

# Association of Preoperative Disclosure of Resident Roles With Informed Consent for Cataract Surgery in a Teaching Program

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**IMPORTANCE** Cataract surgery is the most commonly performed intraocular surgery. Academic centers have mandates to train the next surgeon generation, but resident roles are often hidden in the consent process.

**OBJECTIVE** To investigate associations of full preoperative disclosure of the resident role with patient consent rates and subjective experience of the consent process.

**DESIGN, SETTING, AND PARTICIPANTS** Full scripted disclosure of residents' roles in cataract surgery was delivered by the attending surgeon. Qualitative analysis was conducted from recorded interviews of patients postoperatively regarding consent process experience and choice of whether to allow resident participation. Associations were sought regarding demographic characteristics and consent rates. Patients were recruited through a private community office. Surgery was performed at a single hospital where resident training was routinely conducted. The study included systemically well patients older than 18 years with surgical cataract. They had no previous eye surgery, English fluency, and ability to engage in informed consent decision-making and postsurgery interview. Patients were ineligible if they had monocular cataracts, required additional simultaneous procedures, had history of ocular trauma, or had cataracts that were surgically technically challenging beyond the usual resident skill level.

**INTERVENTIONS** Eligible patients received an informed consent conversation by the attending physician in accordance with a script describing projected resident involvement in their cataract surgery. Postoperatively, patients were interviewed and responses were analyzed with a quantitative and thematic qualitative approach.

**MAIN OUTCOMES AND MEASURES** Consent rates to resident participation and qualitative experience of full disclosure process.

**RESULTS** Ninety-six patients participated. Participants were between ages 50 and 88 years, 53 were men (55.2%), and 75 were white (85.2%). A total of 54 of 96 participants (56.3%; 95% CI, 45.7%-66.4%) agreed to resident involvement. There were no associations between baseline characteristics and consent to resident involvement identified with any confidence, including race/ethnicity (60% [45 of 75] in white patients vs 30.8% [4 of 13] in nonwhite patients; difference, 29.2%; 95% CI, -0.7% to 57.3%; Fisher exact  $P = .07$ ). Thematically, those who agreed to resident involvement listed trust in the attending surgeon, contributing to education, and supervision as contributing factors. Patients who declined stated fear and perceived risk as reasons.

**CONCLUSIONS AND RELEVANCE** Our results suggest 45.7% to 66.4% of community private practice patients would consent to resident surgery. Consent rates were not associated with demographic factors. Because residents are less often offered the opportunity to do surgery on private practice patients vs academic center patients, this may represent a resource for resident education.

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With an aging population, cataract surgeries will increase significantly: 30 million American individuals are estimated to develop cataracts by 2020.<sup>1,2</sup> Surgical training, especially cataract surgery, is a necessary facet of ophthalmology residency programs. Although surgical simulators and wet laboratories may increase comfort level, residents must ultimately perform ocular surgeries on patients. This is accomplished through graded responsibility, where trainees perform supervised increasingly complex tasks appropriate for their level.<sup>3</sup>

Resident involvement in cataract surgery is often through resident clinics, where the resident is the primary clinician. Patients may not fully understand that their physician is still in training.<sup>4</sup> These clinics may attract patients with low socioeconomic, education, and literacy levels, further challenging the likelihood of full informed consent. Some private patients who have surgery at academic centers may be passed by attending surgeons to residents, sometimes with little or no knowledge by patients.

The President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry and American Academy of Ophthalmology policies require ophthalmologists to inform patients of who will be involved in their surgical care.<sup>5-7</sup> In our experience, the resident's role in surgery is often not clearly disclosed. Resident surgery outcomes have been studied,<sup>8-10</sup> but little has been investigated about consequences of full disclosure of the resident role. We investigated the association of full preoperative disclosure of the resident role with patient consent rates and subjective experience of the consent process.

## Methods

### Selection

The Wills Eye Hospital institutional review board approved this study. Consent for surgery was written according to the standard surgical consent form but not specific to resident participation, which was delivered verbally. Consent to the study (interview after surgery) was written. Participants were recruited through the community ophthalmology clinic of an investigator-attending physician (B.J.M.) who performs cataract surgery at a community hospital where Wills Eye Hospital residents rotate. For 20 years, he has taught residents surgically at both the community hospital and within Wills' academic center. He has won the annual resident teaching award twice. His private practice is located in a largely residential and socioeconomically middle-class region. He accepts many insurance programs including Medicare. Residents are not present at office visits; they do not meet patients preoperatively.

During the interval of the study, a total of 215 cataract surgeries were performed; of these, 96 were eligible study patients. Systemically well patients older than 18 years with surgical cataract were eligible. They had no previous eye surgery, English fluency, and an ability to engage in informed consent decision-making and postsurgery interview. Patients were ineligible if they had monocular cataracts, required additional simultaneous procedures, had history of ocular trauma, or had

### Key Points

**Question** What is the association of preoperative disclosure of resident roles with patient consent rates for cataract surgery and what is the patient's subjective experience of this process?

**Findings** In this cohort study, about half of community-based patients would consent to resident involvement in cataract surgery, with no associations between baseline characteristics and consent. Thematic categories suggested to have been associated with giving or declining consent included trust in the attending surgeon, contributing to training of future surgeons, and supervision.

**Meaning** These findings suggest approximately half of community private practice patients may consent to resident surgery following preoperative disclosure.

#### Box 1. Inclusion and Exclusion Criteria for the Resident Participation in Cataract Surgery

##### Inclusion Criteria

- Surgical cataract
- Fluent in English
- No confounding systemic disorder (eg, developmental delay or deaf)
- Able to engage in informed consent decision-making and postconsent interview
- No previous eye surgery

##### Exclusion Criteria

- Monocular conditions
- 18 years or younger
- Patients requiring combined procedures
- Patients with advanced coexisting corneal pathology
- Patients with advanced glaucomatous disease
- Patients with advanced retinopathy/maculopathy
- Patients with a history of blunt force or penetrating ocular trauma
- Technically challenging cases as deemed by the attending physician

cataracts that were surgically technically challenging beyond the usual resident skill level (Box 1).

### Consent

Consecutive eligible patients received informed consent conversations by the investigator-attending surgeon (B.J.M.), using a script including description of possible partial or complete resident participation in their cataract surgery (eAppendix 1 in the Supplement). This script was generated with research team consensus, considering previous research.<sup>11</sup> It was not provided in print to the patient or held by the surgeon during consent conversations. The surgeon memorized and included the content in a free-flowing discussion to ensure all material and patient questions were covered. Consent included usual discussions regarding cataract surgery beyond resident involvement. The period between the patient's first visit to the surgeon, for whatever

reason, and consent date was defined as the length of the physician-patient relationship.

Keeping with the surgeon's usual practice, participants were given a choice of surgery locations independent of their decision for resident involvement. Participants who did not consent to resident involvement or chose a location where residents did not rotate had their surgery performed entirely by the attending surgeon. Patients who consented to resident involvement and selected a hospital with residents had part or all of their surgery performed by residents at discretion of the attending surgeon. These patients were not informed postoperatively about the amount of resident involvement. Resident involvement during surgery was allocated based on demonstrated skill level and case progressions. Although most patients were awake intraoperatively, attempts were not made to disguise resident involvement or teaching. Because we were interested in studying the disclosure and consent process, surgery outcomes were not evaluated.

### Data Collection and Analysis

At a postoperative office visit, patients participated in a semistructured interview (eAppendix 2 in the Supplement) to explore their decision-making process regarding consent for resident participation. Interviews were conducted by a research assistant trained in qualitative research interview techniques. Incentives to participate were not offered. If requested by the patient, a family member could be present. Interviews were conducted in private rooms within the physician's office. Primarily open-ended questions were used. Interviews concluded when information gathering appeared saturated.

All interviews were recorded and transcribed verbatim and entered into qualitative analysis software (NVivo10, QSR International). Analysis of interview responses used a modified thematic approach involving 3 phases: open, axial, and selective coding. The first phase identified chunks of data related to themes, the second organized themes into conceptual categories, and the third organized conceptual categories in relation to identified core study concepts.

Demographic information collected following the interview included sex, age, race/ethnicity, and education level. Medical records provided best-corrected preoperative and postoperative visual acuity of the surgical and fellow eye. Snellen visual acuity was converted into logMAR, and counting fingers or hand motions were recorded as Snellen 20/4000 or 20/8000, respectively.

Required sample size was based on estimating consent rate with 20% confidence interval width. We assumed, a priori, a 70% consent rate (95% CI, 60%-80%) yielding a required 89 participants. We aimed to include 100 patients allowing for the potential missing data. Patients who consented were compared with those who did not using  $\chi^2$  tests or Fisher exact test and, for continuous factors, Kruskal-Wallis testing. Tests were 2-sided, and *P* values less than .05 were considered significant.

## Results

Ninety-six patients were interviewed between December 2011 and April 2014. Most interviews (*n* = 79 of 96; 82.6%) were con-

ducted within 1 to 4 weeks postoperatively (mean, 14.21 days). Participants were between ages 50 and 88 years (mean [SD], 71.5 [8.97] years), and 44.79% were women (*n* = 43 of 96). Demographic information and decision to consent for resident involvement are summarized in Table 1. Overall, 54 of 96 patients (56.3%; 95% CI, 45.7%-66.4%) agreed to resident involvement in their surgery. There were no associations between baseline characteristics and consent to resident involvement identified with any confidence, including race/ethnicity (60% in white patients [*n* = 45 of 75] vs 30.8% in nonwhite patients [*n* = 4 of 13]; 95% CI, -0.7% to 57.3%; Fisher exact *P* = .07). There were 43 different professions recorded, including 12 health-related professions. Five of 12 health professionals declined resident involvement. In comparison, 11 of 31 nonhealth professionals declined ( $\chi^2$ , 0.1415; *P* = .71).

Qualitative analysis revealed several major themes from the interviews, which were condensed into predominant themes each for those agreeing to or declining resident participation. These themes are presented in Table 2, with samples of the comments presented in Box 2.

### Agreement for Resident Participation

#### Theme 1: Trust in the Attending Surgeon

Thirty-one participants (57.4% of those who consented) made statements with the theme of trust in the attending surgeon as the reason for consenting to resident involvement. This trust was attributed to a positive long-standing relationship with the attending surgeon. A patient with a 10-year relationship with the attending surgeon was surprised by the request, because in past surgeries the patient could not recall being asked permission for this involvement. Because of the length of the relationship, the patient trusted his suggestion, agreed to resident participation, and appreciated the transparency provided. Another patient, who came at the recommendation of his primary care eye physician of 20 years, emphasized the importance of trust in following physician recommendations. The patient trusted his physician's recommendation to see the cataract surgeon and by extension trusted the surgeon's recommendation for resident participation. Another patient with a prior career in health care and understanding of resident involvement trusted that the attending surgeon would be ultimately responsible. Multiple comments were made about the forthright honesty in disclosure of resident involvement.

#### Theme 2: Belief in Contributing to Future Physician Education

Twenty-nine patients' statements (53.4% of those who consented) corresponded with the theme of support for furthering education and training for residents. Patients recognized that on-the-job training was pertinent to learning. Many patients related to hands-on training on a professional level after having trained similarly for their own professions including truck driving, machinist, and nursing among others. They recognized the necessity of training future surgeons.

#### Theme 3: Assurance of Resident Supervision

Thirty-three patients' statements (61.1% of those who consented) corresponded with the theme that participants felt assured that the resident would be adequately supervised.

Table 1. Demographics and Consent to Resident Involvement

Characteristic	No. (%)		
	Total No. (%)	Resident Agreed (n = 54)	Declined (n = 42)
Sex			
Male	53 (55.2)	32 (60.4)	21 (39.6)
Female	43 (44.8)	22 (51.2)	21 (48.8)
Age, y			
<70	35 (39.3)	19 (54.3)	16 (45.7)
70-79	36 (40.4)	21 (58.3)	15 (41.7)
>80	18 (20.2)	11 (61.1)	7 (38.9)
Race/ethnicity			
White	75 (85.2)	45 (60.0)	30 (40.0)
Other	13 (14.8)	4 (30.8)	9 (69.2)
Highest level of education			
Some high school, no diploma or high school degree, no college	48 (53.3)	29 (60.4)	19 (39.6)
Some college, 2-y or 4-y degree	30 (33.3)	15 (50.0)	15 (50.0)
Postundergraduate education	12 (13.3)	7 (58.3)	5 (41.7)
Length of doctor-patient relationship, y			
<1	46 (55.4)	23 (50.0)	23 (50.0)
1-2	19 (22.9)	13 (68.4)	6 (31.6)
>3	18 (21.7)	11 (61.1)	7 (38.9)
Vision acuity: preoperative (logMAR): affected eyes			
No.		60	45
Median (IQR)		0.44 (0.3 to 0.54)	0.48 (0.3 to 0.7)
Visual acuity; postoperative (logMAR): affected eyes			
No.		60	45
Median (IQR)		0 (0 to 0.18)	0 (0 to 0.1)
Visual acuity change (logMAR): affected eyes			
No.		59	45
Median (IQR)		-0.3 (-0.48 to -0.22)	-0.4 (-0.6 to -0.2)

Abbreviation: IQR, interquartile range.

Many patients agreed to resident involvement knowing the procedure would occur with attending guidance. Patients felt confident with resident involvement because they were reassured that the attending surgeon would supervise and be able to intervene if needed.

### Declining Resident Participation

#### Theme 1: Fear

Thirty-seven participants' statements (88.1% of those who declined) corresponded to fear associated with resident involvement. Some feared resident participation would increase the surgery complication risks. Others felt their poor eye health, age, or other factors made their case too risky for resident involvement. Some developed this fear from prior resident interactions. Others did not want to be "test subjects." Many who declined did not want residents to be involved because the operation involved their eyes. Had it been another body part, they may have considered resident involvement.

#### Theme 2: Trust in Only the Attending Surgeon

Thirty-five patients' statements (83.3% of those who declined) corresponded with trust in only the attending surgeon. In contrast to those who agreed to resident involve-

ment, these participants felt a personal relationship with the attending surgeon and thus felt uncomfortable allowing resident involvement. Patients noted that they were more comfortable having the attending surgeon they trusted, rather than a resident they had not previously met perform the surgery.

### Discussion

Our study sought to elucidate the association of full preoperative disclosure of resident involvement with patient consent rates and investigate individual experiences of the consent process. More than half of participants agreed to surgery with resident involvement with no background characteristics predicting their decision. Trust in the attending surgeon, desire to help train future physicians, and assurance of resident supervision were factors associated with consent. In contrast, those who declined resident involvement cited trust in only the attending surgeon to do the surgery or fear as factors.

It is generally agreed that patients should be made fully aware of who is doing their procedure, particularly as their involvement increases.<sup>12,13</sup> Most patients feel a general consent form is sufficient for residents' presence in the operating room,

Table 2. Qualitative Themes Regarding Consent Decisions

Factor	No.
Factors associated with agreeing to resident involvement (individual statements)	
Theme 1: trust in the attending surgeon (31 patients) <sup>a</sup>	
Positive physician-patient relationship with attending surgeon	29
Trusted attending surgeon's expertise	11
Theme 2: belief in contributing to future physician education (29 patients)	
Hands-on training a requirement for learning	26
Wanted to help train future physicians	8
Theme 3: assurance of resident supervision (33 patients)	
Attending surgeon said he/she would directly supervise	32
Attending surgeon offered thorough explanation of surgery and resident's experiences	2
Other: (15 patients)	
Thought they consented to resident observing/assisting	7
Patient did not fear resident involvement owing to prior positive experiences in health care	3
Positive history with residents	1
Resident involvement in cataract surgery could possibly increase the risk of complication	1
Patient felt resident may do a better job than a practicing physician	1
Total	122
Factors associated with disagreeing to resident involvement (individual statements)	
Theme 1: fear (37 patients)	
Resident involvement in cataract surgery could possibly increase the risk of complication	26
Negative history with residents	8
History of poor eye health, felt resident involvement too risky	7
Risk: first surgery (n = 1), too old to risk outcome (n = 4)	5
Attending surgeon expressed that patient's surgery would be a special case	2
Theme 2: trust in the attending surgeon <sup>b</sup> (35 patients)	
Wanted practicing physician	26
Personal relationship with attending surgeon: felt uncomfortable with unknown resident performing/felt comfortable with surgery by someone they met prior to day of surgery	12
Positive physician-patient relationship with attending surgeon	11
Trusted attending surgeon's expertise	3
Other: (10 patients)	
Family member or friend discouraged resident involvement	9
Resident's level of experience not enough to perform cataract surgery	1
Total	110

<sup>a</sup> Numbers correspond to individual statements and thus some participants made more than 1 that corresponded with each theme. Trust: 31 patients; education: 29 patients; and supervision: 33 patients.

<sup>b</sup> Numbers correspond to individual statements and thus some participants made more than 1 statement that corresponded with each theme. Fear: 37 patients; trust: 35 patients.

but fewer agree it would suffice for assistance or performance of the surgery and prefer full disclosure instead.<sup>13</sup>

In practice, full disclosure of resident roles may be limited. Although most patients feel that knowing training level is important, few can accurately report their physician's role.<sup>14</sup> Surveys have shown few discussions occur regarding who the planned surgeon will be, and most choose not to discuss the surgeon's grade, instead referring to the "surgical team."<sup>15</sup> If patients want

## Box 2. Example Statements for Qualitative Themes Regarding Consent Decisions

### Consented to Resident Involvement

#### Theme 1: Trust in the Attending Surgeon

- One patient immediately had confidence in the attending surgeon and stated, "if he feels [resident involvement] is okay, then I'm okay."
- Another trusted, "Dr Markovitz wouldn't let anything happen to [him]."
- After a 10-year physician-patient relationship, the patient had "enough faith in him" to trust his suggestion for resident involvement.
- The patient trusted the attending surgeon because "he took care of [him] like he would take care of somebody in his family."
- He felt the attending surgeon was "leveling" with him. He "admired and respected that," further increasing their trust in him.

#### Theme 2: Belief in Contributing to Future Physician Education

- One patient stated "[residents] need to be doing [surgery] if they're going to get better. They need somebody to work on."
- A second patient believed that "on-the-job training is the best, because you understand everything."
- Another patient felt, "you have to learn by doing...till you experience it firsthand you can't do it."
- Another patient stated, "you can't learn if you never get to do it."
- A patient stated that during the surgery, he was mentally "cheering [the resident] on. Not because it would do [the patient] any good, but because [he] wanted [the resident] to learn."
- As one patient phrased it, "if no one allowed people to train, 20 years from now we wouldn't have any [surgeons]."

#### Theme 3: Assurance of Resident Supervision

- He believed that someone in training "is going to try so hard to do [a] good job, that you may even get a better job than the more experienced individual."
- Patients were reassured that the attending surgeon would be "there and if something went wrong, he would be there."
- They "have to learn somewhere."

### Declined Resident Involvement

#### Theme 1: Fear

- Patients feared having someone "learning on [them]."
- "If I choose to have a resident and something goes wrong...I won't be able to forgive myself for having chosen a resident."
- "It was my eyes. There are certain parts of the body you don't fool around with and the eye is one of them."

#### Theme 2: Trust in Only the Attending Surgeon

- "The doctor I see is the doctor I want to perform my surgery."
- "I trust Dr Markovitz, but I didn't trust the fact that I didn't know anything about [the resident]."
- One person said that "maybe if [I] had met the resident and the resident seemed very smart and very educated and very knowledgeable and he knew what he doing maybe then [I] would've said 'OK you can do it but [the attending surgeon would have to] be on the side'."

to know of resident involvement in their surgery, and there is a general consensus that they should be informed, why in practice is this often not the case? Some reasons for not disclosing resident involvement include concern patients would have increased anxiety, patients would not understand, patients may select another center without trainees, and physicians lack sufficient time for disclosure.

Studies show most residents<sup>16</sup> and physicians<sup>11</sup> feel disclosure would increase patients' anxiety levels, invoking the principle of nonmaleficence. This is referred to as *therapeutic privilege*, reinforcing the idea of nondisclosure having risks that outweigh the benefits. The courts in both the United States and Canada ruled therapeutic privilege may be invoked only under extraordinary circumstances.<sup>17</sup>

To suggest that patients would not understand the teaching process counters the consideration that these same patients can handle information to consent for the surgery itself, some of which is potentially more fear provoking, including risks of death and blindness, or more complicated, such as details of complicated intraocular procedures. Why would a patient be less able to understand how the teaching environment works? For example, parents of patients understood details of pediatric cataract surgery given explicit education and time, as done in our study, to define the trainee roles.<sup>18</sup>

Our surgeon estimated it took 5 minutes or less to complete the study consent process with variation owing to patient questions. Although contact time is limited in today's medical environment by many factors,<sup>19,20</sup> if full consent is required and recommended to increase patient satisfaction and decrease malpractice litigation, then we should prioritize this need. In June 2017, the Pennsylvania Supreme Court ruled that only physicians, not members of their staff, could obtain informed consent. Delegating extended consent discussions to alternative care clinicians could increase efficiency and manage physician time.

A large reason full disclosure is avoided is fear that patients would refuse trainee participation, thus negatively affecting residency training.<sup>12</sup> Our report suggests that 54 of 96 patients (56.3%; 95% CI, 45.7%-66.4%) would consent with full disclosure. This is supported by other studies, both with surgeries and emergency department procedures.<sup>13,14</sup> This was also seen in parental consent regarding their children, a situation which one might think even more sensitive.<sup>4</sup> Gan et al<sup>21</sup> reported 95.3% of their patients consented to resident cataract surgery. The higher rate reported may in part be owing to the design: resident participation was presented as a hypothetical option, rather than an actual event to take place. Additionally, the study was performed in Canada, where patients may feel a greater obligation to support resident training given the publicly supported health care system from which they benefit.<sup>22</sup>

Patient demographics may affect consent rates. In many academic institutions, private cases are less often passed to residents, who obtain most hands-on training via patients generated in resident clinics. The former tend to be of higher economic status, insured, and more educated. In resident clinics, residents are presented as the primary surgeons although the surgery is done with an attending surgeon's supervision. As stated by Fiebach and Wong,<sup>23</sup> "patients in resident practices rarely choose their individual physician, unlike patients in private practice or managed care plans."<sup>23</sup> Compared with attending physicians' patient populations, the patients of residents were more likely to be African American, male, and have lower socioeconomic status, physical, and mental health

scores.<sup>24</sup> Perhaps the lower socioeconomic and educational status of these patients leads not only to higher consent rates, but an additional feeling that they have nowhere else to go. This might be aggravated by the nonacceptance of lower-paying insurance, such as Medicare, by some private practitioners. We studied a population more characteristic of the "private" patient. Even if one considers our 56.3% consent rate as "low," it still indicates a potentially untapped training resource: more than 50% of private cases could be successfully passed to residents while keeping the patient fully informed. Further study is needed to determine the effect of full resident disclosure in resident clinics.

Our research suggests the factors contributing to a patient's decision for resident participation are modifiable. Attending physicians can work to develop good rapport with their patients. When patients trust their attending physicians, they are more likely to trust their advice on resident involvement, although there was a converse implication that they might trust only the attending physician to perform the surgery. Increased transparency could allow residents and patients to interact more openly and increase patient comfort level with the resident.<sup>25</sup> Those who declined consent feared the risks associated with resident involvement. However, many studies show similar resident and attending cataract surgery outcomes.<sup>26-28</sup> This observation is likely a result of excellent supervision and case selection. Additionally, resident involvement extends beyond intraoperative event and includes both preoperative and postoperative continuity. If patients are educated about these facts and feel that their attending surgeon will only delegate as appropriate, patients' confidence in allowing resident surgery may increase.

### Limitations

Our study was limited to 1 institution and 1 attending physician, perhaps limiting generalizability. The attending surgeon in our study is an award-winning teacher and may have unique personality features and interpersonal skills. Further research is needed to determine whether similar results are shown with different institutions or attending physicians. We did not analyze surgical outcomes. Because patients did not have prior surgery, we believe this lack of prior experience would not influence consent rates. We did not assess patient personality characteristics or experiences with the medical system for nonocular issues.

### Conclusions

In summary, we examined the implications of full disclosure of the resident role in cataract surgery in a private practice setting. We found no demographic characteristics that were associated consent rates. The trust a patient has in their attending surgeon is a primary factor in their decision. Patient perception of surgical risk from resident involvement also affected consent rates. We found that 56.3% of the patients studied would consent to resident surgery, and we identified targets where this may be elevated further. Our data suggest there is a significant potential to increase the pool of patients willing to have resident cataract surgery.

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