

# Medical Education in Virginia: *Challenges for the Basic Science Anatomy*

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## Background

In light of recently publicized misadventures involving cadaver donor materials, anatomy course directors at the six Virginia medical schools initiated an effort to identify concerns impacting anatomy teaching within the state related to cadaveric materials as well as other factors that might negatively affect teaching resources and approaches. Identified were several, widely acknowledged, challenges affecting pedagogical approaches related to anatomy instruction mostly related to the availability of cadaver donor material as well as other concerns associated with fiscal and administrative matters. We summarize these findings and outline plans now underway to preemptively address these problems and concerns.

The anatomy course directors from the six Virginia medical schools were queried under the auspice of the Virginia Association of Human Anatomical Sciences (VAHAS) to identify concerns related to anatomy instruction, to share adaptations made in their teaching approaches and their effects on learning. The intent of this effort was to identify problems and share approaches and solutions that might help guide the efforts of other VAHAS members dealing with similar issues.

VAHAS is an organization previously known as the Virginia Anatomical Advisory Board (VAAB). In 2019, the organizational name was primarily changed to more closely focus on efforts in Virginia to promote the anatomical sciences. Previous focus was very narrow and in association with the Virginia State Anatomical Program (VSAP). VSAP is a program of the Virginia Department of Health, Office of Chief Medical Examiner, and responsible for procurement, preservation and distribution of human cadavers to Virginia medical schools (and other schools and programs when the supply of donors is adequate).

## Methods

We solicited input from the course directors of the six Virginia medical schools (Eastern Virginia Medical School, Liberty University College of Osteopathic Medicine, University of Virginia School of Medicine, Edward Via



Virginia College of Osteopathic Medicine, Virginia Commonwealth University School of Medicine, and Virginia Tech Carilion School of Medicine), asking each to list up to ten concerns and challenges they perceived regarding anatomy education in the foreseeable future. Responses were received from all six schools with a total of 55 concerns identified. Those reported most frequently and judged to be most significant and likely to have the greatest impact on anatomy education in medical schools are indicated below.

## Results

Identified concerns/challenges fell into two major categories, those related to overall anatomy instruction in medical school and those related more directly to issues intrinsic to their own school. We describe those related to overall anatomy instruction identified most often by the anatomy course directors:

1. Decreasing scheduled curricular time for teaching anatomy during foundational (pre-clinical) years, making success increasingly difficult for students who lack formal pre-medical coursework.
2. Gradual reduction in the number of qualified and experienced anatomy faculty resulting in the substitution of faculty less able to maintain high quality educational offerings.
3. Decreasing curricula time requiring reductions in course content, thereby requiring students to learn these topics independently or the advancement of students inadequately prepared for the learning activities therein.
4. Utilization of teaching methods that produce “surface learning” and “teaching to the test” (i.e., the ability to recite lists of structures from memory using mnemonic aids) rather than those pedagogical approaches that facilitate durable learning.
5. Decreasing scheduled curricula time for teaching during foundational (preclinical) years requiring faculty to eliminate or significantly reduce the use of certain teaching approaches (i.e., lectures or dissection laboratory sessions).
6. Future reductions of human cadaver donor material for teaching purposes, the result of factors including reduced number of donations stemming from publicized misadventures with human donor material, increasing cost related to preparation, storage, transport and disposition of donor material and administrative decisions based on factors other than those predicated on well-established pedagogical principles.

## Discussion & Conclusion

The VAHAS meeting provided an opportunity for anatomy educators at the six Virginia medical schools to identify current and future challenges and obstacles to maintaining effective instruction at their respective institutions. The results reflected a remarkable similarity of concerns regardless of class size, course structure or institutional affiliation. Most of these concerns related to curricular changes resulting in reduced time



for anatomy instruction particularly during the pre-clerkship period, declining numbers of qualified and experienced anatomy faculty, and reductions in the availability of human cadaver donor material related to VSAP donor procurement practices and policies. These observations have set in motion collective efforts among the participants to overcome these challenges.

While anatomy instruction at Virginia medical schools is effective at the present time, challenges continue to be identified. Further cuts in curricular time may result in the elimination of cadaveric-based instruction; being replaced by newer methods that have not been convincingly demonstrated to be equally effective or superior. In the absence of an increase in preclinical curricular time dedicated to anatomy, inclusion of anatomical content in subsequent program years is desirable.

The gradual reduction of qualified anatomy faculty suggests the need for new academic programs to train anatomy faculty for the future. These programs will ideally focus on preparing students as clinicians; able to successfully move into a wide variety of clinical specialties and practice settings.

Students who now are increasingly required to learn anatomy independent of faculty supervision should be provided with educational opportunities that involve professionally and appropriately trained anatomists who can better prepare students for the learning activities and educational experiences of the clerkship years and beyond.

While it is evident that the continued availability of donor specimens is a challenge, proactive efforts need to be undertaken to improve and enhance the acquisition process by establishing additional locations for donor acceptance and processing in the Commonwealth of Virginia .

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