Figure. Perceived Barriers to Teledermatology Implementation Among Primary Care Providers and Academic Dermatologists

Primary care providers and academic dermatologists demonstrated significant differences in their perceived challenges to successful implementation of teledermatology for urban underserved populations. Responses between community health clinic (CHC) primary care providers (PCPs) and academic dermatologists were compared using a χ² 2-tailed test.

- *P* < .001.
- *P* < .01.
- *P* = .50.

Discussion | Consistent with existing studies, lack of access to appropriate dermatologic care persists among urban underserved individuals. Most Boston-area CHC PCPs were unfamiliar with teledermatology but showed a strong willingness to invest in and use this technology. While all prior PCP users of teledermatology would reuse it, academic dermatologists reported significantly less willingness to do so. However, more than half of academic dermatologists reported a willingness to reuse teledermatology, representing a group of providers who are potentially able to address dermatologic needs in this population.

The considerable divergence in the primary concerns of CHC PCPs and academic dermatologists may influence teledermatology adoption and implementation.³ Because new health care delivery models that emphasize accountable care focus on PCP management choices, establishing and addressing both the obstacles that independent CHCs will encounter with teledermatology alongside the concerns of dermatologists will be important to engage with this modality. Successful models for the integration of teledermatology may engage all dermatologists who treat the underserved, including nonacademic practitioners. Further studies are needed to explore the benefits and challenges of broadly implementing teledermatology, as a triage or treatment tool, in independent CHCs, the practice setting for many urban underserved patients.

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Standardized Patient-Based Assessment of Dermatologist Resident Communication and Interpersonal Skills

Effective physician-patient communication is essential for the delivery of quality dermatologic care. The Accreditation Council for Graduate Medical Education recognizes the importance of physician communication and interpersonal skills (CIS) as proficiency in these skills is identified as a core competency in the Program Requirements for Graduate Medical Education in Dermatology.¹ We developed
and piloted a 6-station objective structured clinical examination (OSCE) using standardized patient (SP)-based assessments for use in dermatology residency programs to assess CIS.

Methods | This study was approved by the University of Illinois at Chicago (UIC) Institutional Review Board. Study participants were not asked to provide informed consent because a waiver of consent was granted by the UIC Institutional Review Board for this study.

Six dermatology CIS-OSCE scenarios (Table 1) were created by modifying previously published OSCEs assessing other specialties.2,3 Our CIS-OSCE was piloted with 12 UIC dermatology residents (4 postgraduate year [PGY] 2, 3 PGY-3, and 5 PGY-4). Standardized patients were trained to portray the scenarios and rate the residents’ ability to maintain a patient-centered approach across different communication tasks using the published and validated Revised UIC Communication and Interpersonal Skills (RUCIS) Scale, a 13-item instrument rated on a 4-point behaviorally anchored scale4 (where 1 indicates unacceptable; 2, minimally acceptable; 3, solid; and 4, exceptional). The scale was used as a formative assessment with no pass-fail score or predetermined proficiency level. Each station consisted of a 10-minute SP encounter, after which SPs assessed residents using the RUCIS Scale. The residents then received 10 minutes of SP feedback that focused on having residents reflect on whether their behavior had been effective or ineffective.

Individual resident scores were calculated as mean scores across RUCIS Scale items for each resident across all cases. Case scores were calculated as mean scores across RUCIS Scale items for all residents per case. Overall case scores were calculated by taking the case scores across all cases. Internal consistency reliability was measured by coefficient α. Generalizability was calculated across cases. Statistical analyses were performed using SAS, version 9.2 (SAS Institute Inc).

Results | Results by station are shown in Table 2. Individual resident scores ranged from 2.6 to 3.2. Generalizability across cases was G = 0.87 using case scores. In regard to residents’ perception of the SP feedback sessions, 10 residents (83%) agreed or strongly agreed that the feedback was beneficial in providing insight into a patient’s interpretation and experience of the clinical encounter.

Discussion | Objective structured clinical examination assessments using SPs offer several advantages when evaluating residents: standardization, objectivity, reproducibility, and direct comparison of skills across individuals.2 We found that implementation of our 6-station CIS-OSCE served as a helpful adjunctive method to test a resident’s CIS performance in common dermatology scenarios.

Limitations of our study included testing only 12 residents from 1 dermatology residency program and an uneven distribution of PGY-2, PGY-3, and PGY-4 residents, which could be variables affecting performance results. The current study assessed residents using the established RUCIS Scale.4 With the transition to the Accreditation Council for Graduate Medical Education Dermatology Milestones Project (a joint effort of the Accreditation Council for Graduate Medical Education and the American Board of Dermatology) educational framework in all dermatology training programs, we anticipate the need for further research to determine specific Dermatology Milestones Project-based targets for resident CIS performance when using SPs.5 Targets for proficiency can be adjusted based on individual program director preference and available resources for remediation.

Standardized case scenarios provide faculty with a chance to observe a resident’s CIS that may be otherwise difficult to evaluate. The ability to directly compare resident performance allows programs to identify weaknesses and targets for curricular improvement. In addition, CIS cases portraying challenging communication situations give residents the opportunity to practice dealing with such scenarios in a safe and nonjudgmental environment. Furthermore, SPs can provide valuable feedback from a perspective not typically available to residents. Our findings suggest that SP-driven dermatology CIS-OSCEs have the potential to

Table 1. Dermatology Objective Structured Clinical Examination Scenarios for 6 Communication and Interpersonal Skills Tasks

<table>
<thead>
<tr>
<th>Case</th>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivering bad news</td>
<td>Communicate the possibility of a diagnosis of melanoma while being sensitive to the patient’s anxiety.</td>
</tr>
<tr>
<td>Informed consent</td>
<td>Assist a patient with a suspected basal cell carcinoma to make an informed choice about getting a skin biopsy.</td>
</tr>
<tr>
<td>Use of an interpreter</td>
<td>Work with an interpreter to communicate with a French-speaking patient presenting with hair loss.</td>
</tr>
<tr>
<td>Parent education</td>
<td>Provide skin care education to the parent of a pediatric patient with atopic dermatitis.</td>
</tr>
<tr>
<td>Treatment refusal</td>
<td>Advise a patient who is refusing treatment to have appropriate care for a biopsy-proven melanoma.</td>
</tr>
<tr>
<td>Patient education</td>
<td>Provide counseling regarding sun protection and tanning cessation.</td>
</tr>
</tbody>
</table>

Table 2. Results by Station

<table>
<thead>
<tr>
<th>Case</th>
<th>Case Scores, Mean (SD) [range]</th>
<th>Standard Error of the Mean</th>
<th>Reliability (α)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivering bad news</td>
<td>2.4 (0.33) [1.8-2.8]</td>
<td>0.09</td>
<td>0.80</td>
</tr>
<tr>
<td>Informed consent</td>
<td>3.2 (0.30) [2.8-3.8]</td>
<td>0.09</td>
<td>0.81</td>
</tr>
<tr>
<td>Use of an interpreter</td>
<td>3.0 (0.21) [2.6-3.3]</td>
<td>0.06</td>
<td>0.41</td>
</tr>
<tr>
<td>Parent education</td>
<td>2.8 (0.16) [2.5-3.1]</td>
<td>0.05</td>
<td>−0.02</td>
</tr>
<tr>
<td>Treatment refusal</td>
<td>3.2 (0.30) [2.5-3.6]</td>
<td>0.09</td>
<td>0.76</td>
</tr>
<tr>
<td>Patient education</td>
<td>3.3 (0.42) [2.6-3.8]</td>
<td>0.12</td>
<td>0.88</td>
</tr>
<tr>
<td>Overall scores</td>
<td>3.0 (0.42) [1.8-3.8]</td>
<td>0.05</td>
<td>0.61 (median)</td>
</tr>
</tbody>
</table>

a Case score was calculated as the mean score across Revised UIC (University of Illinois at Chicago) Communication and Interpersonal Skills (RUCIS) Scale items for all residents per case.
b α Coefficient was calculated across the RUCIS Scale items of the case score.
serve as a useful learning and assessment tool to enhance dermatology resident education.

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Role of the Funder/Sponsor: The fundingsources had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

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Methods | The study was approved by the institutional review board of the Memorial Sloan Kettering Cancer Center. The study used a 3-by-2 experimental pre-post design, where feedback type and risk level were varied and participants were randomized to 1 of the 6 scenario conditions.2 For feedback type, “mutation feedback” was modeled on inherited mutations in CDKN2A (gene encoding p16INK4a) linked to hereditary melanoma.3 “Gene environment feedback” was modeled on the melanocortin receptor gene (MC1R), which interacts with sun exposure to heighten population melanoma risk.4 “Non-genetic feedback” was based on a nongenetic melanoma risk assessment that includes factors such as mole number.5 Risk level was varied by whether the findings were positive (test identified higher risk) or negative. All scenarios explicitly reminded participants of their increased risk due to family history regardless of test findings.

Assessment of family discussions at baseline (before scenario exposure), asked how much (Not at all to A lot) participants had spoken about melanoma risk with their (a) mother, (b) father, (c) sister(s), (d) brother(s), (e) children, and (f) grandchildren (if they currently had this relative). Assessment at follow-up (after scenario exposure), asked how much participants intended to speak about melanoma risk with each family member.

The McNemar test of change in proportions was used to test pre-post changes in discussion rates. A generalized estimating equation (GEE) model was used to account for the clustered data of multiple family members per participant and to examine the extent to which the experimental manipulations influenced intention to discuss melanoma risk at follow-up.

Results | The sample (N = 139) was mostly female (n = 97 [70%]) and non-Hispanic white (n = 135 [97%]). The median age was 48 years; most patients had only 1 FDR with melanoma (n = 128 [92%]) and no personal melanoma history (n = 110 [79%]). Approximately half (n = 76 [55%]) had a sun-sensitive phenotype (skin type I/II, indicating skin prone to burning). Baseline discussion rates did not differ by experimental conditions (P > .05 for all).

At baseline, frequency of melanoma risk discussions across all family member types was higher, on average, among women than men (t[95.47] = 2.34, P < .05), but did not differ based on whether they had 1 or more FDRs with melanoma, whether they had a personal history of melanoma, or whether they had a sun-sensitive phenotype (skin type I/II) or not (P > .05 for all). The GEE model–estimated intentions were higher if the participant received positive (n = 128 [92%]) rather than negative (n = 100 [72%]) feedback (χ^2 = 11.98, P = .001). There were no significant differences by feedback type, nor a significant interaction (risk level by feedback type). As reported in the Figure, discussion with all family members increased signifi-

Family Risk Discussions After Feedback on Genetic Risk of Melanoma

First-degree relatives (FDRs) of patients with melanoma may be among the first to seek melanoma genetic risk information.1 Testing may subsequently prompt useful discussions regarding melanoma risk, early detection, and prevention with multiple family members. To explore this potential, this study examined the intended discussions of FDRs of patients with melanoma with diverse family members after receiving hypothetical melanoma genetic risk feedback information.

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Conflicts of interest: None reported.

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