Tablet Use in UME Pre-clinical and Clinical Settings

GIR SnippIT

Group on Information Resources (GIR)

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Group on Information Resources (GIR)
Education Technology Work Group (ETWG)

Association of American Medical Colleges
Washington, DC

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Group on Information Resources

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Background

This GIR SnippIT was developed by members of the Group on Information Resources (GIR) Education Technology Work Group (ETWG). The SnippIT gathered data on how medical schools are using tablets in pre-clinical and clinical settings. There were two surveys: the first survey, distributed in September 2020, asked how medical schools are using tablets in pre-clinical medical education. The subsequent survey, distributed in January 2021, asked how medical schools are using tablets in clinical settings. Prior to the distribution of the second survey, preliminary results from the first survey were made available to members of the GIR. The purpose of this SnippIT was to share responses among GIR colleagues, to assist schools that are considering adopting or modifying a tablet program, and to develop a repository for updated use cases. Individuals also had the opportunity to choose whether to be contacted for follow-up discussions. Overall, representatives from fifty-four GIR member institutions submitted data to this SnippIT. There were fifty-four submissions for the pre-clinical survey and thirty-two submissions for the clinical survey.

Data in this summary report are de-identified and presented in the aggregate. For questions, please contact gir@aamc.org.

Key Findings

- Overall, fifty-four representatives from GIR member institutions responded to the two surveys.
- In the pre-clinical setting, responses show 41% of schools require students to have an iPad or other tablet, while in the clinical setting, 31% of schools require students to have an iPad or other tablet.
- In the pre-clinical setting, responses show 59% of schools use the iPad for educational purposes. In the clinical setting, 53% of schools use the iPad for clinical purposes. The data reflect a consistent use of iPads in both settings.
- During COVID-19, responses show 13.6% of schools increased their use of smart technologies to engage students in active learning in the pre-clinical setting while 15% of schools increased their usage of smart technologies to engage students in the patient encounter. Again, the data reflect consistent increased use of these technologies in both settings.
- There was a significant difference between the two settings regarding using iPads / tablets for student engagement. In the pre-clinical setting, 95% of schools reported they use iPads or tablets to engage students in the educational setting, while in the clinical setting, 38% of schools reported they use these devices in the patient encounter.

Tablet Use in UME Pre-clinical Settings

Findings

1. Does your school require that your students use tablets?

Response	Count
Yes	22
No	31
I don't know	1
Total	**54**

I don't know, 2%

Yes, 41%

No, 57%
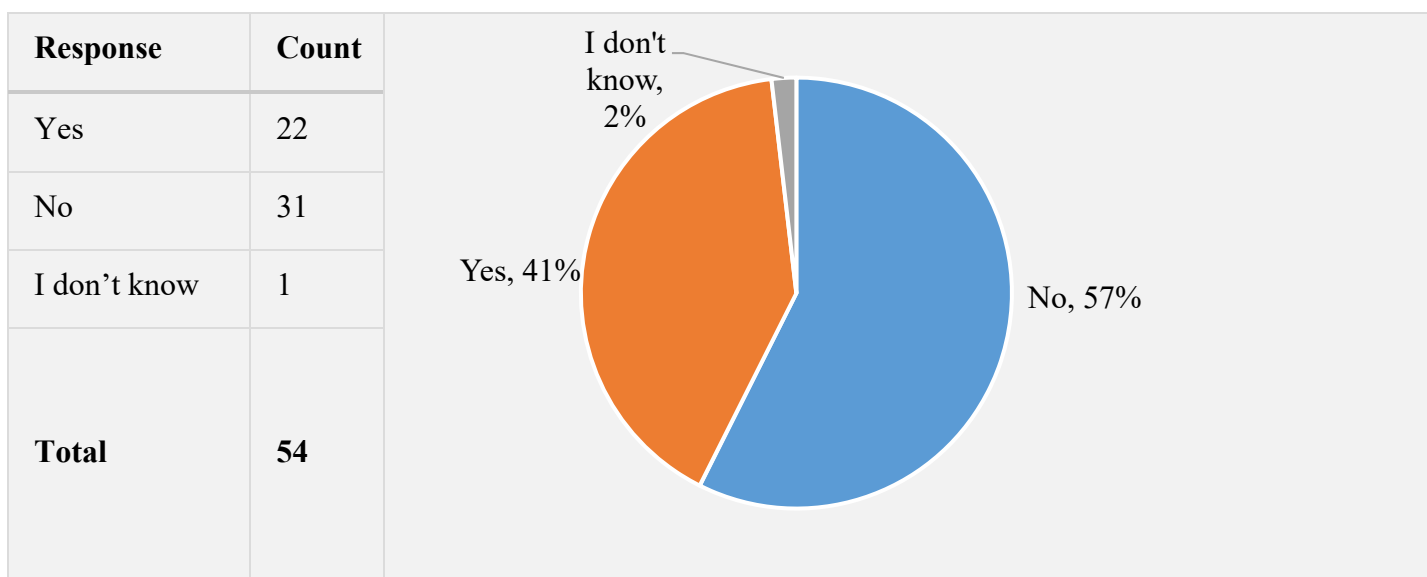
If a participant selected "No", they were not prompted to answer any additional questions.

2. Please specify the type of tablet your school is currently using for curricular use and medical education.
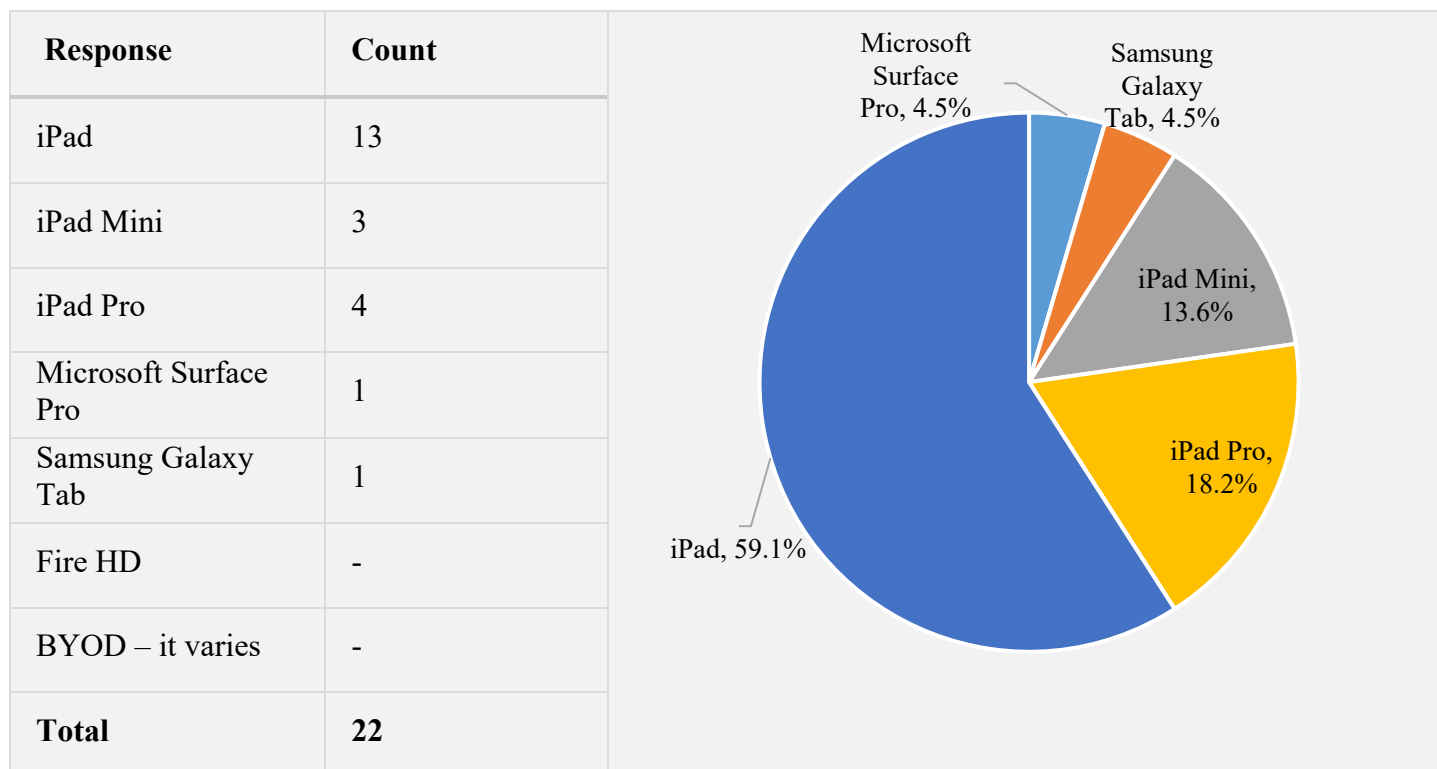
Response	Count
iPad	13
iPad Mini	3
iPad Pro	4
Microsoft Surface Pro	1
Samsung Galaxy Tab	1
Fire HD	-
BYOD – it varies	-
Total	**22**

Microsoft Surface Pro, 4.5%   Samsung Galaxy Tab, 4.5%   iPad Mini, 13.6%   iPad Pro, 18.2%   iPad, 59.1%

3. How are tablets provided to students? (please select one response)

Response	Count
Students are gifted a tablet	6
Students are given a tablet; cost included in student fees	8
Students are required to purchase a tablet	1
Other (please specify)	7
Total	**22**

Pie chart:
- Given, 36%
- Other, 32%
- Gifted, 27%
- Purchased, 5%
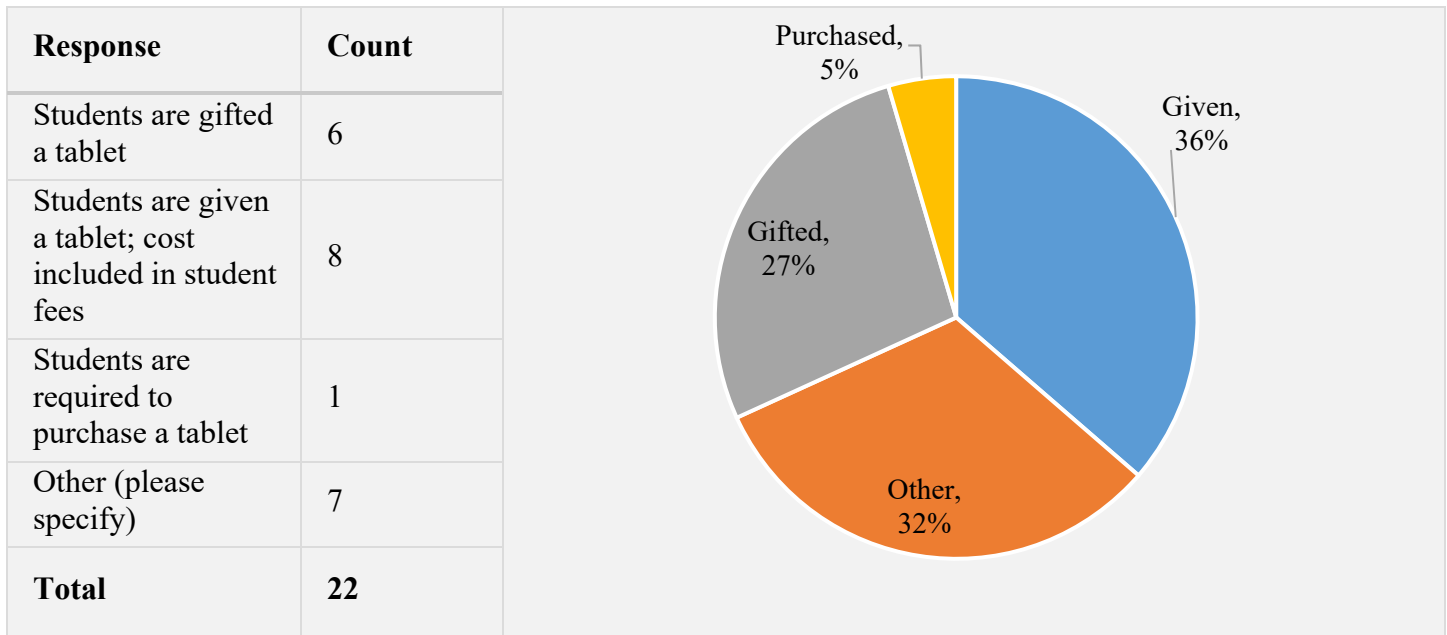
Other comments:
- iPads are provided by a central Academic Technology office.
- Issued in anatomy lab per group, not individual devices yet.
- Loaned an iPad for 2 years.
- Loaner program.
- Students are given funds towards the purchase of an iPad.
- Students use a tablet only for the duration of the skills test, then we store them at the school.
- Upon matriculation, students are supplied with a Microsoft Surface with essential learning and notetaking software as well as a 4yr full replacement they also get an iPad mini to support their clinical education and may keep it upon graduation.

4. Are students using tablets for any of the following use cases? (check all that apply)

Response	Count[*]	
Assessments	19	86%
Classroom Use	16	73%
Productivity	17	77%
Reading	15	68%
Remote Learning	16	73%
Test Prep	14	64%
Training Use	14	64%
Other (please specify)	4	18%

Note: Denominator is 22
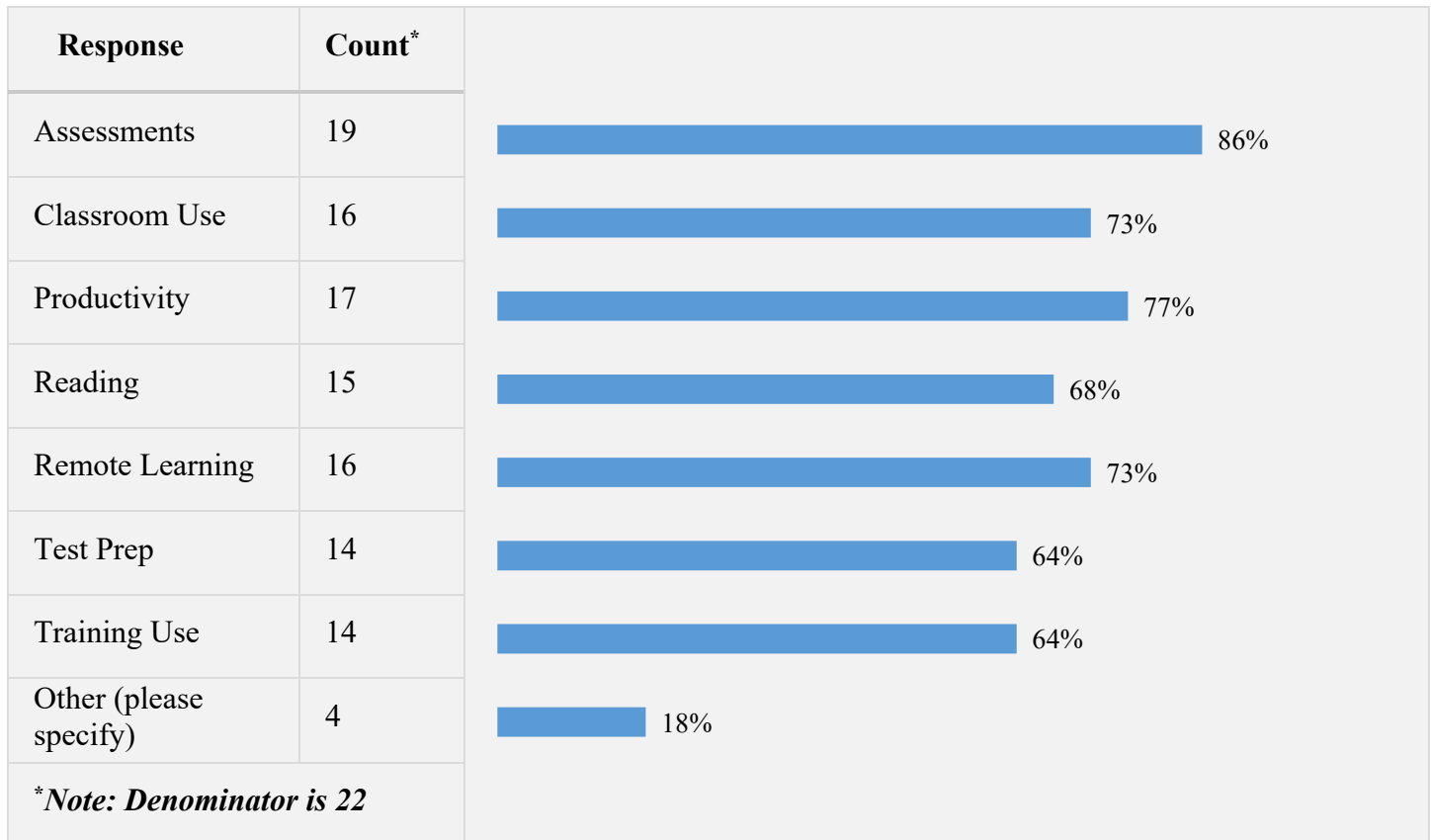
Other comments:
- Anatomy labs are using a carted set of iPads, in addition to individual student technology.
- Creating iBooks, accessing clinical information systems.
- Hotspots.
- Primarily for entrustable professional activities surveys and complete anatomy app.

5. Are any of the following used to engage students in active learning? (check all that apply)

Response	Count*		
iPad or other tablet	21		95%
Smartphone	6		27%
GoPro	2		9%
Chestcam	-		
Other (please specify)	-		

Note: Denominator is 22

6. If tablets or other smart technologies are used to engage students in active learning, has this changed due to COVID-19?

Response	Count
We are investigating the use of tablets for this purpose	2
We began using tablets for this purpose	1
Tablet usage for this purpose has increased	3
Tablet usage for this purpose has not changed	13
Tablet usage for this purpose has decreased	2
No response	1
Total	**22**

Due to COVID-19

- No response, 4.5%
- We began using, 4.5%
- Usage has decreased, 9.1%
- We are investigating using, 9.1%
- Usage has increased, 13.6%
- Usage has not changed, 59.1%
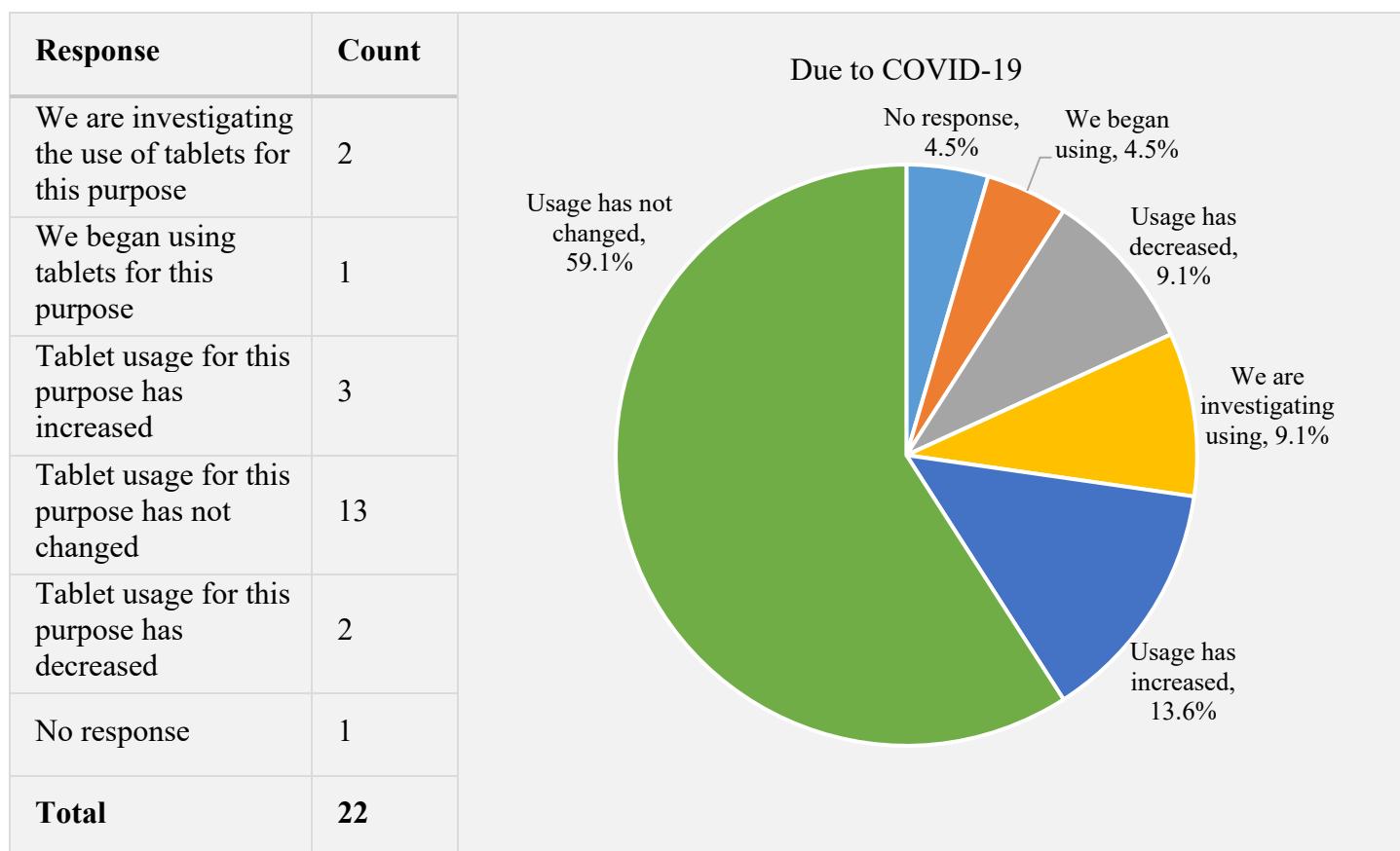
7. How do you or do you plan to evaluate the success of your school's implementation of the use of tablets?

Open ended comments:

- Annual survey to students; student and faculty surveys; student feedback surveys.

- In the early years of our program, we surveyed the students annually to learn about their particular usage, perceptions and satisfaction with the use/integration of iPads into the curriculum. We plan to survey the students again this year, but it may not necessarily include the same set of questions to enable trend data.

- We are currently not evaluating. We have adapted for the COVID environment and have moved forward with using tablets for assessments and active learning.

- We have been using iPads for at least 5 years and they work well for the first 2 years. We were seeing declining use in 3rd and 4th years and have suspended the use for those.

- We have been using tablets for several years now and have an annual tech survey that we plan to increase the questions to include those specific to COVID.

- We have technology related questions on all course evaluations and on an annual student survey that is just for the use of technology.

- We intend for SP's to use the iPads to document their encounters and complete surveys.

- We need to do more to evaluate the ways intended uses of iPads have progressed.

- We work directly with students quarterly to gather their feedback about device use and also evaluate our technology choices annually.

- With the 2020 incoming Class, we are in the 5th consecutive year of requiring (and gifting) iPad to students in the Schools of Medicine and Dental Medicine. For the decade prior to that, we had required students to own their own laptop computer (only Windows or MacOS flavors). We have done several assessments in the interim. The short of it is that the transition from laptop to tablet (equipped with keyboard), did definitely not diminish the ability to get their education. But, at the same time, we have no evidence that it facilitated or improved it either.

- We've been using the tablets around 10 years now and we've found them very effective for exam delivery in the large lecture halls. (ExamSoft).

8. What percentage of faculty members require students to use a tablet in classroom settings?

Response	Count
75-100%	5
50-74%	3
25-49%	2
0-24%	10
No response	2
Total	**22**
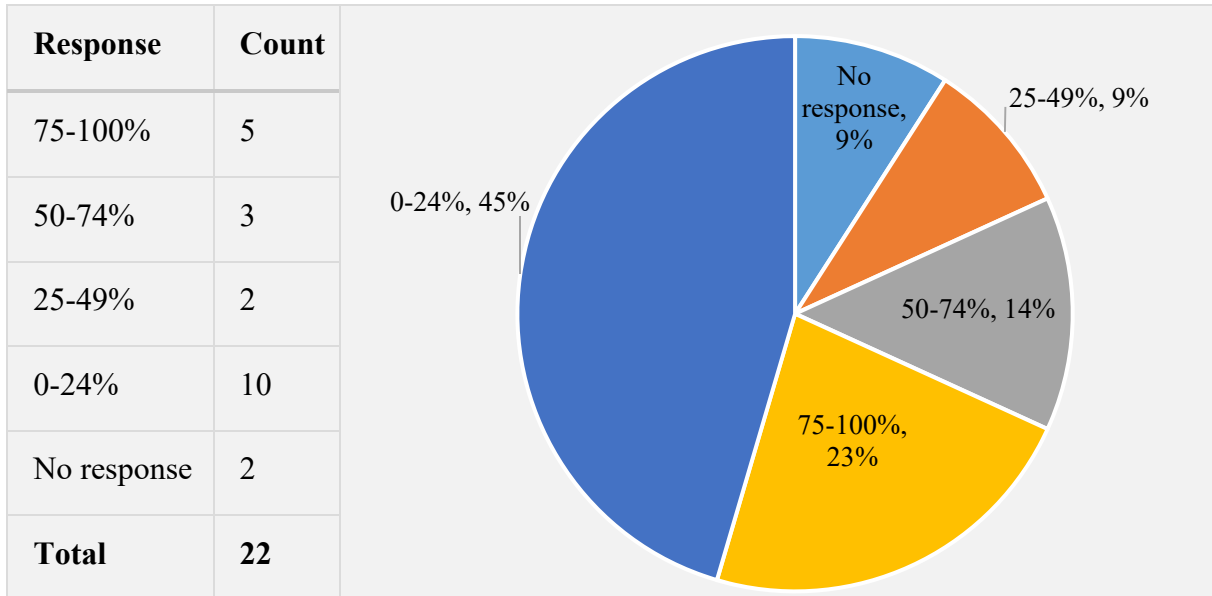
9. Is tablet usage a consideration when developing/designing course content?

Response	Count
Yes	9
No	8
Unsure	5
Total	**22**

Unsure, 23%

Yes, 41%

No, 36%
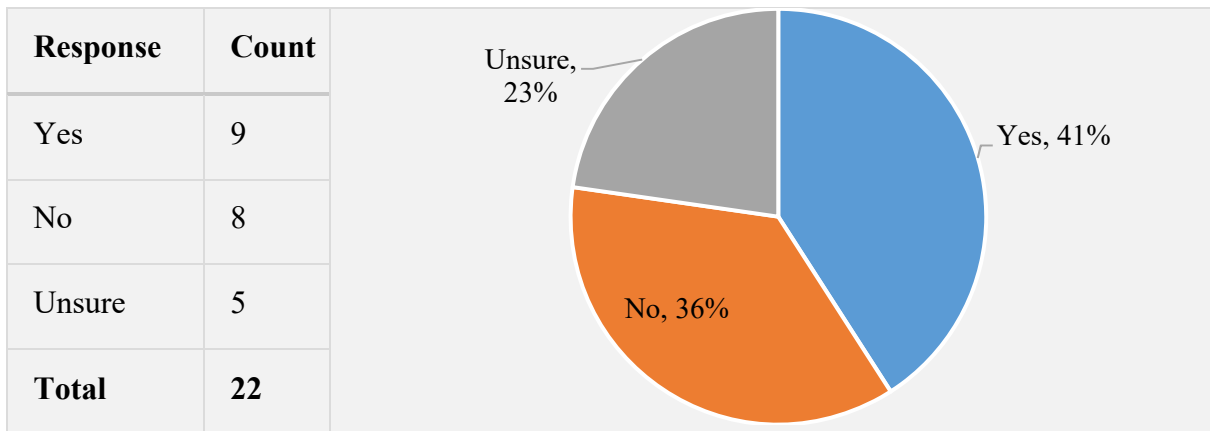
10. Do you have specific use cases where the tablet is being successfully utilized in medical education?

Response	Count
Yes	17
No	2
Unsure	3
Total	**22**

No, 9%

Unsure, 14%

Yes, 77%
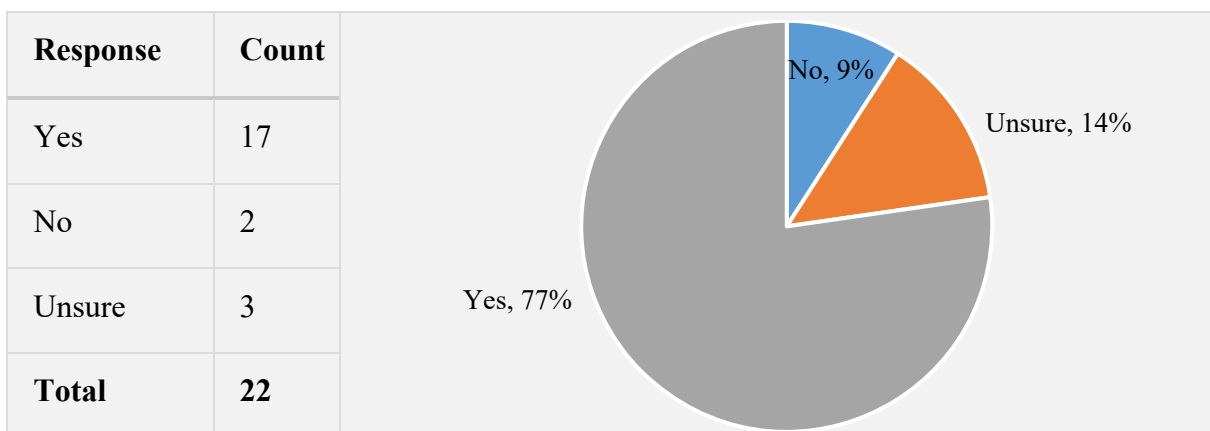
Other comments:

- A few faculty use iPads to create notes, working on anatomy manual; iPad minis for EPA surveys and use of complete anatomy application.
- https://www.med.unc.edu/md/curriculum/time/time-program/.
- Hotspots and Zoom meetings.
- https://rochester.app.box.com/v/Apple-Book-Award.
- It is the iBook on Pulmonary Pathophysiology.
- Medical Gross Anatomy Faculty are our primary users. They utilize tablets for assessments.

10. *continued*

- We use iPads in anatomy. We get a cat scan of all cadavers and students use the iPad for the cat scans as well as online anatomy textbooks.
- We use them in our anatomy bell ringer exams using a product called eOSCE and it has been successful for a few years now.

Tablet Use in UME Clinical Settings

Findings

1. Does your school require that your students use tablets?

Response	Count
Yes	10
No	22
Total	**32**

Yes
31%

No
69%
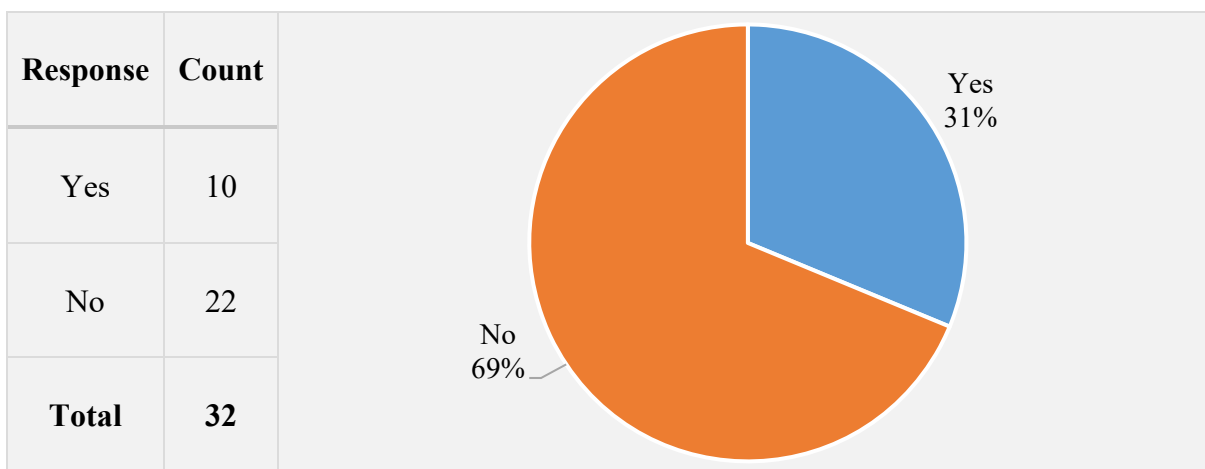
2. Please specify the type of tablet your school is currently using?

(Note: breakout results for Q2-9 by response to Q1 are provided after each question)
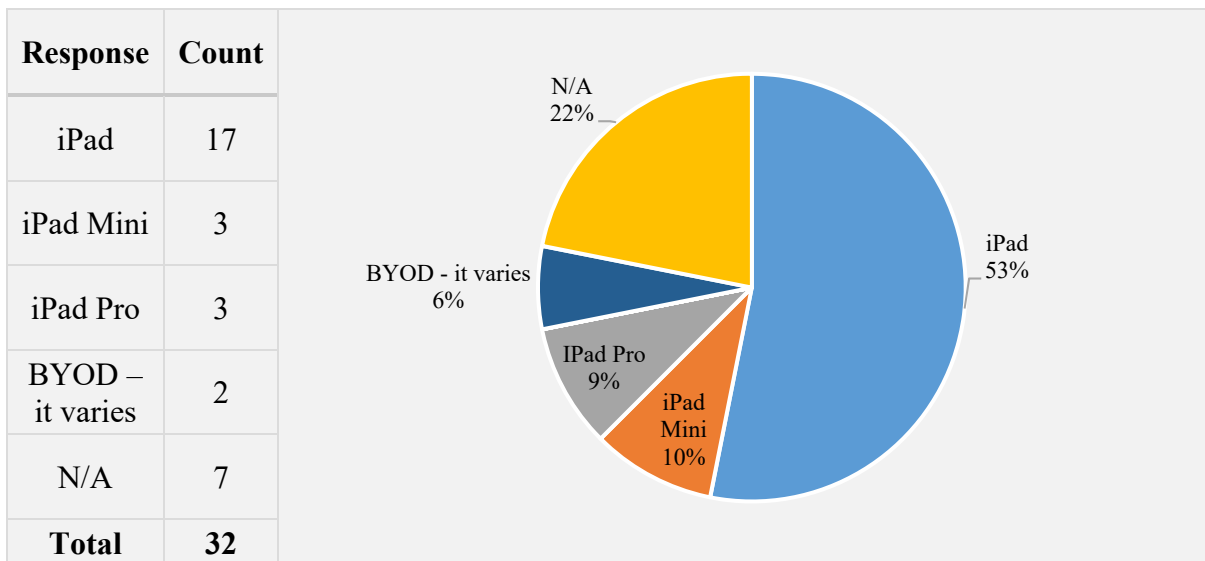
Response	Count
iPad	17
iPad Mini	3
iPad Pro	3
BYOD – it varies	2
N/A	7
Total	**32**

N/A
22%

iPad
53%

BYOD - it varies
6%

IPad Pro
9%

iPad
Mini
10%

Response options not selected: Microsoft Surface Pro, Samsung Galaxy, Fire HD

2. *continued*

Q2 Response	Of those who replied "Yes" on Q1* Count (%)	Of those who replied "No" on Q1* Count (%)
iPad	8 (80)	9 (41)
iPad Mini	2 (20)	3 (13)
iPad Pro	-	1 (5)
BYOD – it varies	-	2 (9)
N/A	-	7 (32)
Total	**10 (100)**	**22 (100)**

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?
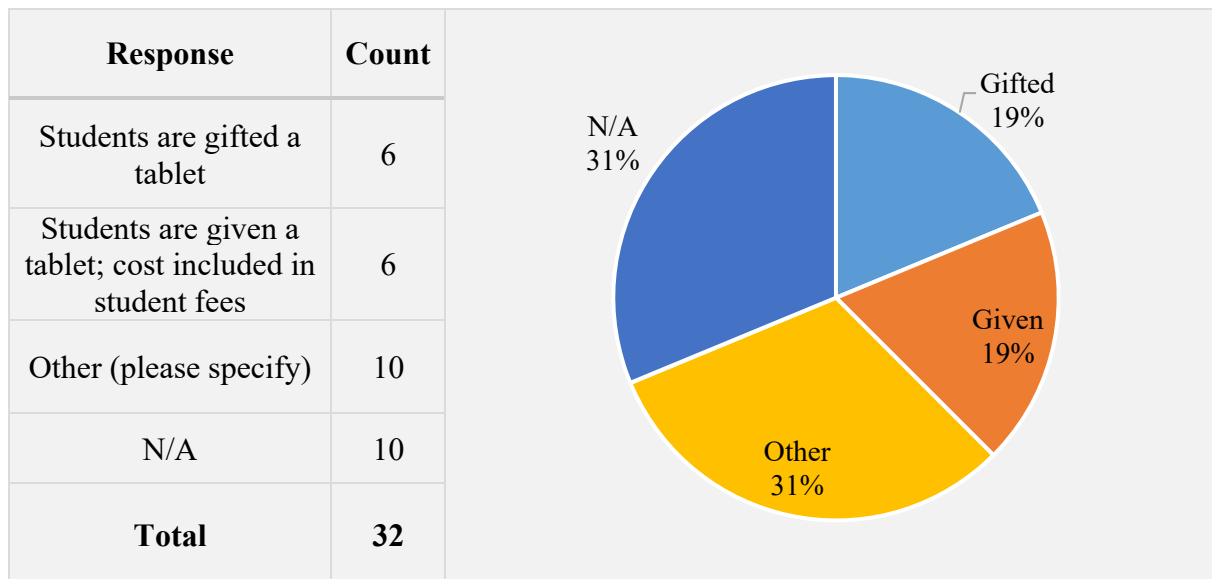
3. How are tablets provided to students? (please select one response)

Response	Count
Students are gifted a tablet	6
Students are given a tablet; cost included in student fees	6
Other (please specify)	10
N/A	10
Total	**32**

Response option not selected: "students are required to purchase a tablet"

"Other" specified:
- Required use is restricted to anatomy lab activities and tablets are provided.
- Students are given funds towards the purchase of an iPad. They may choose to purchase.
- we give them the iPads and collect them at the end.

- 3rd year and some 4th year students (depending on rotation) are loaned an iPad Mini, to be returned at the end of the year, or end of clerkship, whichever is applicable in their case.

- Our college makes tablets available for some group activities that occur on site.

- Provided at clinics.

- Specific programs use tablets, such as Simulation Center.

- Students are given an iPad on their first year. They need to return the iPad before graduation

- Students borrow an iPad Mini from the surgery clerkship. Students return it after the rotation is complete.

- Tablets are provided for use in the gross anatomy lab.

Q3 Response	Of those who replied "Yes" on Q1* Count (%)	Of those who replied "No" on Q1* Count (%)
Gifted	5 (50)	1 (5)
Given	2 (20)	4 (18)
Other	3 (30)	7 (32)
N/A	-	10 (45)
Total	**10 (100)**	**22 (100)**

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

4. Are students using tablets for any of the following use cases? (check all that apply)

Response	Count[*]
Assessments	12
Clinic/Hospital	13
PoC Data Acquisition	10
Productivity	20
Remote Learning	23
Patient Interviews	1
Specialty-specific apps	4
Training	8
Other (please specify)	4
N/A	5

All responses: Denominator is 32

- Assessments — 38%
- Clinic/Hospital — 41%
- PoC — 31%
- Productivity — 63%
- Remote Learning — 72%
- Patient Interviews — 3%
- Specialty-specific — 13%
- Training — 25%
- Other — 13%
- N/A — 16%
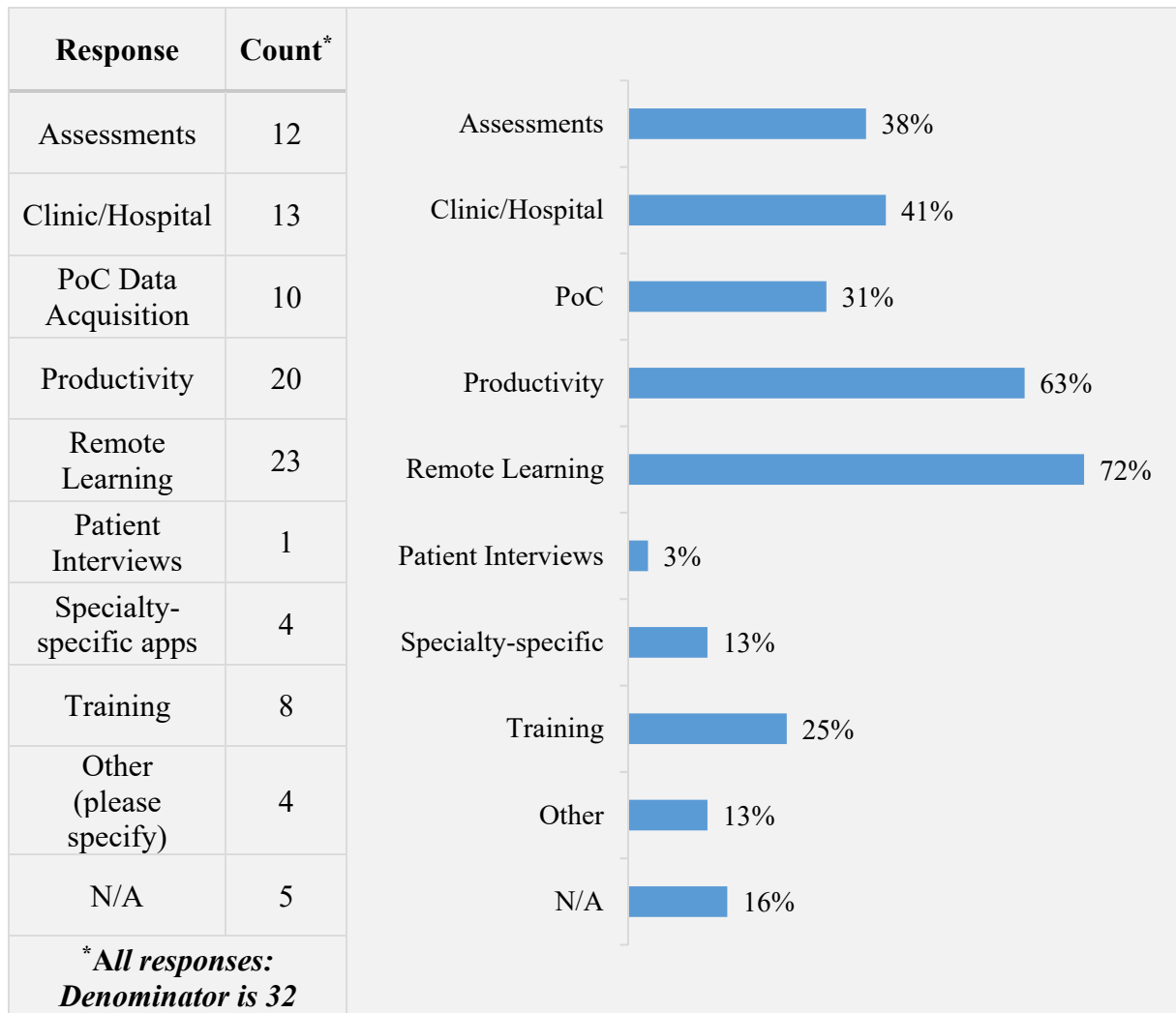
Specialty-specific clinical apps specified:

- Ultrasound/ Butterfly ultrasound.
- We do not provide any specialty-specific clinical apps though students will find on their own.

"Other" specified:
- LMS use.
- Study/note taking.

4. *continued*

Of the 10 who replied "Yes" to Q1*

Assessments (n=7)	70%
Clinic/Hospital (n=6)	60%
PoC (n=5)	50%
Productivity (n=10)	100%
Remote Learning (n=9)	90%
Patient Interviews (n=1)	10%
Specialty-specific (n=2)	20%
Training (n=5)	50%
Other (n=2)	20%
N/A	0%

Of the 22 who replied "No" to Q1*

Assessments (n=5)	23%
Clinic/Hospital (n=7)	32%
PoC (n=5)	23%
Productivity (n=10)	45%
Remote Learning (n=14)	64%
Patient Interviews (n=0)	0%
Specialty-specific (n=2)	9%
Training (n=3)	14%
Other (n=2)	9%
N/A (n=5)	23%

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

4. *continued*

Summary of Yes / No Answers from Q1*
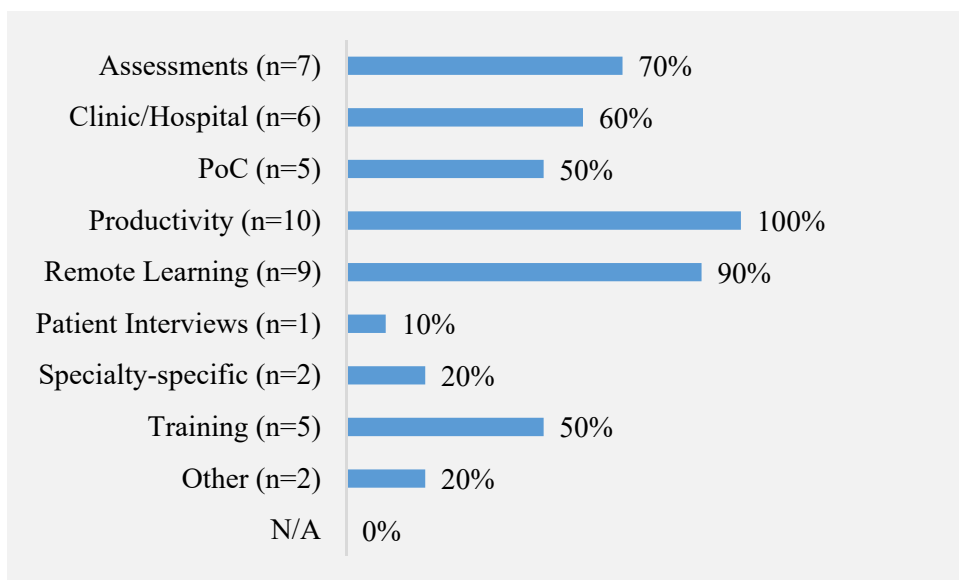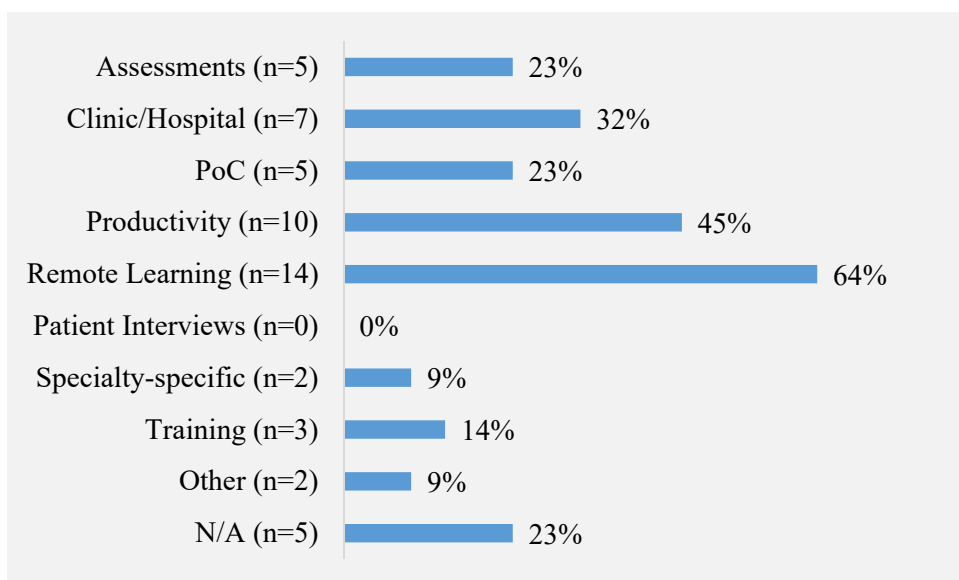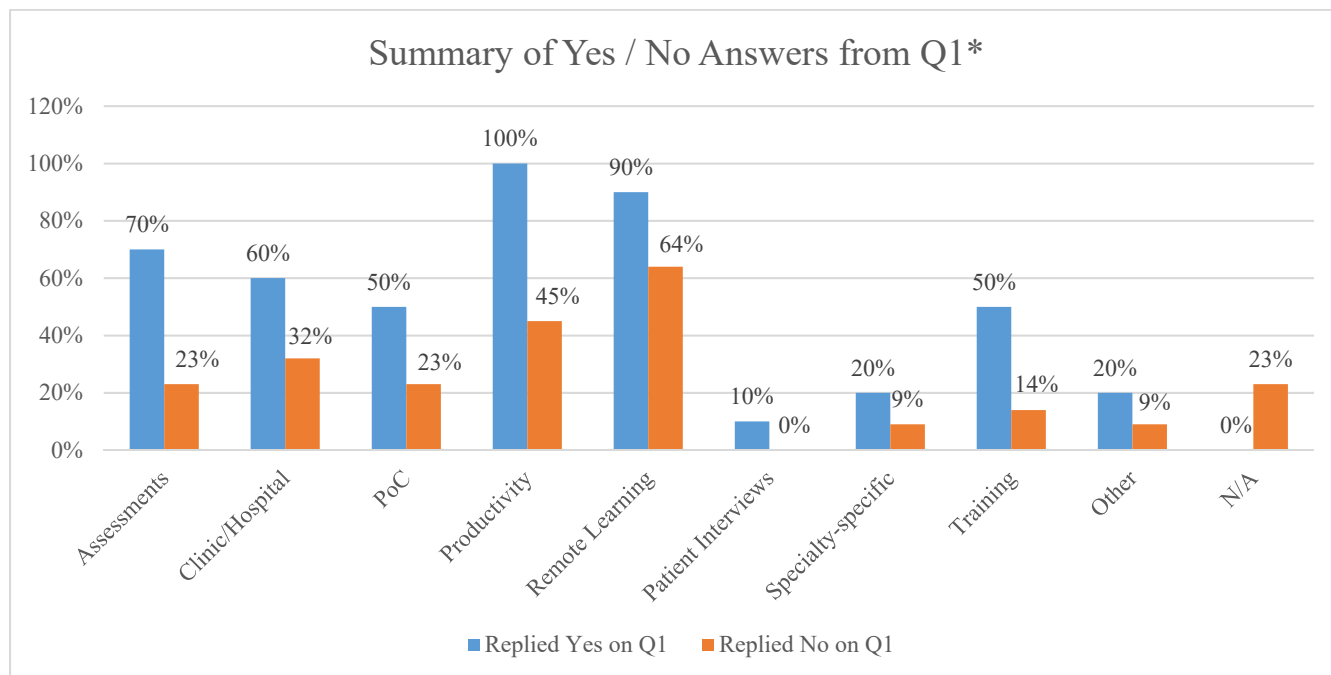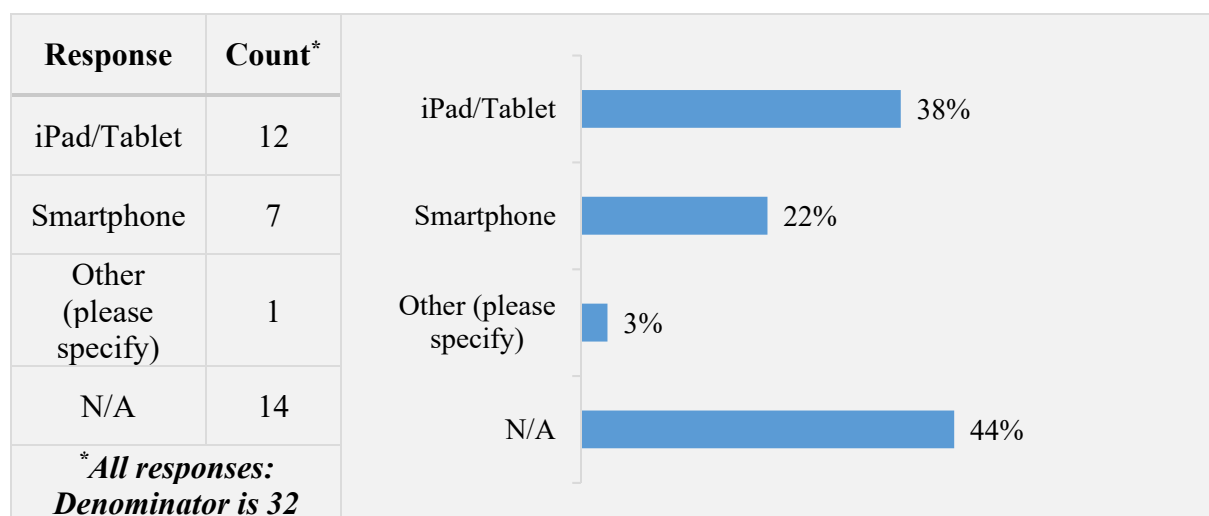
*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

5. Are any of the following used to engage students in the patient encounter? (check all that apply)

Response	Count*
iPad/Tablet	12
Smartphone	7
Other (please specify)	1
N/A	14
*All responses: Denominator is 32	

iPad/Tablet 38%
Smartphone 22%
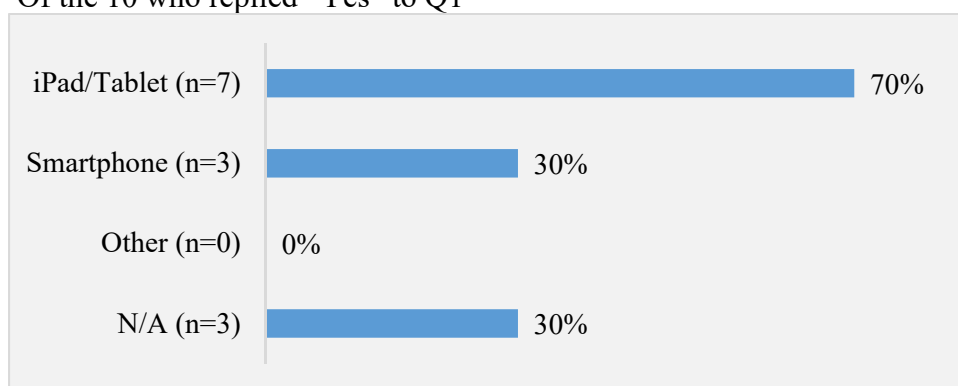Other (please specify) 3%
N/A 44%

Response options not selected: GoPro, chestcam
5. continued

"Other" specified:

- Telehealth tools like doxy.me, HIPAA compliant Zoom for clinical rounding

Of the 10 who replied "Yes" to Q1*
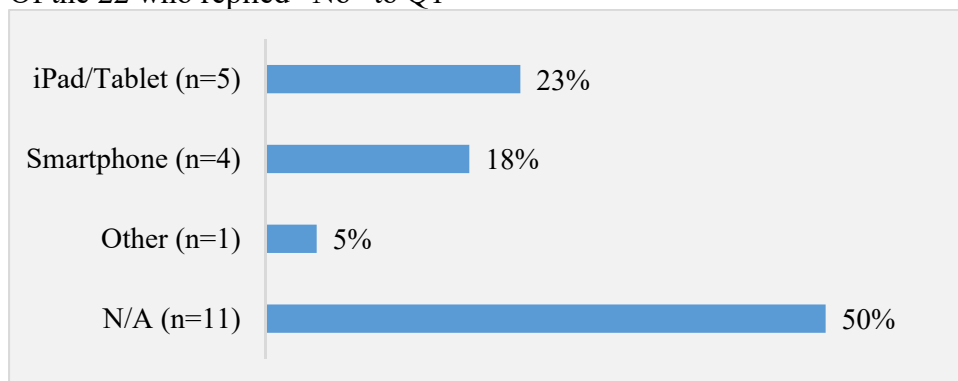
iPad/Tablet (n=7)	70%
Smartphone (n=3)	30%
Other (n=0)	0%
N/A (n=3)	30%

Of the 22 who replied "No" to Q1*

iPad/Tablet (n=5)	23%
Smartphone (n=4)	18%
Other (n=1)	5%
N/A (n=11)	50%

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

6. If tablets or other smart technologies are used to engage students in the patient encounter, has this changed due to COVID-19?

Response	Count
We are investigating the use of tablets for this purpose	1
We began using tablets for this purpose	6
Tablet usage for this purpose has increased	5
Tablet usage for this purpose has not changed	5
N/A	15
Total	**32**
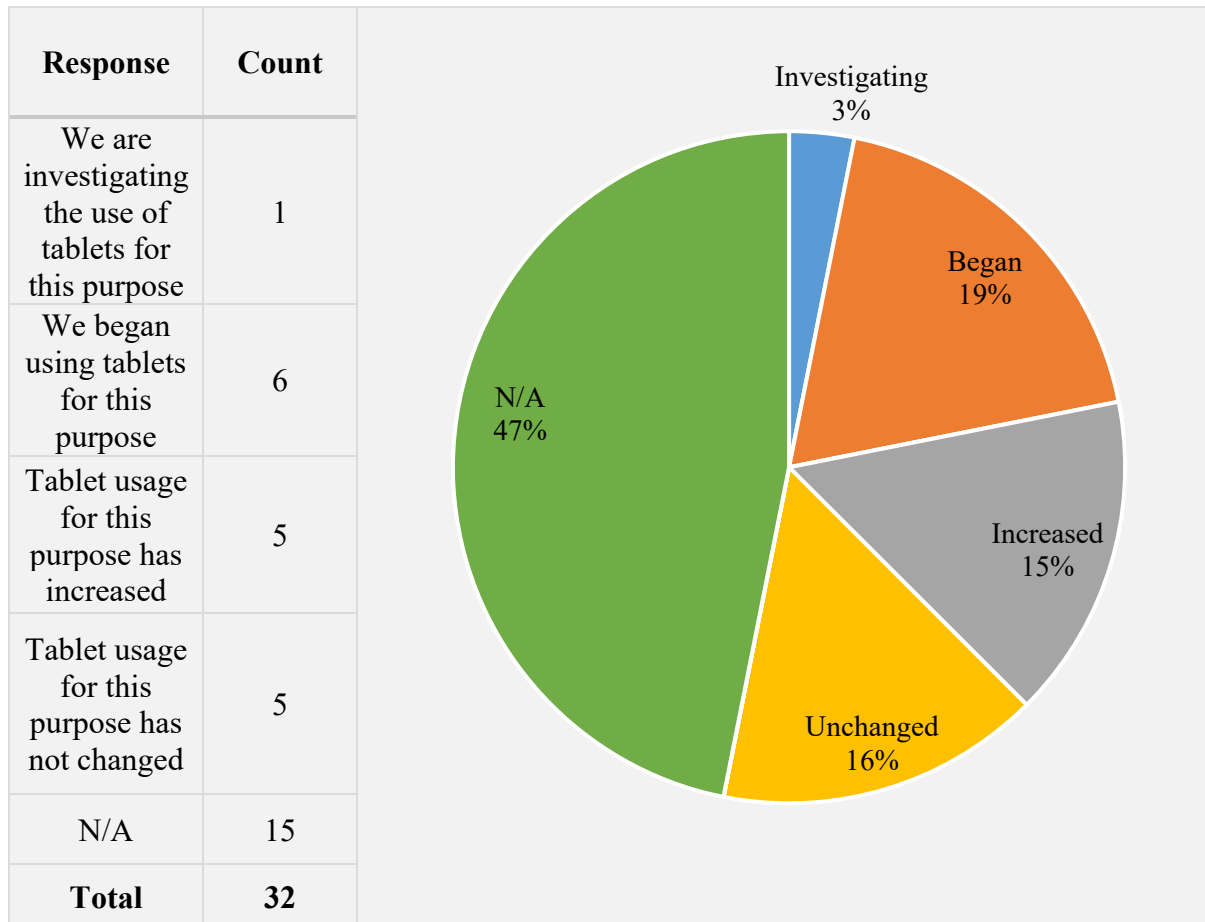
Response option not selected: "tablet usage for this purpose has decreased"

Q6 Response	Of those who replied "Yes" on Q1* Count (%)	Of those who replied "No" on Q1* Count (%)
Investigating	1 (10)	-
Began	2 (20)	4 (18)
Increased	4 (40)	1 (5)
Unchanged	1 (10)	4 (18)
N/A	2 (20)	13 (59)
Total	**10 (100)**	**22 (100)**

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

7. Do students have access to the following tablet medical accessories? (check all that apply)

Response	Count*
Handheld Ultrasound	11
Pulse Oximeter	2
Blood Pressure Monitor	1
Stethoscope	2
Ophthalmoscope	1
Other (please specify)	1
N/A	17
All responses: Denominator is 32	

Handheld Ultrasound — 34%
Pulse Oximeter — 6%
Blood Pressure Monitor — 3%
Stethoscope — 6%
Ophthalmoscope — 3%
Other (please specify) — 3%
N/A — 53%
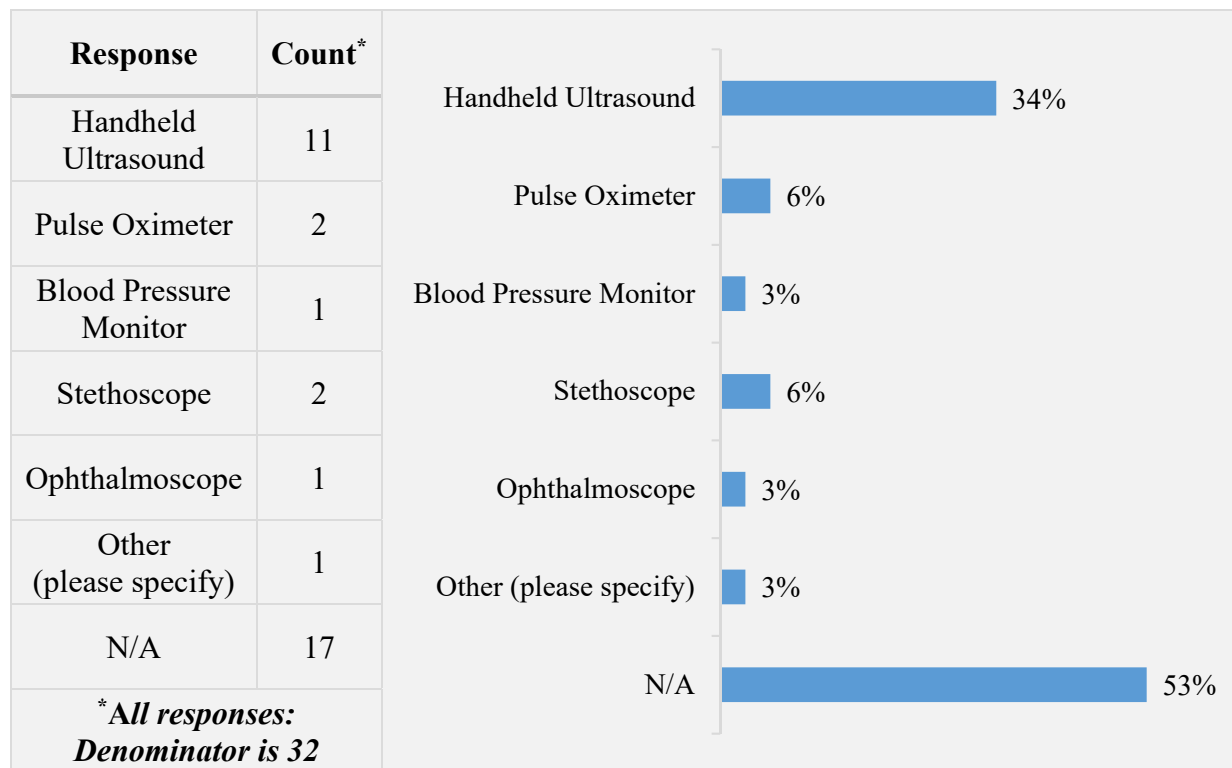
Response option not selected: dermatoscope

"Other" specified:
- Alivecor Kardia mobile EKG device

7. *continued*

Of the 10 who replied "Yes" to Q1*

Handheld Ultrasound (n=5)	50%
Pulse Oximeter (n=0)	0%
Blood Pressure Monitor (n=0)	0%
Stethoscope (n=1)	10%
Ophthalmoscope (n=0)	0%
Other (n=1)	10%
N/A (n=4)	40%

Of the 22 who replied "No" to Q1*

Handheld Ultrasound (n=6)	27%
Pulse Oximeter (n=2)	9%
Blood Pressure Monitor (n=1)	5%
Stethoscope (n=1)	5%
Ophthalmoscope (n=1)	5%
Other (n=0)	0%
N/A (n=13)	59%

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

8. What percentage of faculty members require students to use a tablet in clinical settings?

Response	Count
25-49%	3
0-24%	11
N/A	18
Total	**32**

25-49%, 10%[a]

0-24%, 34%[b]

N/A, 56%[c]
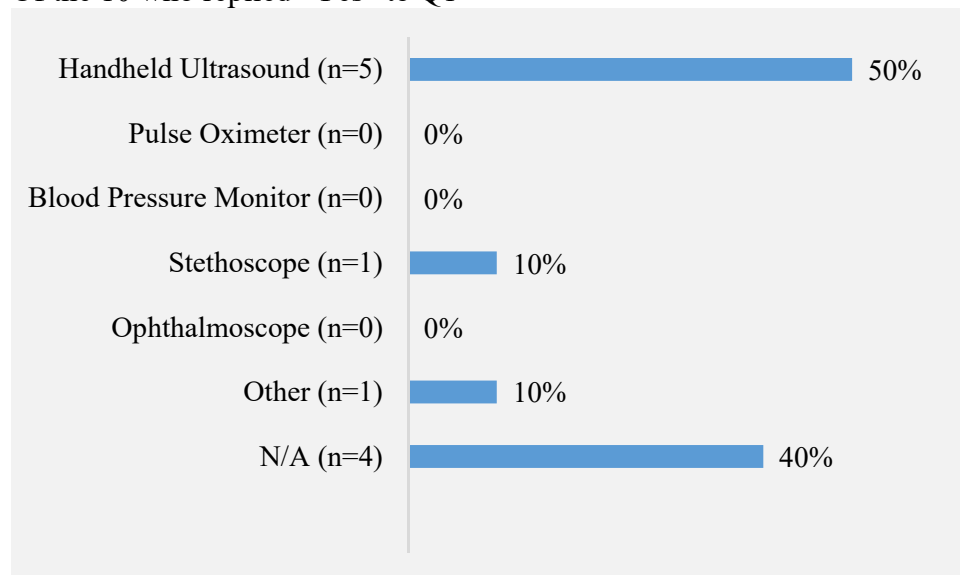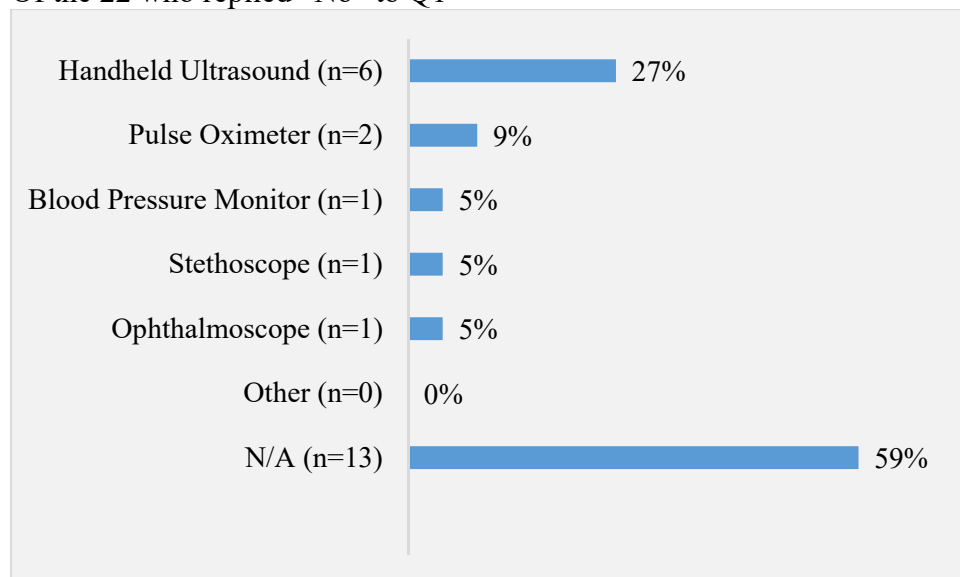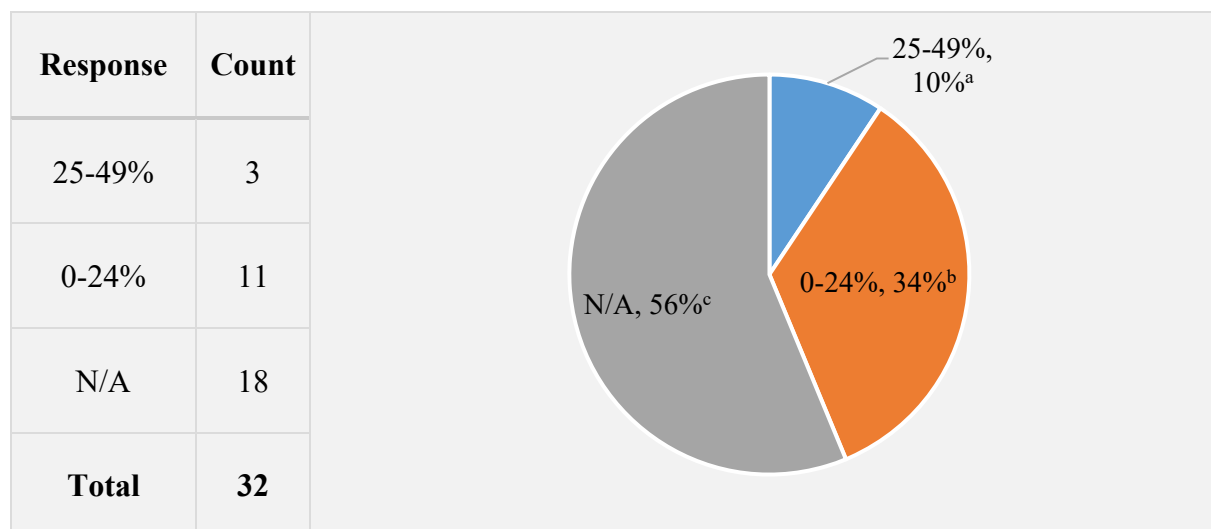
[a] 10% of schools responded that 25-49% of faculty members require students to use a tablet in clinical settings.
[b] 34% of schools responded that 0-24% of faculty members require students to use a tablet in clinical settings.
[c] 56% of schools responded N/A for this question.

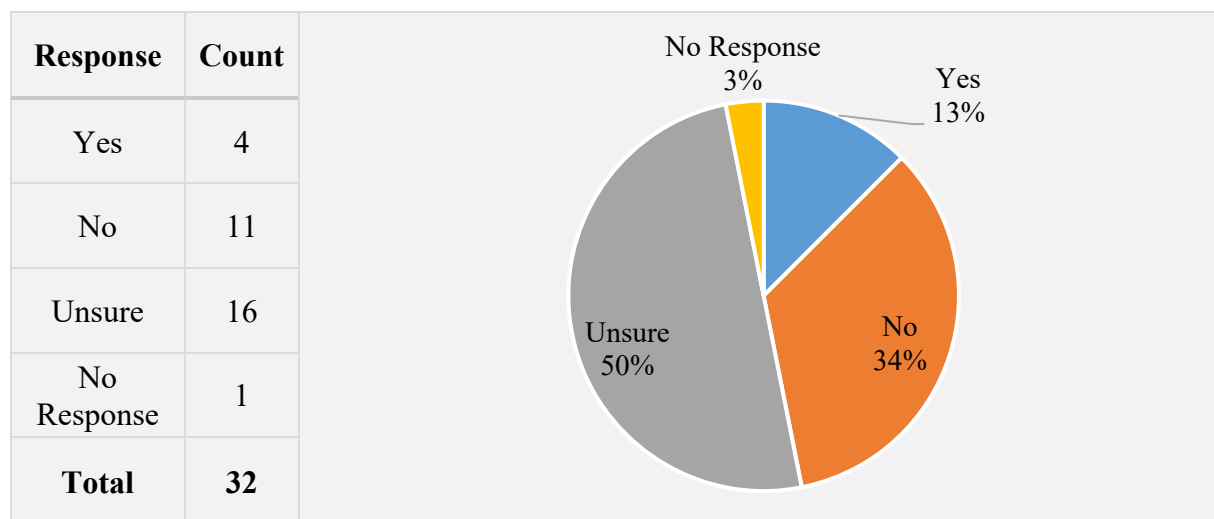*Response options not selected: 75-100%, 50-74%*

Q8 Response	Of those who replied "Yes" on Q1* Count (%)	Of those who replied "No" on Q1* Count (%)
25-49%	3 (30)	-
0-24%	5 (50)	6 (27)
N/A	2 (20)	16 (73)
Total	**10 (100)**	**22 (100)**

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

9. Do you have specific use cases where a tablet is being successfully utilized in clinical settings?

Response	Count
Yes	4
No	11
Unsure	16
No Response	1
Total	**32**

Q9 Response	Of those who replied "Yes" on Q1* Count (%)	Of those who replied "No" on Q1* Count (%)
Yes	3 (30)	1 (5)
No	3 (30)	8 (36)
Unsure	4 (40)	12 (54)
No Response	-	1 (5)
Total	**10 (100)**	**22 (100)**

*Q1 data can be found on page 13. Q1: Does your school require that your students use tablets?

For those who replied "Yes" to question 9:

- Here is one example: https://onlinelibrary.wiley.com/doi/full/10.1111/medu.14223. You can contact me at [redacted].
- Some students used their i-pads for our physical diagnosis course. The students performed physical exams on each other, and the SP Instructor who was at home gave them feedback. The students used their i-pads to enable the SP to see what they were doing.
- We use tablets for telehealth visits. We also supply iPads with Butterfly IQ. We have an Ultrasound interest group and built teaching Ultrasound into our curriculum.
- Virtual rounding.

Participating Institutions

California University of Science and Medicine

Case Western Reserve University

Creighton University School of Medicine

Dartmouth Geisel School of Medicine

Duke University School of Medicine

Emory University School of Medicine

Florida International University College of Medicine

George Washington University

Hackensack Meridian School of Medicine

Harvard Medical School

Icahn School of Medicine at Mount Sinai

Indiana University School of Medicine

Lewis Katz School of Medicine at Temple University

LSU Health Sciences Center – New Orleans

Michigan State University

Morehouse School of Medicine

Northern Ontario School of Medicine

Oakland University William Beaumont School of Medicine

Rutgers New Jersey Medical School

Sidney Kimmel Medical College at Thomas Jefferson University

Southern Illinois University School of Medicine

Stony Brook University Renaissance School of Medicine

Texas Tech University Health Sciences Center School of Medicine

Tulane University School of Medicine
University of California, Irvine School of Medicine

University of California San Diego School of Medicine

UNC School of Medicine
University of Houston College of Medicine
University of Massachusetts Medical School
University of Arizona College of Medicine - Phoenix
University of Arizona College of Medicine – Tucson
University of Kansas School of Medicine
University of Kentucky
University of Minnesota
University of Nebraska Medical Center
University of Nevada - Las Vegas
University of Rochester Medical Center School of Medicine & Dentistry
University of South Carolina School of Medicine – Greenville
University of Utah
University of Vermont, Larner College of Medicine
University of Washington
Virginia Commonwealth University School of Medicine
Weill Cornell Medicine
Washington State University College of Medicine
Yale University School of Medicine