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The continuing impact of COVID-19 on dermatology practice: Office workflow, economics, and future implications

To the Editor: Coronavirus disease 2019 (COVID-19) is significantly impacting health care delivery worldwide. Its initial impact on United States (US) dermatology practices was recently assessed.[1] This study determined the magnitude of the ongoing impact of COVID-19 on US dermatology outpatient care.

Data were analyzed from the first 1000 responses to 3 prevalidated surveys of 9891 practicing US dermatologists comparing outpatient volumes and scheduling issues for the week of February 17 to the week of March 16 (survey 1), April 13 (survey 2), and May 18, 2020 (survey 3). Representativeness with American Academy of Dermatology membership was confirmed (Supplemental Tables I and II, available via Mendeley at https://data.mendeley.com/datasets/dkbbp4ds9x/1). Statistical significance was calculated using χ^2 with the Marascuilo procedure and 2-tailed independent *t* test/analysis of variance with post hoc Scheffe testing.

The impact of COVID-19 was material (Table I). Average weekly patient visits were significantly decreased to 28.2 visits (95% confidence interval [CI], 23.7-32.7 visits) mid-April from 149.7 visits (95% CI, 139.6-159.9 visits) mid-February, rebounding to

Table I. Comparison of United States dermatology practice data during February 17 to 21 vs March 16 to 20, April 13 to 18, May 18 to 22, and prospective estimates*

Variable†	Week of February 17, 2020	Week of March 16, 2020	Week of April 13, 2020	Week of May 18, 2020	*P* value‡
How many days did you practice?	4.2 (4.1-4.3)	3.1 (3.0-3.2)	3.5 (3.4-3.6)	3.6§ (3.5-3.8)	<.0001
How many patients were seen in your primary practice location?	149.7 (139.6-159.9)	63.5 (57.8-69.2)	28.2 (23.7-32.7)	96.5 (93.0-100.0)	<.0001
How many biopsies did you perform for suspicious pigmented skin lesions?	19.9 (18.0-21.7)	7.8 (6.7-8.9)	3.6 (2.7-4.3)	7.8‖ (6.7-9.0)	<.0001
Did you selectively postpone non-essential appointments?, %Yes	35.4 (31.9-39.0)	79.4 (76.0-82.5)	95.6 (94.3-96.9)	73.7‖ (70.6-76.7)	<.0001
How many biopsies were postponed?	3.9 (3.1-4.7)	10.8 (9.2-12.3)	7.9 (6.7-9.1)	3.7¶ (2.6-4.8)	<.0001
Prospective estimates		**March 16-20**	**April 13-18**	**May 18-23**	
If appointments were postponed during the week, when did you primarily reschedule them?	Weeks postponed	6.4 (5.9-6.8)	7.5 (7.3-7.8)	4.5 (4.2-4.8)	<.0001
	Not rescheduled at this time, %	25.6 (22.1-29.1)	20.8‖ (18.2-23.4)	11.0 (8.9-13.2)	<.0001
If biopsies were postponed when did you primarily reschedule them?	Weeks postponed	7.2 (6.8-7.7)	6.4 (6.1-6.6)	1.9 (1.7-2.2)	<.0001
	Not rescheduled at this time, %	54.7 (50.7-58.8)	37.3 (34.2-40.4)	8.5 (6.6-10.4)	<.0001

Relative to your practice volume this week, what do you anticipate your schedule for the next 2 weeks will look like?, %	Change, %	−65.4 (−68.0 to −62.8)	−43.6 (−46.1 to −41.0)	13.4 (10.3-16.5)	<.0001
	"Completely closing practice"	18.9 (15.7-21.9)	10.7 (8.7-12.7)	2.9 (1.7-4.0)	<.0001
What was your patient volume this week compared to a typical April (survey 2) or May (survey 3) week in your practice?, %	Decrease, %		−71.3 (−72.8 to −69.7)	−47.9 (−49.6 to −46.2)	<.0001
	"I was closed this week"		19.5 (17.0-22.0)	7.5 (5.7-9.4)	<.0001
What percentage of appointments did you do using telemedicine (0%-100%)?, %			48.6 (46.1-51.1)	26.0 (23.8-28.2)	<.0001
In the next month, what percentage of your patient visits will be done using telemedicine because of COVID-19?, %		37.8 (35.1-40.5)	45.9 (43.7-48.1)	21.0 (19.2-22.7)	<.0001
When do you think your practice will return to baseline?, %	June			7.5 (5.7-9.4)	<.0001
	July			11.9 (9.6-14.1)	
	August			13.4 (11.1-15.8)	
	September			10.7 (8.5-12.8)	
	October			6.0 (4.4-7.6)	
	November			2.3 (1.2-3.4)	
	December			0.8 (0.2-1.5)	
	Jan 2021 or beyond			16.1 (13.5-18.6)	
	Unsure			28.7 (25.6-31.9)	
	Already back to baseline			2.6 (1.5-3.7)	
Which of the following challenges apply to fully reopening your practice? (select all that apply), %	Social distancing of patients			67.1 (63.8-70.3)	<.0001
	Patient concerns about COVID-19			67.2 (63.9-70.4)	
	Staff concerns about COVID-19			43.5 (40.0-46.9)	
	Office workflow (eg, PPE and other requirements)			56.3 (52.9-59.7)	
	Bringing back staff to practice			20.4 (17.6-23.2)	
	Previsit medical screening of patients (eg, temperature, symptoms, etc)			31.0 (27.8-34.2)	
	Limiting nonpatient accompanying patients			25.3 (22.3-28.3)	
	Other			14.6 (12.2-17.1)	

PPE, Personal protective equipment.

*Respondents noted significant reduction in patient volume and increased deferrals of in-office procedures. Respondents also noted increased use of telemedicine in their practices compared with pre−COVID-19, with a significant proportion concerned about material and workflow logistics that may prevent a return to baseline. Values derived from combination of respondents' estimates, medical record reviews, and electronic medical record software analysis.

†Data are presented as the mean (95% confidence interval).

‡Values in row all significantly different from each other unless otherwise noted. Continuous/interval data comparisons via analysis of variance with post hoc Scheffe testing for multiple comparisons or 2-tailed independent *t* test for 2 comparisons. Categorical data and proportions were compared via χ^2 with Marascuilo procedure.

§Not significantly different from April 2020.

‖Not significantly different from March 2020.

¶Not significantly different from February 2020.

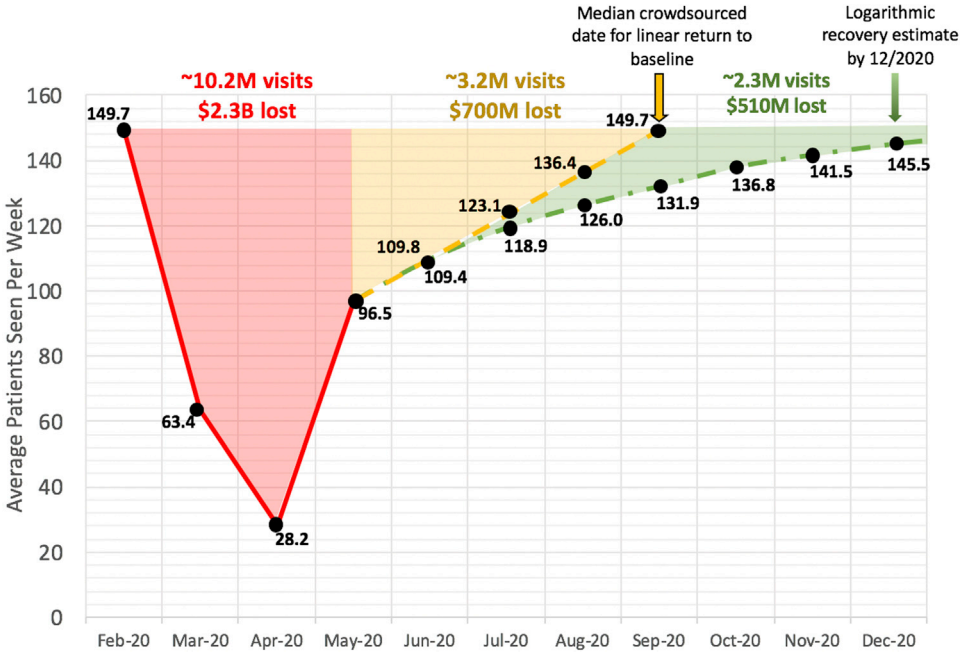

Fig 1. Trends in mean dermatology office visits per month during the initial COVID-19 pandemic from February to May 2020. The *shaded areas* represent estimated lost patient visits. The *dotted yellow line* represents linear recovery projection based on crowdsourced median date of September 2020 for return to baseline (*solid yellow arrow*), assuming no drastic extraneous changes (second-wave or vaccine development). The *dotted green line* represents logarithmic recovery based on data from April and May 2020 and respondent-estimated mean increase of ~13.4% patient volume into June 2020. These findings indicate ~10.2 million patient visits were already lost as of May 2020, totaling ~$2.3 billion in lost revenue (*red area*), with potential for an additional 3.2 to 5.5 million additional patient visits worth an additional $700 million (*yellow area*) to $1.21 billion (*green area*) and a potential total loss of 15.7 million patient visits and upwards of an estimated $3.5 billion in lost revenue by the end of the calendar year. Logarithmic recovery was derived from data points April to June 2020 and extrapolated through December 2020.

96.5 visits (95% CI, 93.0-100.0 visits) mid-May ($P < .0001$). Average days per week practiced trended from 4.2 days (95% CI, 4.1-4.3 days) to 3.1 days (95% CI, 3.0-3.2 days; $P < .0001$) to 3.6 days (95% CI, 3.5-3.8 days) for those time points. In March, although 18.9% (95% CI, 15.7%-21.9%) of offices expected to be closed in the following 2 weeks, this significantly improved to 2.9% (95% CI, 1.7%-4.0%) by May. The crowdsourced prediction for median date for return to baseline volume was September 2020.

Deferred biopsies and visits could lead to delayed care and patients presenting with more advanced disease. At the peak, 95.6% (95% CI, 94.3%-96.9%) of practices deferred visits and 73.7% (95% CI, 70.6%-76.7%) of nonemergent visits were postponed for ≥6 weeks (95% CI, 6.1-6.6 weeks). Pigmented-lesion biopsies per week fell from a baseline 19.9 (95% CI, 18.0-21.7) to 3.6 (95% CI, 2.7-4.3) during the peak initial pandemic, rebounding to 7.8 (95% CI, 6.7-9.0) mid-May ($P < .0001$), while postponed biopsies trended from 3.9 (95% CI, 3.1-4.7) to 10.8 (95% CI, 9.2-12.3) to 3.7 (95% CI, 2.6-4.8; $P < .0001$). Office telemedicine use, almost nonexistent before COVID, comprised 48.6% (95% CI, 46.1%-51.1%) of visits at the peak but fell to 26% (95% CI, 23.8%-28.2%) as practices reopened.

The mean decline in patient volume improved significantly, from 71.3% (95% CI, 69.7%-72.8%) comparing April 2019 with April 2020 to 47.9% (95% CI, 46.2%-49.6%) comparing May 2019 with May 2020. US dermatology practices generate $13 billion in annual revenue,[2] averaging $221 per office visit.[3] Between February and May 2020, an estimated 10.2 million patient visits below baseline led to practice revenue decreasing $2.3 billion (Fig 1). If patient volume recovers linearly by September 2020 (crowdsourced median), an estimated 13.5 million total patient visits and $3 billion in practice revenue will be lost (Fig 1). However, assuming logarithmic recovery given

ongoing and evolving regulations and practice adaptations, 15.7 million patient visits and $3.5 billion in practice revenue could be lost through 2020.

Practices most frequently identified patient social distancing (67.1%; 95% CI, 63.8%-70.3%), patient COVID-19 concerns (67.2%; 95% CI, 63.9%-70.4%), and office workflow and personal protective equipment requirements (56.3%; 95% CI, 52.9%-59.7%) as significant challenges to recovery. Among those who responded, 1% specifically noted they retired from dermatology due to COVID-19 implications.

Limitations include estimations could have led to recall bias, and methodology could have introduced sampling and nonresponse bias. Those with lower work volumes potentially could have had more time to respond, but this bias was minimized by weekend-only data collection. A consistent large sample magnitude, crowdsourced responses,[4] representative demographic distribution, and CIs further mitigate biases and demonstrated significance. Our predictive model also does not account for the impact of a potential second wave or earlier than anticipated vaccine availability.

Our findings demonstrate the significant impact COVID-19 had on US dermatologic care and provide a better understanding of national trends. From an estimated pre-COVID baseline of 50 million annual US dermatology office visits,[5] a 30% decrease may lead to material adverse patient morbidity and practice economics. Telemedicine had mitigating effects, but the implications and magnitude of future integration are unclear. Further analyses will be required to assess the longer-term implications of COVID-19 on dermatology practice, identifying key factors influencing success in the "new normal."

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Treatment practices for psoriasis and how they are changing

To the Editor: Psoriasis is a chronic inflammatory disorder for which many new treatments are available. The purpose of this study was to assess how treatment for psoriasis has been changing from 2007 through 2016.

The National Ambulatory Medical Care Survey (NAMCS) is a cross-sectional survey of visits to nonfederal, ambulatory-based US physicians.[1] We assessed the prescribed treatments at visits with International Classification of Diseases, Ninth Edition code 696.1 or International Classification of Diseases, 10th edition code L40.9 listed among the 5

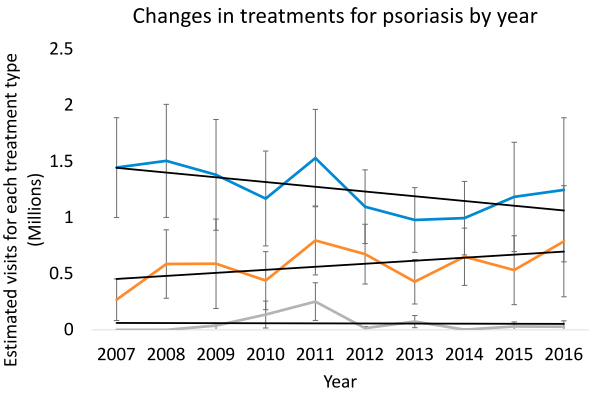

Fig 1. Medications used for psoriasis. The yearly estimates of topical agents (blue), systemic agents (orange), and phototherapy (gray) are presented with 95% confidence intervals and linear trendlines. Topical therapy is declining, and phototherapy use is stable.