

Improving Pain Management Through Electronic Data Query and Reporting

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Intermountain Healthcare

Intermountain Healthcare

Hospitals: 21
Intermountain Medical Group: 900 multi-specialty providers
SelectHealth: One of Utah's largest health insurers

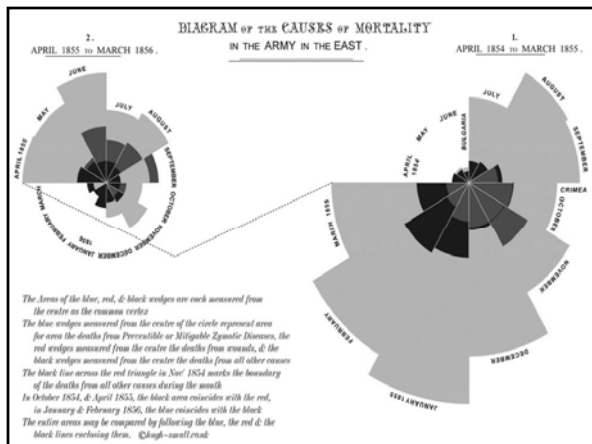
2009 Statistics

Acute patient admissions: 130,747
Inpatient surgeries: 39,027
Births: 32,278
Employees: 32,000
SelectHealth members: 500,000

Inpatient Electronic Medical Record

HELP (Health Evaluation through Logical Processing)
First developed in 1967
Implemented in all 23 hospitals
HELP data based on a Standard Terminology (PTXT)

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Nursing's Role in Improving Outcomes is Related to Quantity of Nursing Data

- Florence Nightingale
 - Began collecting data upon arrival at Scutari
 - Implemented many interventions
 - Improved outcomes (decreased deaths from 33% in 1st quarter to 2% in 3rd quarter 1855)¹
- Nursing has an enormous amount of data waiting to be analyzed to be used in improving outcomes.
- Examples of inpatient nursing acute pain data available at Intermountain Healthcare

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Nursing Pain Charting Menu

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Client: [Name] Account# [Number] MR# [Number] Room [Number] Sex [M/F] Age [Number]

Unit Weight: 83.4kg Height: 162.6cm BSA: 1.85sqm BEE: 1399 Dr: [Name]

Med Allergy: [List]

Min Intensity Goal: 5 (00/31.00-02)

Date/Time	Modality	Med/Concentration	Assessments										
08/30.13:07	IV/PCA	HYDROMORPHONE 0.2 MG/ML											
Date/Time	BP	HR	RR	SpO2/Method	Pain	DIS	Side Eff.	Treat.	Site/Pump	Deriv. Lev.	Motor	Fall Prot.	Activit
08/31.00:50	-	-	-	95	F	Sever:4	N	-	-	-	-	-	N
08/31.06:30	-	-	-	-	-	Sever:4	N	-	-	-	-	-	N
08/31.04:30	-	-	-	-	-	Sever:4	N	-	-	-	-	-	N
08/31.07:30	-	-	-	-	-	Sever:3	N	-	-	-	-	-	N
08/31.08:00	-	-	-	-	-	Sever:3	N	-	-	-	-	-	N
08/30.21:50	-	-	-	-	-	Sever:5	N	-	-	-	-	-	N
08/30.10:17	64	16	95	F	Sever:5	N	-	-	-	-	-	-	Y
08/30.15:46	-	-	-	98	F	Sever:3	N	-	-	-	-	-	Y
08/30.14:20	103/69	65	14	95	F	Sever:2	N	-	-	-	-	-	Y
08/30.13:00	-	-	-	96	F	Sever:2	N	-	-	-	-	-	Y

Advance Pain Modality Charting Assessment

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What is the EDW?

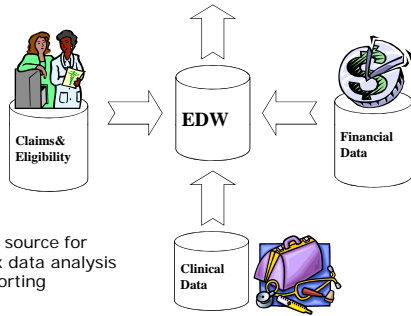
Enterprise Data Warehouse

- **Data warehouse:** A database repository that integrates data from across the enterprise. (Analogous to a library)
- **Data mart:** A database repository that consolidates or integrates data and supports a single business area or specific reporting requirement. (Analogous to a section in a library)

What Is EDW¹⁰

The Vision: Data Integration

Integrated Reporting and Analysis



What Is EDW¹¹

HIGH LEVEL OVERVIEW OF DESIGN & CREATION OF INTERMOUNTAIN HEALTHCARE'S PAIN REPORT

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Planning & Design

Report functionality

- How will report be accessed
- Who will have access to report
- Security within report
- How will the report be used
- What level of detail is needed
- Data steward responsibility
- Personal Health Information

Data

- Financial
- Clinical
- Patient surveys
- Acute Pain Service (APS) Database
- Pharmacy

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Pain Report Development Team

- Shannon Clegg RN Intermountain Pain Manager
- Pain workgroup (10 pain service RNs from different hospitals)
- Gary Stroud RN Clinical Operations Director
- Brent Heaton Data Architect
- Karl Jensen Report writer
- Matthew Peters RN Data Manager

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Avoid Confusion and Make Sure

Hospital pain protocols & procedures

Electronic documentation & alerts



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Overcoming Technical Issues

Changes

- Names rooms & units
- Association rooms & units

How to measure change in condition

- Units included or excluded in report
- Within unit transfers (pediatric infant unit)
- Differences in similar units across hospitals (L&D)

How to detect new or inactivated hospitals/units

How to pull electronic data as it changes

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Components of each single pain event documented in the EMR

- System date and time: actual date and time of documentation
- String date and time: date and time when user said it was done
- Room number
- Unit number
- Clinician identification number
- Pain event

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```
203 1 10 4 0 0 0 220) (230) Audit information
(73 1 73 2 20 20 0 0) (244) System time 08/04/2010 15:57
(73 1 73 2 20 26 0 0) (244) Documented by: (ID#) 546795666
(73 1 73 2 48 9 0 0) (231) Terminal/Printer ID STD00 #T111
(73 1 73 2 48 6 0 0) (231) Current patient location N901
(73 1 73 2 20 55 0 0) (243) String Identifier 1307707
(73 1 73 2 20 43 0 0) (242) Employee group ID# 255
(73 1 73 2 20 46 0 0) (241) Employee grp level 4
(73 1 73 2 48 7 0 0) (231) Current patient unit N9
203 1 10 2 7 20 0 0) (241) FLACC Pain Score: 3
203 1 10 2 7 9 0 0) (241) Face 0
203 1 10 3 7 9 1 0) (255) No particular expression or smile (0)
203 1 10 2 7 10 0 0) (241) Legs 2
203 1 10 3 7 10 3 0) (255) Kicking, or legs drawn up (2)
203 1 10 2 7 11 0 0) (241) Activity 1
203 1 10 3 7 11 2 0) (255) Squirming, shifting back and forth, te
: (1)
203 1 10 2 7 12 0 0) (241) Cry 0
203 1 10 3 7 12 1 0) (255) No Cry (awake or asleep) (0)
203 1 10 2 7 13 0 0) (241) Consolability 0
203 1 10 3 7 13 1 0) (255) Constant, relaxed (0)
```

Example of FLACC score event charted in HELP

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Pain Report

A Tool for Improving Acute Pain Management

- Web-based report to measure the effectiveness of acute pain management at Intermountain Healthcare
- Multi-level views (system, hospital, unit, physician, nurse)
- Ability to compare “like” patients
- Compare treatments and nursing care to patient outcomes
- Measure compliance to Intermountain pain protocols

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Measureable Pain Process Events

1. Pain intensity score (1-10, FLACC, Faces) per protocol
2. Pain management intensity goal per protocol
3. Advance pain modality
4. RN/LPN who didn't chart pain management goal

Use numbers for reference on slides 22-28

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Measureable Pain Outcomes

5. Percent time at or below pain intensity goal during an inpatient stay
6. Percent time at a particular pain intensity score (1-10) during an inpatient stay
7. Percent time unknown pain plan/status
8. HCAPS questions
9. Effectiveness of advance pain modality on specific population
10. APR/DRG at or below pain management goal
11. MD patients at or below pain management goal

Use numbers for reference on slides 22-28

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Process Trend Charts

- 12. Pain Goal Charted: Initial and change in condition/level of care
- 13. Pain Intensity Score Charted: Initial and change in condition/level of care
- 14. HCAHPS scores

Use numbers for reference on slides 22-28



Pain Management Report (Version 2.25)
 Jan 1, 2010 - Jun 30, 2010
 Pain Intensity Goal & Intensity Score Summary

% Time at Pain Intensity Score
 Dates Started Charting in HELP
 Report Definitions
*Hit for page to refresh after selecting option.

[Printable Report Summary](#)

System Totals									
Total Patients	% Time Unknown Pain Plan/Status	Opportunities to Establish Pain Goal/Score	Pain Intensity Goal Documented <12 Hrs	%	Pain Intensity Score Documented <12 Hrs	%	Time Goal Met	%	
60,443	32.26%	77,771	49,878	64.1%	63,450	81.6%		73.48%	

Facility	Care Unit (MSC)	Total Patients	% Time Unknown Pain Plan/Status	Opportunities to Establish Pain Goal/Score	Pain Intensity Goal Documented <12 Hrs	%	Pain Intensity Score Documented <12 Hrs	%	Time Goal Met	# Goals Not Documented <12 Hrs
1.000	233	4.59%	233	216	92.7%	223	95.7%	93.47%	11	
1.000	1,172	38.21%	1,156	879	64.8%	1,226	90.4%	85.55%	477	
1.000	886	29.56%	856	602	70.3%	788	92.1%	92.12%	264	
1.000	1,521	20.49%	1,572	1,252	79.6%	1,402	94.3%	75.35%	302	
1.000	1,045	4.94%	1,055	1,012	95.9%	1,013	96.0%	72.68%	41	
1.000	479	8.39%	479	455	95.0%	450	93.9%	73.91%	24	
1.000	1,207	7.36%	1,209	1,153	95.4%	1,188	98.3%	84.06%	58	
1.000	142	82.33%	142	17	12.0%	36	25.4%	69.96%	105	
1.000	1,573	20.31%	1,596	1,319	82.6%	1,469	92.0%	69.49%	277	
Hospital Numbers		7,283	24.9%	6,498	6,905	81.3%	7,015	92.7%	78.15%	1,993

Incl.: Women's Issues charting in HELP
 *Excludes Time Prior to a Documented Goal



Pain Management Report
 Pain Intensity Score - Top 10 APR/DRGs
 Jan 1, 2010 - Jun 30, 2010
 (ORTH)

Top 10 APR/DRGs
 Top 10 Attending Physicians

APR/DRG	% Time at Pain Intensity Score											
	# Cases	0	1	2	3	4	5	6	7	8	9	10
Knee Joint Replacement	393	41.4%	6.6%	11.6%	11.8%	10.7%	7.6%	4.8%	2.5%	2.1%	0.5%	0.3%
Hip Joint Replacement	201	44.6%	6.7%	11.9%	10.9%	9.4%	7.6%	3.8%	2.5%	2.1%	0.3%	0.2%
Shoulder, Upper Arm & Forearm Procedures	108	33.9%	5.7%	12.7%	13.4%	9.4%	8.1%	7.1%	5.2%	3.0%	1.0%	0.6%
Hip & Femur Procedures For Trauma Except Joint Replacement	69	37.9%	9.8%	13.4%	7.8%	10.9%	7.4%	4.9%	2.8%	4.0%	0.7%	0.4%
Dorsal & Lumbar Fusion Proc Except For Curvature Of Back	68	24.5%	5.3%	9.7%	12.5%	11.0%	13.3%	8.7%	7.0%	5.3%	1.5%	1.3%
Knee & Lower Leg Procedures Except Foot	44	31.0%	8.4%	8.6%	13.8%	14.0%	8.6%	5.2%	5.2%	3.5%	0.8%	0.8%
Intervertebral Disc Excision & Decompression	35	25.2%	7.2%	8.1%	9.6%	15.2%	10.7%	8.1%	5.6%	8.0%	0.8%	1.6%
Cervical Spinal Fusion & Other Body/Neck Proc Exc Exc/Decomp	31	38.7%	4.0%	11.6%	8.4%	13.6%	15.9%	5.8%	4.9%	3.8%	1.1%	0.8%
Fracture Of Pelvis Or Dislocation Of Hip	11	29.6%	5.0%	10.1%	11.3%	28.9%	8.6%	2.3%	2.2%	3.8%	0.0%	0.2%
Hip & Femur Procedures For Non-Trauma Except Joint Replacement	8	35.1%	3.8%	6.4%	13.7%	12.6%	11.4%	3.4%	5.4%	5.4%	1.3%	1.6%
Unit Total¹	1,034	38.5%	6.6%	11.3%	11.4%	10.8%	8.6%	5.1%	3.4%	3.0%	0.7%	0.6%

¹Total includes records other than the top 10.



Conclusion

Use of the pain report today is limited to nursing units monitoring compliance to pain protocols
This report will be used in conjunction with our physician led pain development team to improve pain management in the inpatient setting
Each hospital or system will have unique challenges in developing such pain reports
Data validation is ongoing with electronic data
How best to display physician specific data
Lots of data: 109,245 patients data for 2009
Use of time in measures is extremely valuable

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Conflicts of Interest

The presenter has no financial, professional, or personal relationship or conflict of interest that could potentially bias the content of this presentation.

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References

1. The Nature of Nursing, Fundamentals of Nursing: Concepts, Process and Practice, Second Edition, Barbara Kozier, Glenora Erb, Audrey Berman, Shirlee Snyder, 2004, p.38

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