NOTE 004

Two timelines, mismatched

Written 1 November 2026.
Changes: none.

This note is about the gap between clinicians and engineers and why I expect it to widen. It also proposes a change to medical school that I think would narrow it. Part of it comes from Seoul, from what Note 002 left for later notes [1].

How research is changing

Research is changing quickly as AI advances. It still demands the accuracy and expertise it always has, and the speed of producing results now counts too. A project or topic in progress can become obsolete overnight, and fields are filling so quickly that they can saturate. Research protocols and workflows themselves are changing as AI comes in, and there is a great deal of discussion about where they are headed. This lab's Notes 001 and 003 record examples from October, in preprint moderation, in observational clinical research, and in how analysts work alongside an AI agent [2][3]. No one seems able to predict where this goes. Infrastructure, policy and protocols are not yet in place, and the technology keeps getting faster.

One slide, two languages

In a period like this, I have been thinking about how medical students should prepare. In my experience, many physicians and medical students are wary of the technology or opposed to it, and those who use it mostly stop at a chatbot. I have been asking myself whether they will be able to keep up later, with a technology that keeps advancing.

The gap between clinicians and engineers is already plain in this field. People in medicine and people in engineering speak different languages. At KoSAIM 2026 in Seoul there was a poster on a model that reads histology slides and helps with cancer diagnosis, and while I was looking at it I overheard a few engineers talking. As a medical student, I started with the epithelium, whether it was simple or stratified, squamous or columnar, keratinized or not, and whether it had apical specializations such as microvilli. Then I looked for findings such as metaplasia, hyperplasia or dysplasia, and only then asked whether it was cancer. The engineers were reading the same slides as pixels, talking about height and width, contrast and lighting. As far as I could tell, a slide was ones and zeros to them, and their focus was on how to improve that layer. Both sides were looking at the same slides in entirely different languages.

That was one conversation at one poster. Note 002 records another moment from the same two days, a chest radiograph with an abnormality score in the high nineties, where the person at the booth could not say what in the image produced the number [1]. That is how wide the gap is now, and with the technology advancing this fast I expect it to grow.

A fast track

One day an idea came to me. To close the gap, medical school could offer a fast track. A student would study the material on their own, sit the school's own exams and pass, and spend the time that frees up studying or researching the new technology. Because that time would go into real research, the school would manage it as well.

For a medical student today, the difficulty is a mismatch between two timelines. Development speeds up with every release, and anyone who puts in the hours can keep producing results. Becoming a clinician runs through a degree and a license at a set pace, and learning faster does not shorten it. Medical schools are also still traditional, and every student moves through the same curriculum at the same pace. I think a fast track could ease both problems. The exams would stay, and the pace would be left to the student.

Students also arrive with different preparation. This term's module covers the nervous system and behavioral science, and with a neuroscience degree behind me it goes in faster than the earlier modules did. The hours it frees have gone into this lab, mostly at night, as Note 002 describes [1]. A fast track would bring that work into the day and put it under review.

Students on the track would still attend. Research time would be logged like a shift, clocked in and out, and it would count toward attendance. The record would not be judged by the number of papers, because a count rewards low-quality output, the kind now called slop. A steering committee and an audit team would review the work and manage the students on the track together.

Medical schools already have two tracks that can look similar. A three-year MD shortens the curriculum so that it fits into three years [4], and an MD-PhD adds research and typically takes seven to eight years [5]. As far as I can tell, both still run on the school's schedule. The pace is the same for everyone on the track, and exams come when the school schedules them. On the track I have in mind, each student moves at the pace of their own competence, studying on their own and moving on as soon as they pass.

What it would change

In Seoul, people from AI companies and labs said they could not find clinicians to work with. That was a few rooms over two days and is no survey. This lab has the same problem at a smaller scale. Two items have been pending since Note 001, expert scoring of the 18 meshes for vessel identity and spatial anatomy, and clinician adjudication of a sealed sample of 40 ICU handoff notes [2]. Both need clinicians, and I am still looking for them. As a medical student I can tell what these reviews require, and I do not yet have that expertise.

If medical schools let students who learn faster move faster, I think the shortage of clinicians who can work with engineers would ease, and as far as I can tell the United States has the same shortage. The model I had in mind is the PhD by publication, a route outside medicine where examiners award a degree on the strength of published work. A student on the track would likewise pass the module exams and then build a reviewed research record in the time left over, at their own pace. The gap would narrow. Students who can work on their own would not be held to a single schedule, and medical schools could graduate a new generation of physicians who know both sides. Whether a track like this would work is an empirical question, and I have no data on it yet.

Pending

Expert scoring of the 18 meshes for vessel identity and spatial anatomy. Coding of the 27 image-stage responses for the full paper. The second study, pre-registered on OSF as a follow-up to the pilot; sample collection finished overnight between 31 October and 1 November, and coding and anatomical expert scoring remain. Clinician adjudication of a sealed sample of 40 ICU handoff notes. The harness manuscript. The manuscript and dataset release for the On-Prem Capacity Curve. A submission for a project that is not yet public. The formal patent specification.

That is the list as it stands today. Of the items that need clinicians, I have sent requests to clinicians for only some of the projects so far. The next public release will be the On-Prem Capacity Curve dataset.

Everything public from this lab carries a DOI or a hash. This note carries dates.

References

1. Note 002, The Annual Conference of the Korean Society of Artificial Intelligence in Medicine (KoSAIM) 2026, debrief. Written 26 October 2026. https://www.thebioarchitectonic.com/notes/002-kosaim2026-debrief.html
2. Note 001, Silent failure, dated. Written 18 October 2026. https://www.thebioarchitectonic.com/notes/001-silent-failure-dated.html
3. Note 003, Human in the loop, overlooked. Written 29 October 2026. https://www.thebioarchitectonic.com/notes/003-human-in-the-loop.html
4. Gallo T, Cangiarella J, Coe C, Ge L. Key Features and Outcomes of Accelerated 3-Year MD Programs. AM Rounds, Academic Medicine, 5 May 2025. https://academicmedicineblog.org/key-features-and-outcomes-of-accelerated-3-year-md-programs/
5. Association of American Medical Colleges. Apply to MD-PhD Programs. Accessed 1 November 2026. https://students-residents.aamc.org/applying-md/phd-programs/apply-md-phd-programs