	Joel	FP	PCP	Non-MH
1/22/08	4448			Porter	Joel	FP	PCP	MH-O
1/21/08	30302	Intermountain Taylorsville Clinic	CENTRAL SALT LAKE	Smith	Douglas	FP	PCP	Non-MH
12/14/07	30302	Intermountain Taylorsville Clinic	CENTRAL SALT LAKE	Smith	Douglas	FP	PCP	Non-MH
12/8/07	33962			Lister	Margit			MH-I
10/11/07	31410	Intermountain Medical Group - Layton	URBAN NORTH	Bell	Christopher	FP	PCP	Non-MH
10/11/07	31410			Bell	Christopher	FP	PCP	MH-O

PHQ9 History (2 years)

TEST_DT	TEST_NM	SEVERITY	SYMPTOM
1/23/08	phq9	21	7
10/11/07	phq9	17	6
3/6/07	phq9	23	8

All RX Ordered and/or Filled (1 year)

Med Dt	Order Name	Order Dt	Order Prvdr	Order Qty	Order Days Supply	Fill Name	Fill Dt	Fill Prvdr	Fill Qty	Fill Days Supply
9/22/08						ALPRAZOLAM, 0.5MG	9/22/08		30	8
9/3/08						FLUCONAZOLE, 150MG	9/3/08		1	1
7/21/08						ALPRAZOLAM, 0.5MG	7/21/08		30	8

# Lessons Learned

- Partner with IT throughout entire project life-cycle
- Support clinicians and IT in open communication
- Capture information in coded format
- Make data accessible (reports or direct access)
- Reporting → Let business drive requirements
  - Meaningful measures
  - Credible data
  - Fit to clinical work flow
  - From simple (spreadsheet) to complex (business intelligence)
- Welcome feedback from consumers → Iterative process

# Acknowledgements

- Frontline clinicians and support staff
- Community partners
- Linda Leckman, MD VP CEO Medical Group
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- Pascal Briot, MBA, Senior Data Analyst
- Lucy A. Savitz, Ph.D., MBA Evaluation Researcher
- Russell Staheli, BS, Data Analyst
- John Wadsworth, BS, Data Architect



**Intermountain  
Healthcare**

*Healing for life*<sup>SM</sup>

**Questions?**