Near Peer Teaching in an Inner City High School Outreach Program
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Introduction
“Near peer” teaching, or Peer Assisted Learning (PAL): teaching model that utilizes student tutors to teach peers close in age and level of training
- Studies demonstrate that students find it easier to learn from near peers, as they have recently learned the same material1
- Students express feeling better able to communicate with near peers compared to older mentors1
- Student tutors in PAL programs feel they develop professional attributes important to their future careers including teaching/feedback techniques, leadership qualities, and ability to admit uncertainty1,2
- Tutors also believe that their understanding of content improves by teaching others2

Purpose
- To model “near peer” teaching across several levels of training and various disciplines
- To engage minority high school students in a day of learning about Ophthalmology
- To teach participants about careers in medicine and eye care

Methods
A. We utilized a near peer teaching model to train volunteers and teach minority high school students in the Yale Pathways to Science program about Ophthalmology
- 25 student tutor volunteers (9 undergraduates, 9 medical students, 4 graduate students in the sciences, 1 MPH student, 1 nursing post-grad fellow, and 1 Ophthalmology resident)
- Training sessions were held for volunteers 1-2 weeks before outreach day, led by faculty, Ophthalmology residents, and senior medical students

B. Outreach Day Schedule
- Talk by Dr. Kristen Nwanyanwu
  - Her path to becoming a physician and retina surgeon
- Small group rotations through 3 stations
  - Cow eye dissection
  - Virtual reality simulation
  - Slit lamp examination
- Panel by the Yale League of Black Scientists
  - Discussed their career paths
  - Opportunity to ask about college, science, and career advice

Curriculum objectives for high school students:
- To inspire participants to learn more about medical fields
- To teach participants about careers in medicine and eye care
- To empower participants to consider themselves in some aspect of a medical and eye care career

C. Outreach Day Survey
Participating high school students completed a pre- and post-survey with the following types of questions:
- Likert-style questions assessing student interest in science, medicine, and ophthalmology
- Multiple choice questions assessing knowledge

Results
Table 1: # of students (n=27, 17 F and 10 M) responding correctly to 6 assessment questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct answer</th>
<th># correct on pre &amp; post test</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the function of the lateral rectus muscle?</td>
<td>Moves the eye toward the ear</td>
<td>5/25</td>
</tr>
<tr>
<td>Misalignment of the eyes can result in:</td>
<td>Double vision</td>
<td>17/27</td>
</tr>
<tr>
<td>How many layers of the cornea can be seen using the slit lamp?</td>
<td>Three</td>
<td>5/18</td>
</tr>
<tr>
<td>What is the first structure of the eye that light passes through?</td>
<td>Cornea</td>
<td>4/26</td>
</tr>
<tr>
<td>Are there vessels on the surface of the conjunctiva?</td>
<td>Yes</td>
<td>18/25</td>
</tr>
<tr>
<td>What is the function of the lens of the eye?</td>
<td>Magnifies objects</td>
<td>12/25</td>
</tr>
</tbody>
</table>

Figure 1: Average response to Likert style questions before and after outreach day

Figure 2: # of Questions Answered Correctly by Students

<table>
<thead>
<tr>
<th># Correct</th>
<th>Pre Test</th>
<th>Post Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg 5.4</td>
<td>*No significant difference between average number answered correctly by girls and boys on pre or post test</td>
<td></td>
</tr>
<tr>
<td>Avg 2.3</td>
<td>*No significant difference between % of girls and boys responding correctly to each question on pre or post test</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion
- Teaching objectives for high school students were met by using a near peer teaching model
  - Significant increase in interest in Ophthalmology and in confidence identifying eye structures
  - Significant increase in correct responses to knowledge assessment questions at completion of the program
- Volunteer tutors were students from a wide range of undergraduate and medical disciplines and varying levels of education
- Near peer teaching can be an effective way to inspire, teach, and empower students participating in outreach programs

References
2. Burgess A, McGregor D, Meliss C. Medical students as peer tutors: A systematic review. BMC Medical Education. 2014;14(1).

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