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# Ophthalmology Education in Medical School Curriculum Design: Assessing the Home Front

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## Background

As medical education struggles to keep pace with an explosion of knowledge in the clinical sciences, ophthalmology is being increasingly pushed towards the sidelines. The number of medical schools requiring a formal rotation in ophthalmology dropped from 68% in 2000 to 30% in 2004 (Association of University Professors in Ophthalmology 2004 Survey on Medical Student Teaching). However, it is vital that all future physicians, particularly those going into primary care, have competency in examining the eye and identifying basic pathology in order to better serve their patients and to preserve vision.

## Methods

The study sample consisted of 273 University of Massachusetts Medical School students divided into groups by graduating class (50 entering first year students, 67 entering second year students, 81 entering third year students, and 75 entering fourth year students). Online surveys were distributed in July 2009 with the following questions (based on a 5-point Likert scale ranging from 1- "Not confident at all" to 5- "Very confident") : "I can test visual acuity," "I can use a direct ophthalmoscope," and "I can perform a dilated eye exam." For the nationwide medical school data collection, online surveys were distributed to 152 medical deans from US accredited allopathic and osteopathic medical schools. The deans were instructed to forward the survey to the appropriate person in charge of designing the medical curriculum if they were not able to answer the questions themselves. These surveys were distributed from August 2009-March 2010 and consisted of the following yes/no statements: "Students learn how to perform visual acuity testing," "Students are evaluated on performing visual acuity testing," "Students learn how to use a direct ophthalmoscope," "Students are evaluated on direct ophthalmoscopy," and "Students perform a dilated eye exam."

## Results

Response rates ranged from 40-81% of medical students by class group and 26% of medical deans (n=40). Wilcoxon-Mann-Whitney non-parametric tests using SPSS were used to compare Likert scores between medical student classes. With regard to education, 97.5% of US medical schools report teaching students how to perform visual acuity testing and 52.5% state that they evaluate their students on performing this skill. 100% of schools teach students how to use a direct ophthalmoscope and 82.5% evaluate their students on this. 57.5% of medical schools report teaching their students how to perform a dilated eye exam.

**Table 1: Fourth year medical student self-reported confidence in basic ophthalmology examination skills**

| Question | No confidence | Low confidence | Some confidence | Moderate confidence | Very confident |
|---|---|---|---|---|---|
| I can test visual acuity | 4.0% | 22.7% | 37.3% | 25.3% | 10.7% |
| I can use a direct ophthalmoscope | 5.3% | 38.7% | 36.0% | 18.7% | 1.3% |
| I can perform a dilated eye exam | 74.3% | 18.9% | 4.1% | 2.7% | 0.0% |

**Table 2: Mean Likert scores for entering medical student classes**

| Question | First years (n=50) | Second years (n=66) | Third years (n=81) | Fourth years (n=75) |
|---|---|---|---|---|
| I can test visual acuity | 1.48*° | 3.68• | 3.68*° | 3.16 |
| I can use a direct ophthalmoscope | 1.18*° | 3.25^° | 2.93 | 2.72 |
| I can perform a dilated eye exam | 1.20^ | 1.67 | 1.65^ | 1.35 |

*p≤0.001 between this class and the class one year ahead
^p≤0.05 between this class and the class one year ahead
° p≤0.001 between this class and the graduating class
•p≤0.05 between this class and the graduating class

## Summary

•*Visual acuity testing:* 97.5% of medical schools teach students how to perform visual acuity testing; 73.3% of UMass final year medical students feel some to very confident performing this skill
•*Direct ophthalmoscopy:* 100% of medical schools teach students how to use the direct ophthalmoscope; 56% of UMass final year medical students feel some to very confident performing direct ophthalmoscopy
•*Dilated eye exam:* 57.5% of medical schools teach students how to perform a dilated eye exam; 6.8% of UMass final year medical students feel some to very confident performing this skill

## Conclusion

Current ophthalmology education at the University of Massachusetts Medical School provides opportunities for students to build confidence in performing visual acuity tests and in the basic ophthalmoscope exam, but inadequate training in performing a dilated eye exam. This appears to fit well with the national data, in which most schools taught their students visual acuity testing and direct ophthalmoscopy, but nearly half did not teach the dilated eye exam. Increasing rates of evaluation of student skills would be an effective way to build confidence and self-efficacy in these tasks.

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