

Intro

Our research

We are conducting a study of critical care physicians in an effort to understand factors that affect clinical decision making over time. The study is led by Dr. Jeremy Kahn at the University of Pittsburgh and is funded by the National Institutes of Health. This is a longitudinal study—we are interested in examining these issues at several points in time.

Your role

Eventually we will ask you to complete several surveys. This is the first. There will be no more than four surveys total and each will be no longer than ten minutes. We will compensate you at a target rate of \$300/hour or more. All emails will contain a simple link to opt out of the study. Your participation is voluntary and you may withdraw at any time.

Risks & benefits

There are no foreseeable risks or benefits associated with your participation in this study.

Data & privacy

All data will be housed on a secure server located at the University of Pittsburgh. Identifiable responses will only be available to the research team. If data are shared with other researchers, they will be stripped of identifiers in accordance with IRB regulations.

Contact

You may contact the principal investigator, Jeremy Kahn, at jeremykahn@pitt.edu or (412) 383-0839. You may contact the study coordinator, Leigh Bukowski, at lab108@pitt.edu or (412) 383-3721.

Thank you!

We are excited about the potential of this work to lead to improved patient outcomes, and we are grateful to you for helping us towards that end.

Today's survey

In this survey, we will ask for your professional judgments about four clinical scenarios, after which we will ask a series of additional questions.

We expect this survey to take 8-10 minutes, and we will compensate you \$50 for your time.

When you proceed to the next page, we will show you the first clinical scenario.

Steroids

This is the first of four clinical scenarios.

A previously healthy \${e://Field/steroid_age} year old \${e://Field/steroid_gender} is admitted to the ICU from the emergency department after presenting with fever, leukocytosis, and clinical signs of \${e://Field/steroid_description}. In the emergency department blood cultures were sent and broad spectrum IV antibiotics were given. On admission to the ICU \${e://Field/steroid_heshe} is somnolent, tachypneic, hypotensive, and anuric. \${e://Field/steroid_capital_HisHer} arterial lactate level is 2.7.

You intubate \${e://Field/steroid_himher} for airway protection, insert a central venous catheter, and give \${e://Field/steroid_himher} IV fluids. After an appropriate fluid resuscitation \${e://Field/steroid_heshe} remains hypotensive and you start an infusion of IV norepinephrine. \${e://Field/steroid_capital_heshe} develops severe hypotension, necessitating a high dose of IV norepinephrine. \${e://Field/steroid_capital_heshe} has no contraindications to corticosteroids.

Based on the above information, would you treat this patient with intravenous corticosteroids (i.e. hydrocortisone, 50 mg IV every 6 hours)?

Definitely would not

☐

Probably would not

☐

Probably would

☐

Definitely would

☐

Steroid Measures

In your opinion, what is the **quality of the empirical evidence** about whether or not intravenous steroids are effective?

Lowest quality



Low quality



Moderate quality



High quality



Highest quality



For intravenous steroids, how well defined is the **mechanism of action**?

Not at all well
defined

Slightly well defined

Moderately well
defined

Well defined



Very well defined



For the most recent clinical scenario, you indicated that you would treat the patient with low-dose intravenous corticosteroids.

What percentage of other physicians taking this survey do you think made the same choice?

None of them

All of them

0

25

50

75

100

For the most recent clinical scenario, you indicated that you would not treat the patient with low-dose intravenous corticosteroids.

What percentage of other physicians taking this survey do you think made the same choice?

None of them

All of them

0

25

50

75

100

Bonus! To make it interesting, we are going to compare your estimate to what other physicians taking this survey actually said they would do. The three physicians with the most accurate estimates will each receive an **additional \$250** in compensation. So give us your best guess!

You can learn more about how we will score this estimation by clicking [here](#).

Vitamin C

This is the second of four clinical scenarios.

A previously healthy \${e://Field/vitc_age} year old \${e://Field/vitc_gender} is admitted to the ICU from the emergency department after presenting with fever, leukocytosis, and clinical signs of \${e://Field/vitc_description}. In the emergency department blood cultures were sent and broad spectrum IV antibiotics were given. On admission to the ICU \${e://Field/vitc_heshe} is somnolent, tachypneic, hypotensive, and anuric. \${e://Field/vitc_capital_HisHer} arterial lactate level is 2.7.

You intubate \${e://Field/vitc_himher} for airway protection, insert a central venous catheter, and give \${e://Field/vitc_himher} IV fluids. After an appropriate fluid resuscitation \${e://Field/vitc_heshe} remains hypotensive and you start an infusion of IV norepinephrine.

Based on the above information, **would you treat this patient with an infusion of IV vitamin C and thiamine** (i.e. vitamin C 1.5 g every 6 hours and thiamine 200 mg every 12 hours)? You can still treat \${e://Field/vitc_himher} with steroids if you wish, but here we are only asking if you would treat \${e://Field/vitc_himher} with IV vitamin C and thiamine.

Definitely would not

☐

Probably would not

☐

Probably would

☐

Definitely would

☐

Vitamin C Measures

In your opinion, what is the **quality of the empirical evidence** about whether or not vitamin C and thiamine are effective?

Lowest quality

☐

Low quality

☐

Moderate quality

☐

High quality

☐

Highest quality

☐

For vitamin C and thiamine, how well defined is the **mechanism of action**?

Not at all well
defined

☐

Slightly well defined

☐

Moderately well
defined

☐

Well defined

☐

Very well defined

☐

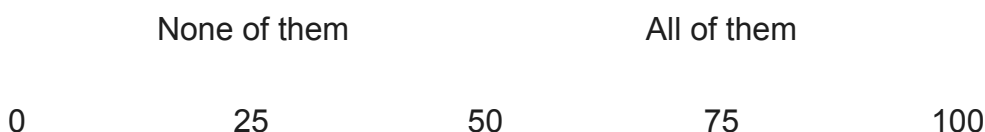
For the most recent clinical scenario, you indicated that you would treat the patient with IV vitamin C and thiamine.

What percentage of other physicians taking this survey do you think made the same choice?



For the most recent clinical scenario, you indicated that you would not treat the patient with IV vitamin C and thiamine.

What percentage of other physicians taking this survey do you think made the same choice?



Double bonus! To make it interesting, we are going to compare your estimate to what other physicians taking this survey actually said they would do. The three physicians with the most accurate estimates will each receive an **additional \$250** in compensation. So give us your best guess!

You can learn more about how we will score this estimation by clicking [here](#).

Lung Protective Ventilation

This is the third of four clinical scenarios.

A previously healthy \${e://Field/lpv_age} year old \${e://Field/lpv_gender} is admitted to the ICU from the emergency department after presenting with fever, leukocytosis, and clinical signs of \${e://Field/lpv_description}. In the emergency department blood cultures were sent and broad spectrum IV antibiotics were given. On admission to the ICU \${e://Field/lpv_heshe} is somnolent, tachypneic, hypotensive, and anuric. \${e://Field/lpv_capital_hisher} arterial lactate level is 2.7.

You intubate $\{e://Field/lpv_himher\}$ for airway protection, insert a central venous catheter, and give $\{e://Field/lpv_himher\}$ IV fluids. After an appropriate fluid resuscitation $\{e://Field/lpv_heshe\}$ remains hypotensive and you start an infusion of IV norepinephrine. $\{e://Field/lpv_capital_heshe\}$ develops bilateral airspace opacities, and an arterial blood gas reveals a P:F ratio of 145.

Based on the above information, **would you treat this patient with lung-protective ventilation** (i.e. a tidal volume of 6-8 cc/kg of predicted body weight in an effort to maintain a plateau pressure <30 cm H₂O)?

Definitely would not☐Probably would not☐

Probably would

☐

Definitely would

☐

Lung Protective Ventilation Measures

In your opinion, what is the **quality of the empirical evidence** about whether or not lung protective ventilation is effective?

Lowest quality

☐

Low quality

☐

Moderate quality

☐

High quality

☐

Highest quality

☐

For lung protective ventilation, how well defined is the **mechanism of action**?

Not at all well
defined☐

Slightly well defined

☐Moderately well
defined☐

Well defined

☐

Very well defined

☐

For the most recent clinical scenario, you indicated that you would treat the patient with lung protective ventilation.

What percentage of other physicians taking this survey do you think made the same choice?

None of them

All of them

0

25

50

75

100

None of them

All of them

0

25

50

75

100

For the most recent clinical scenario, you indicated that you would not treat the patient with lung protective ventilation.

What percentage of other physicians taking this survey do you think made the same choice?

None of them

All of them

0

25

50

75

100

Triple bonus! To make it interesting, we are going to compare your estimate to what other physicians taking this survey actually said they would do. The three physicians with the most accurate estimates will each receive an **additional \$250** in compensation. So give us your best guess!

You can learn more about how we will score this estimation by clicking [here](#).

COVID-19

This is the fourth and final clinical scenario.

A previously healthy \${e://Field/covid_age} year old \${e://Field/covid_gender} is admitted to the ICU from the emergency department after presenting with fever, dry cough, and shortness of breath. Yesterday, \${e://Field/covid_heshe} was seen in an outpatient clinic where \${e://Field/covid_heshe} tested positive for the SARS-CoV-2 infection (i.e. COVID-19) and was told to self-quarantine.

In the emergency department, \${e://Field/covid_heshe} experienced progressive dyspnea and was intubated for respiratory failure. The patient takes no medications at home, there are no contraindications to any specific medicines, and the EKG is normal. Enrolling \${e://Field/covid_himher} in a clinical trial is not an option.

Based on the above information, please indicate which of the following treatments you would give to this patient now. Assume that all of these are on your hospital's formulary and available to give.

| | Definitely would <u>not</u> | Probably would <u>not</u> | Probably would | Definitely would |
|---|--------------------------------|------------------------------|-----------------------|-----------------------|
| Angiotensin receptor blocker (e.g. losartan) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Corticosteroid (e.g., hydrocortisone or dexamethasone) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Antiretroviral agent (e.g., lopinavir/ritonavir) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Quinine-based anti-malarial (e.g., chloroquine or hydroxychloroquine) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Macrolide antibiotic (e.g., azithromycin) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Now we're going to ask you a few questions about **just two** of the treatments from the last page.

COVID-19 Measures Quinine

In your opinion, what is the **quality of the empirical evidence** about whether or not quinine-based anti-malarials (e.g., chloroquine or hydroxychloroquine) are effective for COVID-19?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Lowest quality | Low quality | Moderate quality | High quality | Highest quality |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

For quinine-based anti-malarials (e.g., chloroquine or hydroxychloroquine), how well defined is the **mechanism of action** in COVID-19?

| | | | | |
|-------------------------|-----------------------|-------------------------|-----------------------|------------------------|
| Not at all well defined | Slightly well defined | Moderately well defined | Well defined | Extremely well defined |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

COVID-19 Measures Antibiotic

In your opinion, what is the **quality of the empirical evidence** about whether or not macrolide antibiotics are effective for COVID-19?

Lowest quality Low quality Moderate quality High quality Highest quality

☐ ☐ ☐ ☐ ☐

For macrolide antibiotics, how well defined is the **mechanism of action** in COVID-19?

Not at all well defined Slightly well defined Moderately well defined Well defined Extremely well defined

☐ ☐ ☐ ☐ ☐

COVID-19 Measures Antiretrovirals

In your opinion, what is the **quality of the empirical evidence** about whether or not antiretroviral agents are effective for COVID-19?

Lowest quality Low quality Moderate quality High quality Highest quality

☐ ☐ ☐ ☐ ☐

For antiretroviral agents, how well defined is the **mechanism of action** in COVID-19?

Not at all well defined Slightly well defined Moderately well defined Well defined Extremely well defined

☐ ☐ ☐ ☐ ☐

COVID-19 Measures Angiotensin

In your opinion, what is the **quality of the empirical evidence** about whether or not angiotensin receptor blockers are effective for COVID-19?

Lowest quality Low quality Moderate quality High quality Highest quality

☐ ☐ ☐ ☐ ☐

For angiotensin receptor blockers, how well defined is the **mechanism of action** in COVID-19?

Not at all well
defined

☐

Slightly well defined

☐

Moderately well
defined

☐

Well defined

☐

Extremely well
defined

☐

Psychometric Intro

You're finished with the first section of the study!

In this next section we are going to ask you a few questions about how you make decisions. These questions aren't necessarily about clinical care--they are just about decisions in general.

These questions should take you 3-4 minutes to complete.

Need for Cognition 1 (Reverse Coded)

Please rate the extent to which you agree or disagree with the following statements.

I like tasks that require little thought once I've learned how to do them.

Strongly disagree

☐

Somewhat
disagree

☐

Neither agree nor
disagree

☐

Somewhat agree

☐

Strongly agree

☐

It's enough for me that something gets the job done; I don't care how or why it works.

Strongly disagree

☐

Somewhat
disagree

☐

Neither agree nor
disagree

☐

Somewhat agree

☐

Strongly agree

☐

I prefer to think about small, daily projects instead of long-term projects.

Strongly disagree

Somewhat
disagree

Neither agree nor
disagree

Somewhat agree

Strongly agree



Need for Cognition 2

I find satisfaction in tough deliberations for long hours.

Strongly disagree



Somewhat disagree



Neither agree nor disagree



Somewhat agree



Strongly agree



I usually end up deliberating about issues even when they do not affect me personally.

Strongly disagree



Somewhat disagree



Neither agree nor disagree



Somewhat agree



Strongly agree



I prefer tasks that are intellectual, difficult, and important rather than tasks that are important but do not require much thought.

Strongly disagree



Somewhat disagree



Neither agree nor disagree



Somewhat agree



Strongly agree



I prefer complex problems over simple problems.

Strongly disagree



Somewhat disagree



Neither agree nor disagree



Somewhat agree



Strongly agree



Clinical Evidence Skepticism

Research is no substitute for the astute observation of a physician at the bedside.

Strongly disagree



Somewhat disagree



Neither agree nor disagree



Somewhat agree



Strongly agree



I tend to value expert opinion over published scientific evidence.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

I tend to reserve judgment about the effectiveness of a new treatment until I've seen it work on my own patients.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

Clinical practice guidelines should be able to make recommendations even in the absence of strong clinical trial data.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

Actively Open-minded Thinking 1

Allowing oneself to be convinced by a solid opposing argument is a sign of good character.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

People should take into consideration evidence that goes against conclusions they favor.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

Actively Open-minded Thinking 2 (Reverse Coded)

Being undecided or unsure is the result of muddled thinking.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

It is important to question evidence when it contradicts what you believe.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐**Need for Closure**

Please rate the extent to which you agree or disagree with the following statements.

I dislike questions which could be answered in many different ways.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

I feel uncomfortable when I don't understand the reason why an event occurred in my life.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

I feel irritated when one person disagrees with what everyone else in a group believes.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

When I have made a decision, I feel relieved.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

When I am confronted with a problem, I like to reach a solution very quickly.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

I dislike it when a person's statement could mean many different things.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

I dislike unpredictable situations.

Strongly disagree

☐

Somewhat disagree

☐

Neither agree nor disagree

☐

Somewhat agree

☐

Strongly agree

☐

Research engagement

You're done with the second section of this study!

In the third and final section, we will ask you a few questions about yourself.

In your effort to keep up with the medical literature, which of the following activities did you do in the last week? (**Select all that apply.**)

We realize that you may do all of these at different times — we are interested in which of these you did only in the last week.

- | | |
|--|---|
| <input type="checkbox"/> Followed a discussion of a new paper on social media (e.g. Twitter) | <input type="checkbox"/> <u>Looked through</u> the full text of an original research article in a medical journal |
| <input type="checkbox"/> Read a summary of an original research article (e.g. Journal Watch) | <input type="checkbox"/> <u>Closely read</u> the full text of an original research article in a medical journal |
| <input type="checkbox"/> Read the table of contents of a medical journal | <input type="checkbox"/> Discussed the results of an original research article with a friend or colleague |
| <input type="checkbox"/> <u>Read the abstract</u> of an original research article in a medical journal | <input type="checkbox"/> None of the above |

Management and Risk

People often face risks when making financial, career, or other life decisions. Overall, how would you place yourself on the following scale?

Not at all comfortable
taking risks



Extremely comfortable
taking risks

Closing

What is your base specialty?

- ☐ Internal medicine, not pulmonary
- ☐ Internal medicine, pulmonary
- ☐ Emergency medicine
- ☐ Anesthesiology
- ☐ Surgery
- ☐ Neurology
- ☐ Other (please indicate)

Which of these best describes your practice setting?

- ☐ Academic, university affiliated

- ☐ Academic, not university affiliated
- ☐ Community
- ☐ Other

Over the past year, what proportion of your professional time was spent in direct practice of critical care?

- ☐ All or almost all (95% or more)
- ☐ More than 50% but less than 95%
- ☐ Less than 50%
- ☐ None

What is your gender?

- ☐ Female
- ☐ Male
- ☐ Other / non-binary

(Optional) Is there another way that you would have preferred for us to ask this question?

What is your age?

Since this study is funded by the NIH, we are required to ask about your race and ethnicity.

Which of the following categories best applies to you?

- ☐ White
- ☐ Black

- ☐ Asian
- ☐ American Indian/Alaska Native
- ☐ Native Hawaiian/Pacific Islander
- ☐ Multiracial
- ☐ Prefer not to answer

Do you identify as Hispanic or Latino?

- ☐ Yes
- ☐ No
- ☐ Prefer not to answer

What is your preferred email address?

We will keep this confidential and will use it to inform you of the next round of this study.

How would you like for us to address you in email correspondence?

You may leave this blank if you prefer to remain relatively more anonymous.

Some of our work relates to how information spreads through networks of people who know each other.

By knowing who trained where and when, we will be able to construct such a network and answer some really interesting questions!



Are you willing to tell us who you are and where you trained?

- If you answer 'yes', some additional questions will appear on the next page. They will take **1-2 additional minutes** to answer and will be extremely valuable for us.
- If you answer 'no' or 'maybe', you will be taken directly to the end of the survey.

- ☐ Yes
- ☐ No
- ☐ Maybe later. Email me. (*We'll email you once.*)

Network Info

Thank you! Like the rest of your response, all information shared here will be kept confidential. Here are two ways to share this information:

1. Upload a resume or CV below. Our administrative staff will transcribe the data for you.
2. Fill in the fields in the next question.

If you elected to fill these fields manually, please complete as many as are applicable. All fields are optional.

This is the **last** set of questions.

| | Institution | Start Year | End Year (optional) |
|----------------------------------|----------------------|----------------------|----------------------|
| Residency | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Fellowship (if applicable) | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| First job as an attending | <input type="text"/> | <input type="text"/> | <input type="text"/> |

| | Institution | Start Year | End Year (optional) |
|---|----------------------|----------------------|----------------------|
| Second job as an attending (if applicable) | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Third job as an attending (if applicable) | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Fourth job as an attending (if applicable) | <input type="text"/> | <input type="text"/> | <input type="text"/> |

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