

# Physician satisfaction with the vascular lab is highly dependent on after hour's availability

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## Introduction

Physicians and mid-level providers often order Vascular Laboratory (VL) testing because the studies performed are non-invasive, relatively inexpensive, can help direct clinical decision making and can easily be performed both in the lab and in a portable fashion. This offers a versatility that other imaging modalities cannot always provide. Hospitals rely on accreditation agencies (Intersocietal Accreditation Commission, IAC) to set standards which emphasize technical proficiency and quality measures. However, to gauge general satisfaction with the facility, services and medical care they either perform patient satisfaction surveys in various departments themselves or hire consultants. Although hospitals also assess physician satisfaction with various functions within the hospital, physician satisfaction with specifically VL services has not been previously reported.

Survey of physicians serves several important purposes. Since patient satisfaction scores (HCAHPS or Hospital Consumer Assessment of Healthcare Providers and Systems) have a link to reimbursement to hospitals, factors that improve these scores become relevant. Hospitals and service lines striving to improve patient satisfaction must also focus on physician satisfaction since happier physicians may improve patient satisfaction scores, improve quality of care and lead to better return on investment [1]. An additional benefit of polling the end-users of the VL is that we can gain information regarding their expectations related to VL services.

At our institution, we do not offer 24 hour coverage of the VL. This has led to complaints from many physicians at our institution. These physicians tended to be those working overnights shifts predominantly in the emergency department. The pressure to rapidly discharge patients from the emergency department has fueled this dissatisfaction with waiting for testing until the morning or empirically treating patients without the testing.

The objective of this study was to seek feedback on referring physician satisfaction with the VL in terms of friendliness and professionalism of sonographers', timeliness of reports and critical results, ease of ordering tests, accuracy of results and their perception of patient satisfaction as well as their own with overall VL services.

## Methods

The VL database (Consensus Medical Systems, Richmond, BC V6X 2C7) was queried in a retrospective manner to obtain the top 150 physician users of the VL in 2011 at the Wexner Medical Center at The Ohio State University. We chose to limit the survey to our top users to try to eliminate physicians who may only order a few studies a year. A survey using Survey Monkey (Palo Alto, California, www.surveymonkey.com) was then sent to these physicians in the

first week of January 2012 and responses collected until February 2<sup>nd</sup> 2012, and the responses were gathered and compiled. A second reminder was sent to those physicians not responding to the initial survey. The survey consisted of a series of questions regarding various aspects of the testing services provided by the VL (Table 1). Answers were based on either a 5 or 10 point Likert scale. While the survey was anonymous, we sought to gather information from the physicians about their department. Subgroup analysis was then performed using Fisher's Exact test or Chi Squared to look for differences between groups.

Our VL is open from 7.30 a.m. till 6 p.m. on weekdays and 8 a.m. to 12 noon on weekends and holidays for urgent tests only. Sonographers are not on call after 6 p.m. on weekdays but can be called back for emergencies if the VS on call deems a test necessary. Similarly, the sonographer on call carries a beeper on weekends and holidays till 9 p.m. and requests for urgent tests between 12 noon and 9 p.m. or after 9 p.m. are routed through the VS on call. ED or other physicians cannot call the sonographer on call directly without the approval of the on call VS. A previously agreed upon protocol for DVS utilization in diagnosis of acute DVT is available in the ED.

## Results

Of the 150 surveys sent out there were 46 (31%) respondents. The break down between specialties is listed in Table 2. In brief, 52% of respondents were primary care physicians, 20% were Emergency

**Table 1.** Basic survey content with questions.

Based on your recent experience with the Vascular Lab please indicate your level of satisfaction with:
Friendliness and courtesy of the sonographers
Professionalism of the sonographers
Timeliness of the report
Timeliness of critical results
Accuracy and clinical relevance of the report
Ease of obtaining tests outside of normal business hours
Based on your recent experience with the vascular lab, what is your impression of the patient's satisfaction level.
What is your overall satisfaction level with the vascular lab.

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Medicine Department (ED) physicians with the remainder being a surgical specialty (17%) or other specialties (11%).

The satisfaction with the staff in the lab was rated highly with high mean scores for friendliness (4.0/5, SEM 0.3), and professionalism (3.9/5 SEM 0.3). The majority of the respondents rated the staff at the highest level in regards to friendliness (65%) and professionalism (67%), with only a small percentage rating them 2 or less (15% and 20% respectively). Likewise, the timeliness of the reports (4.4/5 SEM 0.2) and timeliness of critical reports (4.8/5 SEM 0.1) were highly rated with the majority of the scores being 5 (70% and 83% respectively). Most importantly the accuracy of the reports from the VL were highly rated as well (4.8/5 SEM 0.1) with 96% of respondent rating the accuracy as "4" or "5". The ease of ordering tests and especially the ease of ordering after hour was not rated as highly as the other aspects of the lab. The mean score for ease of ordering a test was 4.0/5 (SEM 0.2) and after hours testing 2.6/5(SEM 0.3). There were far fewer scores in the 5 range in these categories (57% and 26% respectively). The physicians also perceived that the patient satisfaction with the lab was high with a mean score of 4.2/5(SEM 0.2). Lastly the overall satisfaction level with the lab was a mean of 7.4/10 with 60% of the respondents rating their overall satisfaction as 8 or higher.

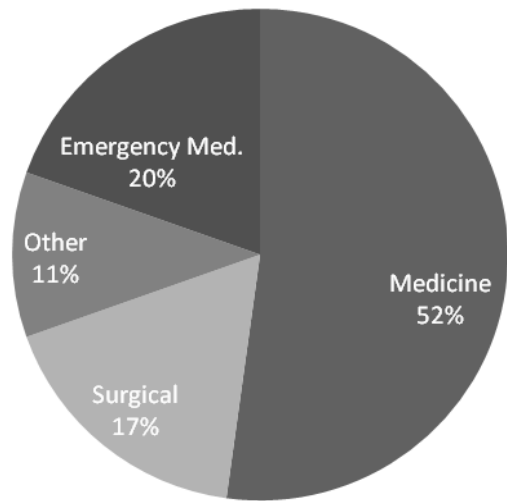
We further subdivided the respondents into those who scored the lab poorly in the overall category (a score < 5/10). Of those respondents a higher proportion of physicians who identified themselves as from the ED scored the lab poorly (p<0.001). In order to determine why this was we looked at the individual categories and compared the scores from the ED physicians to the others. There was no difference between the scores in how the physicians perceived the performance of the technicians (Table 2). In addition there was no difference in the scores for the timeliness of standard and critical results (Table 2). There was also no difference in the scores for accuracy of the tests. Where the differences occurred was in the ease of ordering tests. ED physicians scored the ease of ordering test both during regular hours (2.6/5 vs. 4.0/5 p<0.001) and after hours (1.4/5 vs. 2.6/5, p=0.03). Lastly, the emergency medicine physicians also perceived that the patients were less satisfied with their experience with the lab (3.0/5 vs. 4.2/5, p=0.0002). Because of the ED physicians frustration with ordering of tests despite similar scores in the other categories they overall scored the vascular lab lower (5.4/10 vs. 7.4/10, p=0.002).

### Discussion

Hospitals routinely perform patient satisfaction surveys to gauge 'customer' satisfaction and physician surveys to judge their satisfaction with the working environment. By focusing on and increasing

**Table 2.** Survey results showing satisfaction of physicians in the ER (Emergency Room) and other physicians with various aspects of vascular labs services.

	ER	Others	p value
Were the Sonographers Friendly and Courteous	3.8	4.0	0.71
Were the Sonographers Professional	3.9	3.9	0.99
Timeliness of the report (outside of IHIS issues)	4.7	4.4	0.50
Timeliness of Critical Results	4.7	4.8	0.65
Accuracy and Relevance of Results	4.8	4.7	0.54
Ordering Test During Regular Hours	2.6	4.0	<b>0.0001</b>
Ordering Tests Outside of Normal Business Hours	1.4	2.6	<b>0.03</b>
Physicians' Impression of Patient Satisfaction with Vascular Lab Services	3.0	4.2	<b>0.0002</b>
Overall	5.4	7.4	<b>0.0021</b>



**Figure 1.** Specialties of physicians answering the survey.

physician satisfaction, there is likely to be improvement in patient satisfaction scores, quality of care and a better return on investment [2]. In a Press Ganey report there was a high correlation between higher overall physician satisfaction with quality of care and the HCAHPS patient rating of that hospital [3]. This is possible because high physician satisfaction is likely to have a ripple effect. In addition, in a highly competitive environment, since physicians are the prime drivers of patient referrals, satisfied physicians will likely return to the hospital that keeps them happy [4]. Of 27,671 physicians surveyed at 302 hospitals, the mean satisfaction score was 72.5 out of 100 [4]. Vascular Surgeons reported a mean score of 67.5, among the lowest scores [4]. Since VS are amongst one of the highest referral base for any VL, it would be important to know factors causing them to be satisfied or dissatisfied with services. To our knowledge no studies have been done examining physicians as a user and their satisfaction with the VL.

Our study shows that overall satisfaction with the lab suffered because of perceived problems with obtaining studies after hours. In the Press Ganey report there is a steady increase in satisfaction of patients as their wait time decreases. The wait time to schedule an elective out-patient test in our VL is less than 48 hours. Urgent tests are performed on a same day basis. Based on this, we would assume that patient satisfaction would suffer if they had to wait overnight for a study. The physicians in our survey did not perceive that their patients were dissatisfied. 91.3% perceived that the patients were satisfied (rated 3 or higher), and 80.4% rated patient satisfaction as 4 or higher. However, the impact of postponing after hours testing until the next morning on patient satisfaction is unknown since we only surveyed physician users.

Physician user satisfaction with the lab was clearly related to their specialty in our survey. Primarily the ED physicians tended to rate the overall experience with the VL as lower than their peers. This difference was apparently due to their frustration with the difficulty in obtaining after hour studies. A review of comments in the survey clearly indicates that ED physicians want 24/7 availability of DVS without filtering requests by a VS. There were no differences between physician groups regarding the factors that actually contribute to the overall quality of a vascular lab but rather logistical issues. In fact, in our survey when asked what one thing the vascular lab do to improve its services 20 of 26 responses were related to needing expanded hours. This finding suggests that better education is needed regarding the indications

for after hours surveys. At our own institution we have implemented a protocol using the Well's Criteria as well as D-Dimer levels in an attempt to reduce the demand for after hours venous duplex scans [5]. Now that this has been implemented, it would be useful to repeat the survey and reassess if this program will decrease the negative reaction to the lack of afterhours VL coverage.

As in most large hospitals, the highest demand in our VL is for Duplex Venous Scans (DVS). From 2009 to 2011 there was a steady increase in the percent of studies that were DVS from 59% to 67%. This too is the most frequently requested after hour study and in fact as pointed out much of the dissatisfaction based on feedback from this survey is related to the expectation that 24 hour testing should be offered at our institution. This demand is incongruous with data from our institution which shows that protocols can be put in place to determine the need for testing and thus potentially avoid unnecessary after hours testing. Using a Wells score, D-Dimer levels, and clinical suspicion is sufficient for starting anticoagulation for suspected DVT and delaying duplex studies until regular working hours [6]. Others too have shown that protocols can be implemented reducing the number of after hour DVS performed by as much as 89% [6]. In another study by Chaer, they too found that implementation of a protocol determining when after hour DVS would be performed reduced the number of after hour studies by 64% while increasing the number of positive studies by the rate of positive DVS performed after hours could be increased from about 7% to 20% [7].

With increased emphasis placed on patient satisfaction and linking this to hospital reimbursement, it is not surprising that institutions are paying close attention to improving their patient (customer) satisfaction scores. For example, The Joint Commission on Accreditation for Healthcare Organization requires assessing customer satisfaction for accreditation [8]. Additionally, the Centers for Medicare & Medicaid Services in 2002 partnered with the Agency for Healthcare Research and Quality (AHRQ), to develop the HCAHPS Survey. One of the goals of CMS and AHRQ in implementing the HCAHPS Survey was to allow for objective comparisons of hospitals on topics that are important to consumers and therefore provide new incentives for hospitals to improve quality of care. Furthermore, since July 2007, hospitals subject to the Inpatient Prospective Payment System (IPPS) annual payment update provisions were mandated to collect and report HCAHPS data or receive a 2% cut in payments. In this current environment there will be increasing focus on making sure that the customers of the VL are highly satisfied. While no standardized metrics have been proposed by VL accreditation agencies such as the IAC, there is increasing pressure based on current legislation and CMS to do so. In this study we have established a baseline by which we can measure the effects of various policy changes and ensure that we continue to improve our overall physician satisfaction with our lab.

Similarly, patient satisfaction is increasingly being added to compensation formulas for physicians causing the latter to become increasingly frustrated with not being able to provide their patients with immediate diagnostic testing [9]. While this survey was not designed to address patient satisfaction, physicians are part of the customer base of a VL and therefore their satisfaction with our performance is necessarily important.

Conflicting directly with this pressure to cater to the demands of continuous access is the need to control costs. Others have reported the cost implications of performing after-hours studies calculating an estimated cost savings of over \$11,000 annually, by administering low

molecular weight heparin and eliminating sonographer overtime pay [10]. If one includes the hospital costs and physician interpretation fees this number could be even larger. Rather than performing more scans and more after hour tests, efforts would be better focused on implementing protocols for determining when tests need to be done not only after hours, but during regular hours as well. Guidelines published recently can be used to benchmark appropriate utilization of studies in the VL [11].

The Institute of Medicine has outlined six main categories of quality of care to include: patient safety, effectiveness, patient centeredness, timeliness, efficiency and equity [12]. Physician users of the VL expect quality, accuracy, timeliness of reporting particularly critical results; prompt scheduling for their patients, responsiveness and ability to refer their patients for urgent tests performed in a timely fashion. While the individual referring physician may not be in a position to judge quality and accuracy of VL tests, which is expected by ICAL, the Medical Director of the VL must pay attention to the other areas as well as quality measures to maintain user satisfaction. With this study we have established a baseline by which to measure further changes in the VL. Overall, our ordering physicians were satisfied with the performance of our VL. But the negative responses will also help to direct future policies or education. Once changes are implemented, by performing this survey we will have an established baseline by which to measure change.

Process improvement starts with reviewing every part of the VL test from the electronic order to a final report delivered to the referring physician. Scheduling is often the biggest complaint among referring physicians and their offices. The telephone system and prompts must be easy to understand and quickly lead to a human voice at the VL scheduling office. Urgent requests have to be given priority and patients accommodated.

Patients express unhappiness with their physicians when their results are delayed [13]. Therefore, the turnaround time including interpretation time between performance of the test and final results available to their physician are a big source of dissatisfaction and policies must be in place to expedite the process [14]. Critical results and results of critical tests such as a duplex venous scan for suspected deep vein thrombosis must be communicated to the referring physician promptly. An internal audit to maintain compliance with a written protocol must be performed on a regular basis [15]. The issue of VL sonographers 'on call' for emergency and urgent tests (specifically DVS) and Vascular Surgeons and Physicians being available for immediate reading has been discussed without a uniform solution acceptable to all constituencies [6,7,10]. The availability of low molecular weight heparin, burnout of sonographers, cost issues and appropriate screening protocols including use of d-dimer and Wells Score has greatly decreased the necessity and use of 24 hour availability of staff without an increase in patient morbidity and mortality [6].

Guidelines for appropriateness of testing in the VL must be shared with referring physicians as part of an educational process. New clinical research related to DVS relevant to the ED must be communicated to physicians and nursing staff.

Finally, the importance of 'customer' satisfaction (patient and referring physician) must be repeatedly emphasized to sonographers.

## Conclusion

While the satisfaction with the VL overall was high in our study, specific physician groups were dissatisfied with the lack of after- hours

testing. The cost implications of providing after hours testing in light of the number of negative studies makes 24 hour access non-sustainable in the current health care environment. Rather than passively allowing outside governmental agencies to mandate the appropriateness of various tests and the metrics by which a VL is graded, it is crucial for interested groups such as the Society for Vascular Surgery, Society of Vascular Medicine, and Society for Vascular Technology and the IAC to develop their own benchmarks and measures of customer satisfaction. Whether it be by surveys such as this one or other satisfaction surveys put forth by professional societies, self-regulation and reporting allows for measuring and reporting variables that are truly important in improving overall quality and delivering value in healthcare.

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