Digital slides linked to USMLE-style questions are used for self-assessment quizzes and competency exams, with faculty-reviewed, AI-generated explanations. Digital microscopy was paired with gross organ shows facilitated by pathologists and residents, fostering gross and microscopic correlation, thus augmenting experiential learning. Feedback from randomly assigned 12-15% of the students on key lab components was collected by Qualtrics® survey.

Results: Evaluation data from the "neoplasia" lab showed that most students found the lab activities challenging but manageable (66.7% excellent, 33.3% good). All students appreciated interacting with faculty and residents (100% excellent). Students reported that the labs helped consolidate their pathology knowledge (83.3% excellent, 16.7% good), had clear objectives (100% excellent), and had appropriate time allocation (83.3% excellent, 16.7% good). Overall satisfaction with the digital slide and gross lab was rated 100% excellent. Free-text feedback helped address any software issues.

Conclusions: Our labs provided enhanced learning outcomes by offering a structured and supportive environment. CHIIMERA® effectively integrates pathology content into the medical curriculum and engages students through interactive, annotated slides. The labs foster self-directed, competency-based learning and are fully supported by faculty and resident facilitators. Positive student feedback indicates high satisfaction with the innovative delivery of gross and digital pathology content. Free-text feedback expedited the resolution of software issues, demonstrating a commitment to continuous improvement and responsiveness to student needs.

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AAP25-04: Guided Lab Sessions to Incorporate More Pathology Image Interpretation into Pre-Clerkship Curriculum

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Disclosures: The authors have disclosed no relevant conflicts of interest.

Objectives: Pathology image interpretation is an important yet challenging skill for medical students during their pre-clerkship years. We found that in a highly integrated case-based curriculum, students often had less active learning time dedicated to practicing this skill. We therefore transitioned some pathology content from team-based learning into our new guided lab pedagogy. Instead of being case based, this pedagogy focused on strengthening students' ability to analyze and interpret pathology images systematically. Additionally, the students were asked to estimate lab values based on their diagnosis. We first implemented guided labs with a focus on hematologic conditions.

Methods: To address this learning challenge, we developed and implemented guided laboratory sessions centered on pathology image interpretation. These sessions focused on key hematologic conditions, including various anemias and hematologic malignancies such as chronic myeloid leukemia (CML), chronic lymphocytic leukemia (CLL), and acute promyelocytic leukemia (APL). During each session, students engaged in a structured learning process: 1. Observation: Students carefully examined pathology images, identifying and describing distinct morphological features. 2. Analysis: Based on their observations, students formulated differential diagnoses, considering key distinguishing features. 3. Clinical Correlation: Students interpreted the clinical significance of their findings, correlating their diagnoses with potential patient presentations and estimating lab values such as CBC (complete blood count). To reinforce learning, students were formatively assessed following the session. This test included a variety of activities, such as matching pathology images to described morphological features, clinical scenarios, and relevant laboratory findings. This approach ensured active engagement and critical thinking.

Results: The guided sessions were highly interactive and well-received by students. Student feedback highlighted the value of these sessions in bridging theoretical knowledge with practical diagnostic skills. Many students recommended expanding these sessions across the pre-clerkship curriculum to enhance their confidence and competence in pathology interpretation.

Conclusions: This innovative pedagogy proved to be an effective and engaging tool for improving pathology image interpretation skills among medical students. By integrating similar sessions throughout the pre-clerkship curriculum, institutions can efficiently prepare students to understand pathology concepts and interpret pathology images and data in a clinical context. The positive reception of these sessions underscores their potential as a valuable addition to medical education.

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AAP25-05: 3D Modeling/Printing of Female Reproductive Pathologies: Students Contribution to Pathology Education Through A Research Elective

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Disclosures: The authors have disclosed no relevant conflicts of interest.

Objectives: In the didactic phase of medical school, pathology is often taught with 2D images. While this method is useful, it is a limited portrayal of disease. Research electives offered by Carle Illinois College of Medicine (CI MED) allow medical students to independently explore their interests. In this one-year research elective course, MRI scans from patients with female reproductive pathologies are utilized to render 3D models. Subsequently, the 3D printed models will be implemented in the Women's Health course for pathology education. This approach aims to be hands-on and interactive, reinforcing important concepts in a meaningful way(1). Project completion is anticipated in June 2025.

Methods: Ten female reproductive pathologies MRIs were retrieved by Carle Foundation Hospital data scientists. The MRI scans were de-identified, and the DICOM files were shared with the research team. Two medical students involved in the research elective course use 3D modeling software (3D Slicer and ITK-SNAP) to render the pathologies following a previously described methodology(2). Selected 3D models will be 3D printed with a Bambu Lab X1C 3D Printer using thermoplastic polyurethane (TPU) filament.

Results: Although MRI images for ten patients were obtained, only six pathologies, including malignancies of the ovary, endometrium, and cervix, will be 3D printed. This is mainly because renderings are challenging to carry out if the MRI scan is of a lower quality. The project will help the two medical students deepen their understanding of female reproductive pathology. Further, in the fall of 2025, the 3D prints will be incorporated into integrated pathology sessions for second-year medical students.

Conclusions: 3D modeling and 3D printing can be leveraged as tools to teach pathology in a comprehensive manner, so medical students can be best prepared for clerkships. This work highlights the role of CI MED's medical students in enhancing medical education.

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AAP25-06: An Innovative Open Educational Resource Integrating Pathology, Humanities, and Technology for Women's Health Education

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Objectives: Medical education is evolving to meet the complex demands of modern healthcare through the integration of foundational, clinical, and social sciences1. 3D-printed models offer hands-on learning experiences to improve students' understanding of complex pathological concepts2. To address these needs, we developed an Open Educational Resource (OER) that integrates pathology, anatomy, histology, medical humanities, and 3D-printed anatomical and pathological models. The aim is to provide a comprehensive, adaptable, and accessible resource that enhances understanding of female reproductive pathologies and accommodates diverse learning preferences.

Methods: An interdisciplinary team from Carle Illinois College of Medicine and Knox College created a modular electronic textbook integrating the previously mentioned disciplines. It includes multimedia content, interactive assessments, and 3D-printed models. These models were developed using polygonal meshes

and printed with multi-materials via Bambu-Lab-X1C 3D-Printers to replicate anatomical and pathological structures. The OER was piloted in integrated teaching activities within Women's Health courses. Feedback from students and educators was collected to refine its adaptability. Future research will employ pre/post surveys and quantitative analysis to objectively evaluate its impact on learning outcomes in 2025 course iterations.

Results: Preliminary feedback revealed that the 3D-printed models enhanced student engagement, improved conceptual understanding of complex pathology, and fostered interactive learning. Educators highlighted the resource's versatility in medical education, residency training, and undergraduate STEM courses. Its modular design supports customized content delivery, reduces dependence on costly textbooks, and increases accessibility. The project provides scholarly collaboration opportunities for faculty and students.

Conclusions: This OER exemplifies an innovative integration of pathology with other sciences, leveraging 3D printing technology to deepen understanding and engagement. Its scalable, multidisciplinary framework serves as a model for enhancing pathology education and could be extended to other organ systems, transforming teaching across diverse learning environments.

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AAP25-07: Department of Pathology Mini-Immersion Workshop: An Intervention Designed to Address the Experiential Gap of Medical Students to the Field of Pathology

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Disclosures: The authors have disclosed no relevant conflicts of interest.

Objectives: U.S. medical students generally receive less exposure to pathology in the preclinical and clerkship years, compared to disciplines with direct patient interaction.1 To address this experiential gap, we developed a half-day interactive educational workshop for 1st year medical students in our pathology department. Through pre- and post-survey analysis, we gauged medical students' current perceptions of pathology, and if our intervention impacted their understanding and interest in the field.

Methods: Our mini-immersion workshop included 45, 1st year medical students in the Indiana University Medical Student Program for Research and Scholarship. The program began with interactive presentations from the department chair, residency program director, and the director of pathology electives, followed by a guided laboratory tour including gross dissection, histopathology, microbiology, and clinical chemistry. It concluded with resident-led case presentations and an optional blood typing activity. We administered pre- and post-surveys to evaluate the intervention's effectiveness. Quantitative data were analyzed for statistical significance (SPSS v29), and qualitative responses were analyzed thematically.

Results: Forty-five students completed the pre-survey, and 40 completed the post-survey (100% and 88% response rates, respectively). Chi-square analysis of the pre- and post-surveys revealed a significant increase in students' familiarity with pathology (p<0.001), consideration of pathology as a career option (p=0.003), understanding of the difference between anatomic and clinical pathology (p<0.001), and interest in pursuing a pathology elective (p<0.016). In the pre-survey, only 41% recognized that a "pathologist had ever been involved in their healthcare or that of someone they knew", and 100% of affirmative responses referenced an anatomic pathology study (ex. biopsy), while none identified a clinical laboratory test (ex. Covid test). Qualitative thematic analysis revealed 63% found the tour to be the most memorable part of the experience, 90% reported learning "a lot" or "a great deal", and 50% expressed an interest in learning more about the pathology residency lifestyle and experience.

Conclusions: This mini-immersion workshop successfully enhanced students' exposure to and interest in pathology, highlighting its potential as an effective educational intervention for fostering engagement with the field. References: 1 Holloman AM. Experiential exposure as the key to recruiting medical students into pathology. Acad Pathol. 2023 Apr 13;10(2):100074.

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AAP25-08: Growing Pathology Through A Pathology Mini-Bootcamp

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Disclosures: The authors have disclosed no relevant conflicts of interest.

Objectives: Pathology is a crucial component of healthcare, however, the field remains underrepresented in medical schools, with limited awareness among pre-medical students. Addressing this knowledge gap and fostering interest in pathology at the undergraduate level can be of immense significance for the future of the field. We investigate the benefits of early exposure to pathology through a novel Pathology Mini-Bootcamp class during undergraduate education.

Methods: The two week Pathology Mini-Bootcamp class was designed to provide pre-medical undergraduate students with a comprehensive and immersive understanding of pathology through a combination of virtual learning and hands-on experiences covering fundamental concepts in pathology, including mechanisms of disease, diagnostic processes, and the role of pathology in patient care. Pre- and post-quizzes assessed participants' knowledge of and interest in pursuing pathology-related careers.

Results: Analysis of the survey data from the Pathology Mini-Bootcamp indicates a significant improvement in participants' knowledge following the bootcamp. The average pre-quiz score was 13/30 points, while the average post-quiz score increased to 23/30 points. This suggests that the mini-bootcamp effectively increased participants' knowledge of pathology. All participants mentioned the in-person experiences as the most enjoyable and educational part of the class in feedback submissions. 71.4% of students reported to be more likely to consider pathology as a medical specialty. Out of the 7 participating students, 4 have committed to pursuing medical school and 1 has committed to pursuing pathologists' assistant school after participating in the bootcamp class.

Conclusions: The Pathology Mini-Bootcamp demonstrated significant success in improving undergraduate students' knowledge of pathology and increasing interest in the specialty. Furthermore, the commitment of several participants to pursue medical school or related careers reinforces the long-term impact of early exposure to pathology. These findings suggest that structured, early engagement programs like the Pathology Mini-Bootcamp can play a critical role in fostering interest and recruiting the next generation of pathologists and laboratory medicine professionals. Future iterations of this program could explore strategies to further enhance recruitment efforts and sustain long-term interest in pathology. We plan to follow up with these participants to determine whether informed pre-medical students choose pathology and laboratory medicine as a career.

AAP25-09: Withdrawn

Academic Pathology 12/3S (2025) 100196
AAP25-10: A Basic Informatics Curriculum for Pathology Residents: Design and Implementation

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Disclosures: The authors have disclosed no relevant conflicts of interest.

Objectives: Informatics tools provide the foundation for effective communication in medicine. In anatomic and clinical pathology laboratories, informatics serves as a critical infrastructure for communicating orders; documenting specimen processing, analysis, and diagnosis; and communicating results to the electronic medical record. This abstract describes the design and implementation of a pathology residency curriculum at a single institution focusing on basic, foundational informatics knowledge and skill sets.

Methods: The Pathology Informatics Essentials for Residents (PIER) resources were used as a framework for an informatics curriculum for pathology residents. Pre-test and post-test assessments were undertaken using the Canvas learning management system. Resident satisfaction with the rotation was evaluated using