

# **Laceration Instruments In The Emergency Department and Urgent Care**

## **Why Quality Instruments Are Important For Patients, Clinicians, Hospitals, and Urgent Cares**

**Patrick O'Malley, MD  
Emergency Physician  
Newberry County Memorial Hospital, Newberry, SC**

As a practicing emergency physician with over 12 years of community experience, laceration and wound care is a passion. Having worked in six different emergency departments and urgent care centers, I have seen a wide variety of different work environments and spoken with a lot of other clinicians and administrators about this. I have worked with high-quality and low-quality laceration kits. I have felt the searing glare of parents as I struggle to repair their child's laceration because I cannot hold onto the suture needle properly. I have yelled silent screams as I have stopped in the middle of a procedure to go open another kit, because the scissors won't cut the suture or the suture thread gets snagged on the hinge of the needle driver while tying a knot. I have also encountered significant resistance and outright hostility when I have brought up the idea of trying to get something better. In speaking to other physicians about this, I quickly learned that this was a common problem, and it made me want to look into it further.

Several years ago, I developed a wound irrigation device and sold it to a company, Centurion Medical Products. While working on this product, I was exposed to the inner workings of the business side of medicine and medical devices. It was an eye-opening experience. This should not come as a surprise to anyone, but I quickly saw firsthand how patient care, clinician preference, and clinical outcomes take a back seat to economics and cost. I wanted to dig deeper and really look at how important these laceration kits are and how much they impact patient care and clinician satisfaction.

I did this on my own, with my own time and money. This is not an endorsement of one brand, manufacturer, or distributor over another. I enjoyed doing it and hope the information will lead to further discussion and that all clinicians can get the tools they need to provide the best care possible.

Not being at an academic setting makes research more difficult. Not being an avid researcher makes it even more so! I figured I would give this a shot and see how it works out. I am sure there are plenty of things that I could have done differently or better. I am open to feedback.

#### Goals:

- 1-For those who are forced to use inferior instruments that break or just don't work well, to utilize this information and get better laceration kits.
- 2-For administrators, supply chain, and accounting personnel to realize that this is a big deal and we need better instruments. Save money on tongue depressors, not the instruments we have to use to put people back together. Even when there is a cheaper option available, it may not be the right choice.
- 3-For companies that make unreliable and poor-quality instruments to see that they should not put poor quality materials into the system.
- 4-For companies that make reliable and high-quality instruments to use this to continue to provide physicians with reliable products that allow us to do our jobs effectively.
- 5-Bring the issue to light and stimulate further research.

Patrick O'Malley  
[Omalleypat@mac.com](mailto:Omalleypat@mac.com)  
803-260-9705

For simplicity sake, physicians, physician assistants, and nurse practitioners will be referred to as clinicians. Emergency departments and urgent cares may together be referred to as the acute setting, when applicable.

### **Background:**

The management of lacerations is one of the basic tenets of emergency medicine. For physicians during residency, it's one of the first skills that we are expected to learn and master. Physician assistants and nurse practitioners are often tasked with managing many of the lacerations that come through an emergency department or urgent care. They play a vital role in managing these patients. Much research and many chapters, review articles, books, and even continuing medical education courses have been created to teach proper techniques in managing lacerations. Very little, if any, research has been done looking at the tools we use to actually do the job and how these instruments impact the patient, clinician, and clinical setting.

There were 137 million ED visits in 2015. "Open wounds" made up 5.67 million of these visits. Urgent care data is less widely known, but lacerations and abscess incision and drainage are the top two procedures performed in this setting. Needless to say, this is a common reason for which Americans seek treatment in the acute setting.

[https://www.cdc.gov/nchs/data/nhamcs/web\\_tables/2015\\_ed\\_web\\_tables.pdf](https://www.cdc.gov/nchs/data/nhamcs/web_tables/2015_ed_web_tables.pdf)

<http://www.ic.nc.gov/ncic/pages/00000a.htm>

Getting financial information on the cost of a laceration repair is difficult. The laceration may be very simple, or it may be in the context of a fall in an elderly patient undergoing an extensive workup for other things. The overall bill a patient receives for their isolated laceration repair may be anywhere from several hundred to thousands of dollars.

Comparable sized lacerations repaired in an urgent care will be less expensive than if repaired in the emergency department. The cost of a laceration kit, ranging from \$5-15 each, is a small component of this overall charge.

<https://health.costhelper.com/stitches.html#extres4>

Laceration instruments come in varying quality. High-quality, reusable surgical instruments can cost hundreds of dollars, but may last for decades of repeated use. This requires the use of an autoclave or a sterile processing department to handle the process. All facilities are not equipped for this. There has been a trend away from reusable autoclaved instruments due to cost, loss of instruments, and the complicated nature of sterilization. As such, almost all acute care facilities use single use kits that contain most or all of the components needed for a laceration repair. These are referred to as single use laceration kits. As expected, the quality of instruments in these kits can vary widely. Convenience and cost are preferred over quality. Another common concern with single use kits is the environmental impact. Although this concern is not likely to overcome the cost and simplicity of single use instruments, anything that can be done to minimize the environmental impact of single use medical equipment is worth looking into.

Most EDs and urgent care centers do not have access to plastic surgeons. Emergency clinicians are responsible for repairing the overwhelming majority of these wounds,

many of which are on the face and may have long standing cosmetic and psychosocial ramifications. Young children are a special population that are frequently encountered, and are often times a moving target where time and precision are paramount. Having instrument failure may lead to a more complicated situation, necessitating the use of procedural sedation to get the job done.

Anecdotal evidence and tales from years in the trenches reveal that acute care clinicians are often expected or even forced to do this important skill with the cheapest laceration kit instruments available. Often overlooked, laceration instruments are the most important aspect of laceration repair, after the experience of the clinician. It is time that we take a closer look at the instruments, why they are important, and what we can do to get the best instruments for the job.

**Objective:**

The purpose of the paper is to illustrate the roles and importance of the various metal instruments used in laceration repair. It will not focus on the other elements such as drapes, gauze, needles, syringes, and other accompaniments that may or may not come as standard issue in the variety of kits that are commercially available. It will also discuss why this is an important topic, implications of poor instrument quality, and possible barriers that can be overcome so that clinicians in the acute setting can have the tools that they need. (Images below from Google image search, randomly selected)

**Needle driver**

Needle drivers are a hinged instrument used to grip the suture needle, allowing it to be introduced through the tissue. It must also be able to grab the suture thread in order to tie knots, approximating the tissue. Issues arise when the closed ends are not able to adequately grasp the needle or thread, or when fine suture thread gets caught in the hinges or irregular edges when tying knots. This can lead to unnecessary use of additional suture packs, therefore, more expense.



### **Hemostats**

Hemostats are used to clamp off blood vessels, manipulate tissue, and often to break up loculations inside of an abscess cavity. The utility of this device needs further investigation in the actual management of lacerations.



### **Suture scissors**

Scissors are used to debride tissue, undermine wound edges in some repairs, and to cut suture thread. Poor quality can lead to tissue damage and inability to cut suture material.



## **Tissue forceps**

Tissue forceps are tweezer like instruments used to manipulate tissue. They may have flat, ridged, or sharp teeth-like ends that come into contact with the tissue. They can also be used to grasp and manipulate the needle during a laceration repair. Concern arises with damage to delicate tissue from the teeth and the amount of force required to adequately grasp tissue.



### **Methods:**

In order to gauge what clinicians think about this issue, a survey was designed using the commercially available survey generation program, Survey Monkey. Twenty-eight questions were generated to cover a variety of topics and get feedback on their experience with single use, disposable instruments. A survey link was generated and distributed on a number of social media groups and via email to contacts the author has relationships with. This was a convenience sampling, but the author was not able to personally identify which respondents gave which answers. A total of 124 respondents filled out the survey.

### **Results:**

Questions and responses are found below. As some of the free text questions had over 100 responses, not all could be listed in the text of this paper. Some of the free text answers will be listed to provide a general theme of the responses provided.

### **Complete data can be found at:**

<https://www.surveymonkey.com/results/SM-PCSLXGTBV/>

## 1-Participants

### Level of training

Answered: 123 Skipped: 1



MD-65.9%

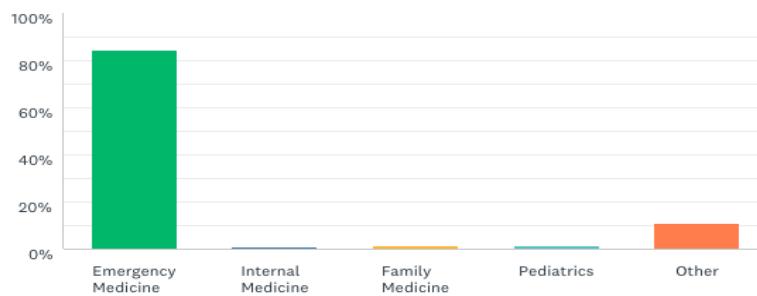
PA-33.3%

NP-0.8%

## 2-Specialty

If MD/DO, specialty area?

Answered: 116 Skipped: 8



ANSWER CHOICES	RESPONSES
Emergency Medicine	84.48%
Internal Medicine	0.86%
Family Medicine	1.72%
Pediatrics	1.72%
Other	11.21%
<b>TOTAL</b>	<b>116</b>

Emergency Medicine-84.5%

Family Medicine-1.7%

Pediatrics-1.7%

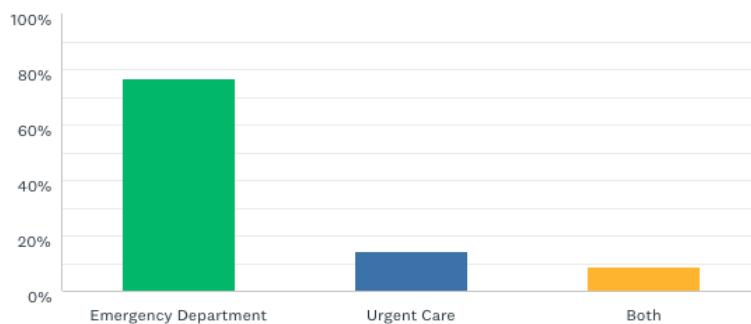
Internal Medicine-0.8%

Other-11%. Suspect that this is accounted for by physician assistants

### 3-Work location

Where do you work?

Answered: 124    Skipped: 0



ANSWER CHOICES	RESPONSES
▼ Emergency Department	76.61%
▼ Urgent Care	14.52%
▼ Both	8.87%
<b>TOTAL</b>	<b>124</b>

Emergency Department – 76.6%

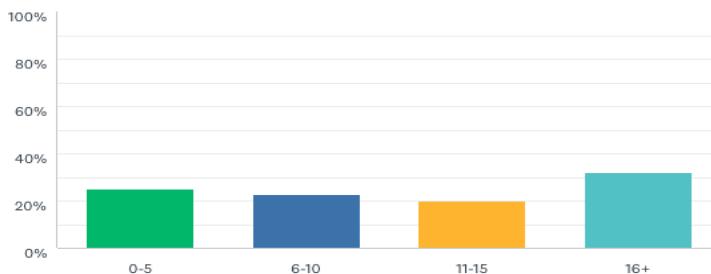
Urgent care – 14.5%

Both – 8.9%

#### **4-How many years' experience in emergency medicine and or urgent care?**

How many years experience in emergency medicine and/or urgent care

Answered: 124    Skipped: 0



ANSWER CHOICES	RESPONSES
▼ 0-5	25.00%
▼ 6-10	22.58%
▼ 11-15	20.16%
▼ 16+	32.26%
<b>TOTAL</b>	<b>124</b>

0-5 years - 25%

6-10 years – 22.6%

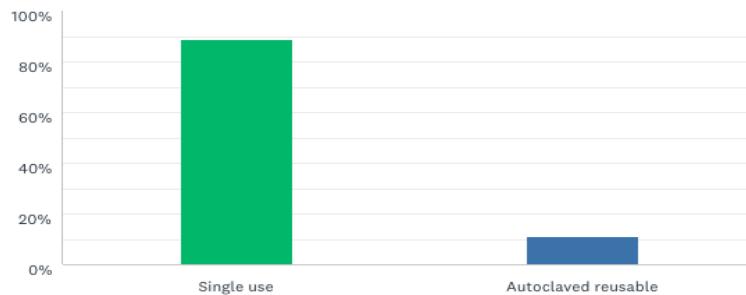
11-15 years – 20.2%

16 or more years – 32.3%

## 5-Does your facility use single use or autoclaved instruments?

Does your facility primarily use single use instruments or autoclaved reusable instruments?

Answered: 124    Skipped: 0



ANSWER CHOICES	▼	RESPONSES	▼
▼ Single use		88.71%	110
▼ Autoclaved reusable		11.29%	14
<b>TOTAL</b>			<b>124</b>

Single use – 88.7%

Autoclaved – 11.3%

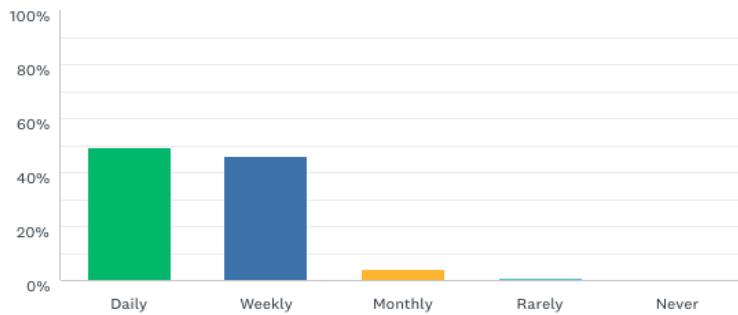
**6-What are your thoughts on single use vs autoclaved instruments? Free text answers:**

- I work in a critical access hospital, which makes autoclaved instruments very difficult (cost, we don't autoclave on site, constant loss of equipment, etc). That being said, most single use kits are poor quality
- The single use are poorly made and I frequently have to throw out a set and use another because certain tools won't close properly! I feel wasteful but I need to be able to do my job.
- Single-use sucks. Needle driver can't grab 5-0 suture, and snag the suture when trying. Scissors are too big for cutting tissue or undermining. Pickups are too big or too small.
- Waste with single use but ease of use and sterility
- Single use are likely cleaner as autoclave are dependent upon the user however autoclave would be less expensive and less waste
- Lot of waste with single use.
- For environmental purposes would rather have autoclave. But honestly don't care for vast majority of lacs
- Preferred single use. Autoclaved instruments subject to loss and unavailability
- I prefer autoclaved. But you NEED to make sure pieces are being replaced when needed.
- Surgical quality autoclaved are the only defendable option. Why would you use a poor quality instrument to perform a surgical technique in one setting, but not another?
- Single use hands down. Autoclave has more expense, time, regulations
- I have never used autoclaved, seems like a lot of extra steps. Its nice having everything I need in one place with single use.

## 7-How often do you repair lacerations?

How often do you repair lacerations?

Answered: 124 Skipped: 0



ANSWER CHOICES	RESPONSES
▼ Daily	49.19%
▼ Weekly	45.97%
▼ Monthly	4.03%
▼ Rarely	0.81%
▼ Never	0.00%
<b>TOTAL</b>	<b>124</b>

Daily – 49.2%

Weekly – 46.0%

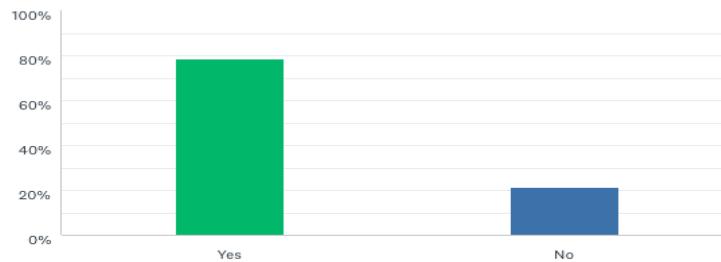
Monthly – 4.0%

Rarely – 0.8%

## **8-Have you ever had to open a second kit because of a faulty instrument??**

The remaining questions are referring to single use laceration kits only. When repairing a laceration, have you ever had to open a second laceration kit because of a faulty instrument?

Answered: 122 Skipped: 2



ANSWER CHOICES	RESPONSES
Yes	78.69%
No	21.31%
<b>TOTAL</b>	<b>122</b>

78.7% of respondents state that they have had to open an additional kit because of a faulty instrument(s).

## **9-How often does this happen?**

If yes, how often does this happen?

Answered: 121 Skipped: 3



ANSWER CHOICES	RESPONSES
Daily	2.48%
Weekly	16.53%
Monthly	27.27%
Rarely	37.19%
Never	16.53%
<b>TOTAL</b>	<b>121</b>

Daily-2.5%

Weekly-16.5%

Monthly-27.3%

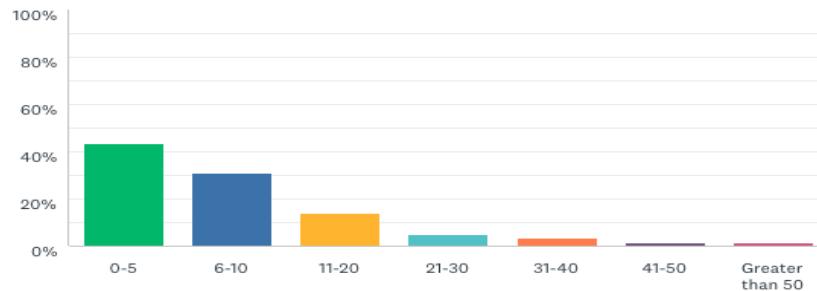
Rarely-37.2%

Never-16.5% (This option should have been excluded, as the question was asking those who had experienced having to open a second kit)

## 10-What percentage of kits are faulty, resulting in the opening of a second kit?

In your experience, using your best estimation, what percentage of kits are faulty, resulting in the opening of a second kit?

Answered: 122 Skipped: 2



ANSWER CHOICES	RESPONSES
0-5	43.44%
6-10	31.15%
11-20	13.93%
21-30	4.92%
31-40	3.28%
41-50	1.64%
Greater than 50	1.64%
<b>TOTAL</b>	<b>122</b>

0-5% - 43.4%

6-10% - 31.2%

11-20% - 13.9%

21-30% - 4.9%

31-40% - 3.3%

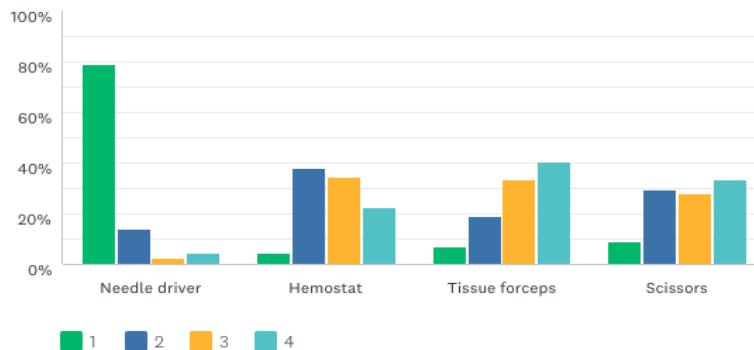
41-50% - 1.6%

Greater than 50% - 1.6%

## 11-Rank instruments in the order in which they fail

In your experience, rank the following instruments in the order in which they fail. 1=most common, 4=least common

Answered: 117 Skipped: 7



	1	2	3	4	TOTAL	SCORE
Needle driver	79.13% 91	13.91% 16	2.61% 3	4.35% 5	115	3.68
Hemostat	4.55% 5	38.18% 42	34.55% 38	22.73% 25	110	2.25
Tissue forceps	7.21% 8	18.92% 21	33.33% 37	40.54% 45	111	1.93
Scissors	9.01% 10	29.73% 33	27.93% 31	33.33% 37	111	2.14

1-Needle Driver

2-Hemostats

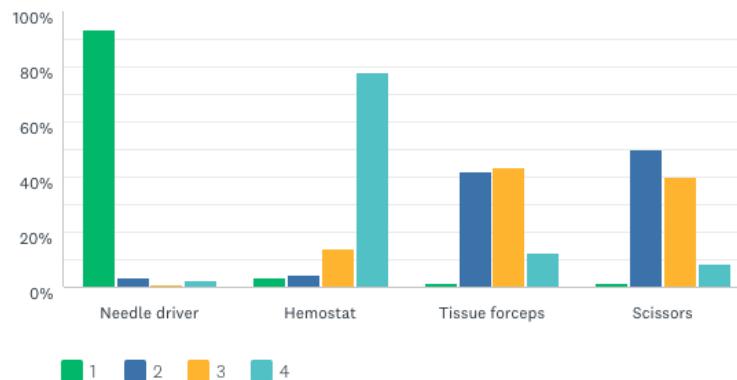
3-Scissors

4-Tissue forceps

## 12-Rank instruments in the order of importance in managing a laceration

Rank the following instruments in the order of their importance to you when managing a laceration. 1=most important, 4=least important

Answered: 121 Skipped: 3



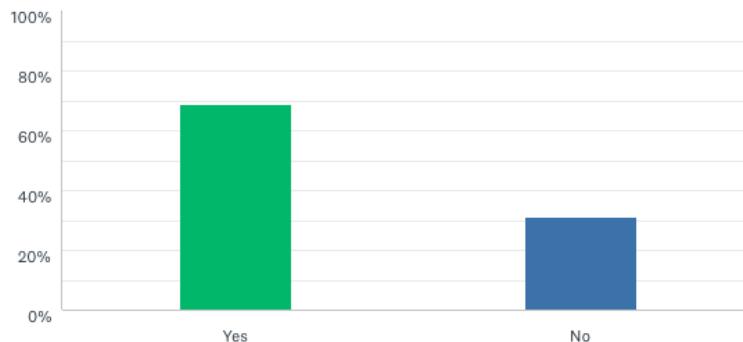
	1	2	3	4	TOTAL	SCORE
Needle driver	93.39% 113	3.31% 4	0.83% 1	2.48% 3	121	3.88
Hemostat	3.54% 4	4.42% 5	14.16% 16	77.88% 88	113	1.34
Tissue forceps	1.68% 2	42.02% 50	43.70% 52	12.61% 15	119	2.33
Scissors	1.69% 2	50.00% 59	39.83% 47	8.47% 10	118	2.45

94% claim the needle driver to be the most important instrument, followed by scissors, tissue forceps, then hemostat.

### **13-Do poor quality instruments affect patient outcomes?**

Do poor quality instruments affect patient outcomes?

Answered: 122 Skipped: 2



ANSWER CHOICES	RESPONSES
▼ Yes	68.85%
▼ No	31.15%
<b>TOTAL</b>	<b>122</b>

Yes - 68.9 %

No – 31.2 %

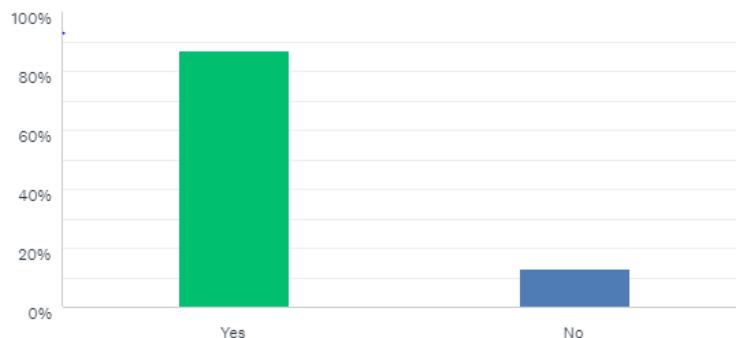
### **14-If yes, in what way? Free text answers:**

- Likely to rush or cut the procedure short.
- I feel like the lac closure is more sloppy
- Accuracy and cosmetics of a repair
- More challenging to do fine work
- Delays of closure
- Tissue Damage, poor approximation, increased tissue manipulation potentially leads to increase in infection
- They often compromise sterility by causing delays and forcing me to leave my sterile field
- Time it takes to complete the repair, risk of injury to pediatric patient if the needle driver is faulty and the patient is moving
- Repeated passes of the suture will damage tissue
- Lining up lacs and tying quality knots are hard without good instruments
- Poor instruments lead to poor repairs which lead to increased risk for infection.  
Ultimately this can increase patient mistrust of the healthcare system.

## **15-Do poor quality instruments cause delays in patient throughput?**

Do poor quality instruments cause delays in patient throughput?

Answered: 124    Skipped: 0



ANSWER CHOICES	RESPONSES
▼ Yes	87.10%
▼ No	12.90%
<b>TOTAL</b>	<b>124</b>

Yes - 87.1 %

No – 12.9 %

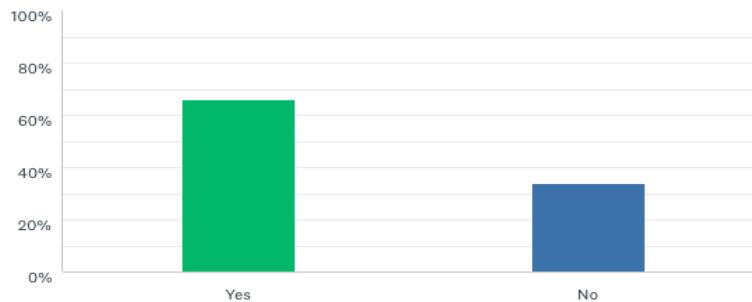
## **16-If yes, in what way? Free text answers:**

- Longer to repair
- Stopping to find another kit
- It takes longer to suture when needle driver doesn't work correctly or if you have to open another kit
- It sometimes takes me double the time to suture a laceration due to fumbling because of faulty equipment
- Time needed to obtain replacement equipment
- I have to take time re-doing sutures, fighting with equipment, and going to find another kit to replace what isn't working

## **17-Do poor quality instruments have a negative impact on patient satisfaction?**

Do poor quality instruments have a negative impact on patient satisfaction?

Answered: 123 Skipped: 1



ANSWER CHOICES	▼	RESPONSES	▼
▼ Yes		65.85%	81
▼ No		34.15%	42
<b>TOTAL</b>			<b>123</b>

Yes - 65.9 %

No - 35.1 %

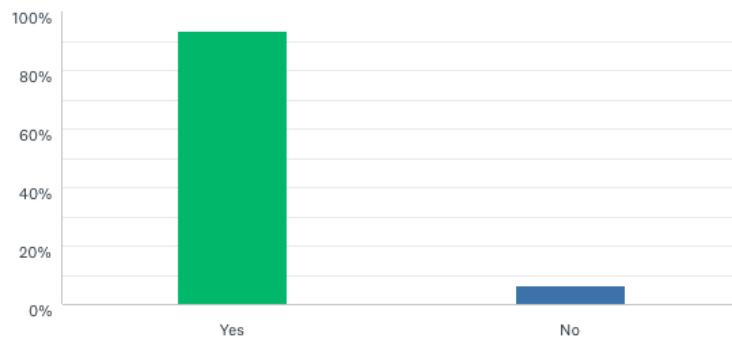
### **18- If yes, in what way? Free text answers:**

- Patient wonders why instruments so cheap. Bad impression.
- Less trusting of our equipment and maybe they think skills
- The patients think you don't know what you are doing.
- They don't like to hear the doc say "oops", this is not working
- They ask if you know what you are doing
- If a patient sees equipment failing, they lose confidence in the quality of care we provide
- If you struggle, it makes you look like you have never sutured before and that you don't know what you are doing
- Reflects negatively on provider/hospital if faulty equipment-patients have less confidence
- Physician frustration affects patients
- Slows me down. Makes physician and facility look like they are poorly skilled or facility is cheap.

## **19-Do poor quality instruments have a negative impact on clinician satisfaction?**

Do poor quality instruments have a negative impact on clinician satisfaction?

Answered: 124 Skipped: 0



ANSWER CHOICES	RESPONSES
▼ Yes	93.55%
▼ No	6.45%
<b>TOTAL</b>	<b>124</b>

Yes - 93.6 %

No – 6.5 %

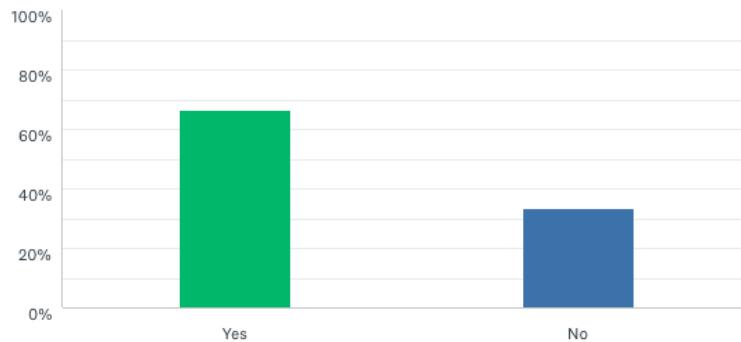
## **20- If yes, in what way? Free text answers:**

- We're craftsmen. We want quality tools
- I should have effective tools
- Makes me angry
- Frustrated
- Adds unnecessary stress on an already time-pressed person
- Frustrating when we don't have working equipment
- Makes me feel like a dork
- I just want to be able to do my job
- They drive me nuts!
- Very frustrating. Makes a difficult job even more difficult
- It reinforces the perception that administration isn't listening to us
- Frustrates clinician doing repair, causes some to avoid suturing pediatric patients

**21-Have you ever requested better quality instruments?**

Have you ever requested better quality instruments?

Answered: 123 Skipped: 1



ANSWER CHOICES	RESPONSES
▼ Yes	66.67% 82
▼ No	33.33% 41
<b>TOTAL</b>	<b>123</b>

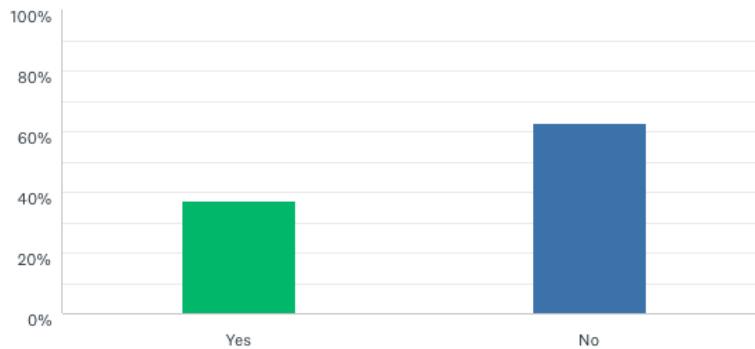
Yes - 66.7 %

No - 33.3 %

**22-If yes, were you able to get them?**

If yes, were you able to get them?

Answered: 102   Skipped: 22



ANSWER CHOICES	RESPONSES
▼ Yes	37.25%
▼ No	62.75%
<b>TOTAL</b>	<b>102</b>

Of those answering yes, only 37.3 % stated they were able to get better instruments, while 62.8 % said they were not able to get better instruments.

**23-If not, what are the reasons you were given? Free text answers:**

- Cost
- Not available, not on contract
- Have to use throughout the hospital system
- Working on it
- Never been asked
- Not up for discussion
- No reason
- Cost, price
- Fell on deaf ears
- Just use what's available, quit whining
- It's not something to be discussed
- Appears that physicians do not have input on supply chain decisions

**24-Why is it important to have reliable, high quality instruments to repair lacerations? Free text answers:**

- To appropriately repair the laceration most efficiently
- We all want to perform the best job the first time. Poor instruments lead to frustration and possibly suboptimal placement or tissue damage during the procedure
- It is a delicate skill. Need tactile control over needle. The more delicate the lac, the smaller the needle and the more important control is. So the problem is compounded just when you need tactile control the most
- They don't fail, closure is quick and we keep through put high
- Save time, decrease stress, better looking scars, more satisfaction and trust from patients.
- To provide the expert care I am capable of
- It is a reflection of the care and facility to have a higher quality appearance
- Patient outcome and satisfaction are most important.
- if you need a lac on your face repaired, do you want me doing it with a clean sewing needle or the tools your local plastic surgeon uses? the right tool for the job is important for doing a good job
- This is one of the most fundamental things we do in Emergency medicine. Going through 2-3 kits with every laceration isn't efficient, cost-effective or good for patient satisfaction.
- Efficiency is key in any emergency department, but especially in the pediatric repair of lacerations. We are often restraining them to complete the task and faulty equipment frustrates everyone involved because it increases time to repair the wound, and can cause injury if we are trying to "uncatch" the suture material and a patient moves
- Patient care and wound healing should be the top priority. Using inferior products that can compromise that care should be unacceptable and corrected by hospitals.
- Most hospitals don't have plastic surgery on-call. We are it. Quality instruments allow us to do a better job. If it was your child, wife, family member-do you want me to have the best tools to do my job?
- Having adequate and appropriate tools to perform the job should be minimal standard
- The money saved on cheap poor instruments isn't worth the money wasted on LOS, throughput, patient satisfaction, door to doc time

## **25-What do you believe is the hospital/ED/urgent care cost of a single use laceration kit?**

What do you believe is the hospital/ED/urgent care cost of a single use laceration kit? (How much does the facility pay for the kit?)

Answered: 120    Skipped: 4



ANSWER CHOICES	RESPONSES
▼ Less than \$5	15.00% 18
▼ \$6-8.99	22.50% 27
▼ \$9-10.99	20.83% 25
▼ \$11-12.99	7.50% 9
▼ \$13-15.99	12.50% 15
▼ \$16-19.99	8.33% 10
▼ Greater than \$20	13.33% 16
<b>TOTAL</b>	<b>120</b>

The response ranges were from less than \$5 to greater than \$20. The most commonly listed price was \$6-8.99.

## **26-What do you believe is a reasonable cost of reliable single use laceration kits with instruments that function like they should?**

What do you believe is a reasonable cost for reliable single use laceration kits with instruments that function like they should?

Answered: 119    Skipped: 5



ANSWER CHOICES	RESPONSES
Less than \$5	6.72%
\$6-8.99	12.61%
\$9-10.99	16.81%
\$11-12.99	9.24%
\$13-15.99	18.49%
\$16-19.99	17.65%
Greater than \$20	18.49%
<b>TOTAL</b>	<b>119</b>

Respondents seemed to agree that a higher price is justified if it means obtaining instruments that work. 54.6% believe \$13 or more is reasonable to pay for such kits.

## **27-What brand of laceration kits do you use at your main facility?**

78% of respondents state they do not know, 4% state "other" and only a few respondents actually claim to know the exact brand of the laceration kits used in their facility. Medline, McKesson, Centurion Medical Products, Cardinal, Busse, and Medical Action Products were the brands people identified.

**28- Please provide any additional comments or insight on your experience with laceration kits. Free text answers:**

- When a surgeon shows up in the ED, everyone falls all over themselves getting a "real" suture kit.
- I've had surgeons come to the ED to do an i&d and remark on what poor quality tools come in the kit. "I always thought you guys just didn't know what you were doing, but I can't do anything with this sh\*t"
- I have had extended opportunity to use both and the quality of the instrument directly affects the quality of the wound repair.
- The worst are the needle drivers: first issue is tangling/catching/knotting of suture material. Second issue is poor grabbing of needle and poor control
- I have had extended opportunity to use both and the quality of the instrument directly affects the quality of the sound repair.
- Make the leap and purchase them.
- They are always lacking....too short/large of an injection needle (25 not 27)....anesthetic and bacitracin would be a dream but I guess impossible because of JCAHO.....why not put 5-0 prolene in kits (JCAHO again)..... I just think the worst part of lacs is having to make 4 trips in and out of the room to get all that's needed for a one and done trip to the bedside for repair....personally I have never needed any instrument besides the needle driver and scissors for lacs?? I use the curved hemostats for abscesses
- Quality instruments make a difference.
- If you combine everything (including prep and lidocaine) in a kit, and only need to add gloves and suture, you will reduce patient stay times and provider frustration levels!

**Please go to survey link for more details, comments**

<https://www.surveymonkey.com/results/SM-PCSLXGTBV/>

**Discussion:**

In an effort to limit redundancy and save space, the author only chose several of the free text answers listed for questions to include in the text of this paper. The entire list of responses can be found at the following link.

<https://www.surveymonkey.com/results/SM-PCSLXGTBV/>

**Demographics:**

The makeup of survey respondents shows two-thirds are physicians and one-third are physician assistants or nurse practitioners. Most are residency trained in emergency medicine. 76% are working in an emergency department, 89% are using single use kits as opposed to autoclaved instruments, 96% are repairing lacerations on a daily or weekly basis, and 75% have been practicing for 6 years or more. As such, we can conclude that these people have significant experience in laceration management and are likely experts when it comes to discussing this topic.

**Instrument failure is common.**

78.7% of clinicians have dealt with instrument failure, with 46% having to open a second kit on a daily, weekly, or monthly basis. How is this considered acceptable? The argument for cheap kits is made by those who have little to no clinical experience and are looking at these instruments solely on price. What is likely overlooked is the fact that a significant percentage of kits are faulty, and a second or even third kit is being used, thereby increasing the overall expense. Based on what the author was able to determine, the entry level cost of a laceration kit commonly used is around \$10. Let's say 20% of these kits fail, leading to the use of a second one. The cost is now \$12 when this is taken into account. Clearly, this goes beyond price. Patient outcomes, patient and clinician satisfaction, and patient throughput are also negatively affected by these faulty kits.

It is very interesting to note that the most important instrument, the needle driver, is the one most likely to fail. This is a significant pain point, listed by many in the comment section. It is also noted that the hemostat is the least important instrument, this can be further investigated to see whether or not this should be included in standard kits.

**Patient outcomes:**

As this was not an outcomes study, this is a subjective question that looks at clinician perception of possible outcomes based on their experience with lower quality instruments. 68.9% of respondents claim that patient outcomes are affected by instrument use. This does not clarify if the outcome is a positive or negative one, but one can assume that higher quality instruments would lead to better outcomes and lower quality instruments lead to worse outcomes.

### **Patient throughput:**

The emergency department and urgent care settings are busy and hectic. Time is of the essence, and anything that impedes flow and slows nurses and physicians down has downstream ramifications. 87% of respondents claimed that poor quality kits negatively impact patient throughout. Having to stop what one is doing to go find additional materials adds time to that patient's visit. It prevents the physician from doing other tasks. On a busy day when a physician may have several lacerations to repair, these delays may lead to increased length of stay, or LOS. This is constantly being examined and is a metric clinicians are held accountable for. Yet another metric hospitals and clinicians are measured on is patients who leave without being seen, or LWBS. This metric has ties to hospital reimbursement. When a patient leaves the facility without being seen, this comes down to a moment in time when they make that decision. If a clinician is now 10-15 minutes behind because of these delays, a hypothetical patient may make the decision to leave the department and not be seen. This is a revenue loss for that department. Furthermore, this patient may not return to the same facility in the future because of their experience, representing future revenue loss. In summary, this is an understudied area, but anything that can be done to decrease delays and wasted time can be used as an argument for having laceration kit instruments that function properly.

### **Patient satisfaction:**

While we did not investigate the true impact of poor-quality instruments on patient satisfaction, clinician perception of patient satisfaction is significantly impacted by this issue. 65.9% of respondents claim that patient satisfaction is negatively affected by this. Clinicians believe that this causes distrust in the person doing the repair and the facility. Now that many hospitals hold clinicians responsible for patient satisfaction scores, financially or by employment, this is an issue that affects the end user—the physician. Hospitals are also at risk for losing reimbursement due to poor patient satisfaction scores.

### **Clinician satisfaction:**

This is an area that is often ignored in medicine. Patient satisfaction has turned healthcare into “Yelp Care” and hospitals are pumping billions of dollars into patient satisfaction, holding physicians accountable for things beyond their control. As we are forced to do more with less support, less nursing staff, no unit secretary, EMRs and metrics on every corner, physician burnout is rife and has been called a crisis. Only recently have hospitals begun administering “Physician Satisfaction Surveys”, many clinicians rightfully wonder if this is just window dressing, and if any actual change is brought forth because of them. A staggering 93.6% of respondents stated that this is an issue for them in their clinical practice, and negatively affects their job satisfaction. It was surprising to see how many were truly affected by this issue. One respondent states:

**“It reinforces the perception that administration isn’t listening to us.”**

What more can be said about this...?

**Getting better instruments:**

Eighty-two people, or 67%, of respondents state that they have asked for better instruments. The follow up question "If yes, were you able to get them?" was answered by 102 people, so there was some disconnect here. However, only 37% of these stated they were able to get better instruments, 63% said they were not. Regardless of the error in sample, it is telling that clinicians have such little input and impact on the ability to get the tools that they need to do their job. The free text answers listed above are depressing. Decisions are out of our hands and the decision makers have no clinical expertise. Clinicians are told to "stop whining" or that "it's not up for discussion" when asking for quality kits. The lack of input and loss of control over this simple issue is stunning. One anecdote is of a physician telling administrators he would pay for the difference in cost for quality instruments himself, this seemed to have had an impact and led to the hospital getting better kits. Maybe this is one of the contributing factors that has led to physician burnout and lack of clinician satisfaction. Decision makers should consider the multitude of reasons why clinicians are asking for this modest request and not brush it off so lightly.

**Cost and Brand:**

Estimation of price for a single use laceration kit is variable. 51% state that cost is between \$6-\$12.99. What clinicians think is a reasonable cost for laceration kits is also variable. 54% feel that paying more than \$13 is reasonable. From this, we can surmise that clinicians feel that paying more for quality is warranted. Overwhelmingly, but not surprisingly, 78% of respondents do not know the manufacturer of the kits used at their facility. From experience, most physicians are not aware of the cost of most products used in the acute care setting, unless they are actively involved in purchasing decisions.

As many products used are commodities, device and product reps do not spend much time in these settings. Purchasing departments make all ordering decisions, rank and file clinicians are not involved in this process and are not familiar with particular brands.

**Summary:**

Experienced clinicians have extensive experience managing lacerations in the acute settings. Most repair lacerations on a daily or weekly basis. Needle drivers are felt to be the most important instrument, but the one most likely to fail or cause problems. Instrument failure is common, leading to the opening of extra kits. Inferior quality instruments are felt to contribute to decreased patient throughput, patient satisfaction, clinician satisfaction, and worse-patient outcomes. Most physicians have asked for better instruments, but are overwhelmingly told that it is not an option, with cost being the main reason. Physicians have little insight into cost of laceration kits. They believe that paying more for high-quality instruments is warranted. Lastly, very few know which company makes their laceration kits.

This is something so very simple. If hospitals and urgent care clinics want to have satisfied clinicians and provide the best care possible for their patients, a few extra dollars for functioning laceration instruments would be a good place to start.

A laceration kit is not specifically charged to the patient, it is a bundled charge, so the patient is not seeing the true cost of the actual kit. When an extra kit is opened, the patient is not paying for it, the facility is. Do hospital administrators and purchasing departments keep track of faulty instruments? Likely not, as the clinician will just grab another kit and do the job. No one knows, it just falls off the radar and is not accounted for. It can be assumed that the manufacturer never hears of it and the hospital certainly is not being reimbursed for these faulty instruments. The argument of being cheaper will not likely stand up to scrutiny when this is taken into account.

Repairing lacerations is one of the most common procedures done in these settings. Clinicians take pride in being able to perform this basic, yet often complex, and always important task. As we can see, the cost of a laceration kit is a minuscule amount of the overall cost. Furthermore, a few extra dollars to get higher quality instruments is a small price to pay. This is a major pain point for clinicians and this could be a good way to foster good-will between clinicians and administration.

No one would expect a surgeon in the operating room to function with instruments that fail 20% of the time. Why should emergency departments and urgent cares across the country be expected to settle for this? It's not fair to us or the patients who seek our care and expertise. What would you want the physician to use if it was your child's face that needed to be repaired? Cost savings are important, and it's everyone's responsibility to look for areas to cut costs and save money. Cheap laceration kits with inadequate instruments are not the place for this to happen.