UVMHealth.org/MedCenter

# Unit Staffing Collaborative Electrophysiology Laboratory -1427

12/16/2020





#### Unit/ Clinic USC Members

- Susan Calame
- Darlene Maxwell
- Patrick Weber
- Danny Williams
- Maureen Sullivan
- Greg Johnson
- Erin Blake
- Julie Eastman
- Heather Kinsey
- Maureen Frede
- Adam Gray
- Sarah Wood
- Patra Vail





#### Meeting Dates

- 9/14/2020
- 9/15/2020
- 9/23/2020
- 10/1/2020
- 10/21/2020
- 10/22/2020
- 12/16/2020
- 2/23/2021





#### Unit profile

- Unit profile and patient population
  - Provide treatment and care to patients (adolescences end of life) with cardiac arrhythmia, syncope, heart failure or risk of sudden death.
  - Procedures include:
    - Diagnostic Electrophysiology studies
    - Diagnostic infusion studies
    - Structural heart procedures- LAAO implantation
    - Cardiac ablation
    - Cardioversion
    - Implantation and follow-up of Cardiac rhythm management devices
      - Implantable Cardiac Defibrillators
      - Pacemakers
      - Leadless pacemakers
      - Cardiac resynchronization devices
      - Implantable loop recorders



#### Unit Profile

#### **Scope of Service**

- This EP lab runs two EP labs (device and ablation), ten hours per day, from 7:00 a.m. to 5:30 p.m., Monday through Friday.
- Frequently flex up to 3<sup>rd</sup> room for cardioversion case if OR is full this is staffed by the charge nurse, Nurse manager and/ or QA nurse- for short periods of time.
- Two staff are scheduled to be on-call every weekday afternoon to staff cases that run late.
- Responsible for inpatient/ED pacemaker and ICD interrogation and reprogramming
- EP nurses staff the Tilley Dr. device clinic (1 FTE)
- Perform outpatient loop recorder procedures 0.5 days per week in Echo lab.
- Quarterly pediatric pacemaker clinic
- QA / Quality and Registry (0.6 FTE)
- The department utilizes a modified block booking scheduling system.





#### Orientation/Certifications

- Orientation is the EP lab is 16 weeks spread over a 32 week period
  - There are 4 major EP nursing roles
    - New staff orient to a role for 4 weeks and then assume the role independently for 4 weeks.
  - Experienced staff act as preceptors for new staff members.
- Device interrogation testing and programming are learned over several months to years via
  - Didactic lectures
  - Self directed reading and on-line material
  - Observation
  - Supervised hands on experience in the device clinic and with in the inpatient setting
- Employees are required to maintain competency and become recertified every 2 years for BLS and ACLS
  - Certification includes demonstration of BLS and ACLS skills as well as the online course
  - BLS and ACLS are offered each spring for half the staff on a yearly rotating basis.
  - Time for certification work is provided during working hours and is supported during low census time, prior to procedures starting, between or after procedures, project time, educational time or per diem coverage.
- Employees are required to maintain and demonstrate competency in Point of Care testing to use the I-stat and glucometer.
- Employees are required to complete annual hospital and EP lab competencies



### Minimum Staffing Levels

- Maintain staffing for urgent and inpatient device implants and in- hospital device interrogations and programming – 7 RN (3 RN in Device lab, 2 RN in ablation lab- plus Charge RN)
- Can down staff ablation lab if cases canceled or dip in volume.
- 1 FTE for pacemaker clinic and remote monitor checks

Charge Nurse         7:00am - 5:30pm         10.0         1.0 <th>Skill</th> <th>Description</th> <th>Shift Length (hours)</th> <th>Mon</th> <th>Tue</th> <th>Nun Wed</th> <th>nber of S</th> <th>Staff Fri</th> <th>Sat</th> <th>Sun</th> <th>Total Weekly Shifts B Days</th> <th>Total Weekly Req. Hrs w/o repl C=AxB</th> <th>Req. FTEs w/o replace</th> <th>Replacement Factor D</th> <th>Total Paid Hours E=CxD</th> <th>Total Paid FTEs F=E/40</th>	Skill	Description	Shift Length (hours)	Mon	Tue	Nun Wed	nber of S	Staff Fri	Sat	Sun	Total Weekly Shifts B Days	Total Weekly Req. Hrs w/o repl C=AxB	Req. FTEs w/o replace	Replacement Factor D	Total Paid Hours E=CxD	Total Paid FTEs F=E/40
46.5 455.0 11.4 537 13	Charge Nurse EP Lab staff RN OP Loop Recorder RN Pacemaker Clinic RN QA/ Quality/ Registry	7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm	10.0 10.0 10.0 10.0 10.0	1.0 5.0 1.0 1.0	1.0 5.0 1.0 1.0	1.0 5.0 1.0 0.5	1.0 5.0 1.0	1.0 5.0 1.0			5.0 25.0 1.0 4.0 2.5 5.0	50.0 250.0 10.0 40.0 25.0 40.0	1.3 6.3 0.3 1.0 0.6 1.0	1.209 1.209 1.209 1.209 1.000	60 302 12 48 25 48	1.0 1.5 7.6 0.3 1.2 0.6 1.2





#### Staff turn over and vacancy

- 2016 No Change
- 2017 Added 0.8 FTE and per diem 0.5 FTE to free up the Charge Nurse
- 2018 Added 1 FTE used to cover pacemaker clinic at Tilley Dr.
- 2019 1 FTE resigned- due to family move and 0.8 FTE transferred to outpatient clinic due to injury. Replaced with 3.5 FTE to free up care coordinator and charge nurse
- 2020 1 FTE decreased to 0.5 FTE EP QA not clinical— preretirement. 0.75 FTE changing to per diem due to school. Replaced with 1.75 FTE. To free up interim manager and allow for staff to flex up to run extra rooms as needed.
- There are currently no vacant positions



	Implants — Pacers/Defib	Explants/ Revisions	EP Studies - Electro	A-Fib Ablations	Abl for Rhythms	Misc. EP Procedures	Generator Changes	Other Cardiac Procedures
Pre-Admission Assessment (Phone Call)	√	√	√	√	√	√	√	√
Pre-Registration & Clerical Support	<b>√</b>	$\checkmark$	√	√	√	√	√	√
Scheduling	√	√	√	√	√	√	√	√
Materials Management								
Data & Image Mgmt., Charge Entry	√	√	√	√	√	√	√	√
Pre-Cath Holding	√	√	√	√	√	√	√	√
Room Prep and Turnover	√	V	√	√	√	√	√	√
Procedure (Room Time & # of Staff)	5.40 - 6.20	3.40 – 4.20	4.00 – 4.50	9.80 – 10.60	7.20 – 8.00	3.00 – 3.40	3.60 – 4.00	1.70 - 2.10
Post-Op Patient Care (Initial Post Proc)	√	$\checkmark$	√	√	√	√	√	√
Post Procedure Recovery Complete								
Patient Transportation	√	√	√	√	√	√	√	√
Post Procedure Follow Up Phone Calls								
Orientation & Education (3%)	√	√	√	√	√	√	√	√
Management (6%)	√	√	√	√	√	√	√	√
Total	8.80 - 10.56	6.62 - 8.38	7.28 – 8.71	13.60 - 15.36	10.77 – 12.52	6.19 - 7.51	6.85 – 8.16	4.77 – 6.10



The non nursing duties in the EP lab include:

- Room Turn Over between procedures (2 rooms approximately 2hrs day.)
- Ordering, Stocking and Putting away supplies (45 mins/day)
- Transporting patients that do not require RN transport to expedite workflow(1 hour/day). This does not include any patients that require monitoring
- The EP nursing Staff feel that the amount of non-nursing task are acceptable and do not need to be addressed with an alternative at this time

There are duties that are not direct patient care but require nursing expertise to facilitates procedure flow and quality assurance.

- Inventory liaison ordering supplies necessary for existing and new procedure
- Unit based council / Unit staffing collaborative
- Staff training and planning for new/complex equipment and procedures





There are duties that are not direct patient care but require nursing expertise to facilitates procedure flow and quality assurance.

Quality and registry roles are dedicated EP roles (not shared)

- Julie Eastman RN preforms QA 20 hours per month (10 hours every other week)
  - Work consist of:
    - » collecting data around procedure complication
    - » Setting the agenda and disseminating information for the monthly QA meeting
      - complications are vetted at the monthly interdisciplinary QA meeting
    - » tracking procedure complications and logging complications and procedure volumes in the EP data base
- Gregory Johnson RN preforms registry work 20 hours per week.
  - Work consist of:
    - » Collecting, entering and submitting registry data for NCDR Atrial Fibrillation Ablation and ICD registries.
    - » Follow-up phone calls for the NCDR LAAO registry.
    - » These registries are used as benchmarks across the network.
- Both the QA and the registry nurses assist with lunch coverage on their assigned quality days as needed





#### University of Vermont Medical Center cc# 12011427 - EP Services Labor Benchmark Analysis

		Sample Period	Annualized Volume		mark Paid er Indicator	Ben Requi		
Major Work Category	Benchmark Indicator	Volume	FY 2019	Low	High	Low	- Cu	High
Implants - Pacemakers / Defibrilators	Procedures	457	457	8.80	- 10.56	1.93	-	2.32
Explants / Revisions -	Procedures	18	18	6.62	8.38	0.06	-	0.07
EP Studies - Electroconduct.	Procedures	17	17	7.28	- 8.71	0.06	-	0.07
A-Fib Ablations	Procedures	356	356	13.60	15.36	2.33	-	2.63
Ablations for Rhythms	Procedures	281	281	10.77	12.52	1.45	-	1.69
Misc. EP Proc e.g. Temp Wires & Defib Tests	Procedures	142	142	6.19	7.51	0.42	-	0.51
Generator Changes	Procedures	83	83	6.85	8.16	0.27	-	0.33
Other Cardiac Proc e.g. Tilt Tables, Cardioversions, etc.	Procedures	376	376	4.77	6.10	0.86	-	1.10
Other Procedures	Procedures	24	24	4.77	6.10	0.06		0.07
Fixed staffing								
Care Coordinator / Interim Manager	# Weeks		52	40.00	- 40.00	1.00	-	1.00
Charge Nurse	# Weeks		52	60.40	- 60.40	1.51	-	1.51
OP Loop Recorder RN	# Weeks		52	12.00	- 12.00	0.30	-	0.30
Pacemaker Clinic RN	# Weeks		52	48.40	- 48.40	1.21	-	1.21
RN Q/A	# Weeks		52	24.00	- 24.00	0.60	-	0.60
Non-productive time adjustment	# Weeks	7.0%	52	20.82	- 24.60	0.52	-	0.61
Total Paid Hours Benchmark	Procedures	1,754	1,754	14.93	- 16.64	12.59	-	14.03
Total Worked Hours Benchmark	Procedures	1,754	1,754	12.35	- 13.76	10.41	-	11.61





- FY2019 actual procedure volume weighted by procedure type
  - Procedure mix was used as a reflection of acuity.
  - Procedure types were weighted by time and staffing required to calculate FTEs.
- FY2020 actual volumes were used
  - FTE's were calculated using the method above
- Staffing for higher acuity cases
  - Patients are assessed pre procedure by the attending physician
    - For cases with high acuity anesthesia is present
    - Up staffing is usually not required
    - Hospital resources are also available
      - Anesthesia
      - Patient support
      - Respiratory Therapy
      - CAT team (rarely used)





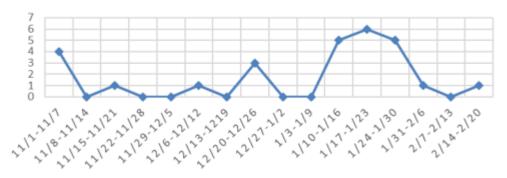
#### Flex up staffing to run extra rooms as needed

- Procedure location is tracked in our procedure log. From 11/1/2020 to 2/23/2021 we have done 56 procedures in flex up spaces (ECHO, MPU and CCL) of the 56 procedures 29 where ILR implants in the echo lab which are accounted for in our staffing plan.
- That leaves 27 procedures ( average about 1.7 per week ) that we have accommodated on the fly. Procedures listed below

EP	"flex-up'	' procedu	res	
	Echo	MPU	CCL	Grand Total
Device			9	9
Explant ILR			1	1
Lead Revision			1	1
DCCV	2	7	5	14
Venogram			1	1
Tempwire Repo			1	1
<b>Grand Total</b>	2	7	18	27

• The need to flex-up is highly variable and depends on inpatient volume making it difficult to predict. The average is 1.7 procedures per week but occurrence is as follows

#### NUMBER OF FLEX UP EP PROCEDURES PER WEEK

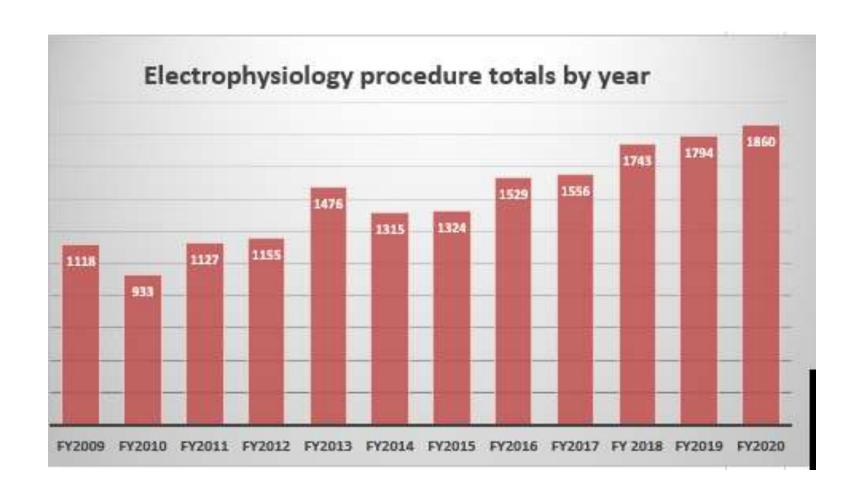


University of Vermont



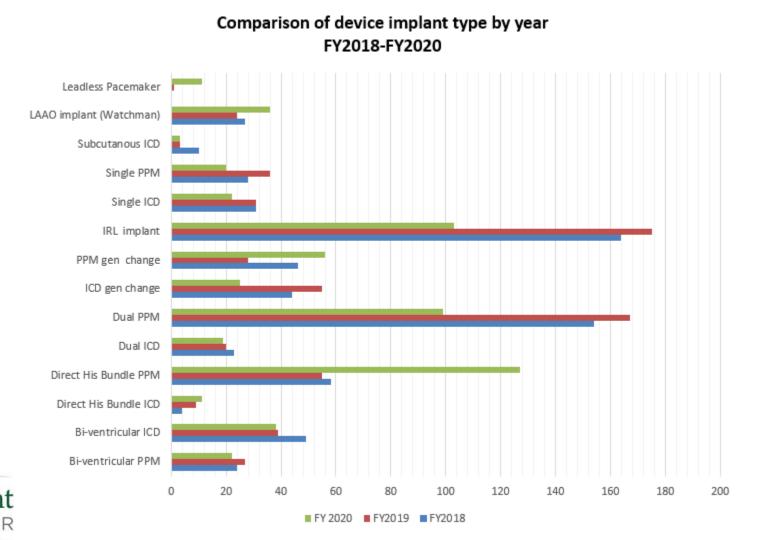
- The charge nurse, quality nurse and nurse manager can be used to flex up for unanticipated increased acuity or to run extra rooms at high volume times
- We also have some part time and per diem staff that are able to increase their hours on particularly busy weeks
- At this time we are able to accommodate these "extra" procedures using the current staffing model.

- Procedure Volumes have remained fairly consistent over the last 3 years.
  - Device interrogation was added to volume this year
  - Procedure volume minus device interrogation for FY 2020 was 1704 reflecting covid shut down.



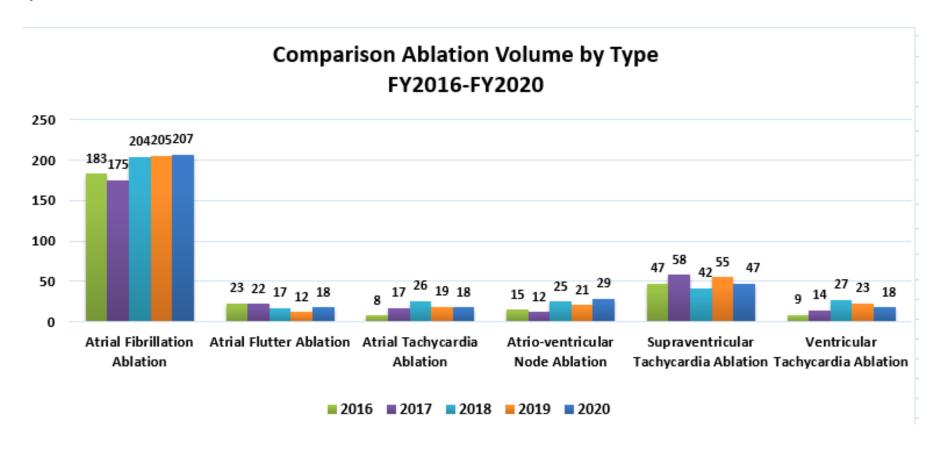


- Device procedure type has shifted to more towards his bundle pacing and leadless pacemakers.
- His bundle pacing is a more complex procedure then traditional pacemaker placementrequiring more time and expertise from the staff.
- We have gradually increased staffing to allow for us to flex up extra rooms as needed –
   Borrowing space from CCL, MPU and Echo lab.



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- Ablation volumes are maxed out due to procedure space. At this point we cannot increase volume without additional space.
- If new space becomes available we will need to hire addition FTE's





## Staffing Effectiveness Data

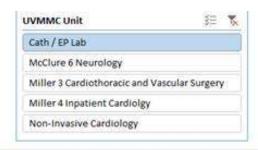
- NDNQ measures staff satisfaction in the EP lab at or above the mean
- Staff retention has been good (see slide #8 Staff turnover and Vacancy)
- Procedure volumes are consistent with Budget
  - Finance counts procedure volumes slightly differently then clinical however ratio is consistent
  - Actual vs. Budgeted procedure volume year end FY 2020
    - Actual 1907
    - Budgeted 1831
- FTE are consistent with Budgeted
  - Actual v. Budgeted FTE FY 2020
    - Actual 10.8
    - Budgeted 11.2
- Budgeted 2021
  - FTE 12.65
  - Positions filled 12.75 w/ 1 float FTE to 1441 Pacemaker clinic

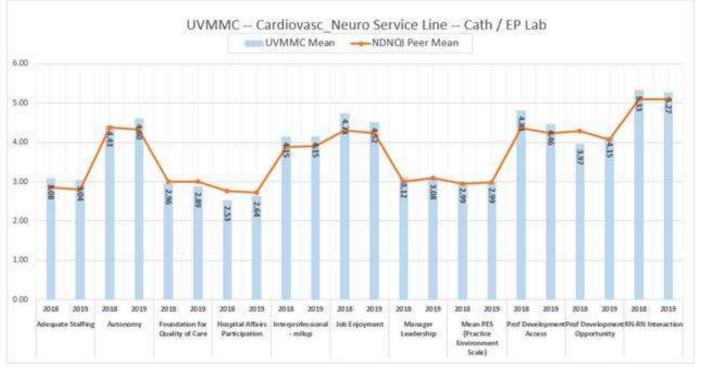




#### Staffing Effectiveness Data – NDNQI 2018 and 2019

	UVMMC	NDNQI Peer
ow Labels	Mean	Mean
dequate Staffing		
2018	3.08	2.86
2019	3,04	2,80
utonomy		
2018	4,43	4,38
2019	4.60	4.33
oundation for Quality of Care		
2018	2.96	2.99
2019	2,89	3.00
ospital Affairs Participation	Desto	
2018	2.53	2.76
2019	2.64	2.73
nterprofessional - rollup		
2018	4/15	3,89
2019	4.15	3,90
ob Enjoyment		
2018	4:73	4.30
2019	4.52	4.23
Nanager Leadership		
2018	3.12	3.01
2019	3.08	3.09
fean PES (Practice Environment S	cale)	
2018	2:99	2:95
2019	2.99	2.96
rof Development Access	10000	
2018	4.81	4,36
2019	4.46	4.24
rof Development Opportunity		
2018	3:97	4.29
2019	4.15	4.06
N-RN Interaction		
2018	5.33	5.10
2019	5.27	5.10

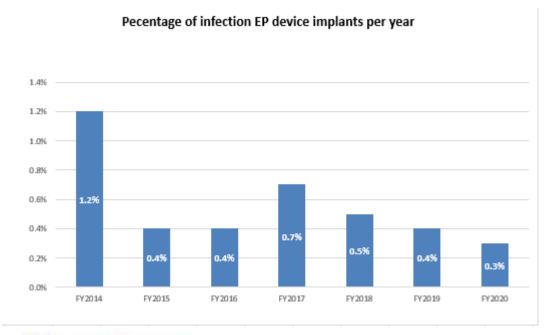






### Unit/ Clinic Specific Quality Data

- Quality measures that speak directly to nursing in ep
  - Infection rate
    - Monitor infection rate for device implants
    - Any infections are discussed at monthly QA meeting
    - Nursing interventions to limit infection reinforced as needed
      - Limiting traffic in and out of the room
      - Yearly scrub training
      - Repeat prophylactic antibiotics for long cases
      - Consult infection control as needed







### Unit/ Clinic Specific Quality Data

- Final verification / Mallampati
  - Monitor % completion and report out at monthly QA
- Foley data
  - No longer routinely placing foley catheters for procedures
  - Began tracking foley complications 2020
- NCDR registry data
  - AFIB indications
  - ICD registry indications
  - LAAO registry indications and outcome
- Current Quality and unit based council indicatives
  - DOP discharge (some devices) proposed to PACU
  - Examination and improvement of procedure flow.
  - Recovery location proposed
    - Change for AF ablations to Miller 4
    - Inpt Cardioversions return to Miller 4
  - Discharge patient education
    - Discharge instructions updated 6/2020
  - Patient satisfaction data
    - Currently No direct measure
    - Unit based committee looking at options for measurement



## Staffing Plan including Ancillary Staff

Nurse manager       7:00am - 5:30pm         Charge Nurse       7:00am - 5:30pm         EP Lab staff RN       7:00am - 5:30pm         OP Loop Recorder RN       7:00am - 5:30pm         Pacemaker Clinic RN       7:00am - 5:30pm         QA/ Quality/ Registry       7:00am - 5:30pm         Scheduler       7:00am - 3:30pm					Thur	Fri	Sat	Sun	Shifts B Days	Req. Hrs w/o repl C=AxB	w/o replace	Replacement Factor D	Paid Hours E=CXD	Paid FTEs F=E/40
7.00am - 3.30pm	10.0 10.0 10.0 10.0 10.0 8.0	1.0 1.0 5.0 1.0 1.0	1.0 5.0 1.0 1.0	1.0 1.0 5.0 1.0 0.5 1.0	1.0 1.0 5.0 1.0	1.0 5.0 1.0			4.0 5.0 25.0 1.0 4.0 2.5 5.0	40.0 50.0 250.0 10.0 40.0 25.0 40.0	1.3 6.3 0.3 1.0 0.6	1.000 1.209 1.209 1.209 1.209 1.000 1.209	40 60 302 12 48 25 48	1.0 1.5 7.6 0.3 1.2 0.6 1.2





## Staffing Data including Unit Budget

- FTE are consistent Budgeted
  - Actual v. Budgeted FTE FY 2020
    - Actual 10.8
    - Budgeted 11.2
- Budgeted 2021
  - FTE 12.65
  - Positions filled 12.75 w/ 1 float FTE to 1445 Pacemaker clinic
    - Not including per diem staff
    - 0.5 FTE retiring 3/2021
    - Planning to increase hours for existing 0.75 FTE to 1 FTE





## Financial Impact of the Proposal

#### No change in unit staffing is proposed

#### Target Workload Summary

University of Vermont Medical Center Cost Center #12011427

EP Services

**Workload Standard Development Summary Table** 

Workload Volume Indicator:

**EP Procedures** 

FY'19 Actual Annual Volume:

1,754

AMS Benchmark Paid Hours Per EP Procedure: 14.93 – 16.64

AMS Benchmark Worked Hours Per EP Procedure: 12.35 – 13.76

AMS Benchmark Required Paid FTEs: 12.59 – 14.03

Hours/P	rocedure			Paid FTEs	
Current Pattern Paid	FY '19 Target Paid	Paid/ Productive Ratio	Current Pattern Actual	FY '19 Target	Variance Act to Tar
15.90	15.90	1.209	13.41	13.41	0.0

Current FTEs	FTE
Interim Manager *	1
FTE RN Total	10.75
Scheduler	1
per diem	0.5
Total	13.25





<sup>\*</sup> Discussion with staff about the Care Coordinator role and agreed that with current staffing structure there is no need for a care coordinator at this time.

#### Metrics to Measure the Effectiveness of the USC Project Plan

- Follow NDNQI data
- Follow Quality metrics
- Recruitment and Retention Data
- Monitor OT/End of day





### Current Staffing Grid

#### **University of Vermont Medical Center**

Current & Example of a Target Staffing Pattern
EP Services
Cost Center# 12011427

Average Daily EP Procedure:	6.9
Maximum Capacity:	N/A
Annualized EP Procedures:	1,754

Skill	Description	Shift Length (hours)	Mon	Tue	Nun Wed	nber of S	Staff Fri	Sat	Sun	Total Weekly Shifts B Days	Total Weekly Req. Hrs w/o repl C=AxB	Req. FTEs w/o replace	Replacement Factor	Total Paid Hours E=CXD	Total Paid FTEs F=E/40
Nurse manager Charge Nurse EP Lab staff RN OP Loop Recorder RN Pacemaker Clinic RN QA/ Quality/ Registry Scheduler	7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 3:30pm	10.0 10.0 10.0 10.0 10.0 10.0 8.0	1.0 1.0 5.0 1.0 1.0	1.0 5.0 1.0 1.0	1.0 1.0 5.0 1.0 0.5 1.0	1.0 1.0 5.0 1.0	1.0 1.0 5.0 1.0			4.0 5.0 25.0 1.0 4.0 2.5 5.0	250.0 10.0 40.0 25.0 40.0	1.3 6.3 0.3 1.0 0.6 1.0	1.209 1.209 1.209 1.209 1.000 1.209	60 302 12 48 25	1.0 1.5 7.6 0.3 1.2 0.6 1.2





## AMS Recommended (Target) Staffing Grid

#### **University of Vermont Medical Center**

Current & Example of a Target Staffing Pattern
EP Services
Cost Center# 12011427

Average Daily EP Procedure:	6.9
Maximum Capacity:	N/A
Annualized EP Procedures:	1,754

Skill	Description	Shift Length (hours)	Mon	Tue	Nur Wed	mber of S	Staff Fri	Sat	Sun	Total Weekly Shifts B Days	Total Weekly Req. Hrs w/o repl C=AxB	Req. FTEs w/o replace	Replacement Factor	Total Paid Hours E=CXD	Total Paid FTEs F=E/40
Nurse manager Charge Nurse EP Lab staff RN OP Loop Recorder RN Pacemaker Clinic RN QA Quality/ Registry Scheduler	7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 5:30pm 7:00am - 3:30pm	10.0 10.0 10.0 10.0 10.0 10.0 8.0	1.0 1.0 5.0 1.0 1.0	1.0 5.0 1.0 1.0	1.0 1.0 5.0 1.0 0.5 1.0	1.0 5.0 1.0	1.0 1.0 5.0 1.0			4.0 5.0 25.0 1.0 4.0 2.5 5.0	10.0 40.0 25.0 40.0	1.3 6.3 0.3 1.0 0.6 1.0	1.209 1.209 1.209 1.209 1.000 1.209	60 302 12 48 25	7.6 0.3 1.2 0.6





## Proposed Staffing Grid

No change in unit staffing is proposed by AMS or USC





## Highlighted Changes

No change in unit staffing is proposed by AMS or USC





#### Time line and Deliverables

- Check in/progress update schedule call with P. Gagne and D. Snell - October 1, 2020
- Final plans submission deadline:
  - INPATIENT UNITS: November 20, 2020
  - AMBULATORY CLINICS: December 1, 2020
- Submit to: CNO and President VFNHP
  - Scan as 1 document and email to <a href="Peg.Gagne@uvmhealth.org">Peg.Gagne@uvmhealth.org</a>
     and <a href="debs@vfnhp.org">debs@vfnhp.org</a>





### Approval letter



May 10, 2021

Dear Electrophysiology USC Team,

Thank you very much for your engagement and efforts in the Unit Staffing Collaborative (USC) project. We wanted to let you know that your final project plan is approved as written. If you have any questions about the USC project approvals, please let us know.

Going forward, your USC team is responsible for the implementation and ongoing monitoring of the effectiveness and progress of your staffing plans, review of any Concern Forms and submission of proposed changes/reports to the Staffing Committee (see Article 20B).

If you have not already done so, please incorporate any updates made based on our feedback into your original presentation (some of you attached a separate letter or email with the answers to our request for more information – everything should be included in one powerpoint presentation which the Staffing Committee will be using as the foundation for this work going forward). Add the attached approval slide at the end of the presentation and resubmit to us by 5/17/2021.

Regards,

Peg and Deb

Peg Gagne, MS, RN Chief Nursing Officer Peg.Gagne@uvmhealth.org Deb Snell, RN President VFNHP Debs@vfnhp.org

