

HIT – WHERE DO WE GO FROM HERE?

Using technology for better healthcare outcomes without higher costs



SIM grant – The design phase

SIM grant – Evidence based

- **LEARNING FROM OTHERS - Who's the best in the world?**

HIT – USING DATA AS EVIDENCE

- **USING DATA TO FIND AND ELIMINATE PROBLEM AREAS**

HIT & THE SIM GRANT DESIGN

- **USING DATA TO HELP DESIGN STAGE II OF SIM**

SIM GRANT – THE DESIGN PHASE

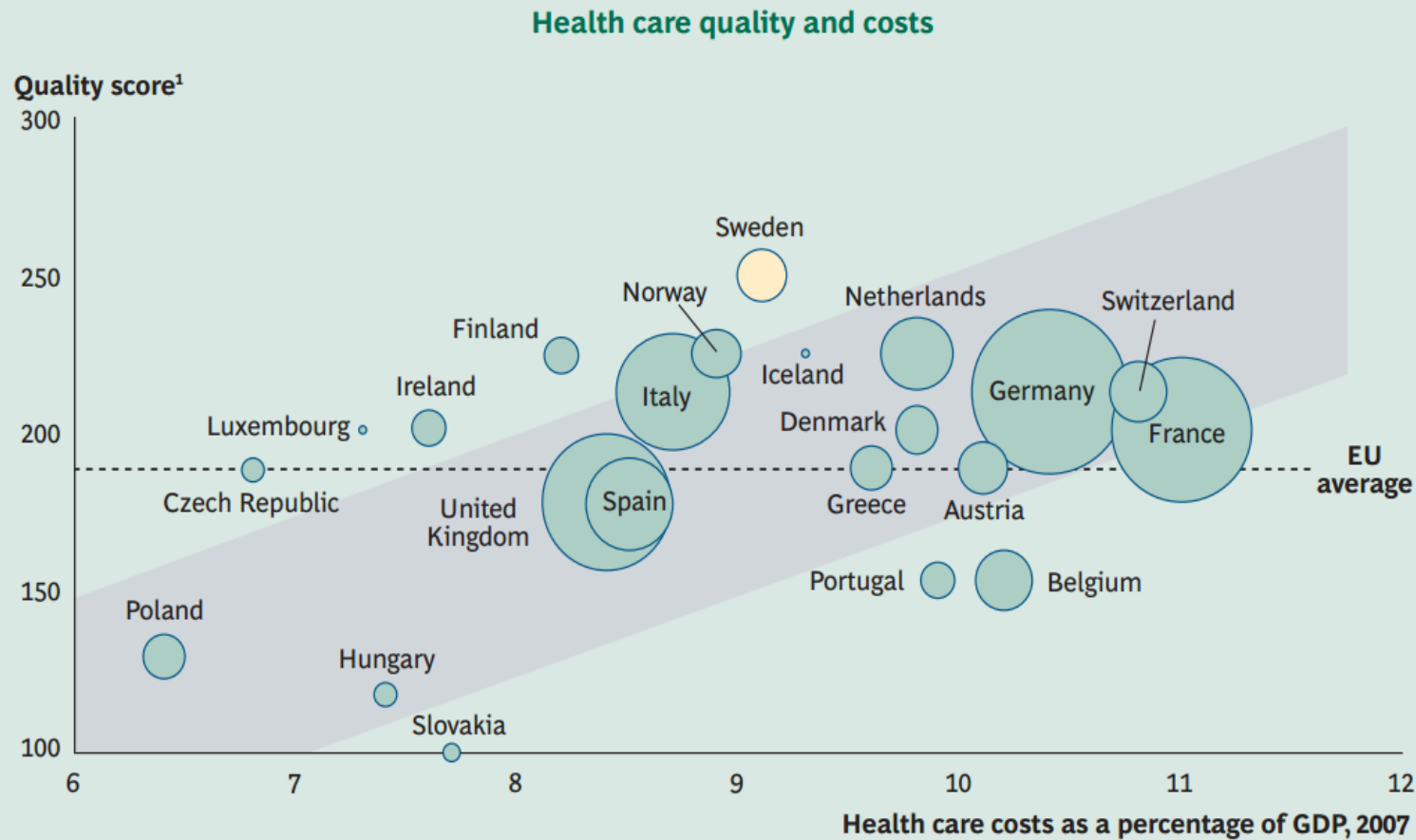
- Community Meetings (April 1-3, 2015)
 - Need for transformation
 - SIM MODELS
 - Objectives, design, implementation, testing
 - DESIGN REQUIREMENTS
 - Statewide, attainable, sustainable
 - Evidence based
 - Consistent with governor's seven health objectives
 - DESIGN COMPONENTS
 - Engage stakeholders, align state objectives with federal objectives
 - REFORM HEALTHCARE: Delivery, payment, regulatory policy, HIT

SIM GRANT – EVIDENCE BASED

LEARNING FROM OTHERS - Who's the best in the world?

- SWEDEN – Using HIT to improve outcomes and efficiency
 - 70 health registries spanning 50 years.
 - 5 year survival rates of childhood leukemia.
 - Future advancements and savings - \$70 million year invested in registries and HIT infrastructure over 10 years = \$7 billion in savings (2009 study).
- COLORADO
 - 6 pronged strategy.
 - Their questions are our questions.

Exhibit 2. Sweden's Health Care System Outperforms—but Does Not Outspend—Its Peers



Sources: Euro Health Consumer Index 2009 Report, Health Consumer Powerhouse; OECD Health Data 2009; BCG analysis.

¹Patient outcomes score.

Of all the countries in Europe, Sweden has the highest quality of healthcare but is only in the mid-range for costs.

They owe this success to the intelligent collection and use of health data registries.

Since the late 1960s Sweden has compiled 70 health registries and used these to link healthcare procedures to outcomes over long periods of time.

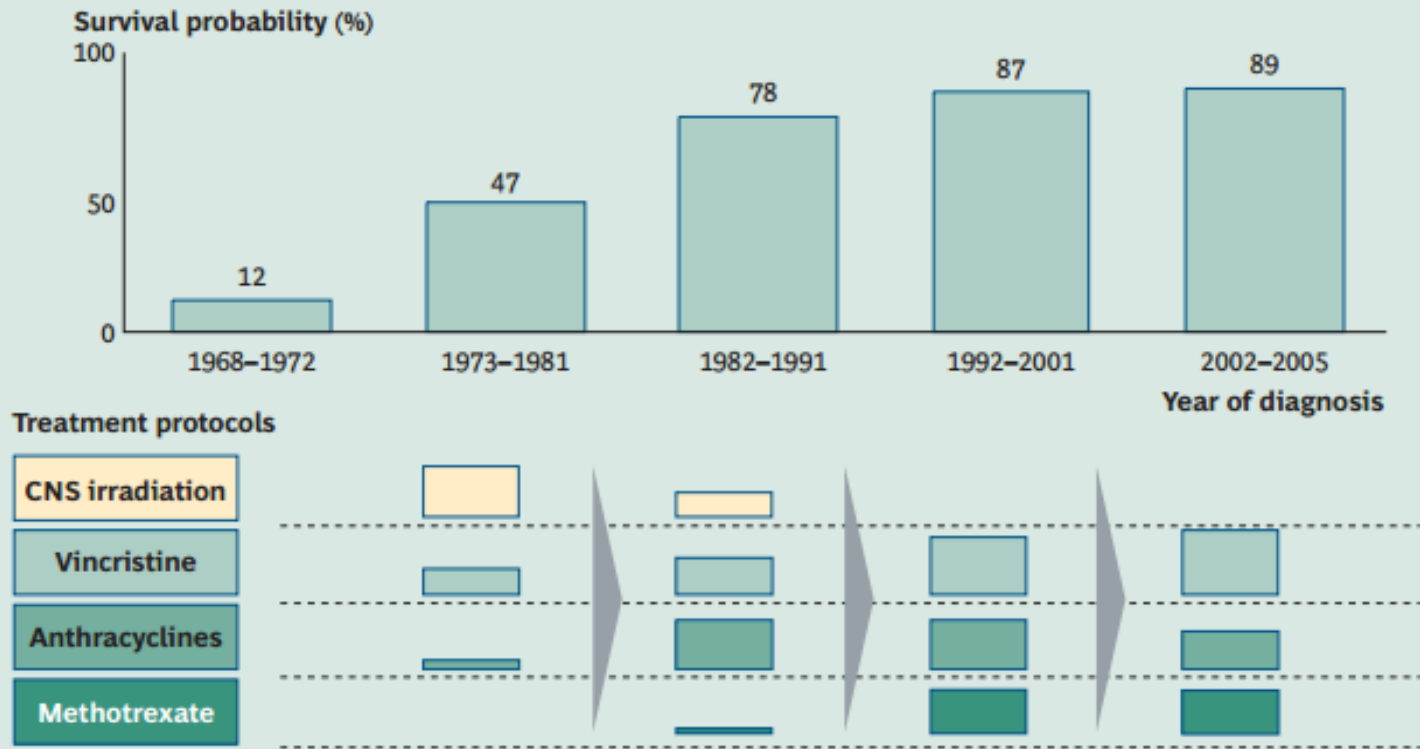
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Registry-Based Research Led to Improvements in the Treatment of ALL

Five-year survival probability for all Swedish children diagnosed with ALL and the corresponding evolution of treatment protocols



Sources: *Childhood Cancer Incidence and Survival in Sweden, 1984-2005: Report 2007*, Swedish Childhood Cancer Registry; BCG analysis. Note: The height of the bars in the lower part of the exhibit is proportional to the relative dosage. Irradiation to the central nervous system (CNS): 20-25 Gy, 1973-1981; <24 Gy, 1982-1991. 2008 drug doses per square meter of body surface by drug accumulated for intermediate and standard risk patients: vincristine sulphate, 22-46 U; anthracyclines, 80-200 U; and methotrexate sodium, 40kU.

- In 1968 the 5 year survival rate for childhood leukemia in Sweden was 12%.
- Using the health data registry for this ailment they linked the 4 ALL treatments to outcomes.
- Based on what they learned, treatments were modified. By 2002 the survival rate had increased to 89%.

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The Book:
Colorado Health Care Innovation Plan
Overall vision and how we get there

The Chapters:
Major drivers and strategies

Chapter 1

Integrate
Physical and
Behavioral
Health

Chapter 2

Establish
Health
Homes

Chapter 3

IT Infra-
structure

Chapter 4

New
Payment
Models

Chapter 5

Benefit
Design and
Market-
places

Chapter 6

Improve
Quality
Through
System
Redesign

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- Nevada can learn from Colorado's six pronged strategy. For now I'll only examine 'chapter 1'
- Colorado knows that behavioral / mental health is strongly linked to health care costs and quality.
- **QUOTE FROM COLORADO:** Mental health and primary care are inseparable; any attempts to separate the two leads to inferior care.

http://www.coloradohealthinstitute.org/uploads/postfiles/SIMKick-OffFinalMay29_FINAL.pdf

<https://sites.google.com/a/state.co.us/sim-colorado/>

HIT – USING DATA AS EVIDENCE

USING DATA TO FIND AND ELIMINATE PROBLEM AREAS

- NEVADA – Mental Health and healthcare
 - As a percent of the inpatient hospital visits
 - As a percent of the outpatient hospital visits
 - Admission Type and ER use hospital visits
 - Admission Type and ER use Medicaid hospital visits
- NEVADA – Drug Overdoses and healthcare
 - How big is the problem?

- The number of hospital admissions of the mentally ill has grown by almost 300% over the last 15 years.
- Mentally ill patients have also doubled as a percent of the overall hospital patient population.

Mental Illness as a Percent of Inpatient Hospital Population			
CYear	MI Discharges	All_Discharges	Percent_MI
2000	36,280	206,600	17.6%
2001	42,528	218,174	19.5%
2002	46,423	224,665	20.7%
2003	47,352	224,276	21.1%
2004	55,030	240,861	22.8%
2005	70,851	268,999	26.3%
2006	73,065	276,464	26.4%
2007	75,405	277,064	27.2%
2008	80,858	288,260	28.1%
2009	91,121	289,587	31.5%
2010	92,741	285,927	32.4%
2011	92,996	279,004	33.3%
2012	92,633	275,309	33.6%
2013	95,330	278,334	34.3%
2014	98,709	281,626	35.0%

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Though the change isn't as dramatic, the mentally ill population is also showing up in greater numbers in the hospital outpatient setting.

Mental Illness as a Percent of ED Outpatient Hospital Population			
CYear	MI Discharges	All_Discharges	Percent_MI
2009	132,325	675,546	19.6%
2010	136,357	673,861	20.2%
2011	157,893	711,176	22.2%
2012	159,512	757,179	21.1%
2013	172,893	785,562	22.0%
2014	223,009	847,366	26.3%

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The mentally ill are admitted to the hospital due to emergency reasons 59% more often than the non-mentally ill.

Their first contact with the hospital (where / how) is through the Emergency Department more often than the non-mentally ill (65% vs 45%).

The AVERAGE hospital bill for the mentally ill is \$10,000 higher than the non-mentally ill. Who's paying for all this?

64,015 (65%) entered the hospital through the ER				
Mental Illness Overall				
CYear	AdmissionType	Discharges	Percent	TotalCharge
2014	Elective	17,924	18.2%	1,510,910,683
2014	Emergency	59,804	60.6%	4,130,645,231
2014	Information not Available	722	0.7%	76,736,123
2014	Newborn	23	0.0%	15,452,961
2014	Trauma	1,017	1.0%	147,119,781
2014	Urgent	19,219	19.5%	854,793,144
TOTAL		98,709	100.0%	6,735,657,923
AVERAGE CHARGE				68,238

82,369 (45%) entered the hospital through the ER				
NOT - Mental Illness Overall				
CYear	AdmissionType	Discharges	Percent	TotalCharge
2014	Unknown	2	0.0%	34,605
2014	Elective	44,704	24.4%	3,124,341,584
2014	Emergency	69,669	38.1%	4,980,204,981
2014	Information not Available	2,125	1.2%	188,157,437
2014	Newborn	33,659	18.4%	676,160,735
2014	Trauma	1,375	0.8%	171,024,196
2014	Urgent	31,383	17.2%	1,467,960,183
TOTAL		182,917	100.0%	10,607,849,116
AVERAGE CHARGE				57,993

Mental Illness Overall			
CYear	PayerName	Discharges	TotalCharge
2014	NULL	215	6,826,130
2014	All Workers Compensation Cases	381	42,004,834
2014	CHAMPUS / CHAMPVA	3,909	122,826,835
2014	Charity	569	31,689,837
2014	Commercial Insurer	6,244	387,098,083
2014	County Indigent Referral	47	5,872,086
2014	Health Maintenance Organization	11,199	734,308,603
2014	Medicare	33,846	2,422,118,736
2014	Medicare HMO	10,073	836,784,736
2014	Miscellaneous	1,118	90,422,106
2014	Negotiated Discounts	5,568	357,402,003
2014	Nevada Medicaid	14,026	1,010,351,580
2014	Nevada Medicaid HMO	6,273	414,820,512
2014	Other Medicaid	447	19,761,448
2014	Self-Pay	4,794	253,370,394
TOTAL		98,709	6,735,657,923

9,938 (35%) entered the hospital through the ER

Mental Illness Medicaid				
CYear	AdmissionType	Discharges	Percent	TotalCharge
2014	Elective	1,692	12.1%	124,133,734
2014	Emergency	9,901	70.6%	766,520,977
2014	Information not Available	43	0.3%	4,462,113
2014	Newborn	5	0.0%	3,942,126
2014	Trauma	208	1.5%	36,466,495
2014	Urgent	2,177	15.5%	74,826,135
TOTAL		14,026	100.0%	1,010,351,580
AVERAGE CHARGE				72,034

8,473 (40%) entered the hospital through the ER

NOT - Mental Illness Medicaid				
CYear	AdmissionType	Discharges	Percent	TotalCharge
2014	Unknown	0	0.0%	0
2014	Elective	4,177	19.7%	180,934,251
2014	Emergency	7,738	36.6%	585,778,846
2014	Information not Available	50	0.2%	3,712,173
2014	Newborn	5,851	27.6%	141,834,545
2014	Trauma	148	0.7%	24,995,242
2014	Urgent	3,199	15.1%	119,823,505
TOTAL		21,163	100.0%	1,057,078,562
AVERAGE CHARGE				49,949

Before I mention how all this effects HIT and the SIM project I want to show two more tables. The first table shows how data can be used to eliminate directions to go in. The second shows some 'Super User' stats.

After Medicare, Medicaid covers most of the hospital bills for the mentally ill. More than a third enter through the ER and most only go to the hospital if it is an emergency.

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ED Outpatient Visits - Overdose vs Everyone

CYear	OD_Discharges	OD_AvgCharge	All_Discharges	All_AvgCharge	Percent_OD
2009	775	4,404	787,034	3,376	0.098%
2010	956	4,288	793,074	3,839	0.121%
2011	1,091	5,318	826,238	4,345	0.132%
2012	910	5,165	889,047	4,666	0.102%
2013	809	5,680	925,678	4,972	0.087%
2014	886	7,325	994,472	5,512	0.089%

The above shows OD to be about 1/10 of 1% of the picture.

I Looked at IP 2000-2014 and it was even less significant.

For decades we've been hearing about the war on drugs. Probably more than a trillion dollars has been spent on that war so far.

I thought if this is such a bad problem, I should take a look at the hospital data to see if overdoses should be included in the SIM project.

Overdoses turned out to make up only 1/10th of 1% of the hospital population. It would not be cost effective to use SIM resources toward this area.

Another area to look at in the effort to decrease costs and improve efficiency is super-users.

Over a 3 year period the top 20 super-users had a combined 1,042 inpatient visits to the hospital at a charge of 49 million dollars.

The top 20 outpatients represent more than 6,000 visits and 17 million in charges.

Top 20 Super Users - Nevada Residents. Age greater than or equal to 18. Each row represents a single patient with many visits to a hospital over a 3 year period.

NOTE: The IP and OP columns represent different sets of patients.

IP_Discharges2012_14	TotalCharge	OP_Discharges2012_14	Patient_TotalCharge
86	2,671,912	599	552,892
81	3,145,456	430	203,557
74	3,471,996	411	1,853,539
62	2,026,222	409	290,736
54	2,489,784	348	1,666,360
52	3,145,762	313	629,739
51	1,721,887	308	927,573
50	2,884,458	292	2,217,778
49	2,332,193	290	1,181,956
49	2,382,012	287	1,097,295
48	2,288,803	276	389,100
47	2,127,422	265	77,764
45	4,256,604	260	538,217
44	4,776,451	251	1,273,834
43	1,178,243	246	387,448
43	881,817	243	863,551
42	693,111	233	770,497
41	2,415,994	232	790,626
41	2,941,873	231	721,268
40	1,598,419	229	728,827
1,042	49,430,419	6,153	17,162,557

HIT & THE SIM GRANT DESIGN

USING DATA TO HELP DESIGN STAGE II OF SIM

- Sweden collects and uses health data registries to increase healthcare quality and cost efficiencies – Nevada can do the same using the Medicaid data.
- Colorado has a 6 pronged strategy to move the SIM project forward – CHIA can assist in Nevada using the claims data as was presented with the 'mental illness' example.
- CHIA has 10 years experience working with Medicaid data. Those data contain all the information needed to:
 - Find areas of inefficiency and fraud
 - Track treatments vs. outcomes over time and decrease the expense of complications due to non-optimized procedures.



Questions?