



Hazel Hawkins
MEMORIAL HOSPITAL

**REGULAR AND SPECIAL MEETING OF THE FINANCE COMMITTEE
SAN BENITO HEALTH CARE DISTRICT
911 SUNSET DRIVE, HOLLISTER, CALIFORNIA
THURSDAY, APRIL 18, 2024 - 4:30 P.M.
SUPPORT SERVICES BUILDING, 2ND FLOOR – GREAT ROOM**

San Benito Health Care District is a public agency that serves as a responsive, comprehensive health care resource for its patients, physicians and the community.

1. Call to Order
2. Approve Minutes of the Finance Committee Meeting of March 21, 2024
 - Motion/Second
3. Review Financial Updates
 - Financial Statements – March 2024
 - Finance Dashboard – March 2024
 - Supplemental Payments
4. Consider Recommendation for Board Approval of Telemetry Services Agreement with Hicuity Health, Inc.
 - Report
 - Committee Questions
 - Motion/Second
5. Public Comment

This opportunity is provided for members of the public to make a brief statement, not to exceed three (3) minutes, on matters within the jurisdiction of this District Board **Committee**, which are not on this agenda.
6. Adjournment

The next Finance Committee meeting is scheduled for **Thursday, May 16, 2024 at 4:30 p.m.**

The complete Finance Committee packet including subsequently distributed materials and presentations is available at the Finance Committee meeting and in the Administrative Offices of the District. All items appearing on the agenda are subject to action by the Finance Committee. Staff and Committee recommendations are subject to change by the Finance Committee.



Hazel Hawkins

MEMORIAL HOSPITAL

Notes: Requests for a disability-related modification or accommodation, including auxiliary aids or services, to attend or participate in a meeting should be made to District Administration during regular business hours at 831-636-2673. Notification received 48 hours before the meeting will enable the District to make reasonable accommodations.

April 18, 2024

CFO Financial Summary for the District Board:

For the month ending March 31, 2024, the District's Net Surplus (**Loss**) is \$1,522,945 compared to a budgeted Surplus (**Loss**) of **(\$77,920)**. The District exceeded its budget for the month by \$1,600,865.

YTD as of March 31, 2024, the District's Net Surplus (**Loss**) is \$10,347,594 compared to a budgeted Surplus (**Loss**) of \$549,584. The District is exceeding its budget YTD by \$9,798,010.

It is estimated that the annual cost of returning to the pre-bankruptcy benefits plan would be approximately **\$7 million** for the first year.

Acute discharges were 186 for the month, slightly exceeding budget by 8 discharges or 5%. The ADC was 16.58 compared to a budget of 16.54. The ALOS was 2.76. The acute I/P gross revenue was under budget by **\$168,943** while O/P services gross revenue was **\$1.4 million** or 5% over budget. ER I/P visits were 140 and ER O/P visits were over budget by 173 visits or 9%. The RHCs & Specialty Clinics treated 3,923 (includes 638 visits at the Diabetes Clinic) and 954 visits respectively.

Other Operating revenue was over budget by **\$119,726** due mainly to the Magellan Health Rx rebate being higher than budgeted.

Operating Expenses were under budget by **\$344,396** due mainly to positive variances in: Employee Benefits of \$263,142, Professional Fees of \$269,702 and Supplies of \$202,487 being offset with higher than budgeted expenses in Registry of \$284,381 and Purchase Service of \$140,889.

Non-operating Revenue exceeded budget by **\$14,684** due mainly to higher than budgeted donations and other non-op revenue.

The SNFs ADC was **84.39** for the month. The Net Surplus (**Loss**) is **\$213,138** compared to a budget of \$221,041. YTD, the Net Surplus (**Loss**) is \$3,129,760, exceeding its budget by \$1,132,372.

HAZEL HAWKINS MEMORIAL HOSPITAL - COMBINED
 HOLLISTER, CA 95023
 FOR PERIOD 03/31/24

	CURRENT MONTH			PRIOR YR			YEAR-TO-DATE			
	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23
GROSS PATIENT REVENUE:										
ACUTE ROUTINE REVENUE	3,700,859	3,654,406	46,453	1	3,642,241	29,990,018	39,956,189	(9,966,171)	(25)	37,237,472
SNF ROUTINE REVENUE	1,967,580	2,092,500	(124,920)	(6)	2,142,850	19,180,768	18,562,500	618,268	3	18,373,200
ANCILLARY INPATIENT REVENUE	4,625,077	4,874,298	(249,221)	(5)	4,650,486	36,776,266	46,579,581	(9,803,315)	(21)	44,140,443
HOSPITALIST\PEDES I\P REVENUE	218,314	190,834	27,480	14	159,144	1,519,374	1,692,872	(173,498)	(10)	1,606,399
TOTAL GROSS INPATIENT REVENUE	10,511,830	10,822,038	(300,208)	(3)	10,594,722	87,466,426	106,791,142	(19,324,716)	(18)	101,357,514
ANCILLARY OUTPATIENT REVENUE	27,266,232	25,878,989	1,387,243	5	26,399,380	242,926,427	215,338,198	27,588,229	13	206,967,681
HOSPITALIST\PEDES O\P REVENUE	81,582	61,405	20,177	33	43,377	585,420	544,710	40,710	8	516,889
TOTAL GROSS OUTPATIENT REVENUE	27,347,814	25,940,394	1,407,420	5	26,442,757	243,511,847	215,882,908	27,628,939	13	207,484,570
TOTAL GROSS PATIENT REVENUE	37,859,644	36,752,432	1,107,212	3	37,037,479	330,978,273	322,674,050	8,304,223	3	308,842,084
DEDUCTIONS FROM REVENUE:										
MEDICARE CONTRACTUAL ALLOWANCES	10,677,575	10,457,236	220,339	2	11,540,464	88,970,924	92,634,897	(3,663,973)	(4)	89,820,597
MEDI-CAL CONTRACTUAL ALLOWANCES	10,240,414	10,151,336	89,078	1	7,941,241	88,020,572	87,723,440	297,132	0	76,199,219
BAD DEBT EXPENSE	265,776	412,378	(146,602)	(36)	338,923	5,924,219	3,619,298	2,304,921	64	3,352,743
CHARITY CARE	19,783	38,534	(18,751)	(49)	25,823	350,230	337,973	12,257	4	299,400
OTHER CONTRACTUALS AND ADJUSTMENTS	4,180,786	4,236,200	(55,414)	(1)	4,288,164	39,471,384	36,574,687	2,896,697	8	33,591,476
HOSPITALIST\PEDES CONTRACTUAL ALLOW	24,622	12,771	11,851	93	15,999	78,936	112,029	(33,093)	(30)	72,724
TOTAL DEDUCTIONS FROM REVENUE	25,408,956	25,308,455	100,501	0	24,150,613	222,816,265	221,002,324	1,813,941	1	203,336,159
NET PATIENT REVENUE	12,450,688	11,443,977	1,006,711	9	12,886,866	108,162,008	101,671,726	6,490,282	6	105,505,925
OTHER OPERATING REVENUE	702,221	582,495	119,726	21	1,102,868	5,196,103	5,242,464	(46,362)	(1)	10,363,577
NET OPERATING REVENUE	13,152,909	12,026,472	1,126,437	9	13,989,734	113,358,111	106,914,190	6,443,921	6	115,869,502
OPERATING EXPENSES:										
SALARIES & WAGES	4,669,668	4,772,360	(102,692)	(2)	4,765,086	42,040,419	42,111,276	(70,857)	0	42,927,645
REGISTRY	511,600	200,001	311,599	156	117,977	3,027,230	1,800,001	1,227,229	68	3,836,750
EMPLOYEE BENEFITS	2,208,614	2,543,535	(334,921)	(13)	3,441,277	18,707,595	21,982,699	(3,275,104)	(15)	25,423,433
PROFESSIONAL FEES	1,382,624	1,652,453	(269,829)	(16)	1,849,865	14,375,570	14,672,474	(296,904)	(2)	14,906,728
SUPPLIES	1,028,333	1,231,672	(203,340)	(17)	1,227,411	9,451,658	10,678,767	(1,227,109)	(12)	11,030,503
PURCHASED SERVICES	1,211,948	1,093,675	118,273	11	1,289,398	9,788,059	9,701,962	86,097	1	11,104,800
RENTAL	139,840	131,560	8,280	6	122,419	1,238,686	1,178,964	59,722	5	1,366,463
DEPRECIATION & AMORT	320,400	320,773	(373)	0	330,276	2,920,237	2,886,988	33,249	1	2,932,835
INTEREST	27,921	25,417	2,504	10	170,125	463,699	228,752	234,947	103	216,672
OTHER	447,154	436,401	10,753	3	473,848	3,866,793	3,874,343	(7,550)	0	3,968,606
TOTAL EXPENSES	11,948,103	12,407,847	(459,745)	(4)	13,787,682	105,879,945	109,116,226	(3,236,281)	(3)	117,714,534
NET OPERATING INCOME (LOSS)	1,204,806	(381,375)	1,586,181	(416)	202,052	7,478,166	(2,202,036)	9,680,202	(440)	(1,845,032)

HAZEL HAWKINS MEMORIAL HOSPITAL - COMBINED
 HOLLISTER, CA 95023
 FOR PERIOD 03/31/24

	CURRENT MONTH			PRIOR YR			YEAR-TO-DATE			
	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23
NON-OPERATING REVENUE\EXPENSE:										
DONATIONS	17,106	10,000	7,106	71	108,623	232,389	150,000	82,389	55	482,079
PROPERTY TAX REVENUE	205,711	205,711	0	0	195,915	1,851,399	1,851,396	3	0	1,763,235
GO BOND PROP TAXES	170,388	170,388	0	0	164,964	1,533,490	1,533,492	(2)	0	1,484,678
GO BOND INT REVENUE\EXPENSE	(68,721)	(68,721)	0	0	(72,048)	(618,490)	(618,489)	(1)	0	(648,428)
OTHER NON-OPER REVENUE	21,422	13,843	7,579	55	17,157	165,485	124,587	40,898	33	124,636
OTHER NON-OPER EXPENSE	(27,767)	(27,766)	(1)	0	(37,647)	(290,636)	(289,366)	(1,270)	0	(372,565)
INVESTMENT INCOME	0	0	0	0	0	(4,209)	0	(4,209)	0	2,010
COLLABORATION CONTRIBUTIONS	0	0	0	0	0	0	0	0	0	0
TOTAL NON-OPERATING REVENUE/(EXPENSE)	318,139	303,455	14,684	5	376,965	2,869,429	2,751,620	117,809	4	2,835,644
NET SUREPLUS (LOSS)	1,522,945	(77,920)	1,600,865	(2,055)	579,017	10,347,594	549,584	9,798,010	1,783	990,612
EBIDA	\$ 1,769,445	\$ 1,68,952	\$ 1,600,493	947.30%	\$ 854,023	\$ 12,643,467	\$ 2,810,935	\$ 9,832,532	349.79%	\$ 3,459,762
EBIDA MARGIN	13.45%	1.40%	12.05%	857.63%	6.10%	11.15%	2.63%	8.52%	324.21%	2.99%
OPERATING MARGIN	9.16%	(3.17)%	12.33%	(388.85)%	1.44%	6.60%	(2.06)%	8.66%	(420.30)%	(1.59)%
NET SUREPLUS (LOSS) MARGIN	11.58%	(0.65)%	12.23%	(1,887.11)%	4.14%	9.13%	0.51%	8.61%	1,675.91%	0.85%

HAZEL HAWKINS MEMORIAL HOSPITAL - ACUTE FACILITY
HOLLISTER, CA 95023
FOR PERIOD 03/31/24

	CURRENT MONTH			PRIOR YR			YEAR-TO-DATE			
	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23
GROSS PATIENT REVENUE:										
ROUTINE REVENUE	3,700,859	3,654,406	46,453	1	3,642,241	29,990,018	39,956,189	(9,966,171)	(25)	37,237,472
ANCILLARY INPATIENT REVENUE	4,262,532	4,505,408	(242,876)	(5)	4,271,987	33,952,348	43,263,351	(9,311,003)	(22)	40,584,419
HOSPITALIST I/P REVENUE	218,314	190,834	27,480	14	159,144	1,519,374	1,692,872	(173,498)	(10)	1,606,399
TOTAL GROSS INPATIENT REVENUE	8,181,706	8,350,648	(168,943)	(2)	8,073,372	65,461,741	84,912,412	(19,450,671)	(23)	79,428,290
ANCILLARY OUTPATIENT REVENUE	27,266,232	25,878,989	1,387,243	5	26,399,380	242,926,427	215,338,198	27,588,229	13	206,967,681
HOSPITALIST O/P REVENUE	81,562	61,405	20,177	33	43,377	585,420	544,710	40,710	8	516,889
TOTAL GROSS OUTPATIENT REVENUE	27,347,814	25,940,394	1,407,420	5	26,442,757	243,511,847	215,882,908	27,628,939	13	207,484,570
TOTAL GROSS ACUTE PATIENT REVENUE	35,529,520	34,291,042	1,238,478	4	34,516,129	308,973,587	300,795,320	8,178,267	3	286,912,859
DEDUCTIONS FROM REVENUE ACUTE:										
MEDICARE CONTRACTUAL ALLOWANCES	10,367,582	10,181,656	185,936	2	11,282,655	86,937,576	90,155,163	(3,217,587)	(4)	87,512,061
MEDI-CAL CONTRACTUAL ALLOWANCES	10,091,784	10,043,028	48,756	1	8,810,578	86,615,372	86,762,638	(147,266)	0	75,833,678
BAD DEBT EXPENSE	282,772	402,378	(119,606)	(30)	378,311	6,024,237	3,529,298	2,494,939	71	3,329,226
CHARITY CARE	19,383	38,534	(19,151)	(50)	25,823	347,173	337,973	9,200	3	282,250
OTHER CONTRACTUALS AND ADJUSTMENTS	4,169,959	4,169,240	729	0	4,122,672	39,162,351	35,980,687	3,181,664	9	32,939,239
HOSPITALIST\PEDES CONTRACTUAL ALLOW	24,622	12,771	11,851	93	15,999	78,936	112,029	(33,093)	(30)	72,724
TOTAL ACUTE DEDUCTIONS FROM REVENUE	24,956,122	24,847,607	108,515	0	24,636,038	219,165,644	216,877,788	2,287,856	1	199,979,176
NET ACUTE PATIENT REVENUE	10,573,398	9,443,435	1,129,963	12	9,880,091	89,807,944	83,917,532	5,890,412	7	86,933,683
OTHER OPERATING REVENUE	702,221	582,495	119,726	21	1,102,868	5,196,103	5,242,464	(46,362)	(1)	10,363,577
NET ACUTE OPERATING REVENUE	11,275,618	10,025,930	1,249,688	13	10,982,959	95,004,046	89,159,996	5,844,050	7	97,297,259
OPERATING EXPENSES:										
SALARIES & WAGES	3,774,029	3,832,575	(58,546)	(2)	3,857,994	33,560,046	33,769,023	(208,977)	(1)	34,744,231
REGISTRY	451,382	167,001	284,381	170	90,499	2,732,791	1,503,001	1,229,790	82	3,618,650
EMPLOYEE BENEFITS	1,746,862	2,010,004	(263,142)	(13)	2,691,113	14,518,091	17,307,064	(2,788,973)	(16)	20,063,087
PROFESSIONAL FEES	1,380,414	1,650,116	(269,702)	(16)	1,847,655	14,355,680	14,651,444	(295,764)	(2)	14,886,328
SUPPLIES	939,827	1,142,314	(202,487)	(18)	1,132,986	8,576,072	9,878,738	(1,302,666)	(13)	10,232,559
PURCHASED SERVICES	1,127,101	986,212	140,889	14	1,202,051	9,037,808	8,748,669	289,139	3	10,229,091
RENTAL	138,551	130,516	8,035	6	120,459	1,229,060	1,169,645	59,415	5	1,357,656
DEPRECIATION & AMORT	280,726	281,320	(594)	0	291,128	2,564,268	2,531,880	32,388	1	2,577,411
INTEREST	27,921	25,417	2,504	10	170,125	463,699	228,752	234,947	103	216,672
OTHER	392,469	378,202	14,267	4	422,096	3,404,905	3,357,986	46,919	1	3,452,708
TOTAL EXPENSES	10,259,281	10,603,677	(344,396)	(3)	11,826,104	90,442,418	93,146,202	(2,703,784)	(3)	101,378,391
NET OPERATING INCOME (LOSS)	1,016,337	(577,747)	1,594,084	(276)	(843,145)	4,561,628	(3,986,206)	8,547,834	(214)	(4,081,132)

6

HAZEL HAWKINS MEMORIAL HOSPITAL - ACUTE FACILITY
 HOLLISTER, CA 95023
 FOR PERIOD 03/31/24

	CURRENT MONTH			PRIOR YR			YEAR-TO-DATE			
	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23
NON-OPERATING REVENUE\EXPENSE:										
DONATIONS	17,106	10,000	7,106	71	108,623	232,389	150,000	82,389	55	482,079
PROPERTY TAX REVENUE	174,854	174,854	0	0	166,528	1,573,686	1,573,686	0	0	1,498,752
GO BOND PROP TAXES	170,388	170,388	0	0	164,964	1,533,490	1,533,492	(2)	0	1,484,678
GO BOND INT REVENUE\EXPENSE	(68,721)	(68,721)	0	0	(72,048)	(618,489)	(618,489)	(1)	0	(648,428)
OTHER NON-OPER REVENUE	21,422	13,843	7,579	55	17,157	165,485	124,587	40,898	33	124,636
OTHER NON-OPER EXPENSE	(21,578)	(21,578)	0	0	(29,305)	(226,146)	(224,874)	(1,272)	1	(297,481)
INVESTMENT INCOME	0	0	0	0	0	(4,209)	0	(4,209)	0	2,010
COLLABORATION CONTRIBUTIONS	0	0	0	0	0	0	0	0	0	0
TOTAL NON-OPERATING REVENUE/(EXPENSE)	293,470	278,786	14,684	5	355,921	2,656,206	2,538,402	117,804	5	2,646,245
NET SURPLUS (LOSS)	1,309,808	(298,961)	1,608,769	(538)	(487,224)	7,217,834	(1,447,804)	8,665,638	(599)	(1,434,888)

HAZEL HAWKINS SKILLED NURSING FACILITIES
HOLLISTER, CA
FOR PERIOD 03/31/24

	CURRENT MONTH			PRIOR YR			YEAR-TO-DATE			
	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23	ACTUAL 03/31/24	BUDGET 03/31/24	POS/NEG VARIANCE	PERCENT VARIANCE	PRIOR YR 03/31/23
GROSS SNF PATIENT REVENUE:										
ROUTINE SNF REVENUE	1,967,580	2,092,500	(124,920)	(6)	2,142,850	19,180,768	18,562,500	618,268	3	18,373,200
ANCILLARY SNF REVENUE	362,544	368,890	(6,346)	(2)	378,499	2,823,918	3,316,230	(492,312)	(15)	3,556,025
TOTAL GROSS SNF PATIENT REVENUE	2,330,124	2,461,390	(131,266)	(5)	2,521,349	22,004,686	21,878,730	125,956	1	21,929,225
DEDUCTIONS FROM REVENUE SNF:										
MEDICARE CONTRACTUAL ALLOWANCES	309,982	275,580	34,402	13	257,809	2,033,348	2,479,734	(446,386)	(18)	2,308,537
MEDI-CAL CONTRACTUAL ALLOWANCES	148,630	108,308	40,322	37	(869,337)	1,405,201	960,802	444,399	46	365,541
BAD DEBT EXPENSE	(16,996)	10,000	(26,996)	(270)	(39,388)	(100,018)	90,000	(190,018)	(211)	23,518
CHARITY CARE	400	0	400	0	0	3,057	0	3,057	0	7,150
OTHER CONTRACTUALS AND ADJUSTMENTS	10,817	66,960	(56,143)	(84)	165,492	309,033	594,000	(284,967)	(48)	652,237
TOTAL SNF DEDUCTIONS FROM REVENUE	452,834	460,848	(8,014)	(2)	(485,425)	3,650,621	4,124,536	(473,915)	(12)	3,356,982
NET SNF PATIENT REVENUE	1,877,291	2,000,542	(123,251)	(6)	3,006,774	18,354,065	17,754,194	599,871	3	18,572,243
OTHER OPERATING REVENUE	0	0	0	0	0	0	0	0	0	0
NET SNF OPERATING REVENUE	1,877,291	2,000,542	(123,251)	(6)	3,006,774	18,354,065	17,754,194	599,871	3	18,572,243
OPERATING EXPENSES:										
SALARIES & WAGES	895,639	939,785	(44,146)	(5)	907,093	8,480,374	8,342,253	138,121	2	8,183,414
REGISTRY	60,218	33,000	27,218	83	27,478	294,439	297,000	(2,561)	(1)	218,100
EMPLOYEE BENEFITS	461,752	533,531	(71,779)	(14)	750,164	4,189,504	4,675,635	(486,131)	(10)	5,360,346
PROFESSIONAL FEES	2,210	2,337	(127)	(5)	2,210	19,890	21,030	(1,140)	(5)	20,400
SUPPLIES	88,506	89,358	(852)	(1)	94,425	875,586	800,029	75,557	9	797,945
PURCHASED SERVICES	84,848	107,463	(22,615)	(21)	87,347	750,251	953,293	(203,042)	(21)	875,809
RENTAL	1,289	1,044	245	24	1,960	9,626	9,319	307	3	8,807
DEPRECIATION	39,675	39,453	222	1	39,148	355,969	355,108	861	0	355,424
INTEREST	0	0	0	0	0	0	0	0	0	0
OTHER	54,685	58,199	(3,514)	(6)	51,752	461,888	516,357	(54,469)	(11)	515,898
TOTAL EXPENSES	1,688,822	1,804,170	(115,348)	(6)	1,961,578	15,437,527	15,970,024	(532,497)	(3)	16,336,142
NET OPERATING INCOME (LOSS)	188,469	196,372	(7,903)	(4)	1,045,197	2,916,538	1,784,170	1,132,368	64	2,236,100
NON-OPERATING REVENUE\EXPENSE:										
DONATIONS	0	0	0	0	0	0	0	0	0	0
PROPERTY TAX REVENUE	30,857	30,857	0	0	29,387	277,713	277,710	3	0	264,483
OTHER NON-OPER EXPENSE	(6,188)	(6,188)	0	0	(8,343)	(64,490)	(64,492)	2	0	(75,084)
TOTAL NON-OPERATING REVENUE/(EXPENSE)	24,669	24,669	0	0	21,044	213,223	213,218	5	0	189,399
NET SURPLUS (LOSS)	213,138	221,041	(7,903)	(4)	1,066,241	3,129,760	1,997,388	1,132,372	57	2,425,500

HAZEL HAWKINS MEMORIAL HOSPITAL
 HOLLISTER, CA
 For the month ended 03/31/24

	CURR MONTH 03/31/24	PRIOR MONTH 02/29/24	POS/NEG VARIANCE	PERCENTAGE VARIANCE	PRIOR YR 06/30/23
CURRENT ASSETS					
CASH & CASH EQUIVALENT	17,598,568	14,198,154	3,400,415	24	13,649,396
PATIENT ACCOUNTS RECEIVABLE	65,845,440	66,439,107	(593,667)	(1)	51,674,982
BAD DEBT ALLOWANCE	(8,410,897)	(8,352,795)	(58,103)	1	(5,227,791)
CONTRACTUAL RESERVES	(41,761,372)	(41,902,265)	140,893	0	(32,708,039)
OTHER RECEIVABLES	14,756,794	13,339,228	1,417,565	11	8,381,301
INVENTORIES	4,028,550	4,038,526	(9,976)	0	4,057,813
PREPAID EXPENSES	1,764,783	1,884,964	(120,181)	(6)	2,042,543
DUE TO\FROM THIRD PARTIES	1,978,192	1,978,192	0	0	2,784,747
TOTAL CURRENT ASSETS	55,800,058	51,623,111	4,176,946	8	44,654,951
ASSETS WHOSE USE IS LIMITED					
BOARD DESIGNATED FUNDS	5,230,367	6,635,662	(1,405,295)	(21)	3,825,798
TOTAL LIMITED USE ASSETS	5,230,367	6,635,662	(1,405,295)	(21)	3,825,798
PROPERTY, PLANT, AND EQUIPMENT					
LAND & LAND IMPROVEMENTS	3,370,474	3,370,474	0	0	3,370,474
BLDGs & BLDG IMPROVEMENTS	100,098,374	100,098,374	0	0	100,098,374
EQUIPMENT	44,046,824	43,953,011	93,814	0	43,302,208
CONSTRUCTION IN PROGRESS	1,013,589	977,711	35,879	4	880,124
GROSS PROPERTY, PLANT, AND EQUIPMENT	148,529,261	148,399,569	129,692	0	147,651,180
ACCUMULATED DEPRECIATION	(93,408,707)	(93,073,724)	(334,983)	0	(90,362,507)
NET PROPERTY, PLANT, AND EQUIPMENT	55,120,555	55,325,845	(205,291)	0	57,288,673
OTHER ASSETS					
UNAMORTIZED LOAN COSTS	416,360	422,431	(6,071)	(1)	470,999
PENSION DEFERRED OUTFLOWS NET	18,285,289	18,285,289	0	0	18,285,289
TOTAL OTHER ASSETS	18,701,649	18,707,720	(6,071)	0	18,756,288
TOTAL UNRESTRICTED ASSETS	134,852,628	132,292,339	2,560,290	2	124,525,709
RESTRICTED ASSETS	17,720	29,939	(12,220)	(41)	125,193
TOTAL ASSETS	134,870,348	132,322,278	2,548,070	2	124,650,902

HAZEL HAWKINS MEMORIAL HOSPITAL
 HOLLISTER, CA
 For the month ended 03/31/24

	CURR MONTH 03/31/24	PRIOR MONTH 02/29/24	POS/NEG VARIANCE	PERCENTAGE VARIANCE	PRIOR YR 06/30/23
CURRENT LIABILITIES					
ACCOUNTS PAYABLE	5,513,208	5,873,237	360,029	(6)	4,938,613
ACCRUED PAYROLL	3,172,339	5,233,502	2,061,163	(39)	3,345,253
ACCRUED PAYROLL TAXES	2,231,817	1,584,217	(647,600)	41	1,497,221
ACCRUED BENEFITS	6,130,146	5,487,520	(642,626)	12	6,051,228
ACCRUED PENSION (CURRENT)	4,957,820	4,955,143	(2,676)	0	5,061,807
OTHER ACCRUED EXPENSES	93,949	86,486	(7,463)	9	84,460
PATIENT REFUNDS PAYABLE	1,310	1,310	0	0	961
DUE TO\FROM THIRD PARTIES	1,447,716	(2,136,872)	(3,584,588)	(168)	196,789
OTHER CURRENT LIABILITIES	2,507,709	2,418,872	(88,838)	4	3,132,834
TOTAL CURRENT LIABILITIES	26,056,014	23,503,415	(2,552,599)	11	24,309,166
LONG-TERM DEBT					
LEASES PAYABLE	5,462,661	5,469,395	6,735	0	5,529,504
BONDS PAYABLE	33,047,681	34,556,201	1,508,520	(4)	34,784,361
TOTAL LONG TERM DEBT	38,510,342	40,025,597	1,515,255	(4)	40,313,865
OTHER LONG-TERM LIABILITIES					
DEFERRED REVENUE	0	0	0	0	0
LONG-TERM PENSION LIABILITY	36,485,864	36,485,864	0	0	36,485,864
TOTAL OTHER LONG-TERM LIABILITIES	36,485,864	36,485,864	0	0	36,485,864
TOTAL LIABILITIES	101,052,220	100,014,875	(1,037,344)	1	101,108,895
NET ASSETS:					
UNRESTRICTED FUND BALANCE	23,376,814	23,376,814	0	0	23,376,814
RESTRICTED FUND BALANCE	93,720	105,939	12,220	(12)	165,193
NET REVENUE/(EXPENSES)	10,347,594	8,824,649	(1,522,945)	17	0
TOTAL NET ASSETS	33,818,128	32,307,402	(1,510,726)	5	23,542,007
TOTAL LIABILITIES AND NET ASSETS	134,870,348	132,322,278	(2,548,070)	2	124,650,902



San Benito Health Care District
Hazel Hawkins Memorial Hospital
MARCH 2024

Description	Target	MTD Actual	YTD Actual	YTD Target
Average Daily Census - Acute	16.54	16.58	15.11	18.18
Average Daily Census - SNF	89.99	84.39	91.83	90.00
Acute Length of Stay	2.88	2.76	2.96	2.97
ER Visits:				
Inpatient	170	140	1,076	1,479
Outpatient	1,926	2,099	18,470	17,679
Total	2,096	2,239	19,546	19,158
Days in Accounts Receivable	45.0	53.9	53.9	45.0
Productive Full-Time Equivalents	500.90	515.70	483.18	500.90
Net Patient Revenue	11,443,977	12,450,688	108,162,008	101,671,726
Payment-to-Charge Ratio	31.1%	32.9%	32.7%	31.5%
Medicare Traditional Payor Mix	30.18%	28.96%	27.10%	30.36%
Commercial Payor Mix	21.75%	21.78%	23.10%	21.51%
Bad Debt % of Gross Revenue	1.12%	0.70%	1.80%	1.12%
EBIDA	168,952	1,769,445	12,643,467	2,810,935
EBIDA %	1.40%	13.45%	11.15%	2.63%
Operating Margin	-3.17%	9.16%	6.60%	-2.06%
Salaries, Wages, Registry & Benefits %: by Net Operating Revenue	62.49%	56.18%	56.26%	61.63%
by Total Operating Expense	60.57%	61.85%	60.23%	60.39%
Bond Covenants:				
Debt Service Ratio	1.25	8.93	8.93	1.25
Current Ratio	1.50	2.14	2.14	1.50
Days Cash on hand	30.00	46.87	46.87	30.00
Met or Exceeded Target				
Within 10% of Target				
Not Within 10%				

Statement of Cash Flows
Hazel Hawkins Memorial Hospital
Hollister, CA
Three months ending March 31, 2024

	CASH FLOW		COMMENTS
	Current Month 3/31/2024	Current Year-To-Date 3/31/2024	
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net Income (Loss)	\$1,522,945	\$10,347,594	
Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:			
Depreciation	334,983	3,046,205	
(Increase)/Decrease in Net Patient Accounts Receivable	510,876	(1,934,020)	
(Increase)/Decrease in Other Receivables	(1,417,565)	(6,380,493)	
(Increase)/Decrease in Inventories	9,976	29,263	
(Increase)/Decrease in Pre-Paid Expenses	120,181	277,759	
(Increase)/Decrease in Due From Third Parties	0	806,555	
Increase/(Decrease) in Accounts Payable	(360,029)	574,599	
Increase/(Decrease) in Notes and Loans Payable	0	0	
Increase/(Decrease) in Accrued Payroll and Benefits	(768,260)	536,608	
Increase/(Decrease) in Accrued Expenses	7,463	9,487	
Increase/(Decrease) in Patient Refunds Payable	0	348	
Increase/(Decrease) in Third Party Advances/Liabilities	3,584,588	1,250,927	
Increase/(Decrease) in Other Current Liabilities	88,838	(625,124)	Semi-Annual Interest - 2021 Insured Revenue Bonds
Net Cash Provided by Operating Activities:	2,111,051	(2,407,886)	
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of Property, Plant and Equipment	(129,692)	(878,083)	
(Increase)/Decrease in Limited Use Cash and Investments	0	0	
(Increase)/Decrease in Other Limited Use Assets	1,405,295	(1,404,569)	Bond Principal & Int Payment - 2014 & 2021 Bonds
(Increase)/Decrease in Other Assets	6,071	54,639	Amortization
Net Cash Used by Investing Activities	1,281,674	(2,228,013)	
CASH FLOWS FROM FINANCING ACTIVITIES:			
Increase/(Decrease) in Capital Lease Debt	(6,735)	(66,842)	
Increase/(Decrease) in Bond Mortgage Debt	(1,508,520)	(1,736,680)	Refinancing of 2013 Bonds with 2021 Bonds
Increase/(Decrease) in Other Long Term Liabilities	0	0	
Net Cash Used for Financing Activities	(1,515,255)	(1,803,522)	
(INCREASE)/DECREASE IN RESTRICTED ASSETS	0	41,000	
Net Increase/(Decrease) in Cash	3,400,415	3,949,173	
Cash, Beginning of Period	14,198,154	13,649,396	
Cash, End of Period	\$17,598,569	\$17,598,569	\$0

\$375,451

Cost per day to run the District
Operational Days Cash on Hand

46.87

Hazel Hawkins Memorial Hospital
 Bad Debt Expense
 For the Year Ending June 30, 2024

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Budgeted Gross Revenue	38,236,593	38,468,812	35,049,053	34,999,737	35,870,267	36,385,781	34,851,365	32,060,010	36,752,432	35,946,200	39,112,090	38,876,681	436,609,021
Budgeted Bad Debt Expense	429,889	432,423	393,214	391,626	402,993	407,930	389,870	358,975	412,378	403,932	440,170	438,441	4,901,841
BD Exp as a percent of Gross Revenue	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.12%	1.13%	1.13%	1.12%
Actual Gross Revenue	34,381,757	36,309,479	36,251,934	37,061,367	36,004,686	37,198,238	37,873,381	36,232,889	37,559,748	-	-	-	328,873,479
Actual Bad Debt Expense	712,509	663,649	543,514	751,015	695,471	428,999	776,991	1,086,296	265,776	-	-	-	5,924,220
BD Exp as a percent of Gross Revenue	2.07%	1.83%	1.50%	2.03%	1.93%	1.15%	2.05%	3.0%	0.7%	#DIV/0!	#DIV/0!	#DIV/0!	1.80%
Budgeted YTD BD Exp	3,619,298	1.12%											337,973
Actual YTD BD Exp	5,924,220	1.80%											350,230
Amount under (over) budget	(2,304,922)	-0.68%											(12,257)
Prior Year percent of Gross Revenue	1.15%												0.11%
Percent of Decrease (Inc) from Prior Year	-56.6%												

YTD Charity Exp Budget
 YTD Charity Exp Actual
 Amt under (over) budget
 Charity Exp % of Gross Rev

Hazel Hawkins Memorial Hospital
Supplemental Payment Programs
As of March 31, 2024

Payor	FY 2024	FY 2023	Notes:
Intergovernmental Transfer Programs:			
- AB 113 Non-Designated Public Hospital (NDPH)	-	-	
- SFY 2021/2022 True up for ACA	-	170,899	Received in June 2023.
- SFY 2022/2023 Interim	-	418,640	Letter to participate sent by March 24, 2023 deadline. Rec'd 06/15/23.
- SFY 2022/2023 Final Payment	-	-	
- SFY 2023/2024 Interim	434,472	-	IGT by May 4, 2024 of \$506,883.51, funds expected in May/June.
- SB 239 Hospital Quality Assurance Fund (HQAF) CY 2022	2,405,548	2,277,244	Net amount rec'd on November 1, 2023 check for CY 2022.
- SB 239 Hospital Quality Assurance Fund (HQAF) CY 2023	2,432,278	-	IGT by March 22, 2024 of \$1,257,738, funds expected in May/June.
- Rate Range Jan. 1, 2022 through Dec. 31, 2022	910,699	-	IGT by Feb. 23, 2024 of \$472,508, funds expected in April/May.
- Rate Range Jan. 1, 2021 through Dec. 31, 2021	-	1,180,145	Funding of \$347,021 sent by 02/17/2023. Rec'd in May 2023.
- QIP PY 5 Settlement	3,459,757	-	IGT by Feb. 16, 2024 of \$1,891,350.65, funds expected in April/May.
- QIP PY 4 1st Loan Repayment	(1,253,000)	-	Paid on 02/26/2024.
- QIP PY 4 2nd Loan Repayment	(1,222,438)	-	Paid on 04/08/2024.
- QIP PY 4 Settlement	-	3,713,527	\$ 1,044,187 funding sent by 02/17/2023. Plan returns May/June 2023.
- QIP PY 4 Final True-up	-	1,245,805	Final True-up payment received on 06/02/2023.
IGT sub-total	7,167,316	9,006,259	
Non-Intergovernmental Transfer Programs:			
- AB 915	4,143,717	3,029,540	Direct Payments. Received on March 11, 2024.
- SB 239 Hospital Quality Assurance Fund (HQAF)	3,208,731	3,919,883	Three of the four Qtrly payments should be received by June 30, 2024.
- SB 239 Hospital Quality Assurance Fund (HQAF)	1,069,577	-	1st quarter rec'd on March 19, 2024.
- Distinct Part, Nursing Facility (DP/NF)	-	-	Based on actual cost difference.
- Medi-Cal Disproportionate Share (DSH)	1,297,140	1,048,233	Includes FY 2023 true-up \$607,644 and Jul - December FY 2024.
- QIP PY 5	-	3,090,086	Loan funds received 1st week of January. Due January 3, 2025.
Non-IGT sub-total	9,719,166	11,087,742	
CARES Act (COVID-19) Programs:			
- CARES Act Phase 4	-	-	Rec'd 12/16/2021. One-time funding.
- American Rescue Plan (ARP)	-	-	Rec'd 11/23/2021. One-time funding.
- SHIP Grant	-	258,376	Will be used for COVID expenses.
- Payroll Tax delay Pay dates 4/3 - 12/31/2020	-	(1,143,961)	Liability: 50% due 12/31/21 & 50% due 12/31/22.
sub-total	-	(885,585)	
Program Grand Totals	16,886,482	19,208,416	
Total Received	8,915,983	18,075,133	
Total Pending	7,970,499	1,133,283	
	16,886,482	19,208,416	

FF

TELEMETRY SERVICES AGREEMENT

THIS TELEMETRY SERVICES AGREEMENT (this "**Agreement**") is made and entered into between San Benito Health Care District, a local health care district organized and operating pursuant to Division 23 of California Health and Safety Code ("SBHCD"), owner and operator of Hazel Hawkins Memorial Hospital ("**Hospital**"), and **Hicuity Health, Inc.**, a Delaware corporation ("**HHI**"). Hospital and HHI are sometimes referred to in this Agreement as "**Party**" or "**Parties**". The "Effective Date" of this Agreement shall be the date of the last signature below.

RECITALS:

- A. Hospital owns and operates a hospital facility located at 911 Sunset Drive, Hollister, CA 95023, in which it has established or will establish telemetry care units (each a "**Unit**") that require telemetry monitoring by telemetry technicians.
- B. HHI provides patient telemetry monitoring for clients of HHI.
- C. Hospital desires to arrange with HHI for telemetry technicians to provide remote telemetry monitoring of patients in a Unit at Hospital, subject to and in accordance with the terms and conditions hereafter provided.

AGREEMENT:

NOW, THEREFORE, in consideration of the recitals and the mutual covenants and agreements contained herein, the parties agree as follows:

ARTICLE I - REMOTE MONITORING AND OTHER SERVICES

1.1 HHI Services. HHI will provide the services described in this Section 1.1 (such services are collectively referred to as the "**HHI Services**").

(a) The "**Remote Telemetry Services**" means monitoring of telemetry messages sent from the patient monitor to the central station at the Hospital and remotely replicated at the HHI operations center, by telemetry technicians specifically trained in telemetry monitoring; interpretation of heart rhythms and other ancillary measurements; reporting and documentation of such monitoring of the patient; and communication with the local clinical staff at the Unit regarding telemetry messages. Prior to the commencement of services and within 30 days after execution of this Agreement, the parties shall meet to (i) cooperatively develop and define workflows, policies and procedures to facilitate the Remote Telemetry Services, (ii) provide a detailed statement of roles and responsibilities of Hospital and HHI staff, and (iii) discuss reporting obligations. During the term of this Agreement, HHI shall: (i) staff the Remote Telemetry Services with telemetry technicians that are exclusively dedicated to remote telemetry monitoring and have passed the EKG Technician Certification, (ii) staff the Remote Telemetry services in a manner adequate to ensure timely communication with Hospital, and (iii) provide its services in accordance with all applicable federal, state and local laws and regulations, prevailing professional standards in the community and the standards of any applicable accrediting or certifying body.

(b) Beginning on the Actual Launch Date (as hereafter defined), HHI shall arrange for telemetry technicians to perform the Remote Telemetry Services by remotely monitoring adult patients in Six (6) telemetry beds in the Units ("**Telemetry Beds**") using designated remote telemetry technology. Shall Hospital request Remote Telemetry Services on pediatric patients, the parties will enter into an amended Agreement. The Remote Telemetry Services shall be provided for twenty-four (24) hours per day, seven (7) days a week, except during periods of downtime due to scheduled or emergency maintenance or events such as natural disaster and other circumstances beyond the reasonable control of HHI. HHI will use best efforts to provide advance notice of scheduled downtime of the HHI Services hereunder. For purposes of this Agreement, the term "**Actual Launch Date**" means the date on which HHI's telemetry technicians first begin remote monitoring of patients in the Unit.

(c) HHI will provide Hospital with periodic reports during the term of this Agreement. The parties will collaboratively develop the content and reporting frequency of these reports.

(d) HHI will collaborate with Unit clinical staff to integrate the Remote Telemetry Services with the Hospital's existing clinical workflows.

(e) HHI does not warrant the accuracy of the information entered into, contained in or derived from equipment used by Hospital in the Remote Telemetry Services. Hospital acknowledges that the professional duty to the patient in providing health care services lies solely with the health care professionals providing patient care services. The clinical and other information contained in or derived from the Remote Telemetry Services is intended as a supplement to, and not a substitute for, the knowledge, expertise, skill, and judgment of physicians, nurses, pharmacists, or other health care professionals involved in patient care at the Hospital. HHI assumes no responsibility for actions of Hospital personnel which may result in any liability or damages due to malpractice, failure to warn, negligence or any other basis. Hospital likewise assumes no responsibility for actions of HHI personnel which may result in any liability or damages due to malpractice, failure to warn, negligence or any other basis.

(f) HHI shall own and be responsible for providing the KVM transmitter(s) and gateways to transmit data from the Hospital's patient monitoring system to HHI, as deemed necessary by HHI, and which will be located at the Hospital.

1.2 **Implementation Plan and Proposed Launch Date.** Within 30 days following execution of this Agreement, HHI and Hospital shall develop an implementation plan ("**Implementation Plan**") enabling the parties to fulfill their respective obligations. The final Implementation Plan will set forth resources, roles and responsibilities of the parties. The parties shall use all reasonable efforts to develop, comply with and abide by the Implementation Plan and timely execute their respective responsibilities. The Implementation Plan will set forth a "**Proposed Launch Date**", which is the expected date HHI's telemetry technicians begin monitoring of the Unit. The Proposed Launch Date shall be one hundred twenty (120) days from the Effective Date of this Agreement and is subject to modification only upon written agreement of the parties.

1.3 **Hospital Operational Obligations.** Hospital shall purchase, install and maintain, at its own cost, the required equipment and any additional hardware, software and connectivity as may be necessary to provide patient telemetry information to enable the delivery of the HHI Services. Furthermore, Hospital shall coordinate with any of its third-party vendors, including but not limited to telecommunications, hardware and software vendors, to support the Services on an ongoing basis and to facilitate the Implementation Plan and timelines as outlined in Section 1.3.

(a) **Equipment, Hardware and Software.** Hospital shall secure, equip, furnish and maintain, at its own cost, the Unit and Telemetry Beds so that HHI may provide the HHI Services contemplated herein. Hospital's costs and responsibilities for equipment include, but are not limited to, the following: (i) the initial costs associated with the purchase and installation of equipment, hardware and software to deliver telemetry messages used in the Remote Telemetry Services; (ii) any related third party software and components, including industry-acceptable technology security measures; and (iii) the ongoing operating costs, including: purchasing and installing third party software updates and upgrades; maintaining updated security applications; and arranging for local IT support of Hospital-owned equipment, hardware and software to deliver telemetry messages used for the Remote Telemetry Service. Prior to Hospital changing, upgrading or modifying its equipment used in the Remote Telemetry Services, Hospital must provide HHI with as much as possible, and at least 90 days', advanced notice of, any such change, upgrade or modification. If such change, upgrade or modification requires HHI to change, upgrade or modify its equipment in order to provide the Remote Telemetry Services, the parties will discuss and agree on responsibility for any such required expenses prior to Hospital proceeding with any equipment change, upgrade or modification. Hospital shall also assist HHI with the installation of the KVM transmitter.

(b) **Connectivity.** The parties will work together to arrange network connection through at least one MPLS (Multiprotocol Label Switching) or point-to-point connection to provide the Remote Telemetry Services, although Hospital acknowledges that HHI recommends two redundant and diverse connections that would be used as a primary and backup network connection for the Remote Telemetry Services. Should the Hospital desire to obtain and manage the network connections between Hospital and HHI's operations, such fees will be the responsibility of the Hospital. Hospital shall make its IT support team available 24/7 to HHI to help troubleshoot connectivity matters. Hospital shall also place a dedicated router, specified by HHI, on the network circuits for purposes of HHI managing the router and facilitating the troubleshooting process. If Hospital and HHI agree that HHI shall obtain and manage the network connections between Hospital and HHI's operations, then Hospital shall pay HHI in accordance with paragraph B.2(c) of **Exhibit B** for such services. Hospital and HHI will test the connection initially during the implementation period and on an ongoing basis during the term of this Agreement. If either party determines for any reason that the connection does not adequately address the needs of the Remote Telemetry Services, then the party making the determination shall notify the other party, in writing, of its determination. Within the forty-five (45) day period following the giving of such notice (or sooner if reasonably practicable), Hospital will implement an alternative connection between Hospital and HHI's operations center to assure HHI will be able to provide the Remote Telemetry Services as anticipated herein.

(c) Required Data. Hospital will provide (i) an ADT interface filtered to contain only data for patients with a telemetry order for the Remote Telemetry Services, and (ii) Alarm and Waveform data, which may be acquired via interface or a gateway, to HHI. Alternatively, the aforementioned ADT interface may be satisfied via an Order interface. The Parties will work together to implement and test the data integrations prior to commencement of HHI Services.

(d) Acknowledgment of Redundancy Recommendation. Hospital acknowledges and agrees HHI recommends two redundant and diverse MPLS network connections as described in Section 1.3(b) above. Should Hospital choose not to use the two redundant and diverse network connections, Hospital understands and agrees HHI disclaims any warranties related to the connectivity issues and limits its liability as further detailed in Section 1.3(d) below. Hospital also understands and agrees that should it choose not to use the two redundant and diverse network connections, the Remote Telemetry Services will be unavailable during scheduled and unscheduled downtimes.

(e) DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY. SHOULD HOSPITAL CHOOSE NOT TO ARRANGE A REDUNDANT NETWORK CONNECTIVITY METHOD:

(i) HHI MAKES NO WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, A WARRANTY THAT THE OPERATION OR USE OF THE TELEMETRY NETWORK CONNECTIVITY EQUIPMENT WILL BE UNINTERRUPTED OR ERROR FREE, AND EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR IMPLIED WARRANTY OF NON-INFRINGEMENT.

(ii) HHI STATES THE TOTAL LIABILITY, IF ANY OF HHI, FOR ALL DAMAGES AND BASED ON ALL CLAIMS, WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY, OR TORT, OR OTHERWISE, ARISING FROM THE TELEMETRY NETWORK CONNECTIVITY EQUIPMENT OR ANY PART THEREOF SHALL NOT EXCEED THE UPFRONT FEE FOR TELEMETRY SERVICES CHARGED PURSUANT TO EXHIBIT B SECTION B.1 OF THIS AGREEMENT. IN NO EVENT SHALL HHI BE LIABLE FOR ANY INDIRECT, PUNITIVE, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES, OR PROFITS, BUSINESS INTERRUPTION, LOSS OF DATA, OR THE COST OF SUBSTITUTE PRODUCTS WHETHER ARISING FROM BREACH OF CONTRACT, BREACH OF WARRANTY, NEGLIGENCE, INDEMNITY, STRICT LIABILITY OR OTHER TORT.

(f) Electronic Medical Record.

(i) No Access Required. HHI's telemetry technicians will not access Hospital's electronic medical record system. Hospital staff is responsible for all documentation in the patient medical record.

(ii) Timely Reports. During the term of this Agreement, Hospital staff shall prepare on a timely basis, in accordance with all applicable policies, complete and accurate medical and other records, reports, and supporting documents with respect to the patients in the Unit.

(iii) Ownership. The ownership and right of control of all reports, records, medical records and supporting documents prepared in connection with the HHI Services provided hereunder shall rest exclusively in Hospital; provided, however, HHI shall have the right to access such reports, records and supporting documentation as shall be permitted by law. Upon the expiration or termination of this Agreement for any reason, Hospital shall permit HHI and its employees or agents reasonable access to such records during business hours for any purpose, including to comply with applicable law or compulsory legal process, or to assert any right or defend against any claims or actions. The provisions of this Section 1.3(e)(iii) shall survive termination of this Agreement for any reason.

(g) Additional Obligations. During the term of this Agreement, Hospital shall: (i) staff the Unit in a manner adequate to ensure timely communication with HHI and timely care to patients; (ii) maintain back up procedures which shall allow for continuity of patient care should there be any technology disruptions that prohibit the delivery of Remote Telemetry Services; and (iii) provide its services in accordance with all applicable federal, state and local laws and regulations, prevailing professional standards in the community, and the standards of any applicable accrediting or certifying body.

ARTICLE II - COMPENSATION

2.1 Fees. Hospital agrees to pay HHI for HHI Services provided under this Agreement as set forth on Exhibit B attached hereto.

2.2 Implementation Delays. If the Actual Launch Date is materially delayed by Hospital, or any of Hospital's third-party vendors, beyond the Proposed Launch Date, or as otherwise mutually agreed to in writing, then HHI reserves the right to initiate charging the expected service fees set forth in Exhibit B at the Proposed Launch Date milestone date or any other date agreed upon in writing by as set forth in Section 1.2 for such Hospital. Such service fee shall be based on the lesser of expected Patient Days as provided to HHI by Hospital, or 70% average daily occupancy of each Telemetry Bed.

2.2 Invoices. HHI shall submit monthly invoices to Hospital, who shall pay each invoice within thirty (30) days after receipt thereof. In the event Hospital has a bona fide good faith dispute related to an invoiced amount, Hospital shall notify HHI within thirty (30) calendar days of receipt of the disputed invoice and shall pay the remaining balance of the undisputed invoiced amount in accordance with this Section. The parties shall work diligently and in good faith to resolve any disputed invoiced amounts within thirty (30) days of notice of a dispute.

2.3 Interest Charge. Interest charges at one and one-half percent (1.5%) per month, or the maximum rate permitted by applicable law if less, may be charged on undisputed invoiced amounts past due.

ARTICLE III - INSURANCE AND INDEMNIFICATION

3.1 HHI General Liability Insurance. HHI shall maintain comprehensive general liability insurance covering itself and its employees and agents providing services pursuant to this Agreement in the minimum amounts of one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) in the annual aggregate. Upon request, HHI will provide Hospital certificate(s) of insurance evidencing said coverage.

3.2 Professional Liability Insurance. HHI shall maintain professional liability coverage for the HHI Services provided under this Agreement in the amount of not less than one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) in the annual aggregate. If HHI is unable to obtain occurrence-based coverage, HHI shall, in its sole determination, obtain appropriate tail coverage. Upon request, HHI will provide Hospital certificate(s) of insurance evidencing said coverage.

3.3 Internet and Network Security Insurance. HHI will maintain privacy, Internet and network security insurance covering itself and its employees and agents providing services pursuant to this Agreement in the minimum amounts of three million dollars (\$3,000,000) per occurrence and in the annual aggregate. Upon request, HHI will provide Hospital certificate(s) of insurance evidencing said coverage.

3.4 Hospital Insurance. Hospital shall maintain general and professional liability insurance coverage in amounts of not less than one million dollars (\$1,000,000) per occurrence and two million dollars (\$2,000,000) in the annual aggregate. Hospital shall also maintain privacy, Internet and network security insurance covering itself and its employees and agents providing services pursuant to this Agreement in the minimum amounts of three million dollars (\$3,000,000) per occurrence and in the annual aggregate. Upon request, Hospital will provide HHI certificate(s) of insurance evidencing said coverage.

3.5 Indemnification by Hospital. Hospital agrees to indemnify and hold HHI harmless from and against any and all claims, causes of action, liabilities, damages and expenses, including reasonable attorneys' fees and court costs, brought against or suffered or incurred by HHI, arising out of or resulting from any negligent or wrongful act or omission of Hospital or its agents or employees or the failure of Hospital to perform its duties and obligations under this Agreement. This Section 3.5 survives the termination of this Agreement for any reason.

3.6 Indemnification by HHI. HHI agrees to indemnify and hold Hospital harmless from and against any and all claims, causes of action, liabilities, damages and expenses, including reasonable attorneys' fees and court costs, brought against or suffered or incurred by Hospital, arising out of or resulting from any negligent or wrongful act or omission of HHI or its agents or employees or the failure of HHI to perform its duties and obligations under this Agreement. This Section 3.6 survives the termination of this Agreement for any reason.

ARTICLE IV - TERM AND TERMINATION

4.1 Term and Renewal. The term of this Agreement will begin on the date first signed below and continues for a three (3) year period immediately following the Actual Launch Date. The Agreement will automatically renew on the same terms and conditions for successive one (1) year periods thereafter unless this Agreement is sooner terminated as provided within this Agreement or a party gives written notice of non-renewal to the other at least one hundred eighty (180) days prior to the expiration of the then current term.

4.2 Other Termination. This Agreement may be terminated upon written notice:

(a) by HHI if Hospital does not implement the stated number of Telemetry Beds as detailed (or within the timeframe indicated) in Section 1.1(b) and 1.2; or

(b) by the non-defaulting party if another party defaults in the performance of any material obligation under this Agreement and such default is not cured within thirty (30) days after written notice of such default (unless a longer cure period is permitted in writing by the non-defaulting party); or

(c) by a party if another party applies for or consents to the appointment of a receiver, trustee or liquidator of itself for all of or a substantial part of its assets, files a voluntary petition of bankruptcy or admits in writing its inability to pay its debts as they become due, makes a general assignment for the benefit of its creditors, files a petition or answer seeking reorganization or arrangement with creditors or seeking the benefits of any insolvency law.; or

4.3 Effect of Termination.

(a) Within thirty (30) days following termination of this Agreement, each party shall return to the other party, such party's Confidential Information, or shall destroy such Confidential Information and certify in writing to the other party such destruction. Furthermore, any equipment provided by HHI shall be returned to HHI.

(b) Survival. Neither expiration, suspension nor termination of this Agreement shall terminate those obligations and rights of the parties pursuant to provisions of this Agreement which by their express terms are intended to survive and such provisions shall survive the expiration, suspension or termination of this Agreement. Without limiting the foregoing, the respective rights and obligations of the parties under Sections 1.3(e), 1.3(f)(iii), 3.5, 3.6, 4.3, Article II and V and Exhibit A shall survive the suspension, expiration or termination of this Agreement regardless of when such suspension, expiration or termination becomes effective.

ARTICLE V - MISCELLANEOUS

5.1 Independent Contractors. The parties acknowledge that HHI is an independent contractor and nothing in this Agreement is intended, nor shall be construed to create, an employer-employee relationship, a joint venture relationship, an agency relationship or landlord tenant relationship between the parties.

5.2 Governmental Access. Pursuant to 42 U.S.C. Section 1395x(v)(1)(I) and 42 C.F.R. Sections 420.300-420.304, the parties agree to comply with the following.

(a) HHI shall, until the expiration of seven (7) years after the furnishing of the services pursuant to this Agreement, retain and make available, upon written request by the Secretary of the U.S. Department of Health and Human Services, or upon written request by the U.S. Comptroller General, or any of their duly authorized representatives, this Agreement and any books, documents and records of HHI that are necessary to verify the nature and extent of the costs of the services under this Agreement.

(b) If HHI carries out any of the duties of this Agreement through a subcontract with a value or cost of ten thousand dollars (\$10,000) or more over a twelve (12) month period with a related organization, such subcontract shall contain a clause to the effect that the related organization shall abide by the same circumstances as detailed in section 5.2(a) above.

(c) In the event of a request for access, HHI agrees to notify Hospital immediately and to inform Hospital what response will be made to the request.

(d) This Section 5.2 survives the termination of this Agreement for whatever reason.

5.3 Notices. All notices, demands, requests or other communications which may be or are required to be given, served or sent by any party to any other party pursuant to this Agreement must be in writing and must be hand delivered, sent by recognized overnight delivery service, mailed by first-class, registered or certified mail, or sent by electronic mail to the addresses on the signature page of this Agreement or such other addresses as either party shall, in writing, inform the other in accordance with this Section 5.3. Each notice, demand, request, or communication that is delivered consistent with this Section 5.3 will be deemed sufficiently given or received for all purposes at such time as it is delivered to the addressee or at such time as delivery is refused by the addressee upon presentation.

5.4 Amendment. Except as otherwise provided herein, this Agreement may be amended only by mutual written agreement of the parties.

5.5 Entire Agreement. This Agreement, together with all exhibits and attachments, contains the entire agreement between the parties relating to the subject matter of this Agreement. Any prior agreements, promises, negotiations or representations relating to the subject matter of this Agreement not expressly set forth in this Agreement are of no further force or effect.

5.6 Governing Law. This Agreement will be interpreted, construed and enforced in accordance with the laws of the State of California, and shall be binding upon the parties hereto and their successors.

5.7 Third Party Beneficiaries. Unless otherwise set forth herein, nothing express or implied in this Agreement is intended to confer, nor shall anything in this Agreement confer, upon anyone other than Hospital, HHI, and their respective successors or assigns, any rights, remedies, obligations or liabilities whatsoever.

5.8 Cooperation. The parties will cooperate with each other to the fullest extent practicable in the execution of their obligations under this Agreement, and in obtaining all necessary licenses, consents and approvals. Upon the reasonable request of a party, the other party shall promptly provide any information relating to the services and obligations of the parties under this Agreement.

5.9 Confidentiality.

(a) Any information which a Party reasonably requests from another Party and which is necessary for the service contemplated in this Agreement shall be provided by the other party in a timely fashion and in a form reasonably specified. All information between the Parties shall be treated as "Confidential Information" unless otherwise identified.

(b) All Confidential Information provided by one party or its representatives or subcontractors (the "Disclosing Party") to the other party (the "Receiving Party"), whether in oral, written or other intangible or tangible media form or otherwise, or to which the Receiving Party acquires access during the term of this Agreement shall be treated with the same degree of care to protect the confidentiality of such information as the Receiving Party uses to protect the confidentiality of its own proprietary information (but in no event less than reasonable care) and shall only use it in respect of the proper operation of the transactions contemplated by this Agreement. All nonpublic information provided by a Party shall be treated as Confidential Information.

(c) The confidentiality obligations in this Section 5.9 shall continue for a period of three years (or such longer period as is required by applicable law) from the date of receipt but shall not apply to any of such information which: (i) is publicly available through no fault of the Receiving Party at any time during this Agreement; (ii) is already known by the Receiving Party prior to access; (iii) is independently developed by the Receiving Party; or (iv) is rightfully obtained by the Receiving Party from third parties without restriction.

(d) Each Party shall have the right to disclose Confidential Information to their respective affiliates, consultants, contractors and subcontractors as necessary to allow the Party to fulfill its obligations contemplated by this Agreement, subject to any such affiliates, consultants, contractors and subcontractors undertaking the same or reasonably similar confidentiality obligations as provided in this Section.

(e) HHI and Hospital shall each have the right to disclose Confidential Information referenced above if required by law, subpoena or governmental order, to the extent required by such law, provided that the Receiving Party shall promptly notify the Disclosing Party of such law, assert the confidentiality of such Confidential Information, and provide

the Disclosing Party with a reasonable opportunity to oppose such disclosure or obtain a protective order (including but not limited to “confidential treatment” pursuant to U.S. securities laws) reasonably satisfactory to the Receiving Party to maintain the confidentiality of such data, information or materials.

(f) The above confidentiality obligations shall not apply to Protected Health Information (as defined in the HIPAA Requirements; sometimes referred to hereafter as “PHI”), which shall be governed by the Business Associate Agreement attached hereto in Exhibit A.

(g) Notwithstanding any of the confidentiality obligations to the contrary within this Section, both parties may disclose this Agreement to an attorney, accountant, investor (current or potential), or other professional advisor for the limited purpose of reviewing this Agreement on behalf of the party, or to regulatory, licensure or accreditation body surveyors or other similar representatives who have a duty or right to review such agreements for accreditation or other clinically related purposes.

(h) Breach of Confidentiality Obligations. The parties acknowledge and agree that any breach of confidentiality pursuant to this Agreement will cause irreparable injury to the parties and therefore agree that the aggrieved party’s remedies for such breach shall include, in addition to damages and other available remedies, injunctive relief including but not limited to temporary restraining orders, preliminary injunctions and permanent injunctions, without the necessity of posting bond or security which is waived by the relevant party or a cure period.

5.10 Force Majeure. A Force Majeure event is defined as any failure of performance under this Agreement if such failure results, whether directly or indirectly, from fire, explosion, strike, freight embargo, act of God or of the public enemy, war, terrorist act, civil disturbance, act of any government – de jure or de facto, or any agency or official thereof, labor shortage, transportation contingencies, unusually severe weather, default of manufacturer or supplier as a subcontractor, quarantine restriction, epidemic, pandemic outbreaks of infectious disease or any other public health crisis, or other causes beyond the control of said party. Hospital provides its equipment, information systems, and is responsible for ensuring its patient care environment is available to and accessible by HHI (“Hospital Deliverables”), and HHI provides the Remote Monitoring Services within that patient care environment (“HHI Deliverables”), as both sets of deliverables are further detailed in this Agreement.

If a Force Majeure event prevents or delays Hospital – and not HHI – from providing Hospital deliverables for more than sixty (60) calendar days at any time during the term, then HHI shall have the right to a) terminate the affected portion of the Agreement or the entire Agreement as of the date specified by HHI in a written notice of termination to Hospital, or b) HHI shall have the right to extend the term of the Agreement for a period of time equal to the length of Hospital’s delay or inability to perform.

If a Force Majeure event prevents or delays HHI – and not Hospital – from providing HHI Deliverables for more than sixty (60) calendar days at any time during the term, then Hospital shall have the right to a) terminate the affected portion of the Agreement or the entire Agreement as of the date specified by Hospital in a written notice of termination to HHI, or b) Hospital shall have the right to extend the term of the Agreement for a period of time equal to the length of HHI’s delay or inability to perform.

If a Force Majeure event concurrently prevents or delays both parties from providing their respective deliverables for more than sixty (60) calendar days at any time during the term, then the term of the Agreement will extend for a period of time equal to the length of the delay or inability to perform and is subject to modification only upon written agreement of the parties.

5.11 Compliance with Laws. During the term of this Agreement, each party shall abide by and comply with all state and federal laws and regulations applicable to it in connection with its duties and responsibilities under this Agreement.

5.12 Use of Name. Except as otherwise provided in this Section 5.12, no party shall use any other party’s name, symbols, trademarks or service marks without the prior written consent of such other party, which consent will not be unreasonably withheld or delayed. Hospital agrees that HHI may identify Hospital on its client list, and each party agrees that the other party may use such party’s name to the extent reasonably necessary or appropriate for such party to provide its services and fulfill its duties under this Agreement.

5.13 Interpretation. The parties each acknowledge and represent that they: have negotiated this Agreement over a period of time; have read and fully understand the terms of this Agreement and the attached Exhibits; have consulted with

and have been advised by independent legal counsel and other advisors regarding the Agreement; and that the Agreement shall not be construed against any party.

5.14 Waiver. Except as otherwise provided herein, no term or provision hereof shall be deemed waived and no breach excused unless such waiver or consent shall be in writing and signed by the party claimed to have waived or consented. Any consent by any party to, or waiver of, a breach by the other, whether expressed or implied, shall not constitute consent to, waiver of, or excuse for any other different or subsequent breach.

5.15 Severability. If a court or other tribunal of competent jurisdiction holds any term or provision, or portion thereof, of this Agreement to be invalid, void or unenforceable, the remaining provisions of the Agreement shall remain in full force and effect. It is the parties' intention that if a court or other tribunal holds any term or provision of this Agreement to be excessive in scope, such term or provision shall be adjusted rather than voided, if possible.

5.16 Delegation. HHI may delegate any of its obligations under this Agreement to any subcontractor(s). In such event, HHI will remain responsible to System for the work of such subcontractor and will ensure that such subcontractor be included within the provisions of the Business Associate Agreement attached as Exhibit A.

5.17 Assignment. This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns. No party to this Agreement shall assign this Agreement or any rights or obligations hereunder without first obtaining the written consent of the other parties. Any attempt to otherwise assign or transfer any of the rights, duties or obligations of any party to this Agreement in the absence of such consent will be void. Notwithstanding the foregoing, an assignment by any party of this Agreement in consequence of a consolidation or merger with another person, the formation of a subsidiary or any other transaction whereby all or substantially all of the property or assets of such party become the property or assets of another entity shall not be considered to be an assignment for the purposes of this Section 5.17.

5.18 Referrals. The parties acknowledge that none of the benefits granted to any party hereunder are conditioned on any requirement that any party make referrals or be in a position to make or influence referrals to, or otherwise generate business for, the other parties.

5.19 Representations and Warranties.

(a) Each of the parties represent and warrant to each of the other parties that:

- (i) it has the full right and legal authority to enter into and fully perform this Agreement in accordance with its terms;
- (ii) the persons signing this Agreement on behalf of the party has the power and authority to execute this Agreement on behalf of such party;
- (iii) this Agreement, when executed by all parties, will be a legal, valid and binding obligation enforceable against each party in accordance with its terms;
- (iv) the execution and delivery of this Agreement have been duly authorized by the party, and such execution and delivery and the performance by the party of its respective obligations hereunder, do not and will not violate or cause a breach of any other agreement or obligation to which the party is obligated or bound, and no approval or other action by any governmental authority or agency is required in connection herewith; and
- (v) in addition to being true as of the date first written above, each of the foregoing representations, warranties, and covenants shall be true at all times during the term hereof.

(b) Each of the representations, warranties and covenants set forth in Sections 5.19(a) above will be deemed to be material and to have been relied upon by the parties notwithstanding any investigation made by the parties.

5.20 HIPAA Requirements. HHI and Hospital shall comply with all laws applicable to their respective business concerning patient privacy and confidentiality. The parties have entered into the Business Associate Agreement in Exhibit A.

5.21 Employee Non-Solicitation. During the term of this Agreement and for one (1) year after the effective termination date of the Agreement, no party will solicit, directly or indirectly, a "Significant Employee" of any other party to this Agreement, without prior written approval of the chief executive officer of the employer of that Significant Employee. If a Significant Employee is hired (directly or indirectly) without prior written approval, then the hiring party will pay the other party (or parties) a sum equal to two (2) years of the Significant

Employee's salary. For purposes hereof, the term "Significant Employee" means any person employed by any party to this Agreement (including a party's affiliated professional corporations that employ a party's providers) in a professional, non-clerical and non-custodial position. This provision applies to any Significant Employee during the term of this agreement and for a 12-month period post-employment. This restriction shall not apply to any person employed by a party who seeks employment with the other party through media of general availability, such as newspapers or trade publication advertisements, internet listing or similar solicitations not targeted at specific employees, and to which individuals choose to respond.

5.22 Joint Commission Standard. HHI represents and warrants that the Services will be provided safely and effectively. In order to ensure compliance with this provision, HHI agrees to submit to an annual evaluation of the performance of the Services by means including, but not limited to, direct observation, audit of documentation, review of incident reports, review of periodic reports, collection of data, review of performance reports, review of staff and patient input, review of patient satisfaction studies, and/or review of results of risk management activities. Any such annual evaluation shall be conducted by Hospital upon reasonable advance written notice to HHI and shall be performed at the sole cost and expense of Hospital. The parties intend and agree that this provision and this Agreement are intended to comply with imposed Joint Commission Standard LD 04.03.09.

5.23 Dispute Resolution. In the event a dispute between the Parties arises out of or is related to this Agreement, the Parties shall make good faith efforts to settle the dispute by discussions prior to any other dispute resolution process. A Party shall provide notice of a dispute to the other Party and the Parties will assign the appropriate level of management who will initiate discussions to seek resolution of the dispute, consistent with the terms of this Agreement. Both Parties agree to make best efforts to reach a mutually agreeable resolution within a reasonable timeframe considering the nature of the dispute from the date of the original notice.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the dates set forth below.

"Hospital"
Hazel Hawkins Memorial Hospital

"HHI"
Hicuity Health, Inc.

By: _____

By: _____

Print Name: _____

Print Name: Andrea Clegg

Title: _____

Title: Chief Financial Officer

Date: _____

Date: _____

Address:

Address: One CityPlace Drive, Suite 570
St. Louis, MO 63141

Attention: _____

Attention: CFO

Fax: _____

Fax: N/A

Electronic Mail: _____

Electronic Mail: andrea.clegg@hicuityhealth.com

ATTACHMENTS:

Exhibit A – Business Associate Agreement

Exhibit B – Fees

Exhibit C – Clinical Roles, Responsibilities, and Metric Reporting

EXHIBIT A – BUSINESS ASSOCIATE AGREEMENT

EXHIBIT B – FEES

B.1 Upfront Fee. Hospital will pay an upfront fee of Five Thousand Dollars (\$5,000) for one (1) central station. Such upfront Fee shall be paid upon execution of the Agreement. Should Hospital add future additional central stations, HHI shall invoice in accordance with the above terms.

B.2 Service Fees.

(a) Beginning on the Actual Launch Date and during the term of this Agreement, Hospital shall pay HHI a rate of Twenty-Six Dollars (\$26.00) per Patient Day which HHI shall invoice to Hospital on a monthly basis. Such service fees shall be subject to a monthly minimum fee of Five Thousand Dollars (\$5,000).

A “Patient Day” shall be defined as a unique patient occupying a Telemetry Bed for some portion of a single day (12:00am EST to 11:59pm EST), no matter how much of the day that patient occupies the Telemetry Bed. For clarification, a Telemetry Bed occupied by two different patients in a single day constitutes two patient days – one for each unique patient occupying the Telemetry Bed.

(b) The foregoing fees in Section B.2(a) are subject to annual increase on each anniversary of the Actual Launch Date based on the percentage increase over the most recent 12 month period in the Consumer Price Index (the “Index”), United States City Average, for “All Urban Consumers”, published by the Bureau of Labor Statistics of the United States Department of Labor (or if the Index is no longer published or issued, any successor index).

(c) Network Connectivity. If Hospital elects for HHI to procure and manage the network connections supporting hardware between Hospital and HHI’s operations center, Hospital shall pay HHI actual cost incurred, plus an administrative fee of twenty percent (20%) of the actual cost incurred for the implementation of such network connection in accordance with Article I of this Agreement. In addition, Hospital agrees to pay actual cost plus an administrative fee of twenty percent (20%) of the actual cost per month for the duration of the initial contract period and any subsequent renewal term for maintenance and support of the above referenced network connections.

B.3 Taxes. All prices exclude taxes, duties, shipping and handling. Any applicable taxes shall be the responsibility of Hospital. In the access and use provided hereunder, no tangible personal property is being sold, transferred or delivered to Hospital.

EXHIBIT C – CLINICAL ROLES, RESPONSIBILITIES AND METRIC REPORTING

C.1 Metrics. During the term of this Agreement, the parties agree to work collaboratively to develop, monitor and report on specific clinical metrics, as may be possible.

C.2 Roles and Responsibilities of the Parties. The standard responsibilities of the telemetry service offering include:

- Baseline “strip” will be measured, annotated and sent to the Hospital one time per twelve hour shift per patient by HHI.
- Hospital is responsible for final strip interpretation and adding strips to the patient medical record as applicable.
- HHI will monitor cardiac waveforms and call on associated alarms as described in Exhibit D
- Hospital is responsible to answer HHI notifications and treat the patient as appropriate.
- Admit and discharge to monitoring stations will be the responsibility of the Hospital
- Silencing of alarms on the monitoring stations will be the responsibility of the Hospital
- The Parties’ operational and clinical teams will meet at least one time per week during the implementation phase and initial eight weeks of service once launched
- The Parties’ leadership teams will meet weekly during the implementation phase and monthly during the initial eight weeks of service
- The Parties agree to configure the Hospital monitoring central stations and other technology platforms to optimize the integrated workflows

Within 30 days following execution of this Agreement, the parties agree to cooperatively develop and define workflows, policies and procedures in advance of the Proposed Launch Date. It is anticipated that the parties will address the following:

- What is to be documented?
- When is something documented?
- Who documents it?
- Where is it documented?
- What is the protocol for contacting/alerting Hospital staff?
- How are “strips” documented and retained?
- What are downtime procedures?
- How is a patient admitted/discharged for Remote Telemetry Services?

EXHIBIT D – STANDARD ALARMS

Alarm/Alert	Who is called?
Lead(s) Off-No interpretable rhythm	1. Assigned Nurse 2. Charge Nurse 3. House Supervisor
No Signal	
Dead Battery	
Sustained Artifact/Inability to interpret rhythm > 2 min	
Low/Weak Battery	1. Patient Care Tech 2. Assigned Nurse 3. Charge Nurse 4. House Supervisor
Lead(s) Off-Interpretable rhythm	
Idioventricular Rhythm	1. Assigned Nurse 2. Charge Nurse 3. House Supervisor
Sustained VT	
VFib	
Asystole	
Rhythm Changes <u>which generate an alarm</u>	
Pause >2.5 sec	
Vtach (5 beats or more)	
High Limit >150 beats/min	
Low Limit <40 beats/min	
Vtach >100 beats/min	

Effect of Remote Cardiac Monitoring System Design on Response Time to Critical Arrhythmias

Noa Segall, PhD;

Jeffrey A. Joines, PhD;

Ron'Nisha D. Baldwin, BSN, MSN;

Diane Bresch, RN, BSN;

Lauren G. Coggins, RN, BA, BSc, BSN;

Suzanne Janzen, RN, BSN, MHS;

Jill R. Engel, DNP, ACNP, FNP, NEA-BC, FAANP;

Melanie C. Wright, PhD

Introduction: In many hospitals across the country, electrocardiograms of multiple at-risk patients are monitored remotely by telemetry monitor watchers in a central location. However, there is limited evidence regarding best practices for designing these cardiac monitoring systems to ensure prompt detection and response to life-threatening events. To identify factors that may affect monitoring efficiency, we simulated critical arrhythmias in inpatient units with different monitoring systems and compared their efficiency in communicating the arrhythmias to a first responder.

Methods: This was a multicenter cross-sectional in situ simulation study. Simulation participants were monitor watchers and first responders (usually nurses) in 2 inpatient units in each of 3 hospitals. Manipulated variables included: (1) number of communication nodes between monitor watchers and first responders; (2) central monitoring station location—on or off the patient care unit; (3) monitor watchers' workload; (4) nurses' workload; and (5) participants' experience.

Results: We performed 62 arrhythmia simulations to measure response times of monitor watchers and 128 arrhythmia simulations to measure response times in patient care units. We found that systems in which an intermediary between monitor watchers and nurses communicated critical events had faster response times to simulated arrhythmias than systems in which monitor watchers communicated directly with nurses. Responses were also faster in units colocated with central monitoring stations than in those located remotely. As the perceived workload of nurses increased, response latency also increased. Experience did not affect response times.

Conclusions: Although limited in our ability to isolate the effects of these factors from extraneous factors on central monitoring system efficiency, our study provides a roadmap for using in situ arrhythmia simulations to assess and improve monitoring performance.

(*Sim Healthcare* 17:112–119, 2022)

Key Words: Arrhythmia simulation, remote telemetry monitoring.

Every year more than 200,000 people are treated for in-hospital cardiac arrest in the United States.¹ Many of these patients have pulseless ventricular tachycardia (VT) or ventricular fibrillation (VF) and may be saved with timely treatment including cardioversion/defibrillation. The American Heart Association recommends defibrillation therapy within 2 minutes of recognizing a cardiac arrest. However, in 30% of patients, defibrillation is delayed more than 2 minutes from onset reducing their chances of survival to hospital discharge by half.²

Hospitals have implemented various solutions to ensure prompt detection and response to cardiac arrest and other critical patient events. Often, the electrocardiograms (ECGs)

of multiple at-risk patients are monitored remotely by telemetry monitor watchers in a central location (Fig. 1). Although professional organizations do their best to provide evidence-based guidelines for central telemetry monitoring,³ the standards are currently limited. Consequently, monitoring practices vary widely among hospitals, primarily driven by the available technologies, system constraints, and financial considerations. For example, continuous ECG telemetry monitoring can be implemented using local (on-unit) or remote (off-unit or even off-site) monitoring stations. Watchers may communicate a critical arrhythmia directly to the patient's nurse or through an intermediary such as a health unit clerk (HUC), and different communication technologies may be used for this purpose (eg, pagers, overhead speakers, landline and cell phones, or bidirectional voice communication badges). The watcher-to-patient ratio can also vary, with a single watcher monitoring between 16 and 72 patients at any given time.^{4–6}

The effect of these practices on monitoring efficiency, that is, how quickly critical arrhythmias are detected and responded to, is largely unknown because such arrhythmias are rare and difficult to observe in clinical settings. To some extent, however, we can extend findings from studies on vigilance in simulated task performance to monitor watchers' work. Extensive research on vigilance—our ability to discern signals (eg, critical cardiac arrhythmias) from noise (eg, artifacts) over prolonged

From the Department of Anesthesiology (N.S.), Duke University School of Medicine, Durham; Textile Engineering, Chemistry, and Science (J.A.J.), North Carolina State University, Raleigh; Duke University Health System (R.D.B., J.R.E.); Duke Office of Clinical Research (D.B.), Duke University School of Medicine, Durham, NC; Rush University College of Nursing (L.G.C.), Chicago, IL; Saint Alphonsus Regional Medical Center (S.J.), Boise; and College of Pharmacy (M.C.W.), Idaho State University, Pocatello, ID.

Correspondence to: Noa Segall, PhD, Department of Anesthesiology, Duke University School of Medicine, Box 3094, Durham, NC 27710 (e-mail: noa.segall@duke.edu).

Supported by the Agency for Healthcare Research and Quality (Grant Number R01HS023387). The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality. N.S., J.J., R.D.B., D.B., L.G.C., S.J., and M.C.W. are or were supported by this grant. The other authors declare no conflict of interest.

Copyright © 2021 Society for Simulation in Healthcare
DOI: 10.1097/SIH.0000000000000610



FIGURE 1. Central telemetry monitoring station.

periods—has demonstrated a decline in performance over time and identified factors that can affect this vigilance decrement. Among these are workload, false alarm rate, task duration, and environmental stressors such as noise.⁷ High workload, for example, was shown to decrease performance, specifically response times and some types of errors, in simulated air traffic control and baggage screening tasks.^{8–11} However, it is sometimes difficult to draw conclusions from performance in laboratory-based, simplified tasks to real-world performance,¹² where the consequences of poor performance may be catastrophic.

To study monitoring performance, we simulated cardiac arrhythmias in situ such that clinicians could not distinguish the simulated arrhythmia from an arrhythmia in a real patient.^{13–15} Arrhythmia simulations in patient care settings provide an opportunity to measure responses to critical cardiac events without compromising patient safety and with a degree of control that is not feasible when studying real events. These simulations allow us to capture the critical—but often overlooked—time from arrhythmia onset to recognition, as well as the subsequent time to reach the patient. To the extent that this latency from arrhythmia onset to treatment can be minimized, patients' odds of surviving cardiac arrest can be improved.

The goal of our research was to use simulation to identify determinants of efficient cardiac monitoring systems. To this end, we compared the process of communicating a critical arrhythmia to a first responder, usually the patient's nurse, in 6 inpatient units with different monitoring systems, to determine the system that yields the fastest response time. Response times were defined as the time lapse between the beginning of a simulated critical arrhythmia and a first responder's arrival in the patient's room.

We hypothesized that response times to simulated critical arrhythmias positively correlate with the number of communication nodes between monitor watchers and first responders. This hypothesis is in line with our previous research, in which we validated in situ simulated cardiac events as a tool for measuring arrhythmia recognition and response performance. In that study, response times were shorter for patients monitored by their unit nurses than for patients monitored by remote watchers.¹³ With respect to the other factors mentioned previously, we expected a faster response time when monitor watchers are located on the same unit as the monitored patient, rather than in a remote location. We based this hypothesis on qualitative research in which information timeliness and accuracy were perceived to be better when monitor watchers were colocated with

the nursing unit than when they were in a different unit or hospital.¹⁶ Based on our laboratory-based study on the effects of patient load on monitor watchers' response times to critical arrhythmias¹⁷ and on the vigilance research described previously,^{8–11} we also expected faster response times when the workload of monitor watchers and nurses is lighter. Finally, we hypothesized that more experienced clinicians and those who had previously participated in arrhythmia simulations would respond more quickly. (See Table 1 for a summary of study hypotheses.)

MATERIALS AND METHODS

Settings

This study involved 2 patient care units in each of 3 participating hospitals:

- A. A large academic hospital in North Carolina (general surgery and mixed units),
- B. A small community hospital in North Carolina (progressive care and medical/oncology units), and
- C. A medium-sized community hospital in Idaho (telemetry and medical/oncology units).

Each hospital had a central monitoring station that served all of its noncritical cardiac telemetry patients, including those in the selected patient care units. In the large academic hospital (A), the monitoring station was located in a dedicated “war room” that was distant from the units. If a patient on one of the units experienced a critical arrhythmia or other urgent monitoring-related event, monitor watchers typically called an emergency (red) phone on that unit, while for less urgent issues, watchers called a regular unit phone. An HUC sitting in the unit's reception area was assigned to respond to these calls and then relayed the information to the patient's nurse via a call to the nurse's mobile phone, an overhead page, or a phone call to the nursing station (Fig. 2, top). In the small community hospital (B), the monitoring station was in a small room colocated with the progressive care unit. In this hospital, nurses carried phones, which a monitor watcher could call to inform them about patient arrhythmias (Fig. 2, bottom). Finally, in the medium-sized community hospital (C), the monitoring station was located in the nursing station of the telemetry unit. Similar to the small community hospital, monitor watchers could call nurses to inform them of problems but, in urgent situations, were also often observed verbally calling out to any nearby nurse in the telemetry unit (Fig. 2, bottom). Monitor watchers at the

TABLE 1. Study Hypotheses

	Hypothesis	Dependent Variable(s)	Independent Variable
1.	Fewer communication nodes lead to shorter unit RTs.	Unit RT	No. communication nodes (2 or 3)
2a.	When patient units are colocated with central monitoring stations, monitor watcher RTs and unit RTs are shorter.	Monitor watcher RT Unit RT	Central monitoring station location (on or off patient care unit)
2b.	Monitor watchers who are monitoring fewer patients have shorter RTs.	Monitor watcher RT	No. patients monitored
2c.	Monitor watchers with a lower perceived workload have shorter RTs.	Monitor watcher RT	Perceived workload (low, medium, or high)
2d.	Nurses with a lower perceived workload have shorter RTs.	Unit RT	Perceived workload (low, medium, or high)
2e.	Participants with more clinical experience have shorter RTs.	Monitor watcher RT Unit RT	Clinical experience (<1 y or ≥1 y)
2f.	Participants who have been previously exposed to arrhythmia simulations have shorter RTs.	Monitor watcher RT Unit RT	Previous exposure to arrhythmia simulation (yes or no)

RT, response time.

medium-sized community hospital were assigned additional, nonmonitoring tasks and were replaced by other staff, for example, the telemetry unit charge nurse, when they stepped away from the monitoring station. In all 3 hospitals, when a critical arrhythmia occurred (eg, VF for more than 5 seconds), monitor watchers were expected to urgently call a code response team before or while calling the patient's nurse. In practice, however, most watchers refrained from "calling a code" and only called the patient's nurse. Table 2 summarizes the characteristics and monitoring systems for each unit in the 3 hospitals.

In Situ Arrhythmia Simulations

To test system response times to critical arrhythmias, we conducted in situ unannounced simulations of cardiac arrest at each hospital's central monitoring station and in the 6 patient care units. Shift lengths for monitor watchers, nurses, and HUCs in the 3 hospitals were typically 12 hours. Arrhythmia simulations were generally performed at least 30 minutes after the beginning of shifts, to allow time for participants to develop a vigilance decrement.¹⁸ Simulation participants were informed of the research and the simulation procedures but were not told when a simulation would occur. The study was approved by the institutional review board of each participating hospital for research involving the use of human subjects.

Central Monitoring Stations

To measure response times of monitor watchers, a research nurse connected an ECG rhythm simulator from a patient

room into the hospital's network such that the simulated signal appeared on the monitor watcher's display as a normal ECG would look for that patient. Using the simulator, the nurse mimicked the patient's baseline rhythm and then simulated a few premature ventricular contractions before initiating VT or VF (Fig. 3). During the simulation, the patient was monitored at the bedside by a nurse proficient in cardiac monitoring using a local monitor. Using a stopwatch, a confederate at the central monitoring station measured the time from the start of the simulated VT/VF until the monitor watcher called the nursing unit. If a call was not placed within 5 minutes, the simulation was stopped.

Patient Care Units

To measure response times in the nursing units, a confederate monitor watcher called the unit, that is, the HUC in the large academic hospital (A) or the patient's nurse in the small- and medium-sized community hospitals (B and C) and stated that a patient is in VT or VF. Using a stopwatch, we measured the time from the phone call until a first responder entered the patient's room. The response time was documented as 5 minutes if no clinician arrived in the patient's room within that timeframe, and the simulation was terminated.

After each arrhythmia simulation, a short debriefing was conducted with the participants—the monitor watcher, HUC, and/or first responder to the patient's room—to explain the study goals. They also completed a survey that asked for their

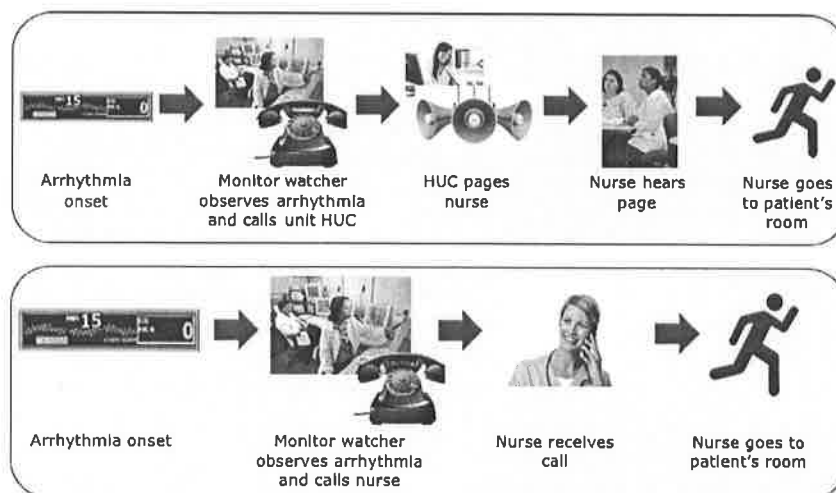


FIGURE 2. Response processes for a patient suffering a critical arrhythmia at the large academic hospital (A, top), small community hospital (B, bottom), and medium-sized community hospital (C, bottom).

Downloaded from http://journals.lww.com/simulationinhealthcare by 58.0156.175.001 on 04/15/2024

TABLE 3. Simulation Participant Characteristics

Site	Unit	No. Simulations	Clinical Experience, Percent of Participants With <1 y of Experience	Average Patient Load During Simulation, No. Patients for Whom the Participant Was Caring	Average Perceived Patient Load During Simulation; 1 = Low, 3 = High	Percent of Participants Who Had Previously Been Exposed to a Simulation	Percent of Participants Who Perceived the Simulation as a Real Event
Large academic hospital (A)	General surgery	20	13.3%	3.6	1.9	53.3%	93.3%
	Mixed	19	26.7%	4.2	1.9	26.7%	86.7%
	Central monitoring station	22	0%	28.1	2.5	81.8%	83.3%
Small community hospital (B)	Progressive care	24	6.3%	4.5	1.9	12.5%	93.3%
	Medicine/oncology	20	17.6%	4.2	2.4	29.4%	82.4%
	Central monitoring station	20	33.3%	27.8	2.2	94.7%	94.7%
Medium-sized community hospital (C)	Telemetry	21	11.1%	3.9	1.9	83.3%	89.5%
	Medicine/oncology	24	19%	4.5	2	68.1%	100%
	Central monitoring station	20	31.6%	33.3	2.3	73.7%	100%

characteristics are summarized in Table 3. Response times for the central monitoring stations in the 3 hospitals are presented in Figure 4. A nonparametric analysis of variance found these response times to be significantly different across hospitals ($P = 0.0162$, $h_p^2 = 0.157$), with post hoc tests showing that response times at the medium-sized community hospital (C) were shorter than at the small community hospital (B). Response times for the 6 patient care units, shown in Figure 5, are significantly different across units ($P = 0.0059$, $h_p^2 = 0.776$). Post hoc tests showed that response times in the medicine/oncology units in hospitals B and C were significantly longer than in the mixed, progressive care, and telemetry units and that the response times in the general surgery unit were significantly longer than in the progressive care unit.

Hypothesis 1: Fewer communication nodes lead to shorter unit response times.

Our primary hypothesis was that unit response times decrease as the number of communication nodes between monitor watchers and first responders decrease. However, based on

the linear mixed-effects model, while controlling for the random effects of unit, telemetry location, and hospital, this hypothesis was not supported. We found that response times were shorter in the large academic hospital (A) where monitor watchers called HUCs who then called unit nurses to report arrhythmias (mean = 39, SD = 40 seconds), compared with response times in the other hospitals (mean = 54, SD = 65 seconds) where monitor watchers called nurses directly (Fig. 5; $P = 0.035$, $h_p^2 = 0.8681$).

Hypothesis 2a: When patient units are colocated with central monitoring stations, monitor watcher response times and unit response times are shorter.

We also hypothesized that response times are shorter when monitor watchers are located on the same unit as the monitored patient, rather than in a remote location. Based on the linear mixed-effects model, while controlling for the random effects of unit and hospital, patient care unit response times were significantly affected by location ($P < 0.0047$, $h_p^2 = 0.04$), with shorter response times observed in units colocated with the monitoring

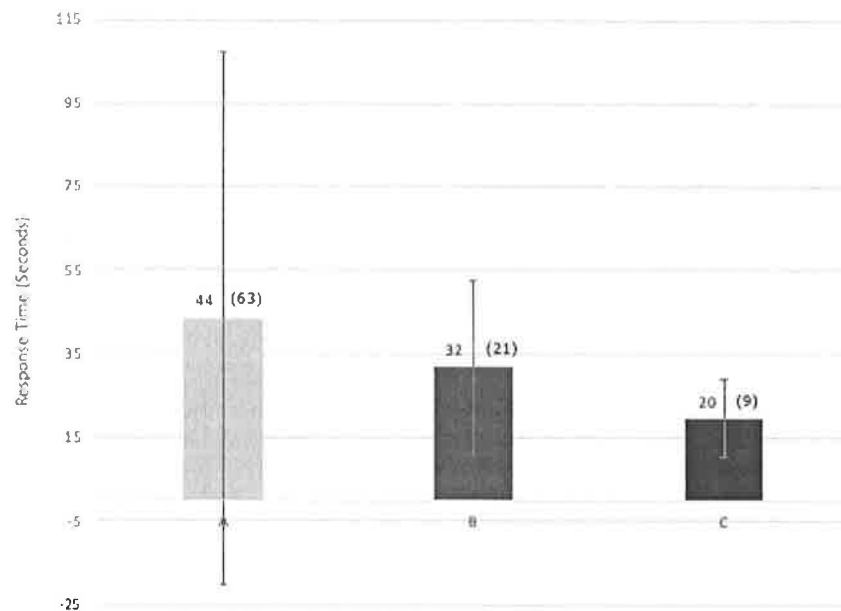


FIGURE 4. Central monitoring station response times to simulated arrhythmias (± 1 standard deviation) by hospital. A, Large academic hospital; B, small community hospital; C, medium-sized community hospital.

response time. Most likely, response times were driven by a combination of factors including HUC involvement, patient acuity, and additional factors that may distinguish the large academic hospital from the 2 community hospitals.

We also found that the location of the central monitoring station affected nurses' response times, with shorter response times in the 2 units colocated with the monitoring station rather than in remote locations. It is likely that monitor watchers' direct access to the nurses, and familiarity with them, contributed to the timeliness of communication. This setup is also perceived to improve communication accuracy and care coordination.¹⁶ However, several confounding factors may also have contributed to this finding. For example, in the hospitals that we studied, monitoring stations were located within units that accommodate patients with more severe cardiac problems. In these units, nurses may experience a heightened sense of urgency in responding to critical arrhythmias²⁰ and may be better trained to recognize and address them. These units were also smaller and capacity than their remote counterparts (Table 2).

Similarly, we hypothesized that monitor watcher response times are shorter when they are calling a nurse in their colocated unit, because of proximity, rather than a nurse in a remotely located unit. Contrary to our expectations, however, monitor watcher response times were not affected by proximity to the patient care units. Monitor watcher communication methods varied by unit and hospital. In the 2 community hospitals (B and C), they were expected to call the nurse assigned to the patient experiencing an arrhythmia. In practice, in units colocated with the central monitoring station, they often verbally called out to the patient's assigned nurse or any nearby nurse. This did not, however, significantly reduce monitor watcher average response times. Directly calling the patient's nurse (community hospitals B and C) required monitor watchers to locate the name of the assigned nurse, then the nurse's phone number (and sometimes the name and number of the patient's backup nurse or charge nurse, if the patient's nurse was unable to respond). This task did not consume more time on average than calling a unit's HUC, the practice for watchers in the large academic hospital (A), many of whom had memorized these numbers. However, because the community hospitals also included units colocated with the monitoring stations, average response times may have been shorter in part because of the common practice of verbally calling out to nearby nurses. Thus, we cannot rule out the possibility that monitor watcher response times were affected by the time to locate the assigned nurse's name and phone number.

Based on our previous study,¹⁷ we expected watchers who monitored a larger number of patients to have longer response times to arrhythmia alarms. Findings from the current study did not bear this out, in part because of missing data—of 62 arrhythmia simulations, monitor watchers only reported their patient load in 36 instances and their perceived workload in 41 instances. However, for nurses, as perceived workload increased, response latency also increased. This underscores the notion that workload is a function not only of the number of patients assigned to a clinician but also of the complexity of their care and other job responsibilities. One other confounding factor is that slower responders may have reported a higher workload to justify their longer response times.

A large majority of participants perceived the simulated arrhythmias to be real, and participants who had previously been exposed to an arrhythmia simulation responded as quickly as those for whom the simulation was a first experience. In addition, response times measured in this study are in line with those measured in other studies.^{13,17,20} These findings provide evidence for the construct validity of arrhythmia simulations for measuring real arrhythmia recognition and response performance. It bears mentioning, however, that in situ arrhythmia simulations are not a simple, risk-free tool for assessing monitoring performance. Careful planning and control are required to protect patient safety and the professional reputation of participating clinicians.

Our hypothesis that more experienced clinicians have shorter response times was not upheld. Contrary to our expectations and to the findings of a recent study of nurse response times,²⁰ we did not find that clinical experience affected response latency, possibly because of the relatively small sample of clinicians with less than 1 year of experience (28 of 151 survey responders).

This study has several limitations. First, as previously mentioned, an important limitation is the multiple and often unknown factors that may have contributed to the arrhythmia response times we observed. For example, we do not know the extent to which differences between hospitals, nursing units, and health system safety cultures contributed to differences in response times. We were not able to isolate and control for the effects of such extraneous factors. Second, in light of the large variability in response times (Figs. 4, 5), our study may have been underpowered to detect differences between monitoring practices. Response times varied quite a bit. On 5 occasions, when a nurse was already in the room of the patient for whom an arrhythmia was simulated, the response time was recorded as 0 seconds. To minimize disruption to patient care, we also stopped simulated arrhythmias that received no response within 5 minutes. This happened once with a monitor watcher and 4 times with nurses. Although this time limit was appropriate when clinicians did not plan to respond to the arrhythmia at all (eg, a monitor watcher who perceived the arrhythmia to be artifact, or a nurse who mistakenly thought she was already in the room of the patient for whom the arrhythmia was called), it may not have sufficed for scenarios where clinicians were busy or unavailable to respond immediately (although hospital protocols required them to call for help in these situations).

CONCLUSIONS

The practice of remote centralized cardiac monitoring is widespread,²¹ despite scant evidence to support its use.²² However, little is known about factors that contribute to or inhibit the performance of remote monitoring systems. In this study, we found that systems with an intermediary who acted between monitor watchers and nurses to communicate critical events were more efficient, that is, had shorter response times to simulated arrhythmias, than systems in which monitor watchers communicated directly with nurses. Responses were also faster in units colocated with the central monitoring stations than in those that were located remotely. The patient load of monitor watchers did not impact response times. However, as their perceived workload and nurses' perceived workload increased,

response latency also increased. Finally, response times were not affected by clinical experience or by previous exposure to arrhythmia simulations. Although limited in our ability to isolate the effects of these factors, our study provides initial insights into methods for improving central monitoring system efficiency. In addition, it provides a roadmap for using in situ arrhythmia simulations to assess and improve monitoring performance.

ACKNOWLEDGMENTS

The authors thank L. Kristin Newby, Michael Chrestensen, Tamara Mueller, Eric McClenny, Reid McCabe, Brandon King, Daniel Weikel, and the members of the Duke University Health System Cardiac Monitoring and Monitoring Oversight Committees for their support of this work.

REFERENCES

- Merchant RM, Yang L, Becker LB, et al. Incidence of treated cardiac arrest in hospitalized patients in the United States*. *Crit Care Med* 2011;39(11):2401–2406. doi:10.1097/CCM.0b013e3182257459.
- Chan PS, Krumholz HM, Nichol G, Nallamothu BK, American Heart Association National Registry of Cardiopulmonary Resuscitation Investigators. Delayed time to defibrillation after in-hospital cardiac arrest. *N Engl J Med* 2008;358(1):9–17. doi:10.1056/NEJMoa0706467.
- Sandau KE, Funk M, Auerbach A, et al. Update to practice standards for electrocardiographic monitoring in hospital settings: a scientific statement from the American Heart Association. *Circulation* 2017;136(19):e273–e344. doi:10.1161/CIR.0000000000000527.
- Reilly T, Humbrecht D. Fostering synergy: a nurse-managed remote telemetry model. *Crit Care Nurse* 2007;27(3):22–33.
- Thomas TL. Who's watching the cardiac monitor? Does it matter? *Nursing* 2011;41:8–10. doi:10.1097/01.NURSE.0000394519.21592.53.
- Bonzheim KA, Gebara RI, O'Hare BM, et al. Communication strategies and timeliness of response to life critical telemetry alarms. *Telemed J E Health* 2011;17(4):241–246. doi:10.1089/tmj.2010.0139.
- Mackie RR. Vigilance research—are we ready for countermeasures? *Hum Factors* 1987;29(6):707–723.
- Majumdar A, Ochieng W. The factors affecting air traffic controller workload: a multivariate analysis based upon simulation modelling of controller workload. *Transp Res Rec* 2002;1788:58–69.
- Bravo MJ, Farid H. Search for a category target in clutter. *Perception* 2004;33(6):643–652. doi:10.1068/p5244.
- Madhavan P, González C. Effects of sensitivity, criterion shifts, and subjective confidence on the development of automaticity in airline luggage screening. *Proc Hum Factors Ergon Soc Annu Meet* 2006;50:334–338. doi:10.1177/154193120605000326.
- Wolfe JM, Horowitz TS, Kenner NM. Rare items often missed in visual searches. *Nature* 2005;435(7041):439–440. doi:10.1038/435439a.
- Wickens CD, Rice S, Keller D, Hutchins S, Hughes J, Clayton K. False alerts in air traffic control conflict alerting system: is there a “cry wolf” effect? *Hum Factors* 2009;51(4):446–462. doi:10.1177/0018720809344720.
- Wright MC, Dorsey KW, DeLong R, et al. Simulation of cardiac arrhythmias in hospitalized patients to measure and improve response time. *Circulation* 2012;126:A320.
- Kobayashi L, Parchuri R, Gardiner FG, et al. Use of in situ simulation and human factors engineering to assess and improve emergency department clinical systems for timely telemetry-based detection of life-threatening arrhythmias. *BMJ Qual Saf* 2013;22(1):72–83. doi:10.1136/bmjqs-2012-001134.
- Segall N, Franklin R, Wright MC. Cardiac arrhythmia simulations for comparing remote telemetry monitoring systems. *Proc Int Symp Hum Factors Ergon Health Care* 2018;7(1):129–131. doi:10.1177/2327857918071033.
- Ardoin WJ, Hoyle WS, Bewaji O, et al. Real-time remote physiological monitoring: the role of communication in three paradigms of inpatient care. *Proc Hum Factors Ergon Soc Annu Meet* 2016;60(1):618–622. doi:10.1177/1541931213601141.
- Segall N, Hobbs G, Granger CB, et al. Patient load effects on response time to critical arrhythmias in cardiac telemetry: a randomized trial. *Crit Care Med* 2015;43(5):1036–1042. doi:10.1097/CCM.0000000000000923.
- Warm JS, Parasuraman R, Matthews G. Vigilance requires hard mental work and is stressful. 2008;50(3):433–441. doi:10.1518/001872008X312152
- Douglas CE, Michael FA. On distribution-free multiple comparisons in the one-way analysis of variance. *Commun Stat Theory Methods* 1991;20(1):127–139. doi:10.1080/03610929108830487.
- Bonafide CP, Localio AR, Holmes JH, et al. Video analysis of factors associated with response time to physiologic monitor alarms in a children's hospital. *JAMA Pediatr* 2017;171(6):524–531. doi:10.1001/jamapediatrics.2016.5123.
- Ruppel H, Funk M, Clark JT, et al. Attitudes and practices related to clinical alarms: a follow-up survey. *Am J Crit Care* 2018;27(2):114–123. doi:10.4037/ajcc2018185.
- Funk M, Parkosewich JA, Johnson CR, Stukshis I. Effect of dedicated monitor watchers on patients' outcomes. *Am J Crit Care* 1997;6(4):318–323.