




# Current Models for Inpatient and Emergency Room Ophthalmology Consultation in U.S. Residency Programs

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## Abstract

**Objective** This article examines models of patient care and supervision for hospital-based ophthalmology consultation in teaching institutions.

**Design** This is a cross-sectional survey.

**Methods** An anonymous survey was distributed to residency program directors at 119 Accreditation Council for Graduated Medical Education accredited U.S. ophthalmology programs in the spring of 2018. Survey questions covered consult volume, rotational schedules of staffing providers, methods of supervision (direct vs. indirect), and utilization of consult-dedicated didactics and resident competency assessments.

**Results** Of the 119 program directors, 48 (41%) completed the survey. Programs most frequently reported receiving 4 to 6 consults per day from the emergency department (27, 55.1%) and 4 to 6 consults per day from inpatient services (26, 53.1%). Forty-seven percent of programs reported that postgraduate year one (PGY-1) or PGY-2 residents on a dedicated consult rotation initially evaluate patients. Supervising faculty backgrounds included neuro-ophthalmology, cornea, comprehensive, or a designated chief of service. Staffing responsibility is typically shared by multiple faculty on a daily or weekly rotation. Direct supervision was provided for fewer of emergency room consults (1–30%) than for inpatient consults (71–99%). The majority of programs reported no dedicated didactics for consultation activities (27, 55.1%) or formal assessment for proficiency (33, 67.4%) prior to the initiation of call-related activities without direct supervision. Billing submission for consults was inconsistent and many consults may go financially uncompensated (18, 36.7%).

**Conclusion** The majority of hospital-based ophthalmic consultation at academic centers is provided by a rotating pool of physicians supervising a lower level resident. Few programs validate increased levels of graduated independence using specific assessments.

## Keywords

- ▶ hospital consultation
- ▶ graduate medical education

Ophthalmology consultation serves an important role for both inpatient and emergency room-based patient care. It represents an integral component of many tertiary hospital

systems that offer level 1 trauma services. There are a variety of reasons which can generate an ophthalmology consult including changes in vision, eye pain, periorbital swelling,

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trauma, papilledema, and screening for ocular manifestations of disease.<sup>1</sup> The most common medical ocular diagnoses occurring in these settings include refractive error, conjunctivitis, diabetic retinopathy, corneal abrasion, preseptal or orbital cellulitis, cranial nerve palsy, optic neuritis, and uveitis.<sup>2,3</sup> Traumatic conditions such as orbital wall fractures, periorbital contusions, hyphema, eyelid laceration, corneal abrasion, traumatic iritis, and corneal/conjunctival foreign body are also common. Hospital services that request ophthalmology consults include emergency medicine, internal medicine, neurosurgery, neurology, and pediatrics.<sup>3</sup>

At most teaching hospitals, ophthalmology residents are the primary providers of consultation services both in the emergency department and inpatient settings. In turn, it offers an invaluable educational experience for residents by exposing them to a wide variety of acute clinical pathology including trauma. The hospital is an ideal arena for assessing key competencies such as communication skill, practice-based learning, systems-based practice, and professionalism.

The Accreditation Council for Graduated Medical Education (ACGME) requires an appropriate level of supervision for any clinical care that residents render. The recognized levels are direct and indirect supervision with an immediately available supervising physician, either physically on hospital premise or by means of telephone or electronic communication.<sup>4</sup> Because of the 24/7 nature of consultations and physical separation of the hospital from the outpatient clinics, the provision of timely supervision is not always straight forward. Staffing models can vary among residency programs in terms of the number, duration, and clinical background of staffing providers. There is also variability in terms of how residents are assessed for proficiency specifically related to consult-based patient care.

This study describes the current state of models used for resident supervision in these settings. To our knowledge, this is the first paper specifically examining what methods of supervision are currently being used for hospital-based consultation.

## Methods

The study design was approved by the Institutional Review Board at Oregon Health and Science University. An email

containing a description of the study, an invitation to participate, and a link to an anonymous survey was sent to every program director at 119 ACGME accredited U.S. ophthalmology programs during the spring of 2018. The electronic survey was constructed using Survey Monkey (San Mateo, CA).

The survey consisted of 27 binary or multiple-choice questions with the option for additional comments. Survey questions covered consult volume, rotational schedules of staffing providers, methods of supervision (direct vs. indirect), and utilization of consult-dedicated didactics and resident competency assessments. The survey questions are included in the **Appendix**.

A single reminder email was sent to nonresponding program directors after 4 weeks. The survey was closed after 8 weeks. Descriptive statistical analysis was completed using Microsoft Excel.

## Results

Of the 119 programs, 49 (41%) residency directors completed the survey. In terms of participating program demographics, the most frequently reported number of faculty at each institution ranged from 11 to 33 (28, 57.1%). The most frequently reported number of residents ranged from 3 to 4 per year (29, 59.2%).

The majority of programs reported receiving 4 to 6 consults per day from the emergency room (27, 55.1%) and 4 to 6 consults per day from the inpatient hospital (26, 53.1%). These patients were typically evaluated by either a postgraduate year one (PGY-1) or PGY-2 resident (23, 46.9%) who was on a consult-dedicated specific rotation (36, 73.5%) during regular business hours (36, 73.5%). Consults were typically staffed by a faculty member within a 24-hour period (32, 65.3%). Staffing faculty backgrounds included neuro-ophthalmology, cornea, comprehensive, or a designated chief of service.

For emergency room consults, faculty staffing tended to rotate on either a daily (20, 40.8%) or weekly (18, 36.7%) basis. A minority of institutions reported longer monthly (1, 2.04%) or yearly (10, 20.4%) staffing intervals (► **Table 1**).

Similar results were reported for inpatient consults where staffing faculty tended to rotate on either a daily (18, 36.7%)

**Table 1** Most frequent responses for hospital-based consultation staffing

	Emergency room	Inpatient
Number of consults (24-h period)	4–6 (27, 55.1%)	4–6 (26, 53.1%)
Resident year in training	PGY-1 or PGY-2 (23, 46.9%)	PGY-1 or PGY-2 (23, 46.9%)
Supervising faculty	Faculty (43, 87.8%)	Faculty (43, 87.8%)
Staffing rotational duration	Daily (20, 40.8%) Weekly (18, 36.7%)	Daily (18, 36.7%) Weekly (18, 36.7%)
Direct staffing	1–30% (22, 44.9%)	71–99% (27, 55.1%)
Indirect staffing	1–30% (18, 36.7%) 30–70% (17, 34.7%)	1–30% (24, 49%)

Abbreviation: PGY, postgraduate year.

**Table 2** Most frequent responses for resident teaching and evaluation on consults

Transition to solo call	6–12 wk (22, 44.9%)
Have formal consult didactics	No (27, 55.1%); Yes (22, 44.9%)
Formally assess for resident competency for taking call without direct supervision	No (33, 67.4%); Yes (16, 32.7%)

or weekly basis (18, 36.7%). Longer monthly (1, 2.04%) and yearly (12, 24.5%) intervals were less frequently used.

The percentage of emergency room consults that were personally examined by an attending ranged from 1 to 30% (22, 44.9%). In contrast, inpatient consults had a higher rate of direct staffing by an attending provider ranging from 71 to 99% (27, 55.1%).

In terms of surgical involvement, an estimated 1 to 30% of all consults required surgical intervention (28, 57.1%) for cases such as ruptured globe, eyelid laceration, and orbital compartment syndrome necessitating an emergent lateral canthotomy and cantholysis. These surgical consults were often formally staffed with direct supervision by an attending provider (19, 38.8%). Ruptured globe repairs were typically performed between the hours of 5 pm to 12 am (26, 53.1%).

Programs most frequently reported that their residents start taking call without direct supervision after a 6- to 12-week period of supervised call with either a resident or attending (22, 44.9%). Most programs did not formally assess for competency for call-related patient care without direct supervision (33, 67.4%) and did not offer formal consult-specific didactics or consult proficiency evaluation for its residents (27, 55.1%) (→ **Table 2**). Of the programs that did offer assessments, orientation lectures, consult-based conferences, or a formal oral or written consult proficiency examination were reported methods.

In terms of overall hospital integration, the majority of programs felt their ophthalmology consult service was well integrated into the hospital system (40, 81.6%) and many provided educational content for other hospital services in the format of lectures or workshops (27, 55.1%).

Billing submission for consult services was inconsistent. Most programs submitted between 31 and 70% of consults for formal financial reimbursement (18, 36.7%). Many ophthalmology consults may go financially uncompensated.

## Discussion

Hospital-based ophthalmology consultation represents an important aspect of resident trainee education. Residents are exposed to a wide variety of clinical and surgical pathology within the emergency room and inpatient setting which are arguably ideal settings for direct trainee evaluation and competency assessment. Timely patient evaluation and appropriate staffing support are essential components of a successful service that can meet the needs of patients who are acutely ill and often medically complex.

Many ophthalmology residency programs reported staffing models that typically involve a faculty member who rotates on either a daily or weekly basis in both the emergency room and

inpatient setting. A minority of programs reported having faculty rotate on a longer monthly or yearly interval. The high frequency of short-term rotating staffing providers could reflect competing clinical obligations in the outpatient setting, with the reality that the majority of providers also have their own outpatient clinics. This could also potentially help explain why hospital billing submission rates for ophthalmology consults are inconsistent since short-term staffing providers may have less familiarity with billing protocols for the inpatient or emergency room setting. It implies that many ophthalmology consults may go financially reimbursed.

Despite its less frequent reported use, there are conceivable benefits to having faculty staff on a longer monthly or yearly interval including improved continuity care and extended resident assessments by a single faculty provider. An emerging position known as an “ophthalmic hospitalist” features a single provider who is specifically dedicated to hospital-based care and staffs inpatient and emergency room consults. This model is now being utilized by various residency programs with success.<sup>5</sup>

In terms of direct staffing supervision, the emergency room had lower reported rates of in-person staffing compared with inpatient consults. This could reflect existing institutional policies that may have stricter direct staffing requirements for inpatient consults. Hospitalized patients may also have more complex or severe ocular conditions that require a higher degree of attending supervision. In contrast, patients requiring surgical interventions such as ruptured globe repair had a high level of direct attending supervision, presumably because these cases are often managed within a formal operative room setting.

The low reported rate of formal consult-related didactics or consult proficiency evaluation among residency programs was a surprising finding. Most programs do not formally assess for resident competency prior to the initiation of solo call-related activities without direct supervision. One could argue that urgent and complex ocular conditions often arise in the emergency room or inpatient setting and require a certain level of knowledge and skill on part of resident trainees, many of whom begin solo call responsibilities as early as 6 to 12 weeks. ACGME uses competency-based milestones that require a certain level of proficiency for all residents who progress through their training. Aspects of Professionalism, Patient Care and Procedural Skills, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, and Systems-Based Practice are required.<sup>4</sup> Staffing providers must carefully navigate the careful balance between trainee supervision and autonomy, both of which are essential components of resident education.

One program reported the use of a consult syllabus featuring a list of ocular conditions and landmark studies pertinent to the inpatient or emergency room. Two programs used a formal consult proficiency examination to help ensure that residents have a certain level of proficiency before managing patients on call without direct supervision. Having more standardized measures for consult-specific competencies may encourage safer practices and increase accountability on part of residency training institutions.

Limitations of this study include an incomplete response rate for the survey. There may be other models of consultation being used at academic centers which are not included in this study. Further statistical analysis could also have been performed with a different survey design allowing for specific integer entry rather than ranges for available responses.

## Conclusion

A variety of models are being used for inpatient and emergency room-based ophthalmology consultation at academic centers. More emphasis on consult-focused didactics and

proficiency evaluation for residents who evaluate patients without direct attending supervision could improve resident education and patient safety.

## Conflict of Interest

None declared.

## References

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