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Implementation of a dermatology teletriage system to improve access in an underserved clinic: A retrospective study



To the Editor: Access to dermatologic care is especially limited for uninsured patients.¹ Puentes de Salud (Bridges of Health) is a multidisciplinary clinic that provides primary and specialty care to an uninsured and underserved population of mostly Latino immigrants in Philadelphia, Pennsylvania. Local dermatologists volunteer to support 1 clinic per month, but the volume of dermatology referrals led to significant wait times and delayed patient care. Teledermatology is a well-established and accurate² tool for remote diagnosis and management that increases access³ to dermatology care; however, its use for triage in underserved clinics has not been formally evaluated. We implemented a store-and-forward teledermatology triage system with goals of expanding access, reducing time to dermatologist

Table I. Characteristics of patients, referring providers, and teledermatology consultations (N = 60)

Category	Value
Sex, N (%)	
Male	39 (65.0)
Female	21 (35.0)
Age, years	
Mean (SD)	32.5 (11.4)
Range	18-92
Referring provider, N (%)	
Nurse	35 (58.3)
Physician	18 (30.0)
Nurse practitioner	3 (5.0)
Unknown	4 (6.7)
Symptom duration, mean (SD), months	14.56 (33.65)
Lesion location, N	
Face	11
Hand	9
Arm	6
Scalp	5
Chest	5
Oral mucosa	3
Groin	3
Leg	3
Foot	3
Whole body	2
Neck	2
Lower back and buttocks	2
Previous treatment attempted, N (%)	
Yes	19 (31.7)
No	41 (68.3)
Time to teledermatology response	
Mean (SD), hours	34.62 (73.80)
Mean (SD), days	1.44 (3.07)
Median, hours	6.28
Time to next dermatology clinic	
Mean (SD), hours	321.8 (214.37)
Mean (SD), days	13.41 (8.93)
Median, hours	315.93
Differential diagnosis concordance between referring provider and consulting dermatologist, N (%)	
Concordant	14 (23.3)
Discordant	28 (46.7)
Partially concordant	18 (30.0)
Treatment plan concordance between referring provider and consulting dermatologist, N (%)	
Concordant	3 (5.0)
Discordant	47 (78.3)
Partially concordant	10 (16.7)
Outcome of teledermatology consultations, N (%)	
Triage completely	42 (70.0)
Deferred completely to in-person evaluation	15 (25.0)
Deferred to in-person evaluation with suggested treatment or work-up	3 (5.0)

SD, Standard deviation.

Table II. Differential diagnosis categories of patients receiving teledermatology consultations

Disease category, N (%)	Total consultations, N = 60	Consultations completely deferred to in-person evaluation, N = 15	Consultations deferred to in-person evaluation
Inflammatory	27 (45.0)	3 (20.0)	(11.1)
Neoplastic, nonpigmented	11 (18.3)	5 (33.3)	(45.5)
Infectious	10 (16.7)	1 (6.7)	(10.0)
Pigmented lesion	5 (8.3)	4 (26.7)	(80.0)
Hair	4 (6.7)	1 (6.7)	(25.0)
Other	3 (5.0)	1 (6.7)	(33.3)

evaluation, and optimizing use of in-person appointments in a resource-limited setting.

This teletriage system was established using the American Academy of Dermatology teledermatology smartphone application, AccessDerm, requiring all new dermatology referrals to undergo teledermatology consultation before scheduling in-person appointments. Follow-up patients were scheduled without teletriage. Primary care providers referred patients with dermatologic concerns via AccessDerm; dermatologists reviewed cases remotely and made recommendations or deferred to in-person evaluation. Data was retrospectively evaluated for all teledermatology consultations submitted at Puentes de Salud from January 1, 2014, to July 1, 2016. The University of Pennsylvania institutional review board approved this study.

In total, 60 cases were included (Table I) and 5 cases were excluded because of duplicate or incomplete submissions. Table II summarizes the consultations into disease categories as determined by the teledermatologist. Mean (34.6 hours or 1.4 days) and median (6.3 hours) wait times to teledermatology response by an attending dermatologist was significantly shorter than time to next dermatology clinic (322 hours or 14.4 days) ($P < .0001$, Wilcoxon signed rank test). Even though 23% (14/60) of referring providers submitted the same differential diagnosis as the consulting teledermatologist, the teledermatologist suggested management changes in 95% (57/60) of cases.

In total, 42/60 cases (70%) were triaged by dermatologists as sufficiently managed by teledermatology alone without need for in-person evaluation, reducing mean time to dermatologist evaluation in clinic by 308 hours (standard deviation [SD] 234) or 12.9 days (SD 9.7). This is more than twice the triage rate of a prior retrospective study.⁴

Of the fifteen (25%) cases deferred to in-person evaluation, 5 (33%) were nonpigmented neoplasms and 4 (27%) were pigmented lesions. As most deferred cases, this suggests more limited utility of teletriage for melanocytic and other skin neoplasms, as previously reported.⁵ Overall, in the context of all appointments, including follow-ups, the teletriage system saved an average of 1.4 of 8 appointments per month, increasing in-person appointment availability by 18%.

In summary, our study demonstrates teledermatology as an effective triage system in a resource-limited community health clinic. This system improved access to dermatologic care by shortening wait times, allocating in-person appointments based on acuity and complexity, and providing an opportunity for volunteer dermatologists to have an impact on the health of an underserved population. Limitations include small sample size and implementation in a specific clinical setting. By emphasizing the potential effect of teletriage on access to care, we hope to promote volunteerism and encourage dermatologists to care for disadvantaged populations.

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Assessment of dermatology clinic resources at safety-net hospitals: Results from a national survey



To the Editor: Resources available to outpatient dermatology clinics at safety-net hospitals, which provide high proportions of uncompensated care to indigent patients, have not been well characterized. The goal of this study was to identify resource deficiencies in these clinics with the intent to optimize dermatologic care for the underserved.

A 42-question cross-sectional survey designed on Research Electronic Data Capture assessed the staffing, patient volume, appointment wait times, and medical services offered at outpatient dermatology clinics in safety-net hospitals affiliated with dermatology residency programs in the United States. Surveys were sent via e-mail to the chiefs of the outpatient dermatology clinics of 50 safety-net hospitals. Safety-net hospital statuses were based on institutions' Disproportionate Share Hospital patient percentage being in the top decile nationally, as defined in earlier studies.¹

The survey had a 62% completion rate. Supplemental Table I (available at <http://www.jaad.org>) summarized the characteristics of the 31 responding clinics. Each half-day outpatient dermatology clinic had a median of 48 (interquartile range [IQR] 30-60) patients scheduled. The median no-show rate for these scheduled appointments was 30% (IQR 24.25%-35%). The median wait time until the third next-available appointment for a new and follow-up patient was 45 (IQR 30-90) days and 30 (IQR 16.5-55) days, respectively (Table I). Each half-day dermatology clinic had a median of 3 (IQR 1.75-4) providers per nurse, and 2 (IQR 2-4) providers per medical assistant (Table II). Most clinics offered select dermatology subspecialty services (eg, dermatopathology and pediatric dermatology) and treatments (eg, phototherapy and patch testing) (Supplemental Fig 1; available at <http://www.jaad.org>).

Table I. Statistics for appointments at outpatient dermatology clinics at safety-net hospitals

Category	N	Median	IQR
Patients scheduled per half-day clinic, n	25	48	30-60
No-show for patient appointments, %	28	30	24.3-35
Wait time till third next-available appointment for new patient, days	25	45	30-90
Wait time till third next-available appointment for follow-up, d	23	30	16.5-55
Patient commute time, min	12	35	27.5-60
Wait time from the moment a patient arrives for an appointment until the end of the appointment, min	23	48	30-60

IQR, Interquartile range.

Table II. Staffing at safety-net dermatology outpatient clinics

Category	N	Median	IQR
Half-day outpatient dermatology clinics per week	28	6.5	4-10
Attending physicians per half-day clinic without residents	14	2	1-2
Patients seen by 1 attending physician in a half-day clinic without residents	12	11.5	9-18.5
Attending physicians per half-day clinic with residents	31	2	1-2
Patients seen in a half-day clinic with residents	29	23	15.8-35
Residents per half-day clinic	31	4	3-5
Patients seen by residents per half-day clinic	30	8	7-9
Midlevel providers per half-day clinic	15	1	0.5-1
Patients seen by midlevel providers per half-day clinic	12	7.5	6-10.5
Nurses per half-day clinic	25	2	1-2
Providers per nurse	20	3	1.8-4
Medical assistants per half-day clinic	24	2	2-3
Providers per medical assistant	21	2	2-4
Clinic rooms per provider	29	2	2-4

IQR, Interquartile range.

The 30% no-show rate is similar to nonattendance rates among patients with state-supported insurance (26%).² High no-show rates in the safety-net outpatient dermatology clinics, which can be due to transportation constraints and inability to take leave from work, can result in increased wait times for appointment availability. Our survey revealed a mean wait time of 45 days for a new patient visit, compared with 29.1 days according to the 2014 American Academy of Dermatology Practice Survey, which compiled data from practicing dermatologists across the United States.³ Extended wait times can be compounded by understaffing issues. Although