Sustaining a Successful Alarm Management Program

AAMI Regional Meeting
Chicago, September 2016

Kevin Smith, BSN, RN, CNML, CVRN-BC,
Director of Cardiac Services, NCH Healthcare System

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Non-for-profit, multi-facility healthcare system in Naples, Florida

- 2 hospitals (716 beds)
- An alliance of 732 physicians, 213 mid-level providers, and medical facilities throughout Collier County and Southwest Florida
- Extensive inpatient and outpatient services
- 2015 System Statistics:
  - 39,883 total admissions
  - 98,317 ED visits
  - 3,422 births
  - 405 open heart surgeries
  - 11,803 surgical procedures
  - 4,200 on staff

PATHWAY DESIGNATED
AMERICAN NURSES CREDENTIALING CENTER

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Industry Recognition

HIMSS analytics STAGE 7 AWARD

U.S.News & WORLD REPORT

THE JOINT COMMISSION NATIONAL QUALITY APPROVAL

HealthCare's most wired

The Society of Thoracic Surgeons

PATHWAY DESIGNATED AMERICAN NURSES CREDENTIALING CENTER

SOCIETY OF CHEST PAIN CENTER CARDIOVASCULAR PATIENT CARE

THE LEAPFROG GROUP A HOSPITAL SAFETY SCORE SPRING 2013

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Increasing Regulatory Requirements on Alarm Management

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Enhancing Workflow and Alarm Awareness through Technology

What Makes a Successful Alarm Management Environment?

Education

Culture

Meaningful Data

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Enhancing Workflow and Alarm Awareness through Technology

NCH is a Cerner Partner

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Using Data to Drive Decisions

- Began with sending every telemetry alert to the phones staff voiced their frustrations we actually multiplied their alarm fatigue
- Using the i-command system we found that high HR and low HR alarms from the GE system was triggering the tachy and brady alerts to be sent to the phones
- Turned off high HR and low HR as it was a duplicate alarm from the GE logic and bombarding the secondary alerting system
- Three days later and a lot of discussion with staff we turned off the tachy and brady alarms
- Working with staff, our alert link is now sending critical alerts (pause, VT, Vfib, asystole) and leads off

We Evaluated Near-Real-Time Unit Views

Total Event Count

	September 2, 2014	September 3, 2014	September 4, 2014	September 5, 2014	September 6, 2014	September 7, 2014	September 8, 2014	September 9, 2014	September 10, 2014	September 11, 2014	September 12, 2014	September 13, 2014	September 14, 2014	September 15, 2014
4112	6	44	1	23	12	8	5	5				1		
4113	1	9		2	8	8		3	2	6	1	1	36	
4114	1	4		1				21	1	1	12	20		
4116		3					1	1	3	5	404	113		
4118						2	3		1	3	57	75	262	
4117							1	3	1	1	1			
4119	203								1	46	3	2		1
4121						38	165		13	1			22	1
4122	4	3	2									20	182	9
4123						1	16	14	33	4	2			1
4124		56	9				1	1	65	9			1	
4126	7	2		287	11	9	120							2
4128	14	15		3	5	4	4	3		4	3			
4127	46	19	6	3	2	6	2		4	2	2		1	1
4129	7	137	119	2		149	1,441	706	391	1	1			
4131				448	1,211	661	112	1	1		1	2	6	
4132														
4133				1		1	5	4	21	23	8		3	2
4134	1			3				3	10	20	21		19	8
4135					4	1	6	6	3	7			27	1
4137		11		23	21	37	8	34	35	14	2	56	17	
4138	27	330	97	98	15	3		1	1	2		3		2

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What Can Data Do For You?

- Hospital campus
- Defined time frame
- Particular Unit
- Bed assignment
- Track telemetry pack assignment
- Hourly analysis
- On the spot staff education
- Endless possibilities – a new data frontier

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March 2015 – Evaluated The Shift Report

ange: All to next 24 hours.

Run: 3/6/2015 7:30:05 PM

Date	03/05/2015						03/06/2015																			
Hour	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	Sum	%
Event Type																											
HEART_RATE_HIGH	26	20	46	2	-	-	-	-	6	-	3	4	4	-	13	10	-	-	-	1	6	8	-	3	30	182	40.81
NO_TELEM	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	19	6	31	6.95
PVC_HI	-	-	-	-	-	-	-	-	-	-	-	2	3	4	12	14	-	-	-	3	6	-	1	1	5	51	11.43
SILENCE	-	-	1	-	2	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	1	1	2	11	2.47
TACHY	25	-	43	-	-	-	1	-	2	-	2	5	5	-	16	13	-	-	-	1	6	9	-	2	27	157	35.2
UNSILENCE	1	-	1	-	2	-	-	-	-	-	-	-	-	-	3	1	-	-	-	-	-	-	1	1	2	12	2.69
V_TACH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0.22
VT_HIGH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	0.22
ACCELERATED_VENT	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	0.04
HEART_RATE_HIGH	-	-	55	170	103	57	7	23	20	33	29	31	29	32	55	13	33	117	135	149	73	13	2	10	19	1,208	21.85
NO_TELEM	-	-	1	-	-	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-	-	13	9	27	0.49
PVC_HI	-	3	72	236	137	95	34	57	67	76	76	79	105	59	96	51	72	231	253	246	140	57	35	47	47	2,371	42.88
SILENCE	-	-	-	6	1	-	-	-	-	-	12	-	4	1	5	1	1	1	1	1	2	1	3	1	4	45	0.81
TACHY	-	-	59	180	120	70	15	47	50	50	81	77	67	42	71	27	64	187	192	198	105	19	4	23	34	1,782	32.23
UNSILENCE	-	-	-	6	1	-	-	-	-	-	12	-	3	1	5	1	1	2	1	1	2	1	3	1	4	45	0.81
V_TACH	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	3	0

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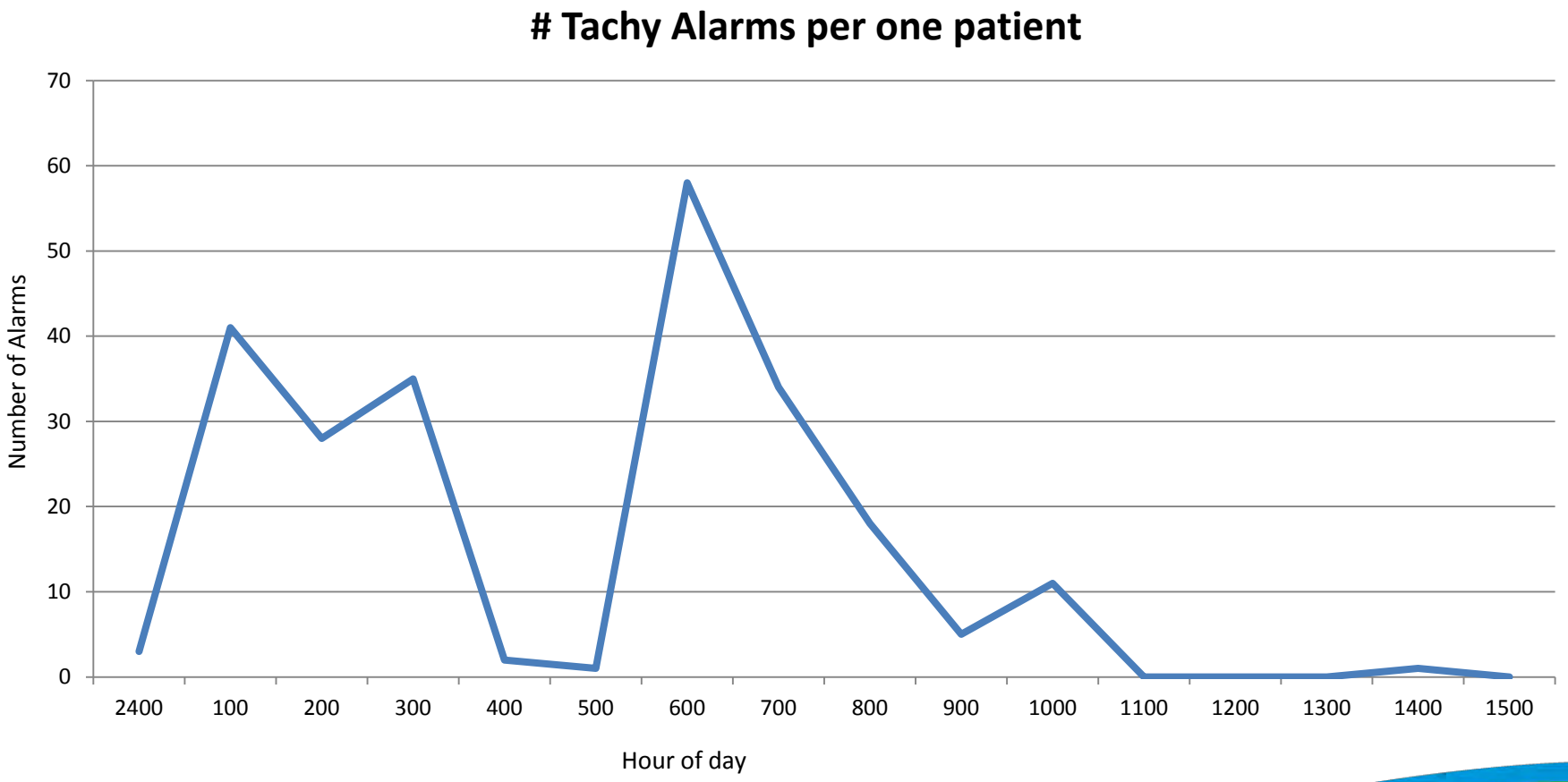
Patient Specific Monitor Settings and Data



Shift Report Utilized By Frontline Staff

Room	Event Type	07/26/2015 06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	07/27/2015 00	01	02	03	04	05	06	Sum	%
4123	BRADY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	8	26.67
	HEART_RATE_LOW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	11	36.67
	NO_TELEM	-	-	-	-	-	-	-	-	-	6	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	8	26.67
	NURSE_CALL	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3.33
	SILENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	3.33
	UNSILENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	3.33
4124	HEART_RATE_HIGH	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	7.69
	NO_TELEM	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	7	53.85
	SILENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	7.69
	TACHY	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	7.69
	UNSILENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	7.69
	VT_HIGH	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	15.38
4125	NO_TELEM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	12.5
	SILENCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	12.5
	TACHY	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2	25
	V_TACH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	12.5
	VT_HIGH	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	3	37.5

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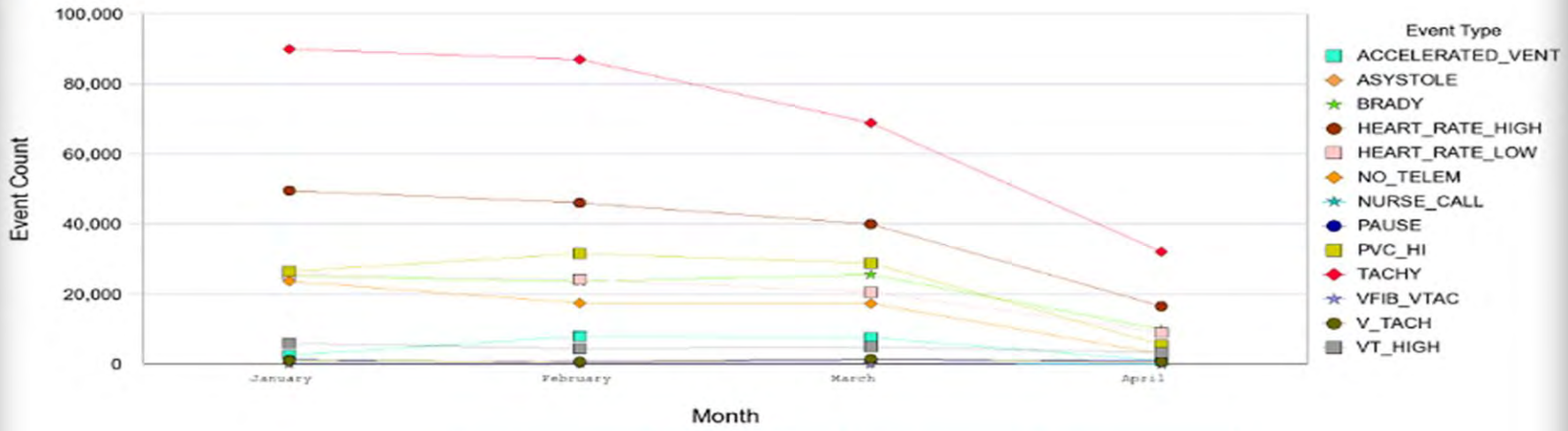
Discovery Report

Events By Event By Type 1/1/2015 12:00:00 AM to 4/30/2015 12:00:00 AM

M/S 4 East



	January	February	March	April
ACCELERATED_VENT	2,494	8,023	7,633	983
ASYSTOLE	334	256	363	350
BRADY	25,159	23,590	25,557	9,982
HEART_RATE_HIGH	49,531	46,118	39,933	16,606
HEART_RATE_LOW	25,665	24,238	20,539	9,037
NO_TELEM	23,708	17,425	17,280	2,998
NURSE_CALL	157	120	125	112
PAUSE	1,221	584	1,263	1,021
PVC_HI	26,453	31,599	28,896	5,547
TACHY	90,038	86,994	68,926	32,059
VFIB_VTAC	44	79	32	25
V_TACH	1,108	771	1,463	765

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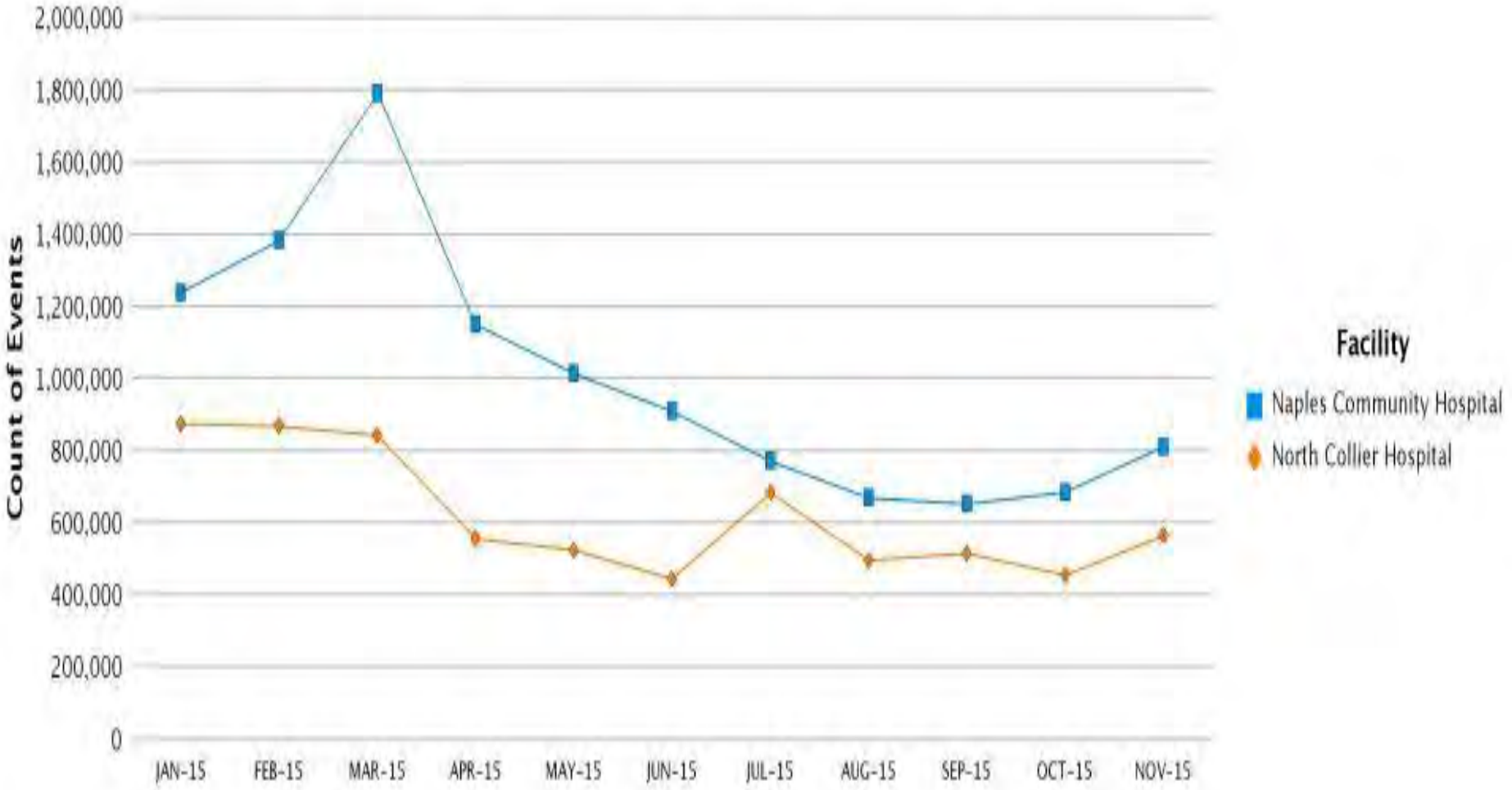
Trends Over Time



Data And Our Future

Scenario	Goal	Action	Tell me if rule	Who is to be notified
Tachycardia	Controlled HR	Initiate Cardizem	1-HR sustains increase of >15 beats over 60 minutes 2-HR sustains <80 over 30 minutes 3-HR<50 3-SBP <90	1-Primary RN 2-Secondary RN
Rule out CP	Cardiac Monitoring	Monitor rhythm changes	1-ST change of 1.5mm either direction 2-HR increases 25 beats >baseline 3- + Troponin results	1-Primary RN 2-Secondary RN
Tachycardia (SVT)	Controlled HR	Initiate Amiodarone	1- HR sustains <80 over 30 minutes 2-24 hours after drip started	1-Primary RN 2-Secondary RN 3-MD for post 24 hour
Starting Dofetilide dosing	Safe administration	Initiate Dofetilide	1-QTc>500	1-Primary RN 2-Secondary RN 3-MD for post 24 hour
Hypoxia	SPO2>90%	O2 Therapy	1-SPO2<90%	1-Primary RN 2-Secondary RN

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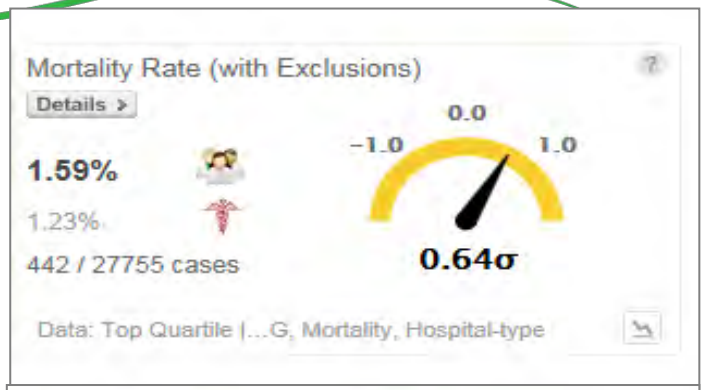
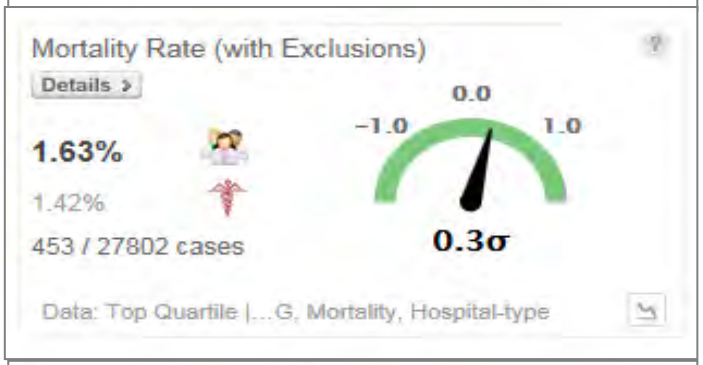
Driving Clinical Improvement

CY 2013

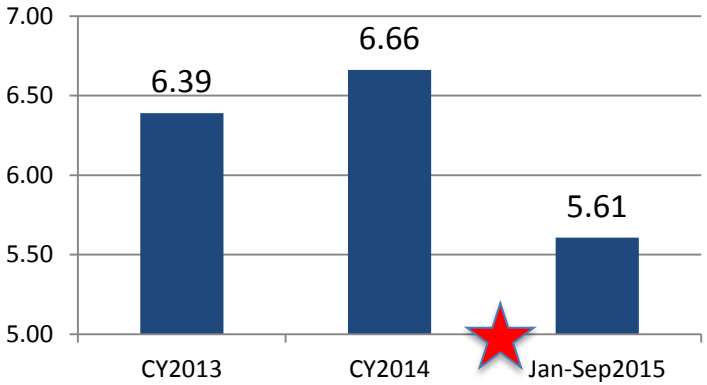


CY 2014



CY 2015

Rapid Response Team Rate per 1000 Pt Days



System Connect iPhone deployment Dec 2014

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The best way to inspire resilience in any organization is to give the problem to a nurse!

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Questions

- Kevin Smith, BSN, RN, CNML, CVRN-BC
  Director of Cardiac Services- NCH Healthcare System
  kevin.smith@nchmd.org
  239-624-4605