

# EFFECTS OF COVID-19 ON RETINA PRACTICES AND PATIENTS



A survey found that delays in care have been related to poor visual outcomes in some patients.

BY EROL ERI VERTER, MD, MS; PATRICK COADY, MD, MBA; DEVEN HUANG; AND JOHN J. HUANG, MD, MBA, CPE

COVID-19 has caused tremendous disruption to daily living as we knew it. As the fear of contracting the viral infection grew and stay-at-home orders were implemented, many patients found themselves in a conundrum: Do I try to see my doctor now or wait until the peak comes down?

Telehealth has been a saving grace for some providers, mainly in triaging patients. However, it is less than ideal, especially for patients who require immediate surgical attention or continued maintenance therapy.<sup>1,2</sup> We have seen reports of major coronary ischemic events or strokes occurring in patients who were afraid to call 911 or come to the hospital. Cancer patients who were scheduled to undergo resection of solid tumors have had their surgeries postponed, risking progression of their conditions. New concerns grew for patients needing bone marrow transplants who would require stays in an intensive care unit in a resource-constrained system.<sup>2-4</sup>

Delays in care for ophthalmic conditions have also caused detrimental results among our own patients. Following advice from the US Surgeon General and the Centers for Disease Control and Prevention, in March the AAO recommended cessation of care for nonurgent ophthalmic issues.<sup>5</sup>

In the field of retina, questions arose: Should patients come in for their routine intravitreal injections? Can we

delay treatment for chronic diseases such as diabetic macular edema (DME) or wet age-related macular degeneration (AMD)?

## AT A GLANCE

- ▶ Although telehealth has been helpful during the pandemic, it is less than ideal for patients who require continued maintenance therapy.
- ▶ Despite retina care being considered an essential service, retina practitioners responding to a survey in May and June said their volume had dropped to as low as 40% of pre-pandemic levels.
- ▶ Many patients with AMD, DME, and RVO delayed their intravitreal injections during the pandemic, leading in some cases to permanent vision loss.

Seeking to understand the impact of COVID-19 on retina practices and on patients with delayed maintenance intravitreal injections, we conducted a survey. Here we report some of the results of that survey.

## METHODS

A web-based survey was sent to members of the American Society of Retina Specialists. Distribution was achieved via mass email. The survey consisted of 22 items, including questions regarding institution, demographics, location and type of practice, and the effect of COVID-19 on patients whose treatment for wet AMD, diabetic retinopathy (DR), or retinal vein occlusion (RVO) was delayed.

## RESULTS

### Demographic

From May 16 to May 23, 139 practicing retinal specialists responded to the survey. Of the respondents, 84% (117/139) were from United States. Among the US respondents, a plurality were from the Northeast (36/117; 31%).

There were similar numbers of participants from urban (71/139; 51%) and suburban (66/139; 49%) locations. A plurality were from retina-only practices (53/139; 38%). Other practice situations included multispecialty ophthalmology practices (29/139; 21%), academia (26/139; 19%), solo retina practices (24/139; 17%), and private equity–owned retina practices (8/139, 6%).

A plurality of the respondents practiced in cities where there was a moderate amount of hospitalization due to COVID-19 (58/139; 42%).

### Clinical Volume Impact

Retina practices were deemed essential services and thus were kept open during the pandemic. However, many saw a decrease in clinical volume. Asked about how the pandemic affected practice volume, 31% of respondents said their practice volume was between 40% and 60% compared with pre-pandemic volume; 28% said volume was 20% to 40% compared to pre-pandemic volume; and 15% said volume was between 5% and 20% of pre-pandemic volume. A small percentage of practices (3%) said they did not see a decline in their clinical volume (Figure 1).

Most respondents said they believed that their drop in clinical volume was due either to patients' (46%) or families' (35%) fear of getting sick. Other reasons cited included lack of transportation (10%) and lack of personal protective equipment (5%).

### Wet AMD Impact

Survey respondents said they believed that 48% of wet AMD patients experienced delays of intravitreal injections due to the pandemic. Of the patients experiencing delays, 43% were delayed by 2 to 4 weeks, 23% by 4 to 6 weeks, 15%

## Decreases in Volume at Retina Clinics

How did the COVID-19 pandemic affect volume at your clinic?

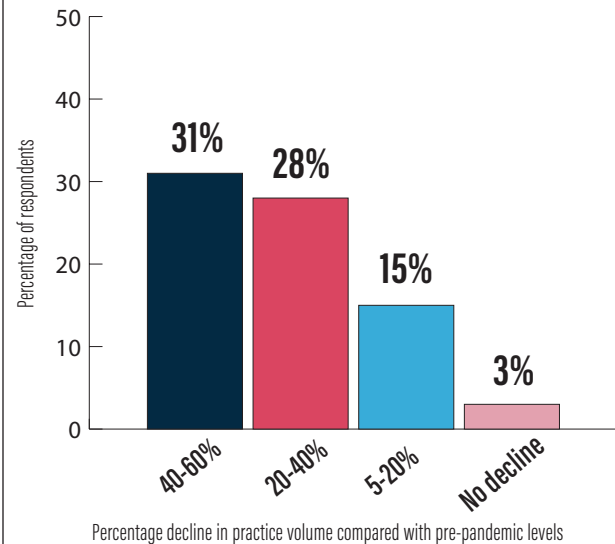


Figure 1. More than half of retina clinics reported that patient volume had fallen by at least 20%.

by 6 to 8 weeks, and 19% were lost to follow-up.

Patients with longer delays had worse visual outcomes, according to the survey respondents. Survey respondents said that some degree of permanent vision loss was noted in 14% of patients with injection delays of 2 to 4 weeks, in 27% of patients with delays of 4 to 6 weeks, and in 42% in those with delays of 6 to 8 weeks. Survey takers said that 13% of patients who delayed their injections by 6 to 8 weeks had no visual recovery potential.

### DME Impact

Most of the respondents believed that approximately 20% to 40% of all diabetic patients presented with worsening a1c levels during the COVID-19 pandemic, and most respondents reported that up to 20% of all diabetic patients reported with weight increases of at least 5 pounds.

Survey respondents said that approximately 55% of DME patients delayed their visits (Figure 2). Of the patients who had delays, 38% were delayed by 2 to 4 weeks, 21% by 4 to 6 weeks, 21% by 6 to 8 weeks, and 20% were lost to follow-up.

Survey respondents said 12% of all their DR and DME patient delayed care by 6 to 8 weeks. Respondents anticipated no visual recovery potential in approximately 7% of patients who delayed injections by at least 6 weeks.

### RVO Impact

Respondents estimated that 49% of RVO patients had

## DME Patients, Delays in Treatment, and Permanent Vision Loss

Respondents estimated that patients with DME who delayed their injections saw permanent vision loss.

Delays of...	...led to vision loss in % of patients.
2 to 4 weeks	10%
4 to 6 weeks	18%
6 to 8 weeks	22%

Figure 2. In patients with DME, higher estimates of permanent visual loss correlated with longer duration of delayed treatment.

delayed their visits and injections. Of the delayed group, 39% were delayed by 2 to 4 weeks, 23% by 4 to 6 weeks, 14% by 6 to 8 weeks, and 24% were lost to follow-up.

Again, those with longer delays had worse visual outcomes. Permanent vision loss was estimated to occur in 12% of patients with 2 to 4 weeks' injection delay, 20% in those with 4 to 6 weeks' delay, and 27% in those with 6 to 8 weeks' delay. Survey takers said they believed that 6% of patients who delayed their injections by 6 to 8 weeks had no visual recovery potential.

### DISCUSSION

Our survey demonstrated that many retina specialists saw a decline in clinical volume during the pandemic. The reasons for delaying care were many, but the main factor was fear of becoming infected with SARS-CoV-2. Most survey respondents were optimistic in terms of clinical volume recovery and said they believed that their volume would return to pre-pandemic baseline within 1 year. Only 6% said they believed the decline would be permanent.

Many patients with wet AMD, DME, and RVO who delayed their intravitreal injection regimens experienced worsening vision, according to respondents. As would be expected, patients who were delayed the longest had the highest incidence of permanent vision loss with no potential for recovery.

Most respondents (82%) said they would continue in their current practice, and 12% said they might consider earlier retirement. A minority of the responding retina specialists said they would consider taking a job in a private equity-owned retina practice.

The impact of COVID-19 has not been limited only to patients exposed to the virus.<sup>2,3</sup> The economic, educational,

medical, and mental health consequences of the COVID-19 pandemic are slowly being recognized by society. In our retina community, fear of COVID-19 has led patients to delay their treatments for wet AMD, DME, and RVO. These delays in treatment have had a substantial impact on retina practices around this country and around the world.

As this survey has pointed out, many of our patients now face increased morbidity and permanent damage to their vision. This survey demonstrates the importance of timely treatment for wet AMD, DME, and RVO, even in the era of COVID-19. The new normal for both patients and retina specialists will be to continue timely treatment while taking precautions by wearing proper personal protective equipment and practicing social distancing in the clinic setting.<sup>6</sup>

We hope that the information generated by this survey will be helpful for patients and retina specialists as, at the time of this writing, we are seeing a resurgence in the rate of COVID-19 infections around the United States as communities begin to ease restrictions related to COVID-19. ■

1. Hollander JE, Carr BG. Virtually perfect? Telemedicine for covid-19. *N Engl J Med*. 2020;382(18):1679-1681.

2. Rosenbaum L. The untold toll — the pandemic's effects on patients without covid-19. *N Engl J Med*. 2020;382(24):2368-2371.

3. COVID-19 significantly impacts health services for noncommunicable diseases [press release]. World Health Organization. June 1, 2020. <https://www.who.int/news-room/detail/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases>. Accessed July 1, 2020.

4. Hospital admissions for strokes appear to have plummeted, a doctor says, a possible sign people are afraid to seek critical help. *The Washington Post*. April 9, 2020.

5. Recommendations for urgent and nonurgent patient care. American Academy of Ophthalmology. Updated April 17, 2020. [https://www.aao.org/headline/new-recommendations-urgent-nonurgent-patient-care#disqus\\_thread](https://www.aao.org/headline/new-recommendations-urgent-nonurgent-patient-care#disqus_thread). Accessed July 1, 2020.

6. Parke DW. Ophthalmology after coronavirus disease 2019 (COVID-19): transition back to patient care. *JAMA Ophthalmol*. 2020;138(6):599-600.

### PATRICK COADY, MD, MBA

- Assistant Clinical Professor, Yale University School of Medicine
- Associate, New England Retina Associates
- [patrick.coady@yale.edu](mailto:patrick.coady@yale.edu)
- Financial disclosure: None

### DEVEN HUANG

- Student, Choate Rosemary Hall
- [devenhuang@yahoo.com](mailto:devenhuang@yahoo.com)
- Financial disclosure: None

### JOHN J. HUANG, MD, MBA, CPE

- Clinical Associate Professor, Yale University School of Medicine
- Partner, New England Retina Associates
- [jjqhuang@yahoo.com](mailto:jjqhuang@yahoo.com)
- Financial disclosure: None

### EROL ERI VERTER, MD, MS

- Clinical Instructor, Yale University School of Medicine
- Vitreoretinal Surgical Fellow, New England Retina Associates
- [eriverter@gmail.com](mailto:eriverter@gmail.com)
- Financial disclosure: None