

The Dilemma of Cardiovascular Catheterization Laboratory Staffing Needs

Talal Abd Al Rahman, MSN, RN

Hiring and retaining cardiovascular catheterization laboratory (CCL) talent has been overwhelming for leaders and hospitals since the discovery of cardiovascular catheterization procedure itself. As a very complex clinical area, CCL day-to-day staffing has been a dilemma, with the ability to affect the overall hospital or ambulatory surgical center revenue and/or profit. The literature lacks scientific studies or references to assist leaders to properly and efficiently staff and ensure non-disruptive operations of the CCL to maintain continuous patient care and flow of revenue.

Considering operational factors, and competitive advantages and disadvantages, is crucial when leaders plan for CCL staffing. These factors include procedural complexity, level of personnel cross-training, financial constraints, physical location of the CCL, procedural volume, availability of continuous educational activities, leadership competency, para-clinical activities (billing, supplies management systems, etc.), and type of equipment used.

It is not a secret that CCL personnel turnovers are painful and costly. Leaders often will try to overcome a period with high turnover by hiring costly traveling personnel, hiring and training non-experienced personnel, and offering attractive monetary packages and bonuses.¹ Retaining talent in the CCL is a long-term investment strategy and leaders are encouraged to set up applicable short- and long-term retention plans. For instance, training a newly hired CCL nurse needs to be framed within a retention plan that focuses not on just the daily operations, but rather encompasses a long-term, five-year retention plan. In this case, all the efforts are required to be deployed to view the CCL nurse or technologist as a long-term investment.

Three-Person Teams Versus Four-Person Teams

The choice of CCL staffing structure is dependent not only on the clinical needs of the department, but also on many other factors — most importantly, fierce market competition and the scarcity of available, qualified CCL personnel. The CCL's staffing model dictates how the CCL functions and how satisfied personnel are with their work environment and safety of care they provide to their high-acuity patient population. Adopting a four-person team CCL staffing model allows for the safer provision of care, greater team flexibility, shorter procedure turnaround times, fewer on-time-start delays, and fewer procedure cancellations.² Ideally, in a four-person staffing model, the CCL procedural room is staffed with one circulating registered nurse (RN), one radiologic technologist

(RT[R]), one scrub person (either a scrub-trained RN or RT[R]), and one monitoring person (can be a monitor-trained RN or RT[R]).

How Many Do I Need?

As a general principle, staffing the CCL should not be dependent on hours per patient day (HPPD) formulas, which frequently lead to understaffing or overstaffing. The formula for CCL staffing (full-time equivalent [FTE]) needs to include the staffing model, total weekly operation hours, number of procedural rooms, leadership hierarchy, number of procedural rooms, number of regular weekly working hours of CCL personnel, and number of active weekly workdays.

The FTE needs for any CCL can be determined by the following simple formula:

$$\frac{(\text{Daily operation hours} \times \text{Active working days} \times \text{Staffing model} \times \text{Number of procedural rooms})}{\text{Weekly working hours per employee}} = \text{Basic staffing (FTE) needs}$$

For example, let's say a CCL operates two procedural rooms, five days a week, from six in the morning to six in the evening, and adopted a four-person team model, with each employee working thirty-six hours a week. The basic staffing (FTE) needs for our sample CCL will be:

$$\frac{(12\text{-hr days} \times 5 \text{ active working days} \times 4\text{-person model} \times 2 \text{ rooms})}{36 \text{ employee working hrs per week}} = 13.3 \text{ FTE}$$

Tight (Static) Staffing Versus Flexible Staffing

Given the need to cover on-call assignments, sick leaves, and paid time off (PTO), tightly staffed CCLs often face situations where procedures are delayed, canceled, or postponed. Instead, we recommend adopting a flexible staffing strategy where personnel leaves are covered by at least 15% of the basic staffing needs. In the example above, the required FTEs to flexibly staff our example CCL will be:

$$(13.3 \text{ FTE} \times 15\%) + 13.3 = 2$$

$$2 + 13.3 = 15.3 \text{ FTE}$$

What About My Team Leaders/Coordinators/In-Charge?

Most busy CCLs have a dedicated team leaders/coordinators/in-charge, whose responsibilities include coordinating the cases, monitoring quality of operations,

ensuring a seamless workflow, assigning personnel to procedural rooms, coordinating with providers, coordinating with maintenance and biomedical engineers, acting as a liaison between personnel and leadership, coordinating for personnel breaks and lunches, and receiving calls for addons, adjustments, and cancellations. In almost all high-turnover CCLs, the team leader/coordinator/in-charge is added to the number of FTEs. In the CCL example above, the number of FTEs required to cover these leadership functions is calculated as the following:

$$\frac{\text{Number of weekly working days} \times \text{Number of daily working hours}}{\text{Weekly working hours of the "team leader/coordinator/in-charge"}}$$

$$\frac{(5 \text{ working days per week} \times 12 \text{ daily working hours})}{36 \text{ weekly hours for "team leader/coordinator/in-charge"}} = 1.7 \text{ FTE}$$

To conclude the flexible staffing needs (FTEs) of our example CCL, the total number of FTEs equals the sum of the basic FTEs, the flexible staffing FTEs, and the team leader/coordinator/in-charge FTEs (13.3 basic FTEs + 2 flexible FTEs + 1.7 team leader FTEs = 17 FTEs)

Conclusion

The determination of cardiovascular catheterization laboratory staffing needs is a complex and facility-dependent task. Leaders are encouraged to consider all factors around the nature of their facilities, including safe practices, turnover rates, complexity of procedures, skills mix and cross-training, leadership model, short- and long-term quality and financial goals, personnel satisfaction, working hours, and on-call assignments. The basic formulas presented herein can be used to determine staffing needs in order to provide safe and quality care. ■

References

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Talal Abd Al Rahman, MSN, RN
Manager, Cath Lab and EP Lab, Abrazo
Arizona Heart Hospital, Phoenix, Arizona



The author can be contacted at talal.abdalrahman@abrazohealth.com