

Medtronic

Engineering the extraordinary

State of Surgery in the U.S. 2024 Report

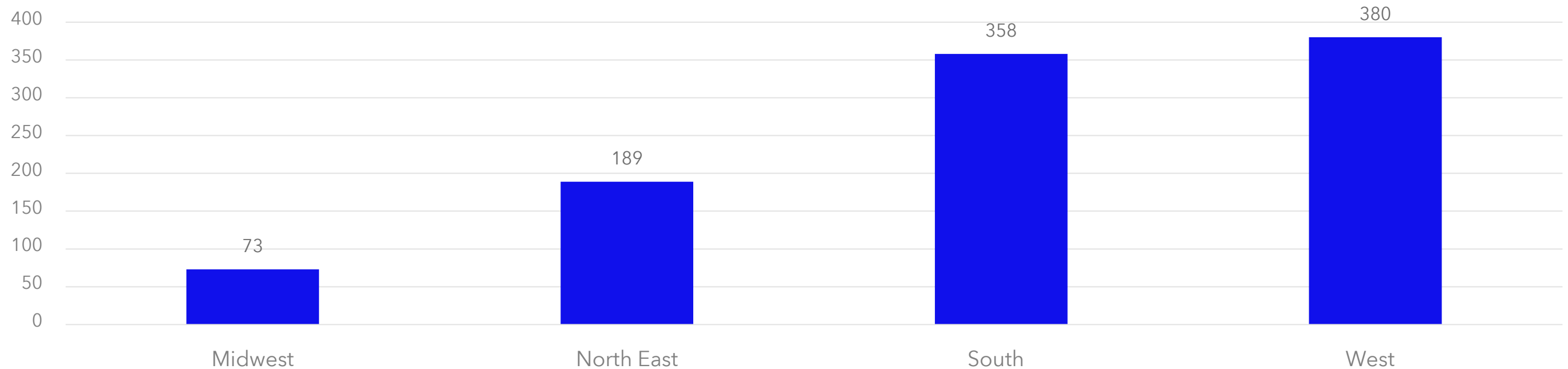
JUNE 2024



Summary of our survey

- In May 2024, Medtronic surveyed 1,000 U.S. surgeons to assess their perspectives on current technology in U.S. hospitals and operating rooms and to identify areas for improvement.
- The survey was conducted from May 17-31, 2024, via Censuswide.
- It collected responses to 14 questions from surgeons across surgical specialities, within public and private healthcare sectors.
- Surgeons were located across the 50 U.S. states including the District of Columbia.

Number of surgeons surveyed per region



Key findings

U.S. surgeons lose a working month every year due to outdated tech

- Inefficient tech is causing surgeons to lose nearly four hours every week, which equates to one working month per year
- Over two thirds (69%) are spending time outside the hospital due to administrative work
- 64% say this is wasted time they'd like to reinvest in training and learning

Better technology could unlock much-needed opportunities for training

- The majority believe VR (85%) and digital training platforms (83%) could improve training
- Over a third (36%) say live stream technology would enhance surgical training through greater exposure to diverse surgical approaches and expertise

Digital solutions could improve patient care

- Nearly three out of four (74%) say technology in their OR is inefficient and could impact patient care
- 73% say the technology currently available to them limits them from performing to the best of their ability, while nearly two in three (62%) say they've considered leaving the field due to feeling burned-out
- Digital solutions like live stream are seen as a powerful solution, with 83% saying sharing surgical best practices and innovations through global digital networks could improve surgery

While innovations make surgeons' lives easier outside of work, the tech in their place of work is far behind

- The majority (73%) said technology in the OR lags behind everyday technologies experienced in their personal life, like streaming or cloud content storage
- Meanwhile, 82% say they must rely on technologies like WhatsApp, Zoom or FaceTime to remotely share and view surgeries in the absence of dedicated surgical streaming platforms

Survey insights

The potential for technology improvement to enhance patient care

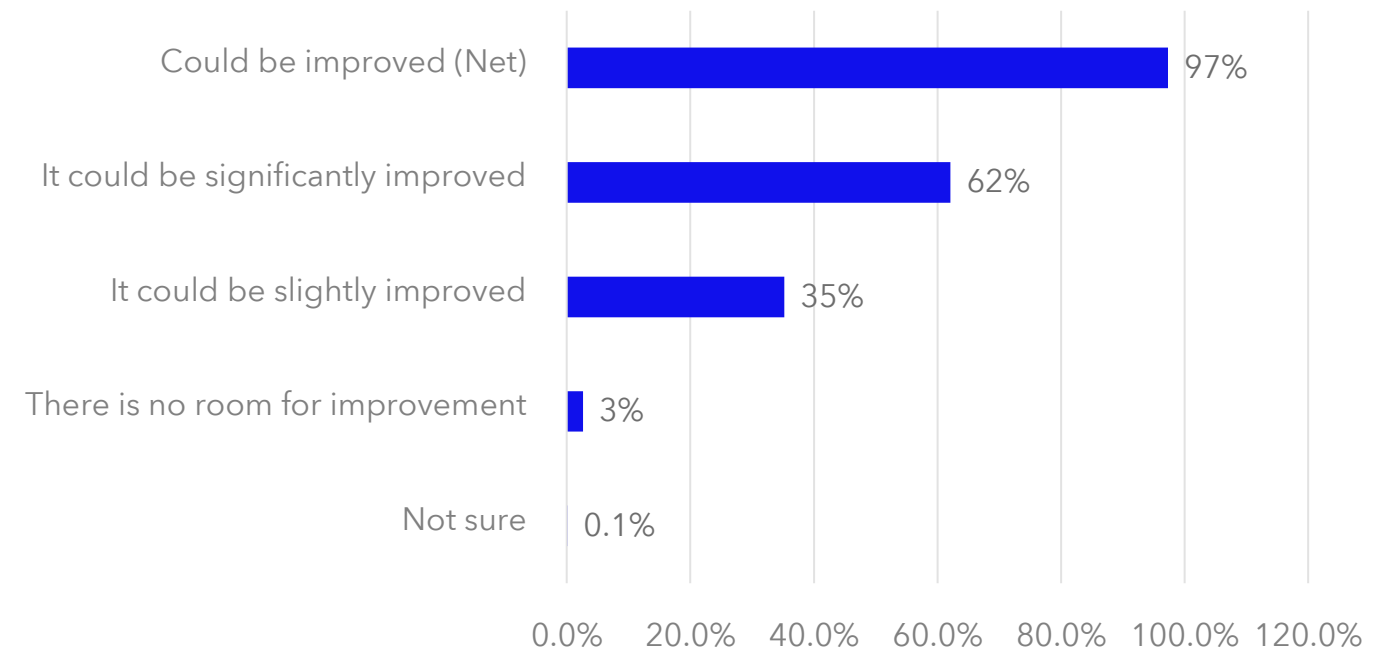
“Thinking about the current technology you use (at the hospital), how much, if at all, do you think it could be improved to make it easier to deliver care?”

KEY FINDINGS:

- **Region:** Across the U.S. there is almost unanimous agreement (97%) that current technology used in hospitals can be improved. The West Coast has the strongest view of all regions, tipping to 98%.
- **City:** 8 of the cities have unanimous agreement (100%) that technology can be improved. Jacksonville has the lowest in agreement, although this still sits at 89%.
- **Length of Service:** Surgeons with over 20 years of experience are less inclined to see room for improvement (50%) than those with under a year of experience (100%).
- **Age:** 61% of 25 to 34-year-olds believe there is significant room for improvement using technology. Just 1 in 10 (11%) of the oldest generation surveyed (55+) believe there is no room for improvement.

TOTAL SAMPLE

Response	%	Count
Could be improved (Net)	97%	973
<i>It could be significantly improved</i>	62%	621
<i>It could be slightly improved</i>	35%	352
There is no room for improvement	3%	26
Not sure	0.1%	1

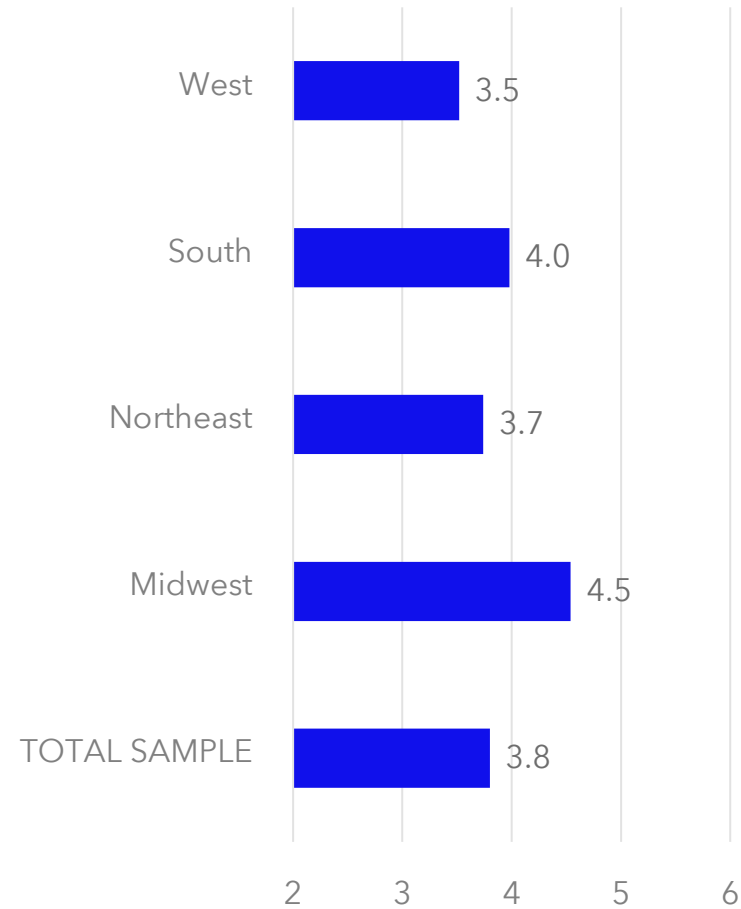


Time lost to technological inefficiencies

How much time, if any, do you believe is lost or wasted due to outdated/inefficient technology in an average week?

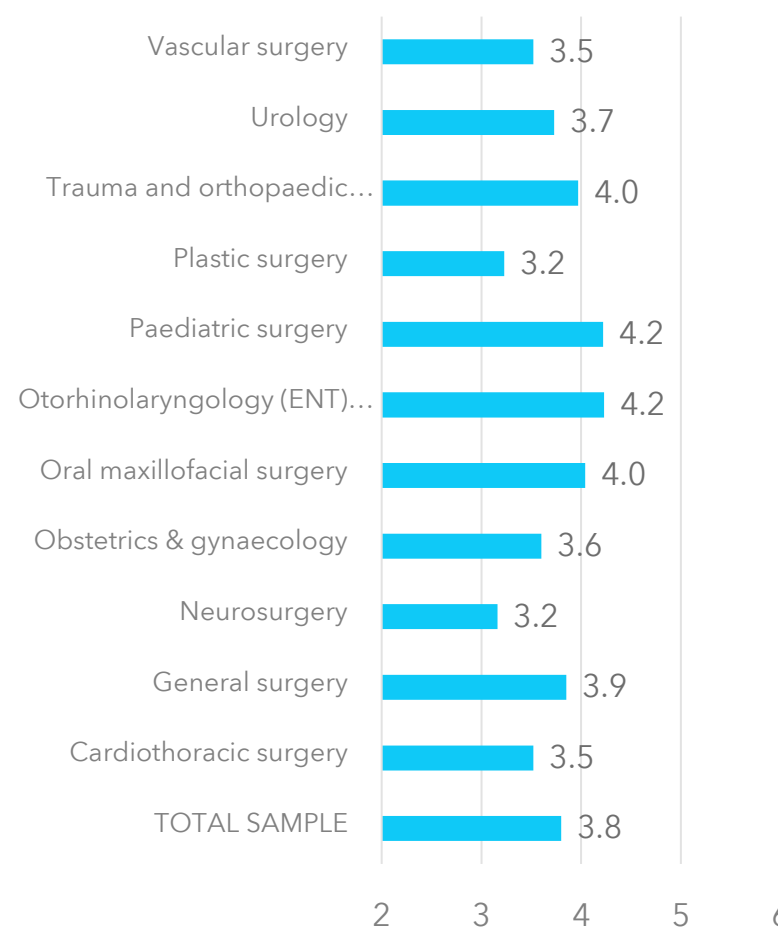
Regional

Time lost per week, hours



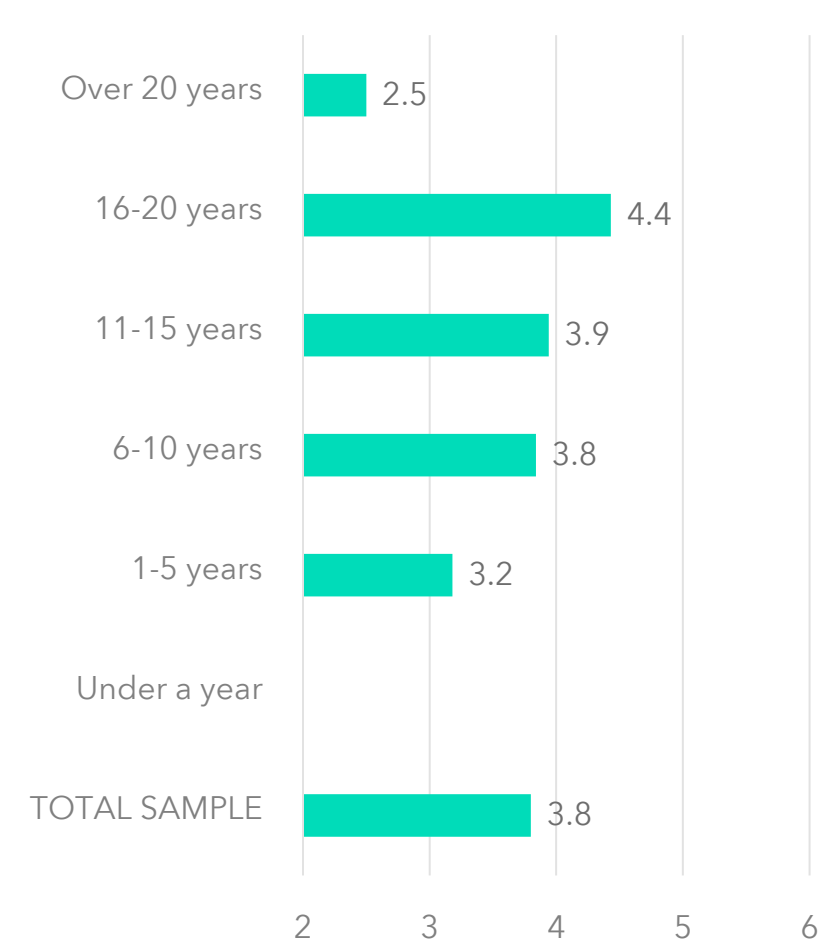
Area of practice

Time lost per week, hours



Length of service

Time lost per week, hours



Time lost to technological inefficiencies

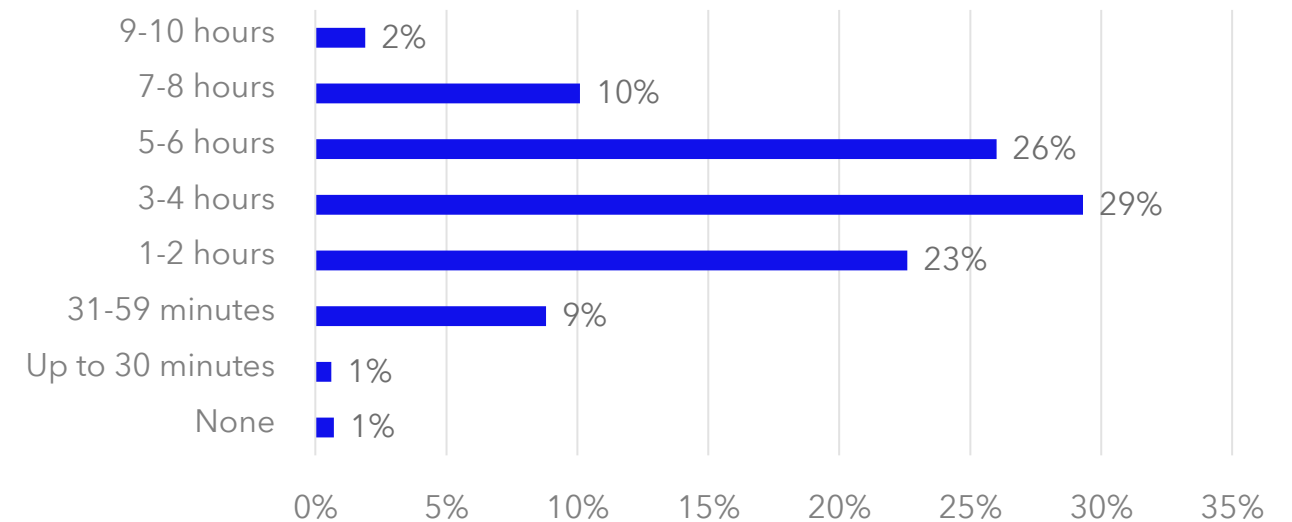
How much time, if any, do you believe is lost or wasted due to outdated/inefficient technology in an average week?

KEY FINDINGS:

- Region:** Almost half of surgeons (47%) in the Midwest believe that they lose 5-6 hours a week due to inefficient technology, with the region also containing the highest average of time lost (4.5 hours). The Western region had the lowest amount of time lost, though this still stands at 3.5 hours per week.
- City:** Boston surgeons report losing the least amount of time of any city (2.96 hours per week), followed by Denver (3.17 hours), Charlotte (3.23 hours) and Phoenix (3.28 hours).
- Length of Service:** Time lost due to inefficient technology increases with years of experience (excluding those with 20+ years). Those with 16-20 years of experience lose the most on average (4.43 hours), and those with less than one year of experience lose the least (0.75 hours).
- Practice Area:** Otorhinolaryngology (ENT) surgeons lose the most amount of time a week with 1 in 5 (19%) claiming they lose 7-8 hours per week. While neurosurgeons had the lowest average figure (3.16 hours), almost 1 in 3 (27%) still lose upwards of 4 hours per week.

TOTAL SAMPLE

Response	%	Count
None	1%	7
Up to 30 minutes	1%	6
31-59 minutes	8.8%	88
1-2 hours	23%	226
3-4 hours	29%	293
5-6 hours	26%	260
7-8 hours	10%	101
9-10 hours	2%	19

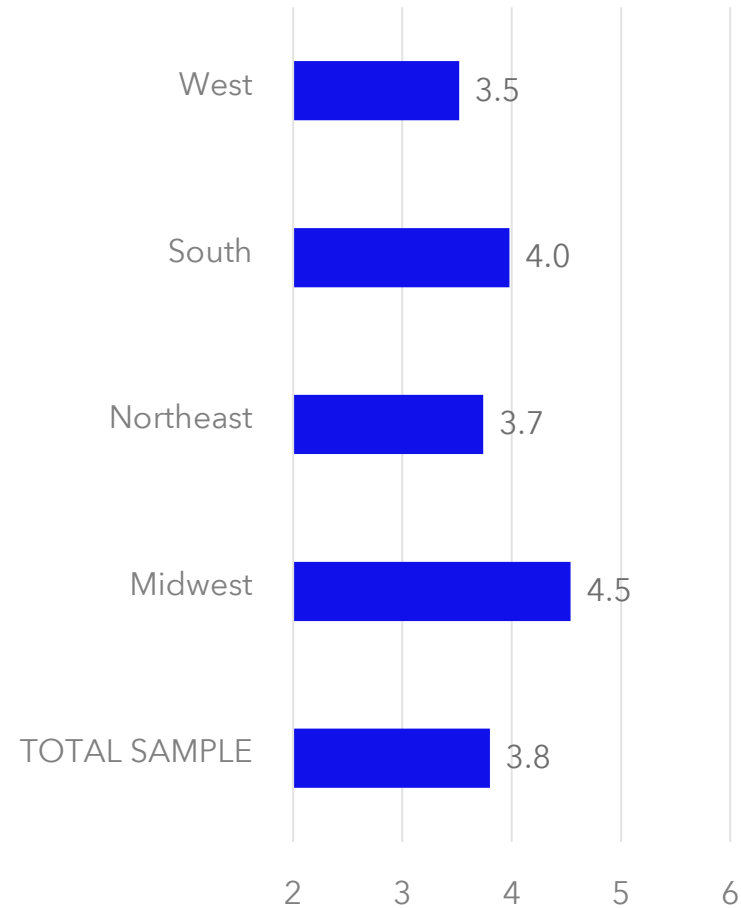


Time lost to technological inefficiencies

How much time, if any, do you believe is lost or wasted due to outdated/inefficient technology in an average week?

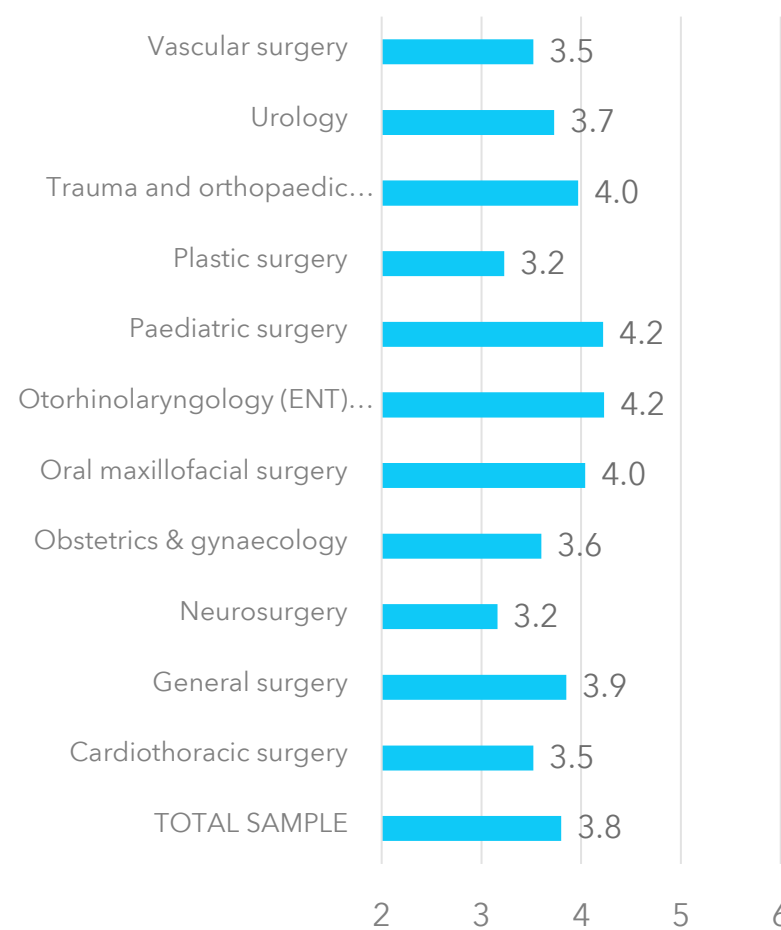
Regional

Time lost per week, hours



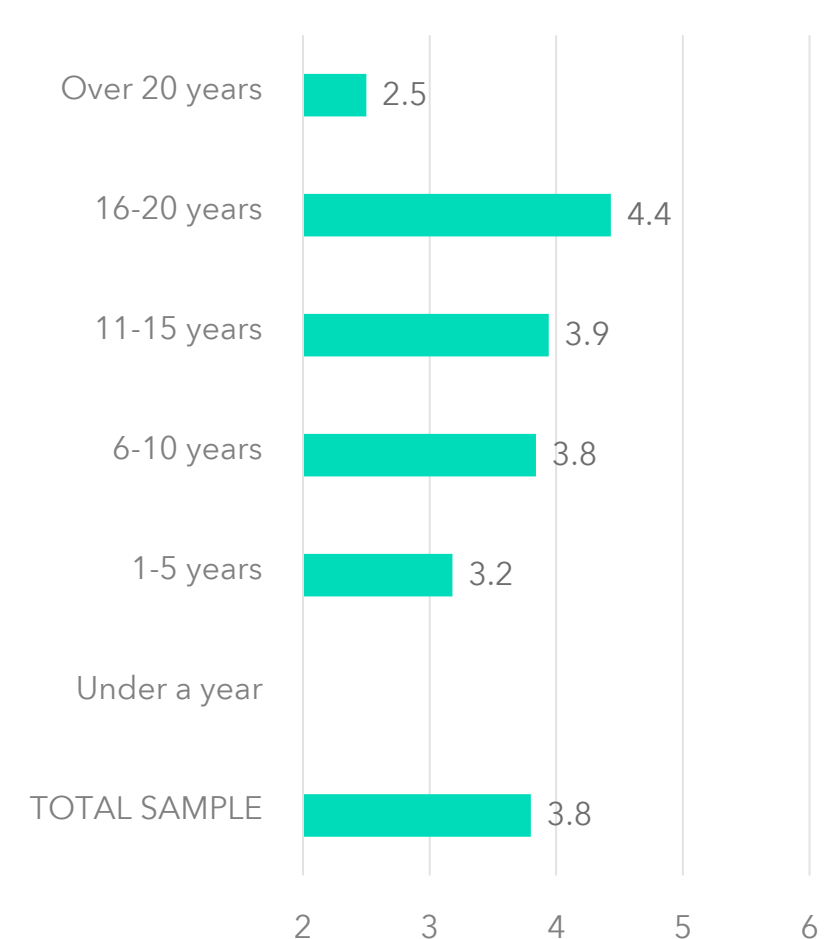
Area of practice

Time lost per week, hours



Length of service

Time lost per week, hours



The impact of inefficient technologies on delivery of care

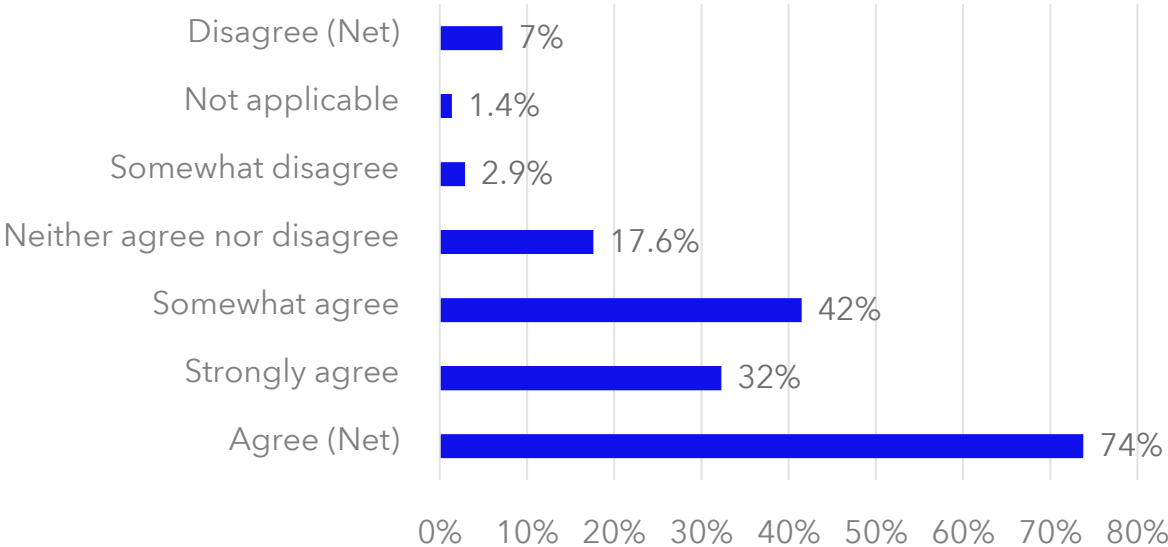
To what extent do you believe that 'Technology in the OR is inefficient and could impact the delivery of patient care'.

KEY FINDINGS:

- **Region:** Over three quarters (77%) of surgeons from the Northeast agree technology in the OR is inefficient, more so than any other region.
- **City:** Of those surveyed in Boston, 89% believe tech in the OR to be inefficient, the most of any city, closely followed by San Antonio (83%) and New York (80%).
- **Length of Service:** Surprisingly, those newest to surgical practice (under a year) were the most split on the impact of inefficient tech on patient care, with half believing technology in the OR is inefficient and the other half undecided.
- **Practice Area:** General surgery is the most affected by inefficient technology, with a significant 77% agreeing. Three quarters of Pediatric professionals (75%) also share this view, while Urology emerges as the least affected, with over a half (51%) in agreement.

TOTAL SAMPLE

Response	%	Count
Agree (Net)	74%	738
Strongly agree	32%	323
Somewhat agree	42%	415
Neither agree nor disagree	18%	176
Disagree (Net)	7%	72
Somewhat disagree	3%	29
Not applicable	1%	14

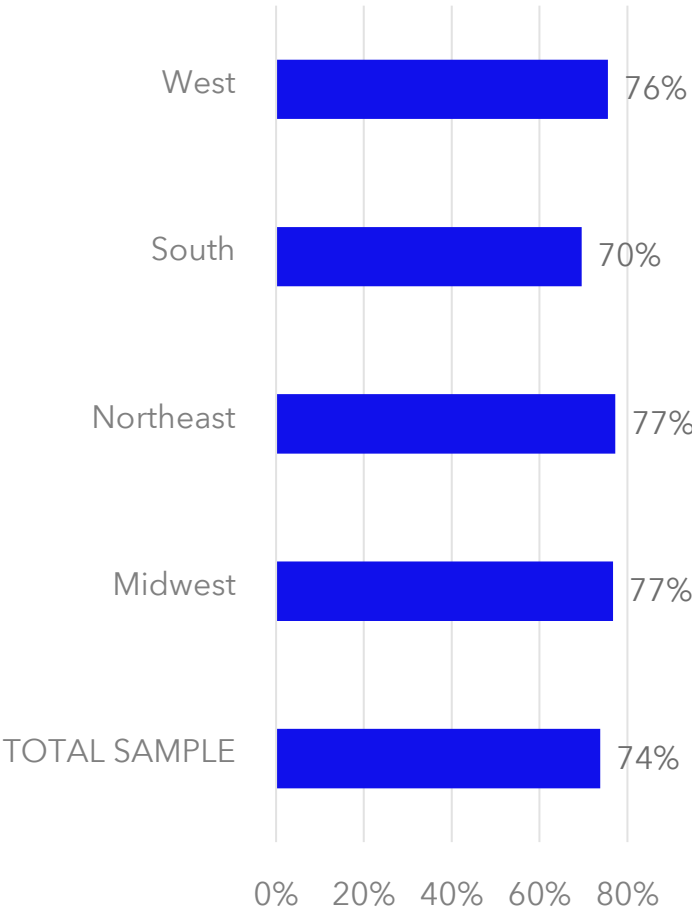


The impact of inefficient technologies on delivery of care

To what extent do you believe that 'Technology in the OR is inefficient and could impact the delivery of patient care'.

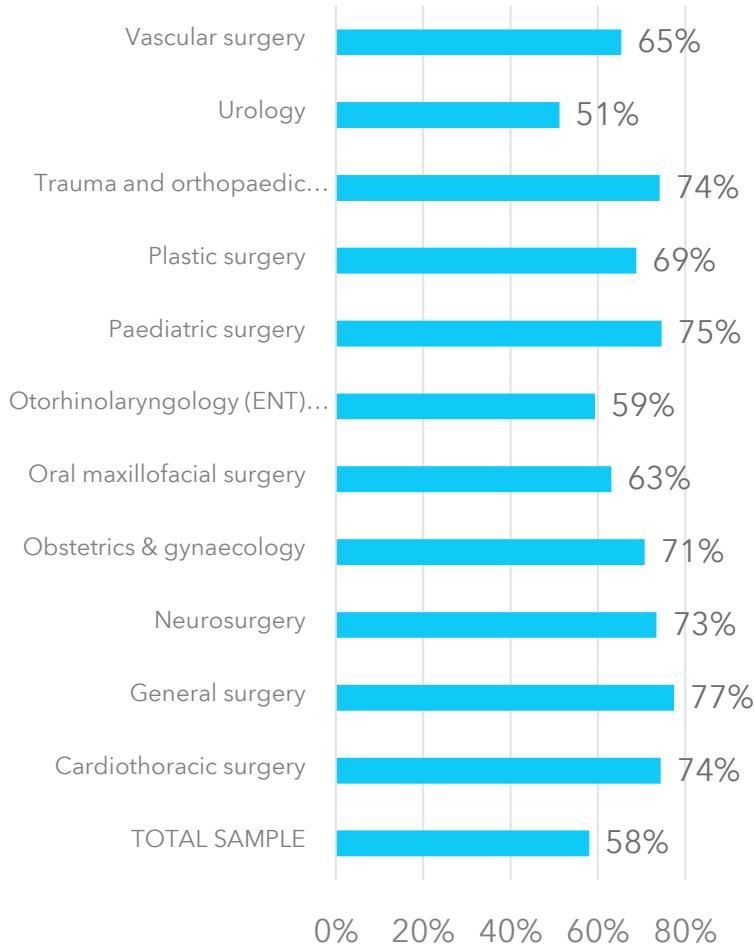
Regional

Agree (Net), %



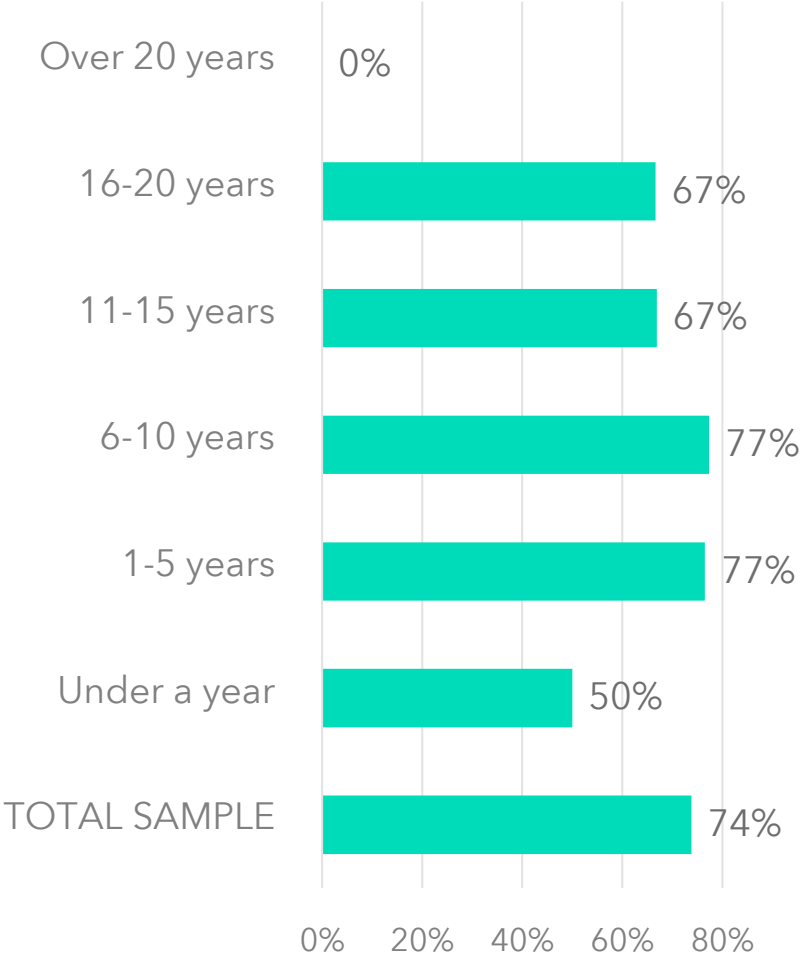
Area of practice

Agree (Net), %



Length of service

Agree (Net), %

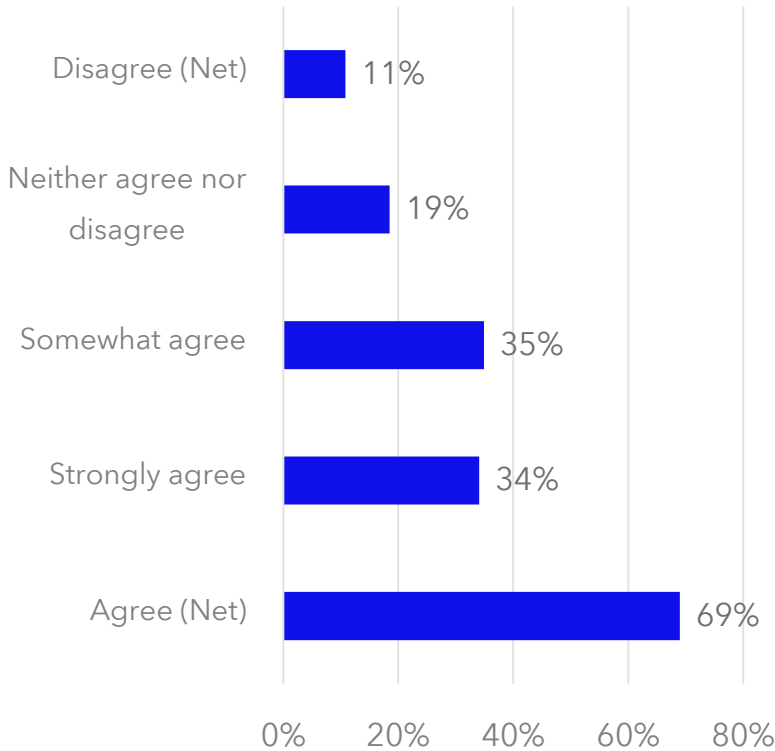


General attitudes to various technologies' impact on time

To what extent do you agree or disagree with the following statements:

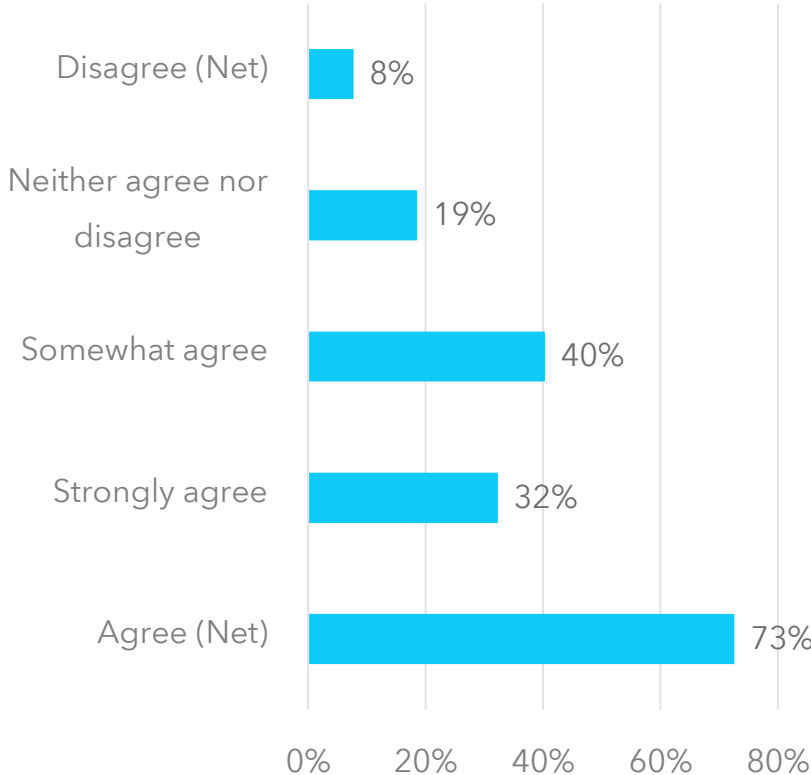
I often spend time outside of the hospital completing administrative tasks because the technology I use is inefficient.

Agree (Net), %



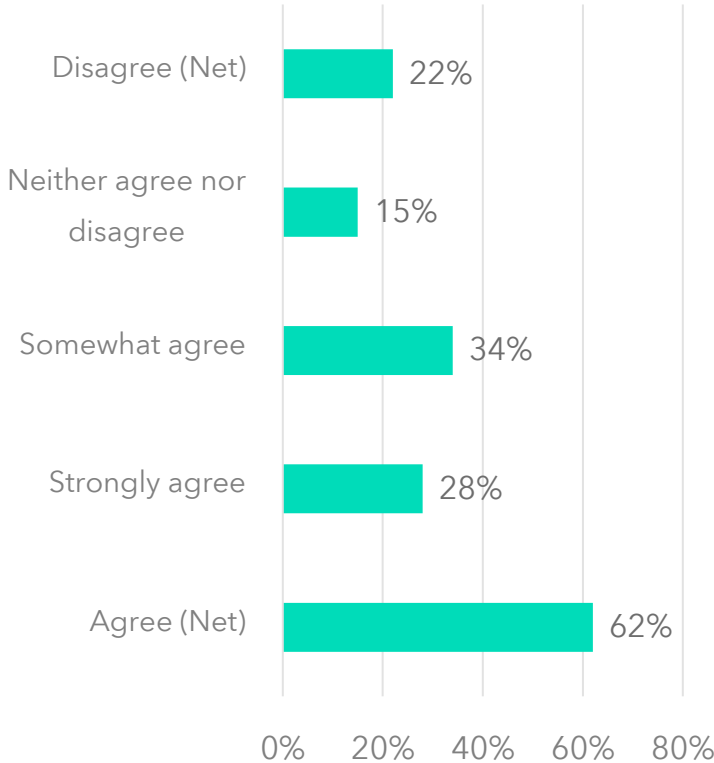
Technology in the OR lags behind the technological advances I experience in my personal life.

Agree (Net), %



I have considered leaving the surgical field due to feeling burnt out.

Agree (Net), %



The performance impact of inefficient technology

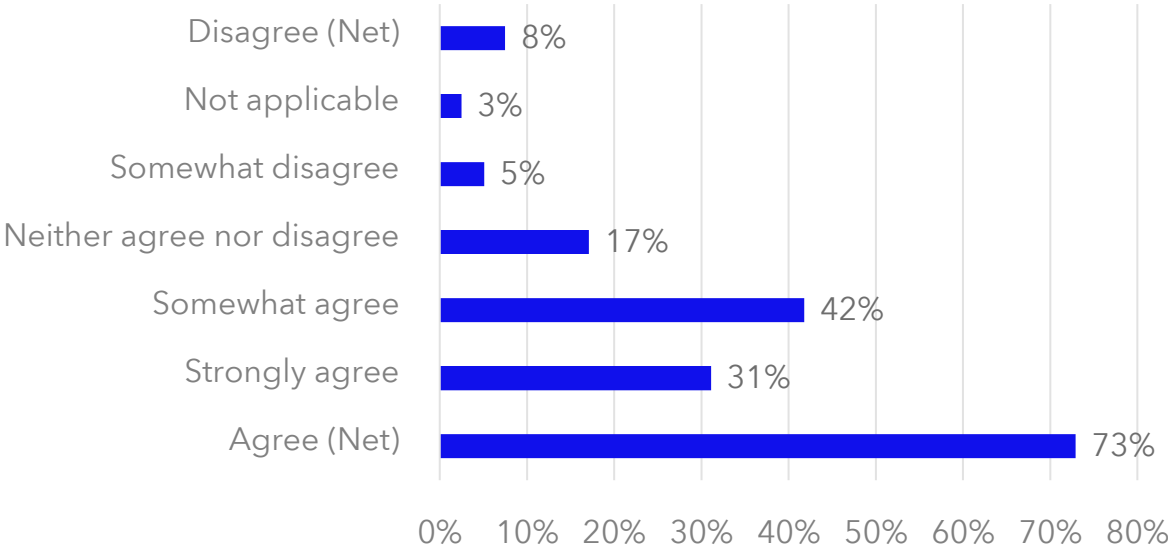
“Do you find the technology you use in your role slows you down or limits you from performing to the best of your ability?”

KEY FINDINGS:

- **Region:** Over 4 in 5 surgeons (82%) in the Midwest agree that technology slows them down, the highest of any region. This is followed closely by the West (79%) and the Northeast (76%).
- **City:** Of those surveyed in Boston, 85% believe that inefficient technology limits their performance, the most of any city, closely followed by San Francisco (83%).
- **Length of Service:** Over three quarters (76%) of surgeons with 6–10 years of experience agree that the technology in hospitals slows them down. Those newest and oldest to healthcare had the lowest levels of agreement, with only one quarter of those with under a year of experience agreeing and half of those with over twenty years.
- **Practice Area:** Almost 8 in 10 (78%) general surgeons agreed that technologies slowed them down, the highest of the practice areas. Surprisingly, only 45% of urologists agreed, the lowest of the practice areas.

TOTAL SAMPLE

Response	%	Count
Agree (Net)	73%	729
Strongly agree	31%	311
Somewhat agree	42%	418
Neither agree nor disagree	17%	171
Disagree (Net)	8%	75
Somewhat disagree	5%	51
Not applicable	3%	25

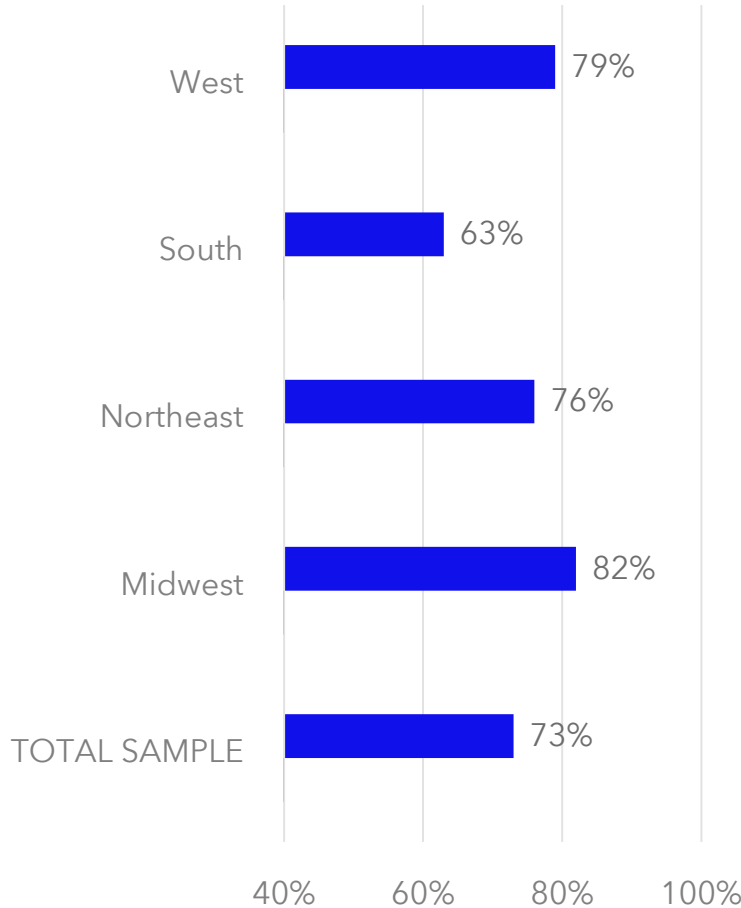


The performance impact of inefficient technology

“Do you find the technology you use in your role slows you down or limits you from performing to the best of your ability?”

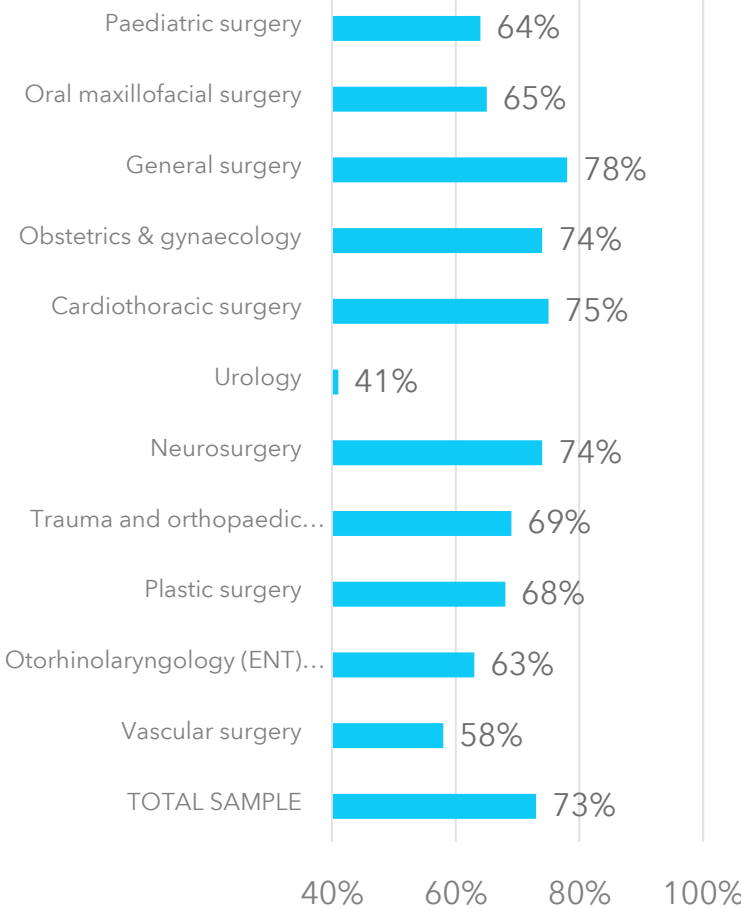
Regional

Yes (Net), %



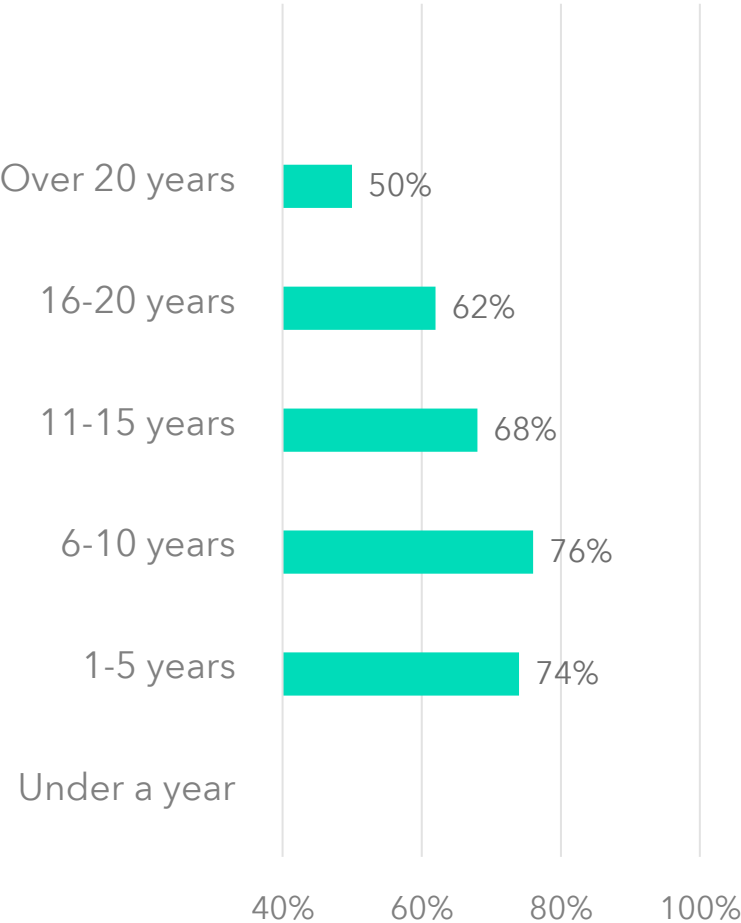
Area of practice

Yes (Net), %



Length of service

Yes (Net), %

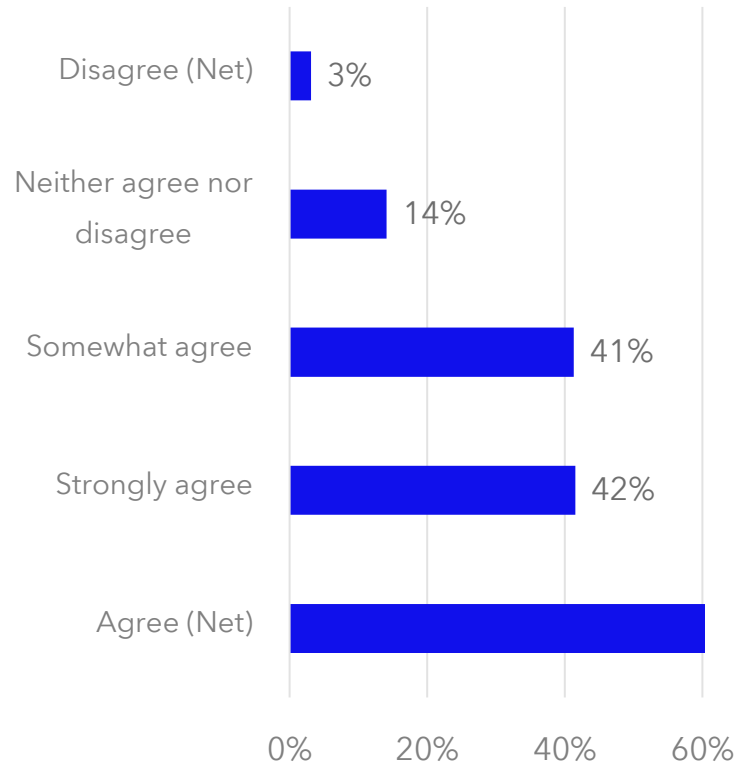


The potential for technology improvement to address regional disparities

To what extent do you agree or disagree with the following statements regarding technology and regional disparities in surgical care?

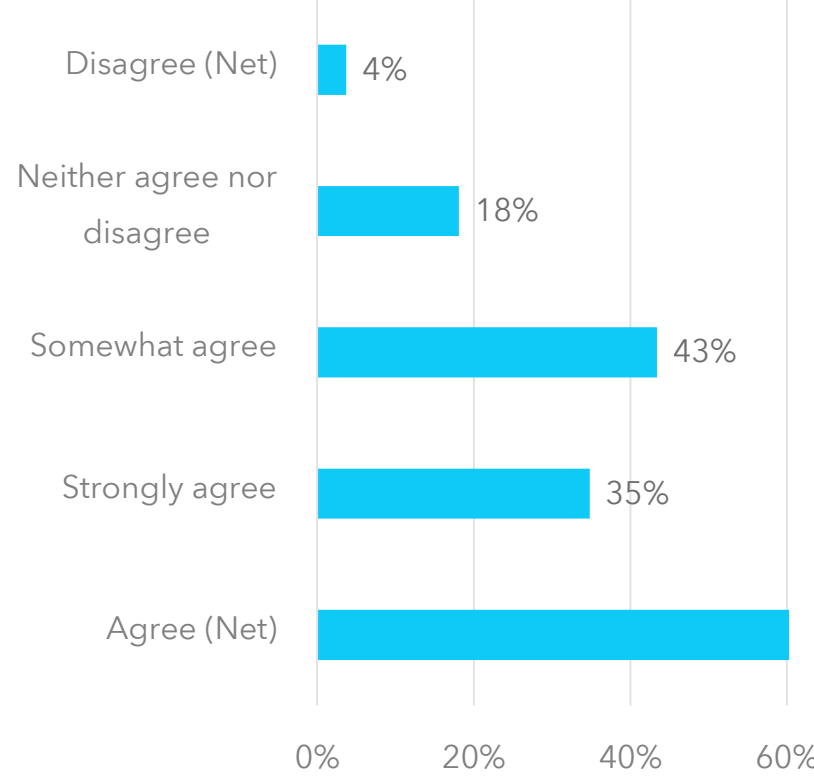
Digital training platforms could offer remote education to surgeons in rural hospitals.

Agree (Net), %



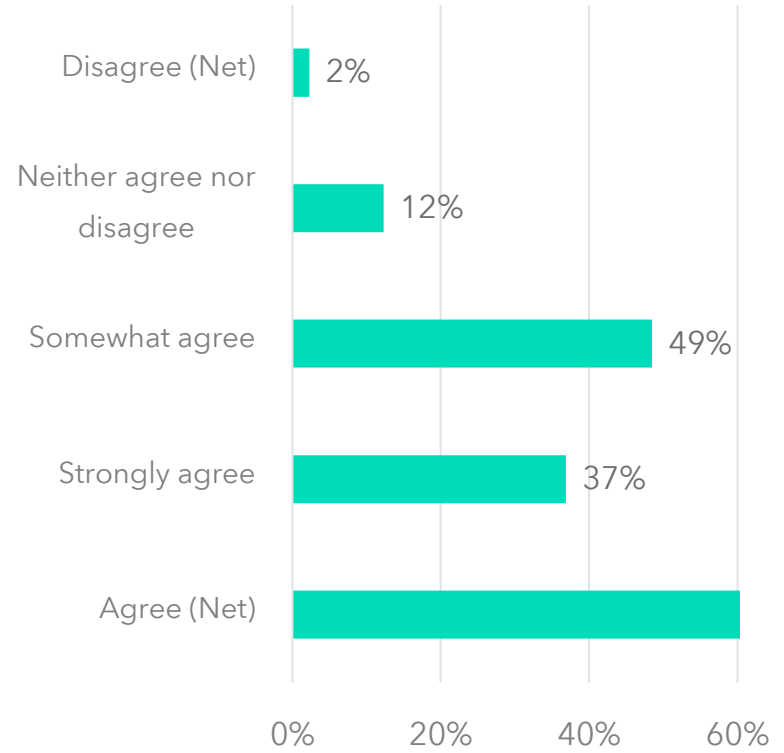
AI can close the gap in regional surgical care disparities.

Agree (Net), %



AI-driven diagnostic tools could enhance precision in areas with limited specialist availability.

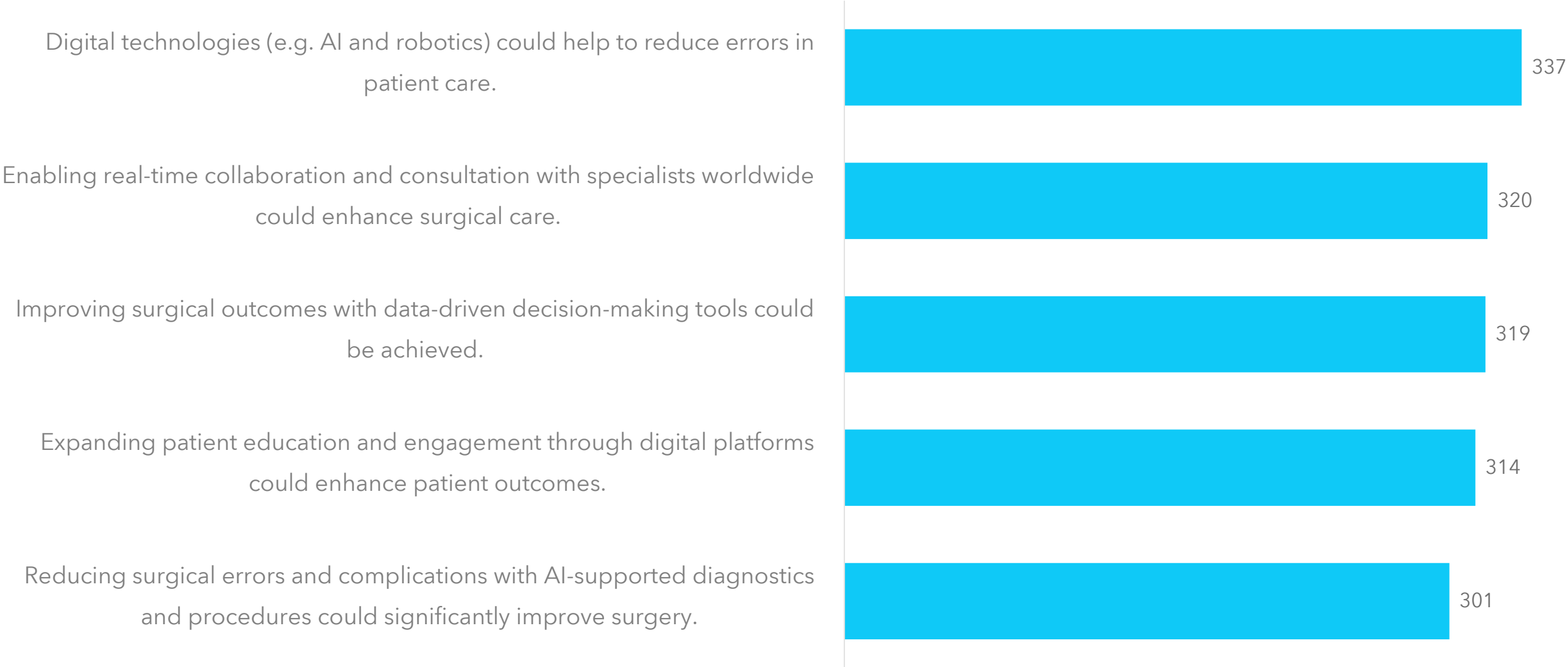
Agree (Net), %



How digital technologies can improve the state of surgery

How, if in any way, could digital technologies (e.g. AI and robotics) improve the state of surgery in the U.S.? (Tick all that apply)

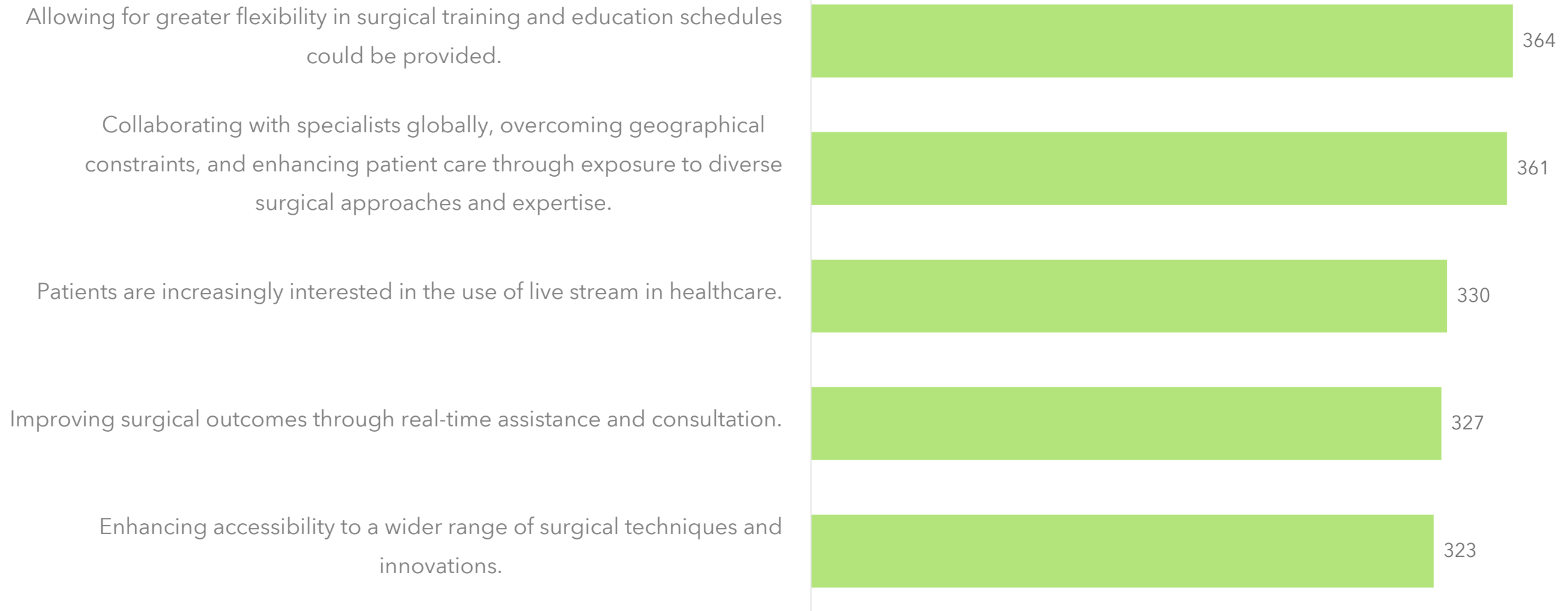
Top 5 most popular chosen solutions



The use cases for remote / live stream surgical technology

Which of the following statements, if any, do you think apply to how you would use remote/live-stream surgical technology in your practice?

Top 5 most popular use cases for live stream

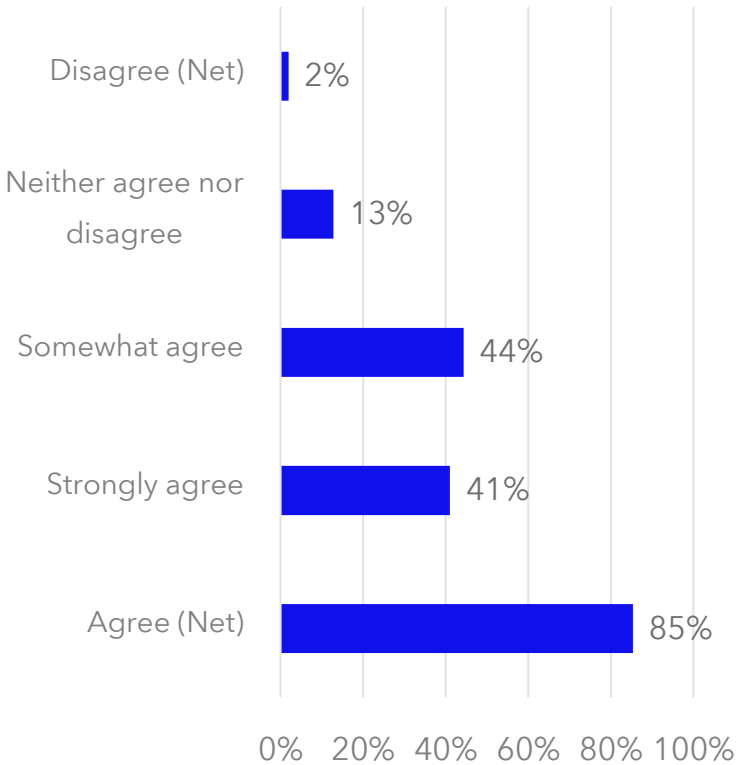


The potential benefits of digital technologies in surgery globally

To what extent do you agree or disagree with the following statements regarding the potential benefits of digital technologies in surgery globally?

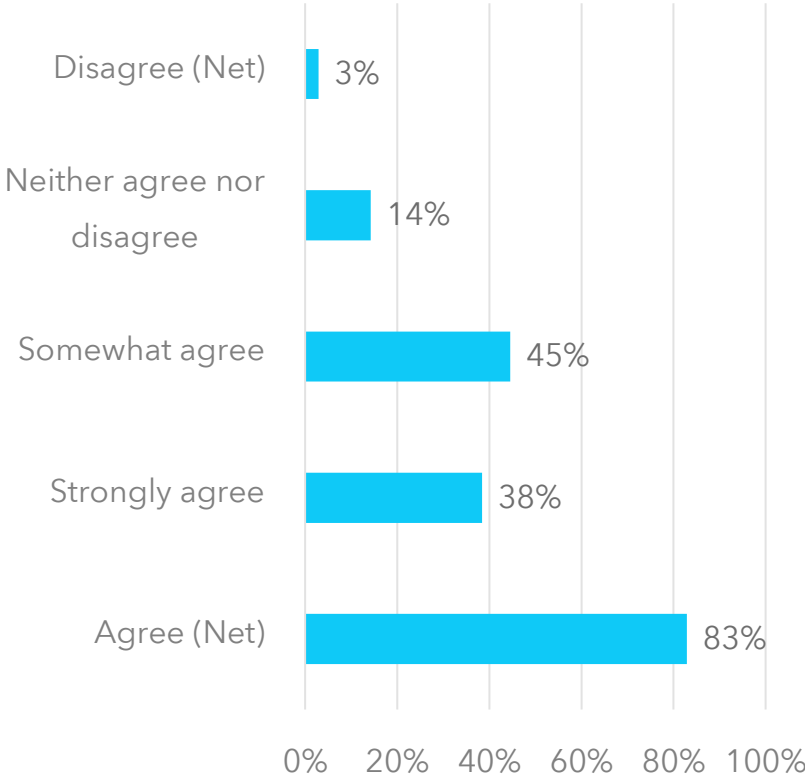
Virtual reality simulations could enhance surgical training by making it accessible worldwide.

Agree (Net), %



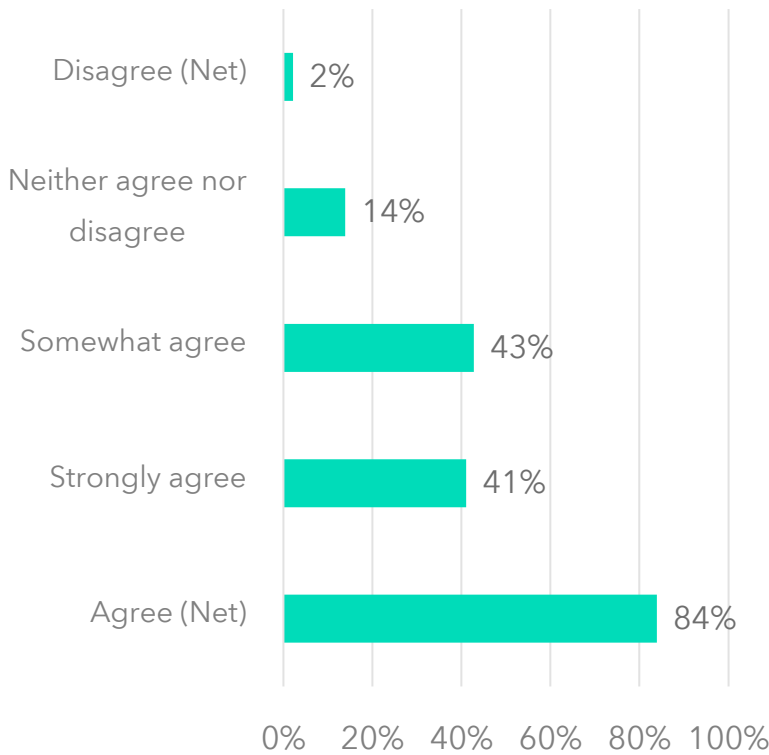
Sharing surgical best practices and innovations through global digital networks could improve surgery.

Agree (Net), %



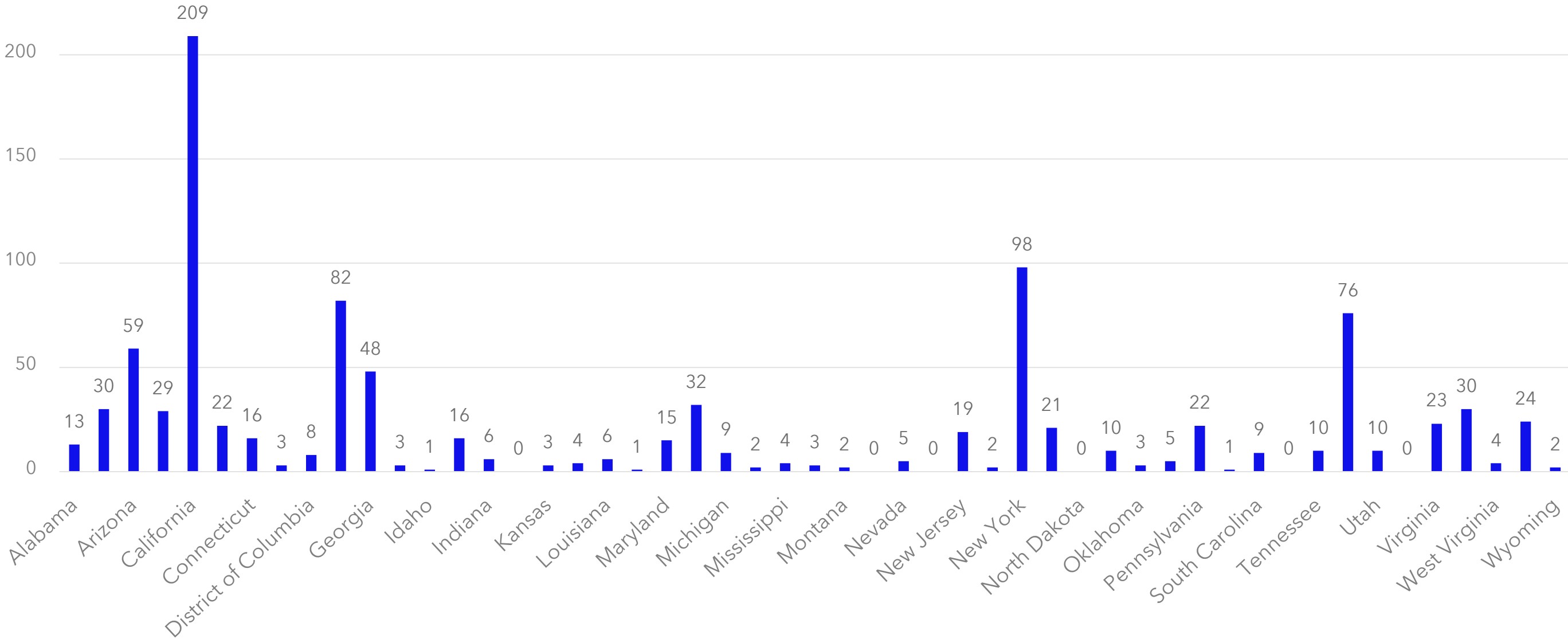
Digital platforms could increase collaborative research and development opportunities.

Agree (Net), %

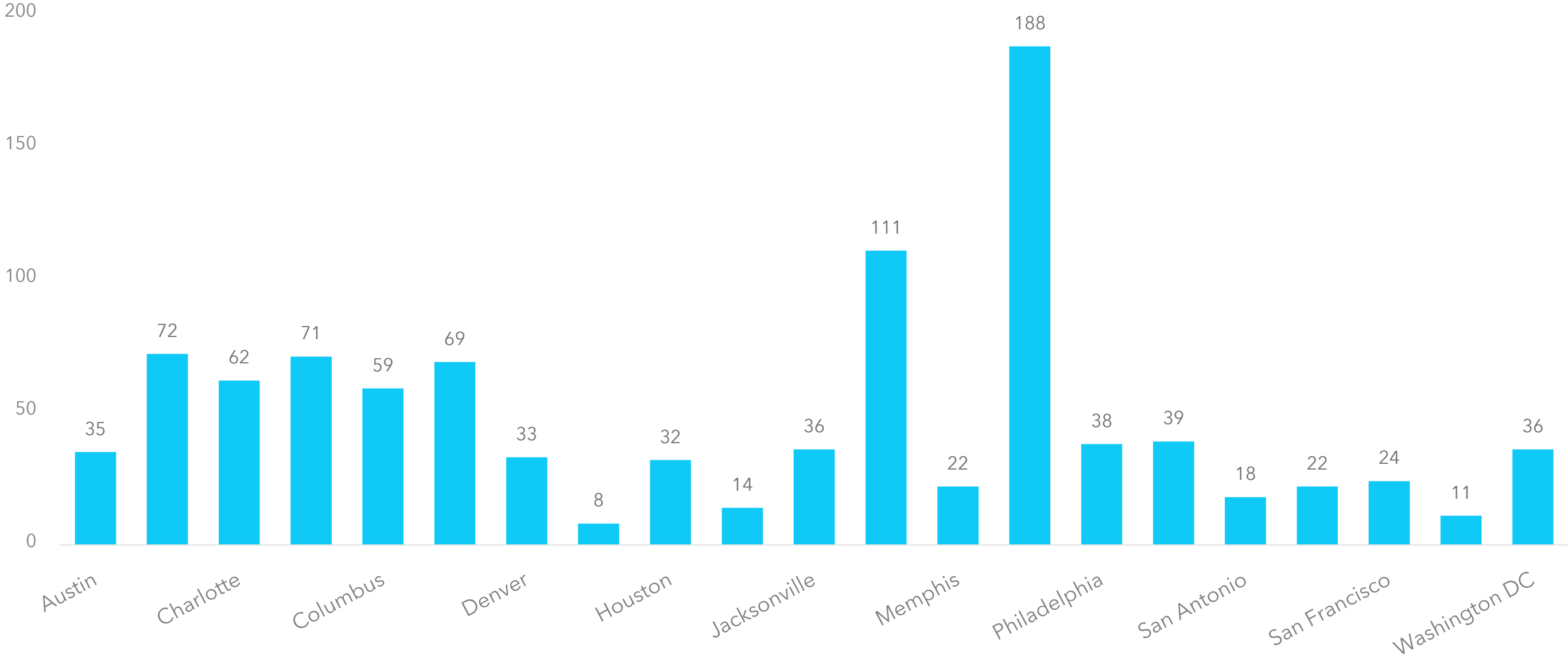


Appendix

Breakdown of surgeon locations - by state



Breakdown of surgeon locations - by city



Respondent demographics

SURGEON COUNT: REGION

Region	Count
Midwest	73
Northeast	189
South	358
West	380

SURGEON COUNT: PRIVATE/PUBLIC

Public or private practice	Count
Public	400
Private	600

SURGEON COUNT: LENGTH OF SERVICE

Length of service	Count
Under a year	4
1-5 years	115
6-10 years	574
11-15 years	266
16-20 years	39
Over 20 years	2

SURGEON COUNT: AREA OF PRACTICE

Area of practice	Count
Cardiothoracic surgery	125
General surgery	484
Neurosurgery	275
Obstetrics & gynaecology	140
Oral maxillofacial surgery	65
Otorhinolaryngology (ENT) surgery	32
Paediatric surgery	59
Plastic surgery	93
Trauma and orthopaedic surgery	58
Urology	41
Vascular surgery	26

About Medtronic

Bold thinking. Bolder actions. We are Medtronic. Medtronic plc, headquartered in Dublin, Ireland, is the leading global healthcare technology company that boldly attacks the most challenging health problems facing humanity by searching out and finding solutions. Our Mission – to alleviate pain, restore health, and extend life – unites a global team of 90,000+ passionate people across 150 countries. Our technologies and therapies treat 70 health conditions and include cardiac devices, surgical robotics, insulin pumps, surgical tools, patient monitoring systems, and more. Powered by our diverse knowledge, insatiable curiosity, and desire to help all those who need it, we deliver innovative technologies that transform the lives of two people every second, every hour, every day. Expect more from us as we empower insight-driven care, experiences that put people first, and better outcomes for our world. In everything we do, we are engineering the extraordinary. For more information on Medtronic (NYSE:MDT), visit www.Medtronic.com and follow @Medtronic on [Twitter](#) and [LinkedIn](#).

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