

External Quality Assessment Scheme

Preanalytics, clinical chemistry Round 1, 2023

Specimens

Specimens are three case reports which are presented also on the LabScala.

Result reporting

Please enter the results via LabScala.

There are same questions for each of the three cases. We ask you to identify preanalytical errors and define your possible actions. If you do not find your answer from the drop-down menu, please describe your action and/or the preanalytical error in the free text Comment field (in English). Please choose your profession from drop-down menu. If you reply to this round as a group, then please choose group reply as a profession.

With one order you may return five results per case (5 results x 3 cases). In order to separate multiple results, give a respondent name in the field in question and you will receive a respondent specific result table for each of the results sent. If you want to send more than one result per case, press "Add response +" on the blue column, and new set of questions opens.

Cases

Case 1

A sample from a 55-year-old female is drawn for the analysis of total bile acid concentration at the emergency department. The sample is taken into a serum gel tube. There is no hemolysis or remarks of any unusual phlebotomy. The result 15 µmol/L.

Case 2

A urinary sample for screening type detection of drugs is received in the laboratory. Urinary creatinine is 0.3 mmol/L.

Case 3

A set on 10 samples in Na-citrate (3.2%) tubes arrives to laboratory for the analysis of plasma prothrombin time (P-PT). The amount of blood in the tubes somewhat varies in relation to the mark. All samples give P-PT within reference range.

Questions for each case

What would you do in this case?

Which preanalytical errors did you find in this case? Name up to three.

2023-02-27

INSTRUCTIONS

Product no. 7800
LQ779123011-013/FI

The results should be reported no later than
March 24, 2023.

Inquiries

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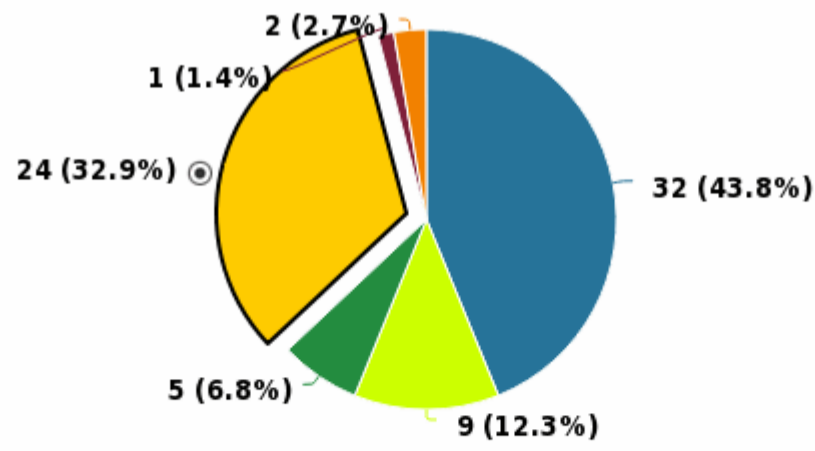


Which preanalytical errors did you find in this case? Name up to three.

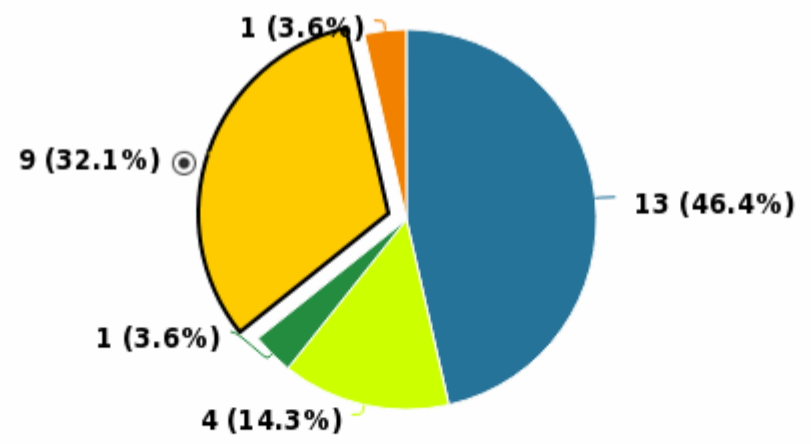
No errors
Wrong request
Missing request
Too many requests
The requests have changed
Incorrect emergency requests ordered
Insufficient information about the person requesting the analysis
Important background information of the patient missing
Reference serum for the requested analysis missing
Incorrect timing for the sample or follow-up sample
Insufficient/incorrect guidance to sample collection procedure
Patient prepared incorrectly
No fasting or fasting not confirmed
Possible medication not confirmed
Use of stimulants (alcohol, tobacco, drugs)
Physical exercise
Incorrect washing of the genital area
First portion of urine stream not discarded
Insufficient/incorrect patient ID confirmation
Too short bladder incubation time
Bladder incubation time not confirmed/marked
Incorrect/insufficient hand hygiene
Phlebotomist had no disposable gloves
Unrefined sampling site
Incorrect sampling site
Patient's arm supported poorly
Punctured to a bruise/skin damage
Blood drop is dripping
Cold puncture site
Inadequate or disordered equipment
Incorrect tourniquet usage
Too tight squeeze
Wrong needle/lancet
No adapter/holder used
Wrong angle of puncture
Risk of needlestick injury
Unsafe sharps disposal
Patient guided incorrectly after sampling
Wrong sample collection
Wrong order of draw/sampling
Wrong timing of the phlebotomy/sampling
Punctured too early
Sample taken from the wrong drop
Unsuccessful puncture
Discard tube not taken
Incorrect/insufficient sample marking/labeling
Insufficient information about the sampling site
Wrong primary tube/sample container
Tube date expired
Incorrect sample volume
Low quality sample
Haemolysed sample
Lipemic sample
Icteric sample
Air bubbles in the tube
Wrong temperature of the sample
Blood in the sample
Contaminated sample
Diluted sample
Sample contains tissue fluid
Incorrect sample material/type
Insufficient information about the sample composition
Sample should have been put to ice after phlebotomy/sampling
Sample should not have been put to ice after phlebotomy/sampling
Sample not mixed
Too vigorous mixing of the sample
The sample should not have been mixed
Insufficient clotting time
Too long lag time before handling the sample
Centrifugated too soon after phlebotomy
Incorrect centrifuge settings
Wrong secondary tube
Wrong sample storage
Wrong sample handling prior to transport
Wrong transportation temperature
Too long transportation time
Wrong sample transport container
Wrong means of sample transport
Incorrectly functioning POC test
Incorrect result of the POC test
Incorrect preliminary result
The sample transferred/packed to transport container incorrectly
Faulty/defective transport container
Expired transport container
Insufficient/contradictory information in the request, sample label or transport container
Incorrect storage of test strips
Too old test strips
Cold test cassette
Analysis not repeated
Too old sample
Sample has a strong colour
Destroyed sample
Error when dipping the strip
Wrong timing for reading the result
Poor lighting
Suspicious result
Patient safety risk
Incorrect usage of POC test

Case 1|What would you do? | OLD

All profession groups



Biomedical laboratory scientist/technician



- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
- I would reject the sample for testing and ask for another sample.
- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.
- I accept some of the samples and reject some.
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

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Case 1|What would you do?|All profession groups | OLD

All profession groups

What would you do?

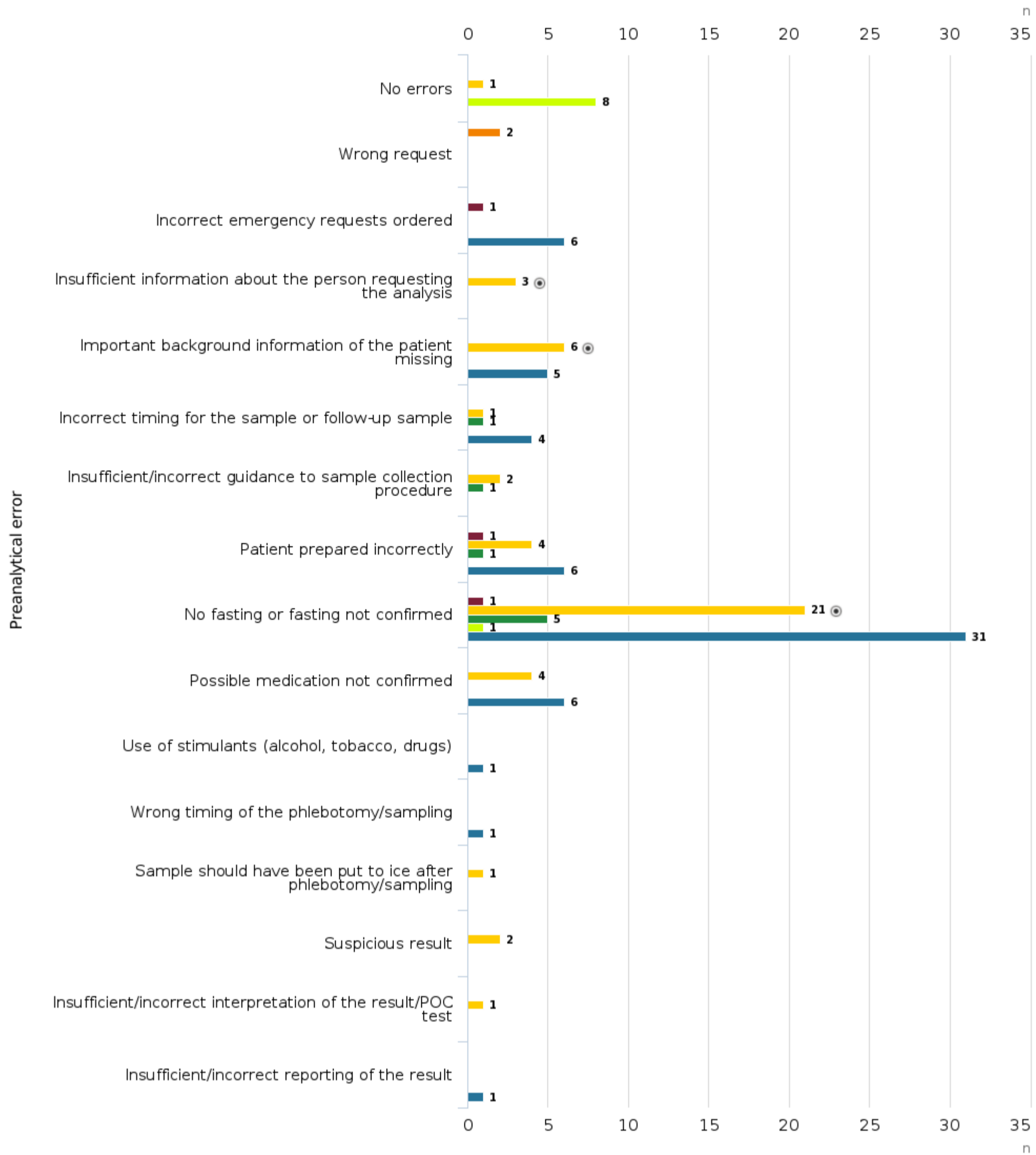
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All profession groups

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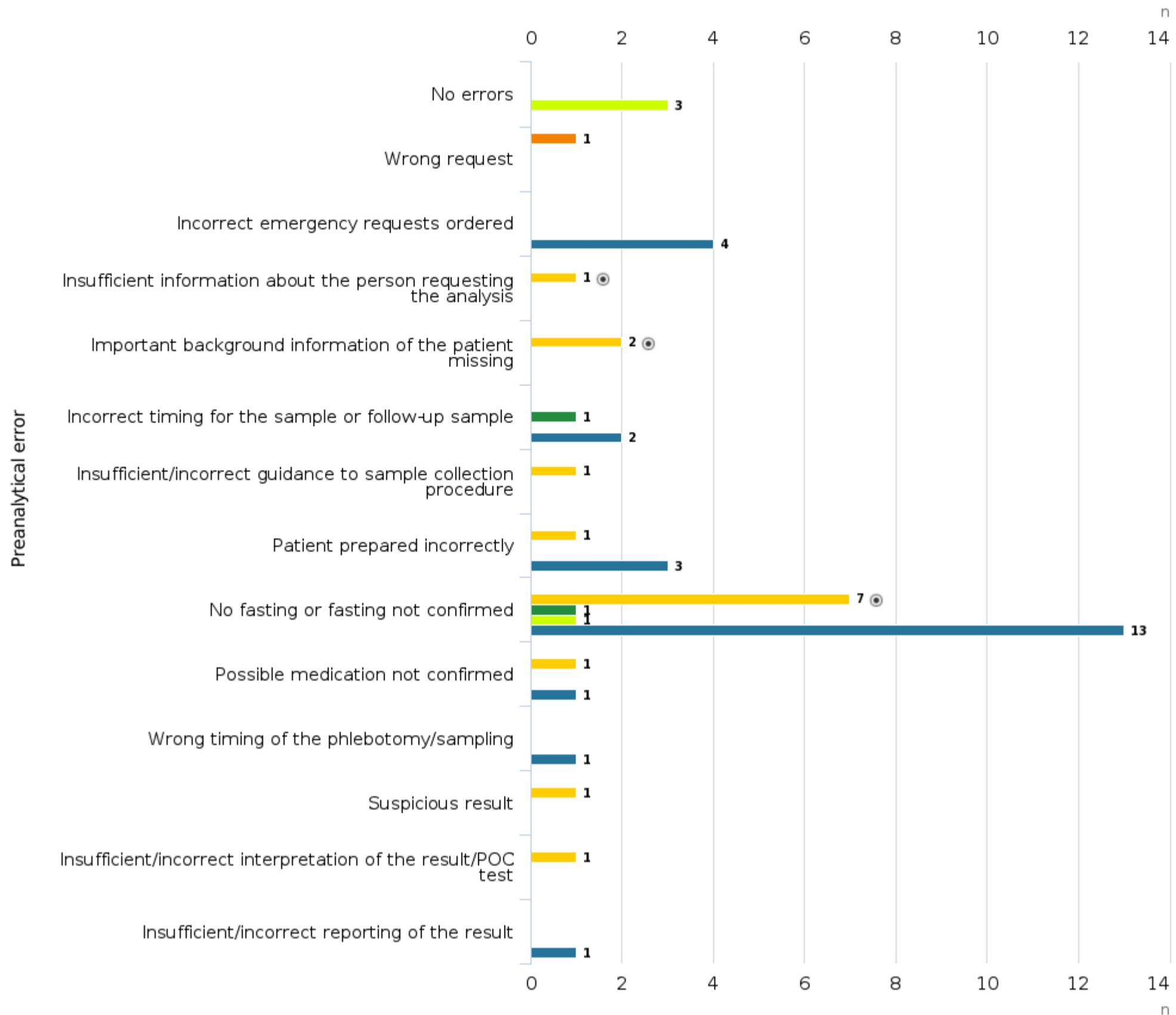


Case 1|What would you do?|Biomedical laboratory scientist/technician | OLD

Biomedical laboratory scientist/technician

What would you do?

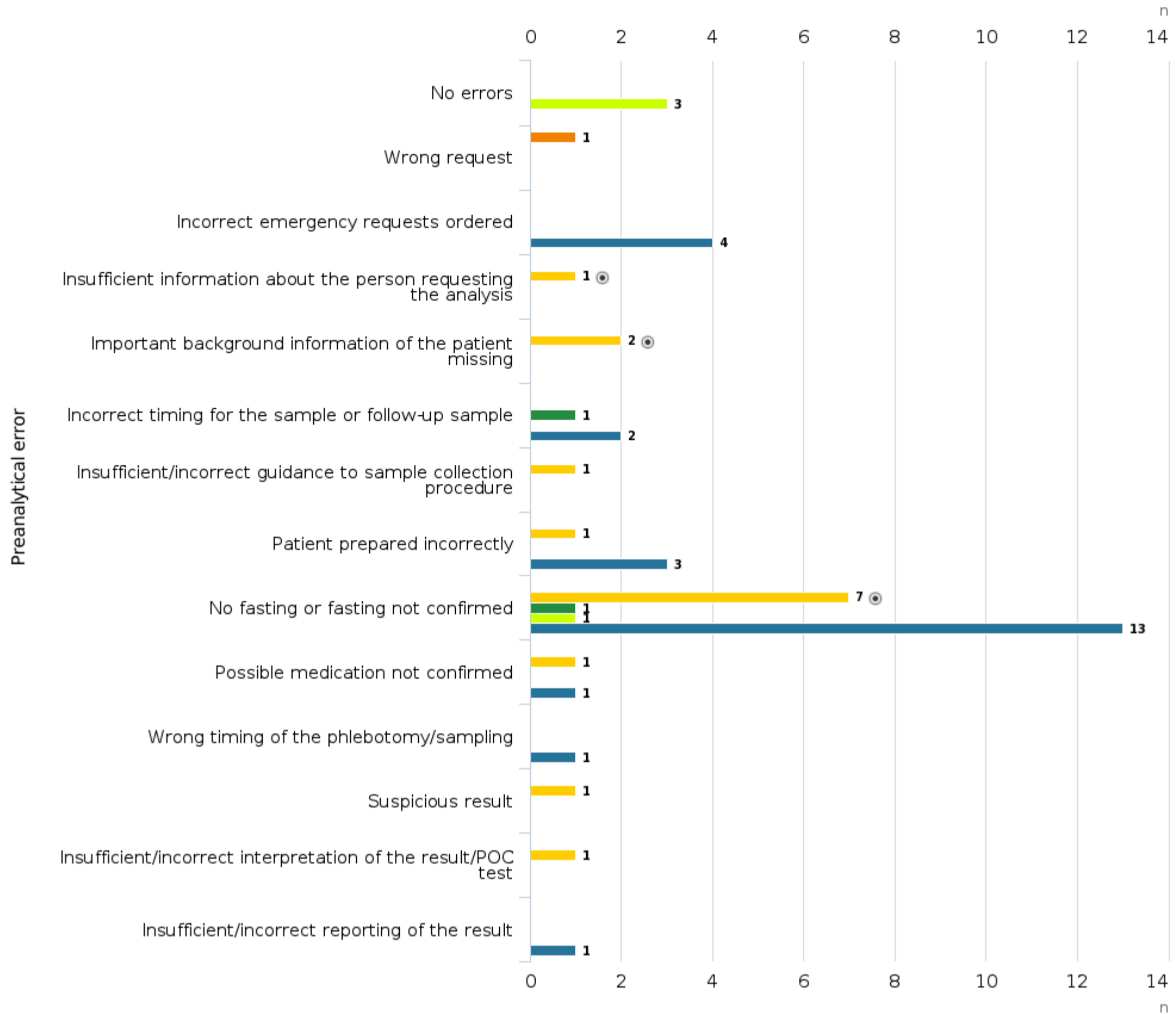
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Biomedical laboratory scientist/technician

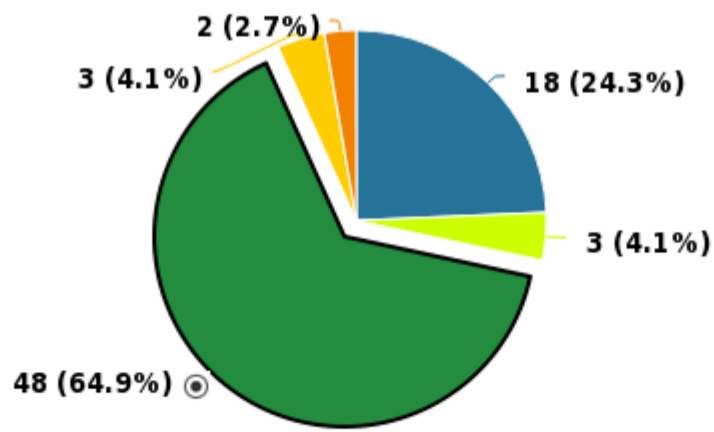
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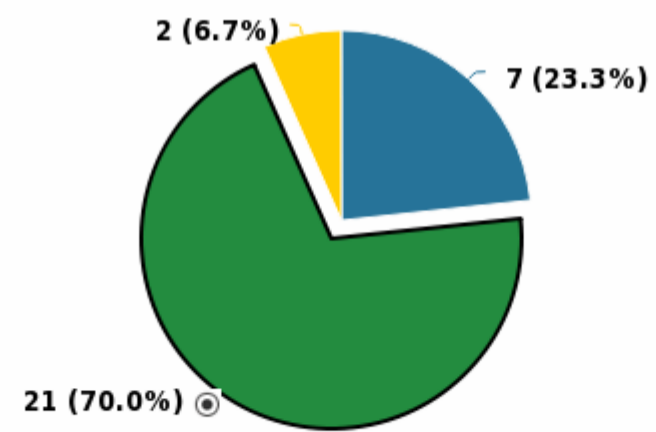


Case 2|What would you do? | OLD

All profession groups



Biomedical laboratory scientist/technician



- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
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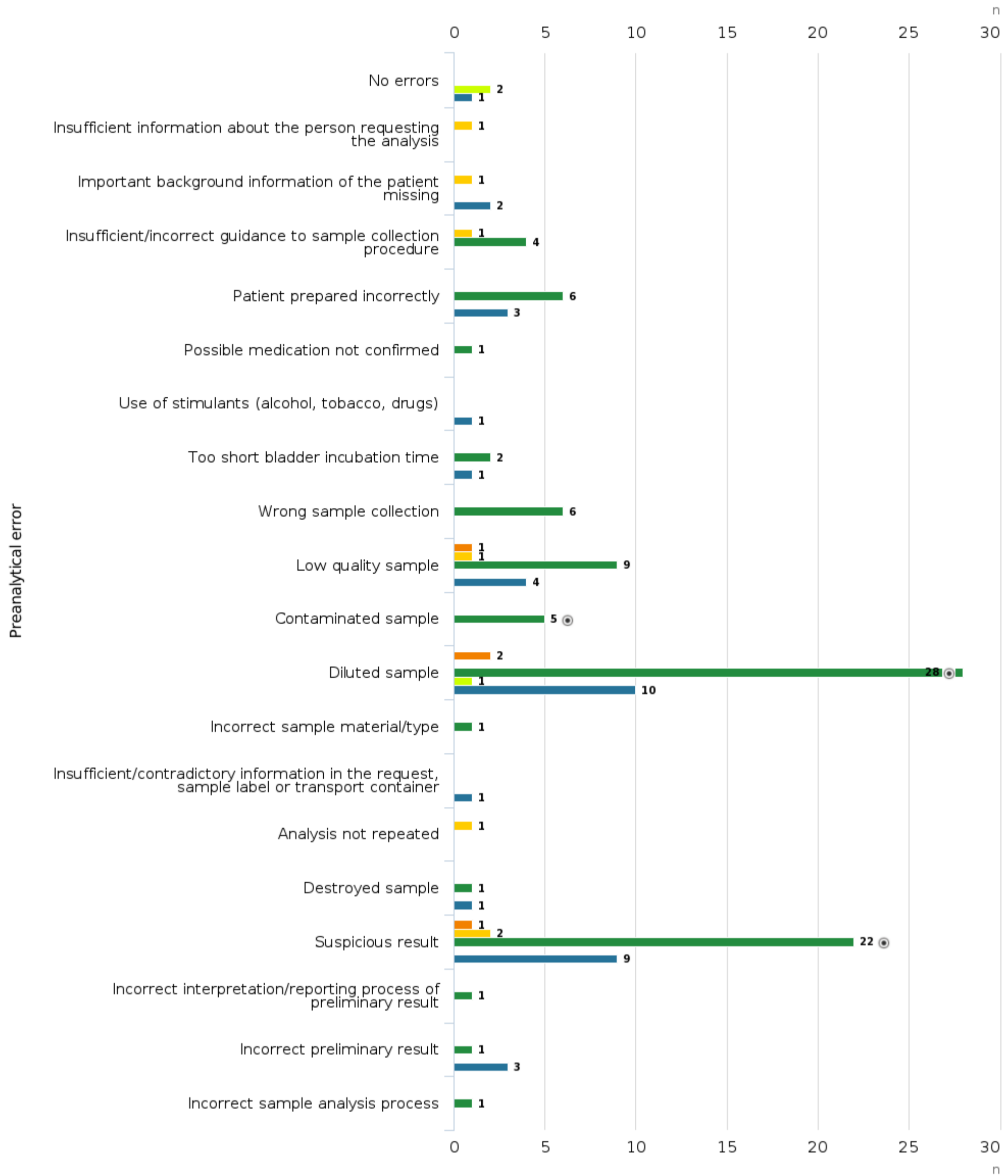
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Case 2|What would you do?|All profession groups | OLD

All profession groups

What would you do?

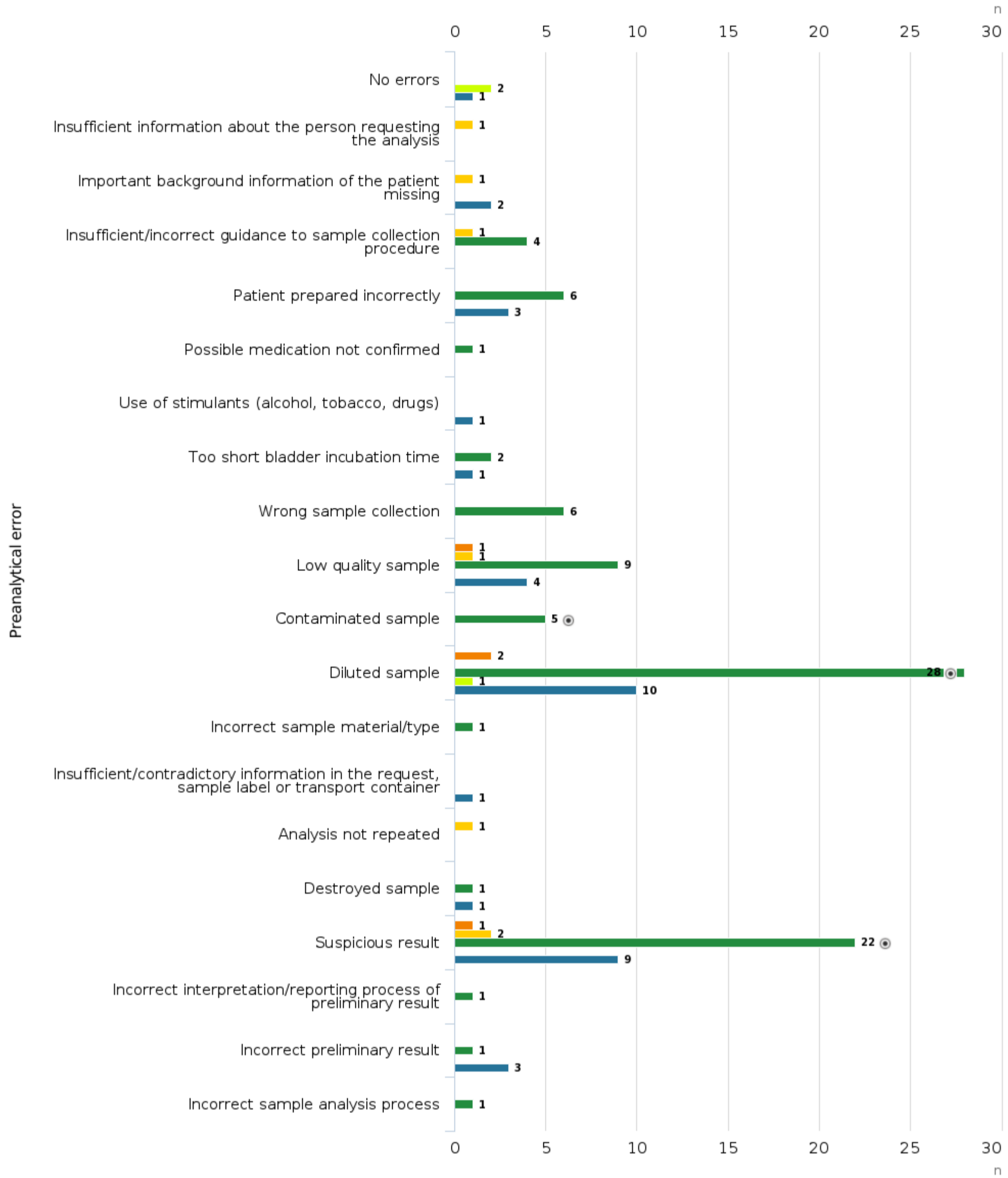
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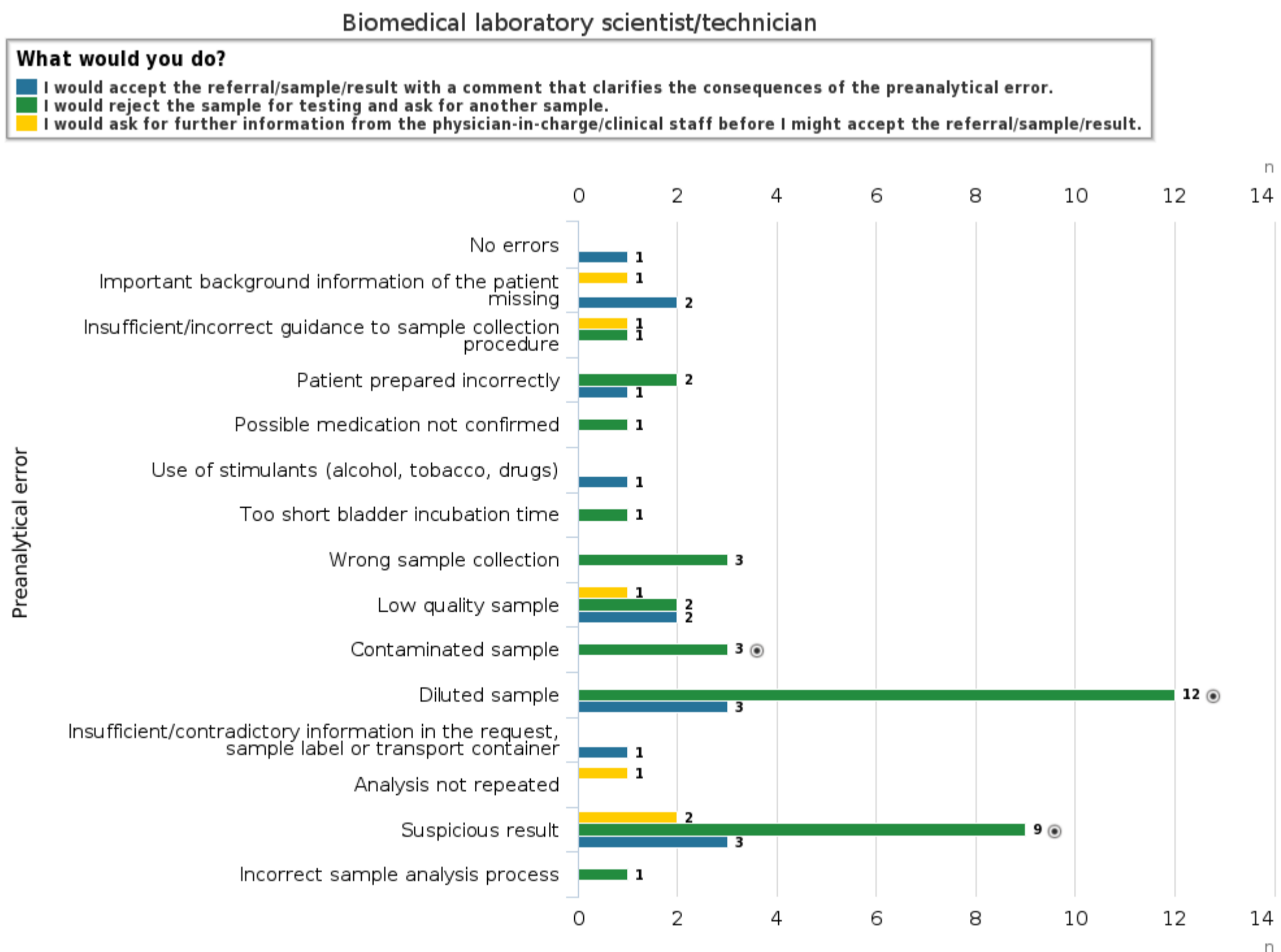
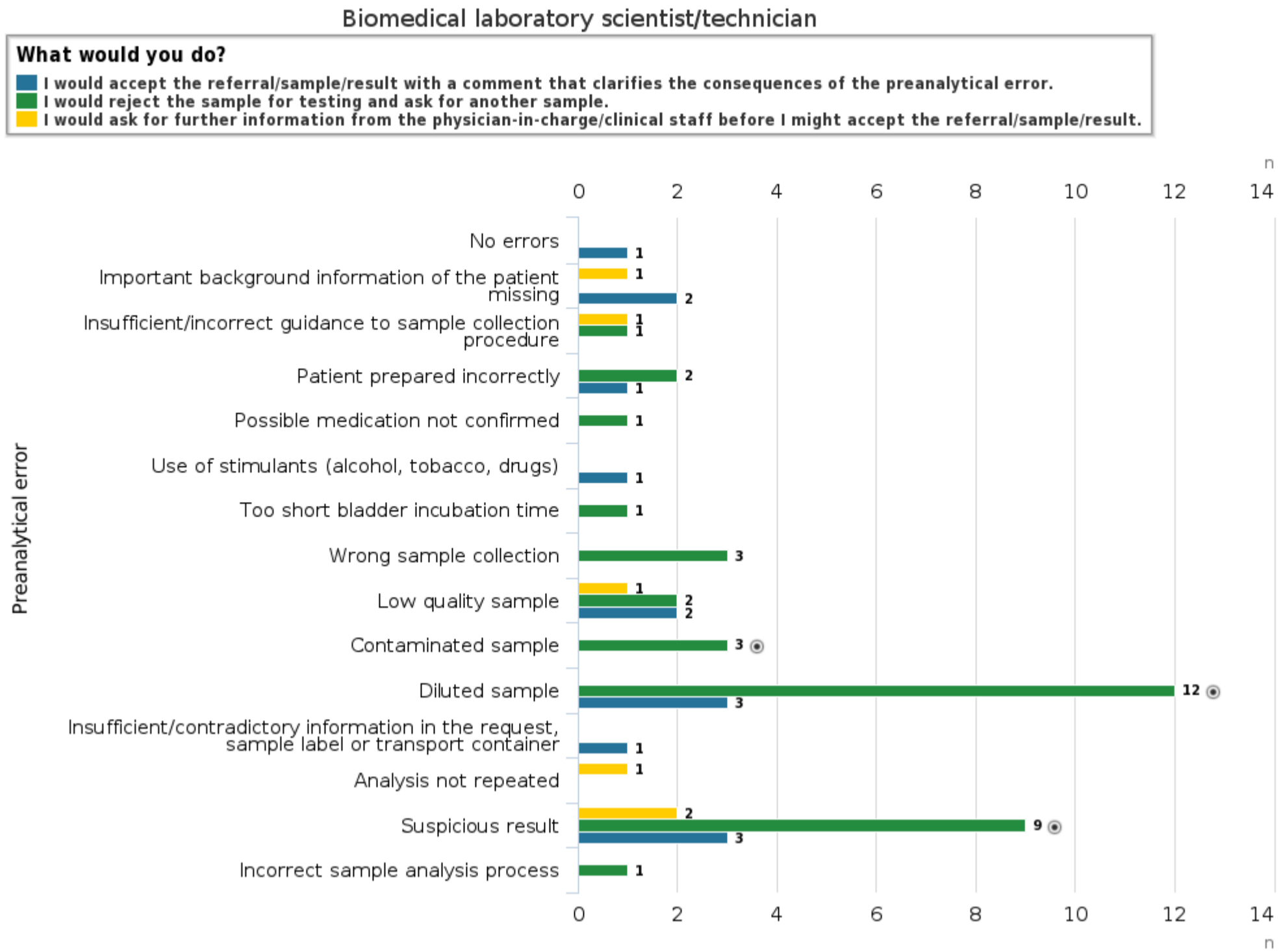
All profession groups

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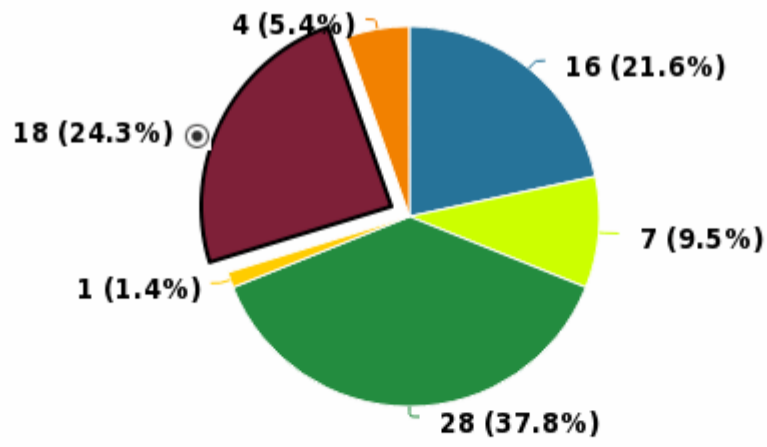


Case 2|What would you do?|Biomedical laboratory scientist/technician | OLD

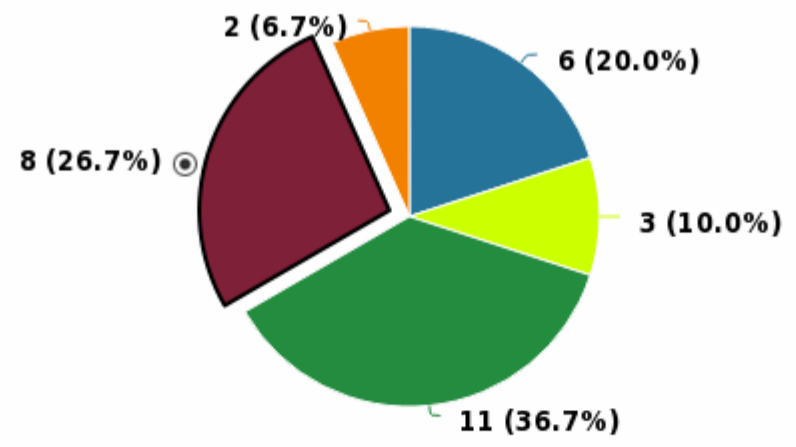


Case 3|What would you do? | OLD

All profession groups



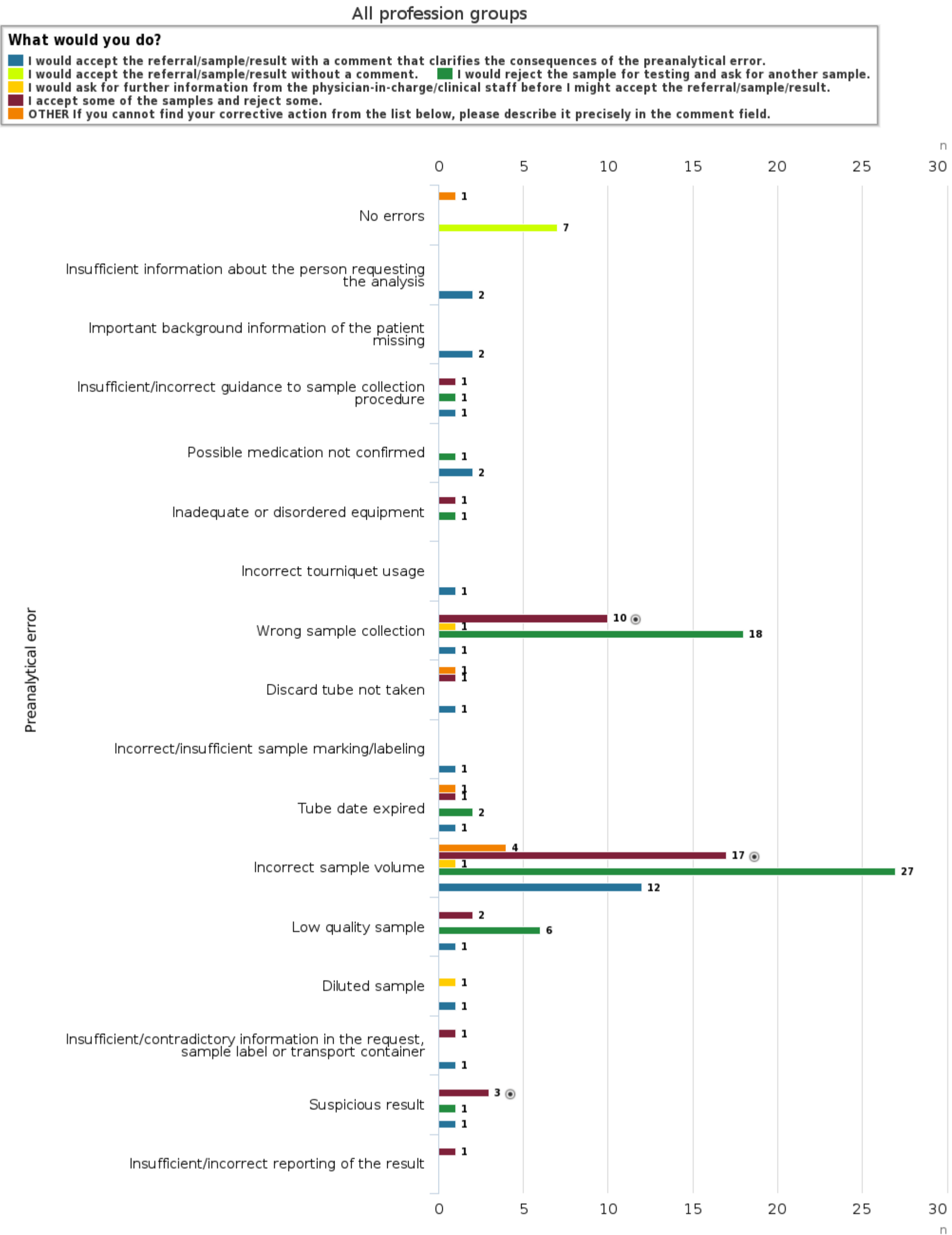
Biomedical laboratory scientist/technician



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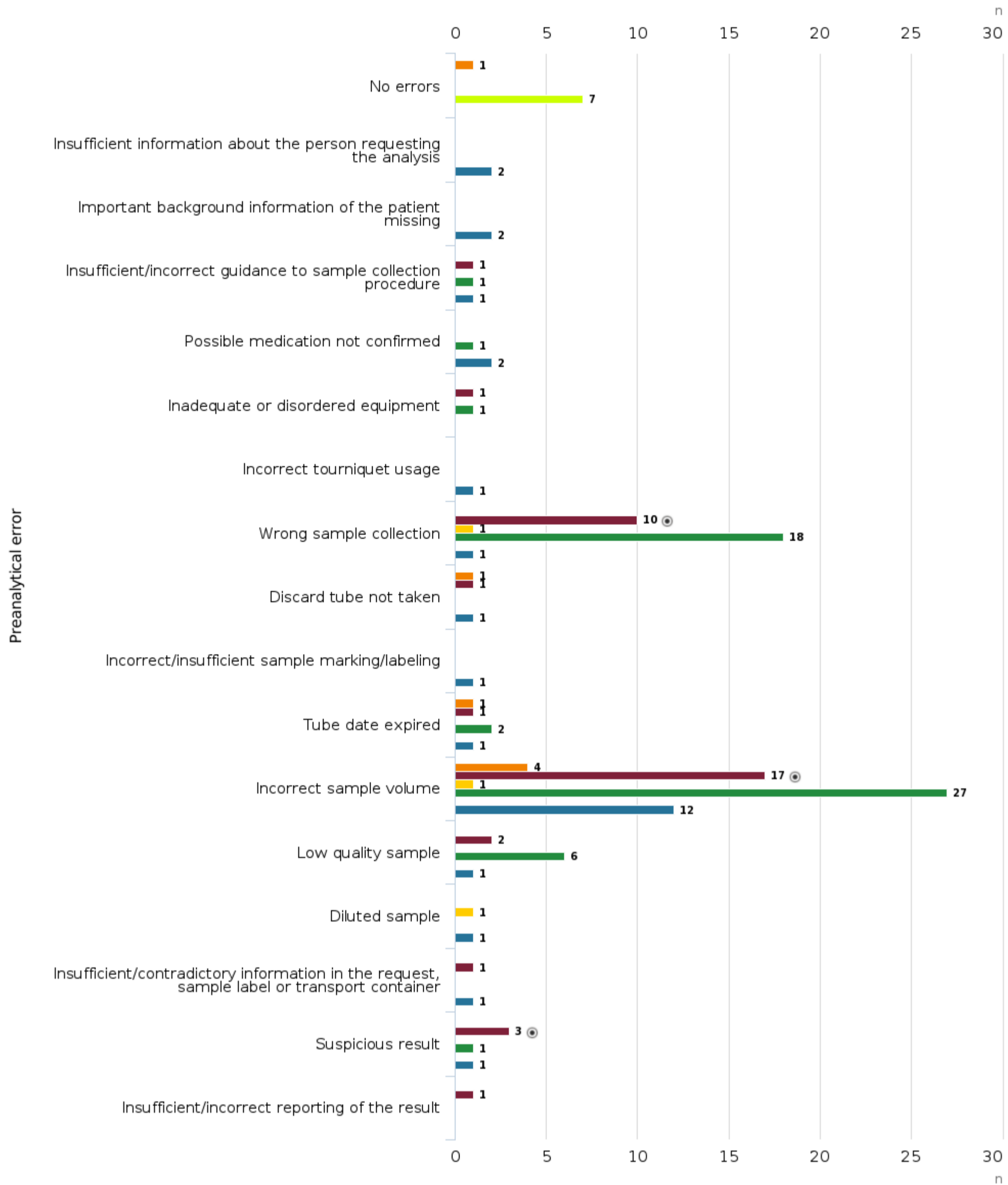
Case 3|What would you do?|All profession groups | OLD



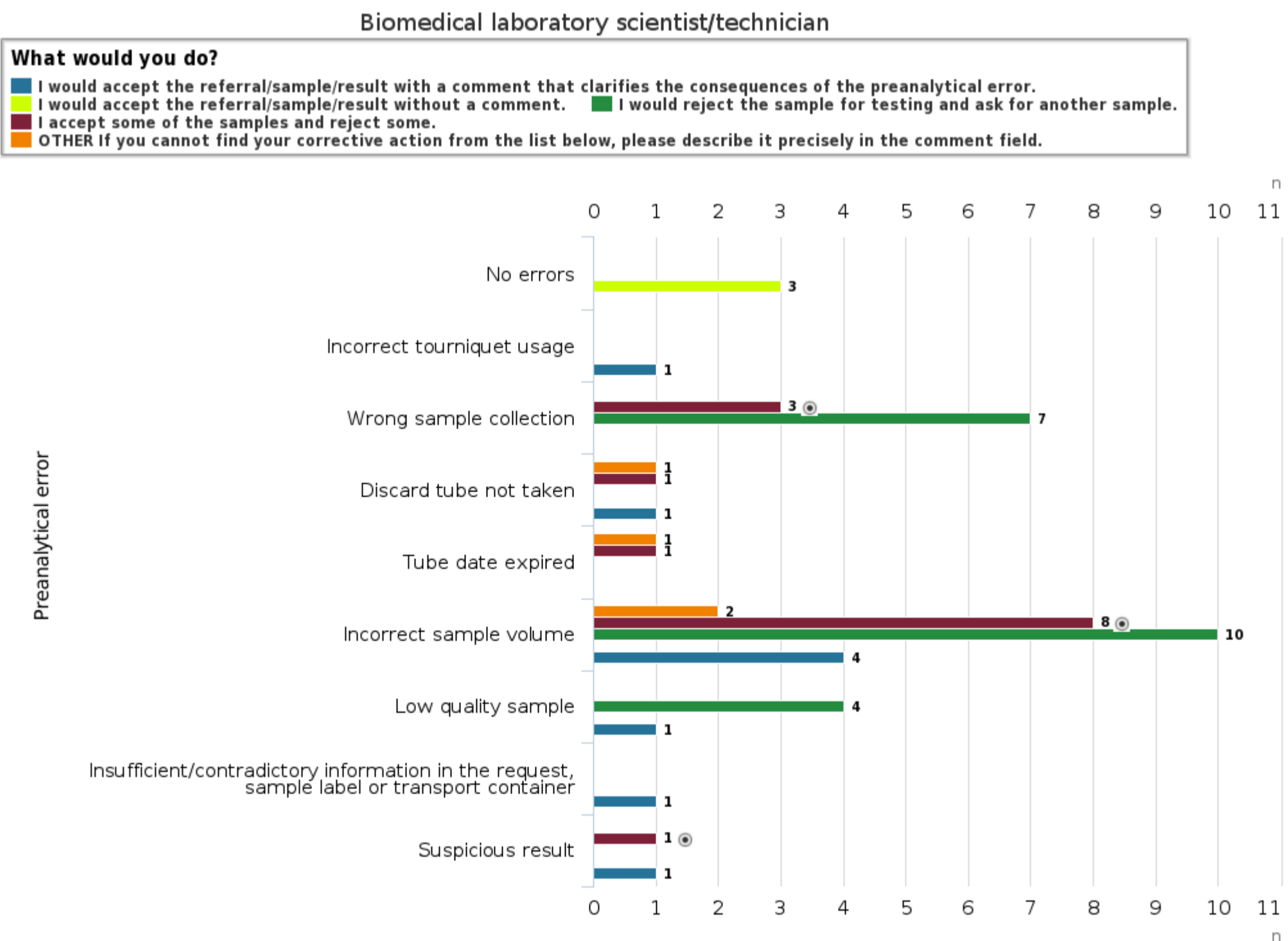
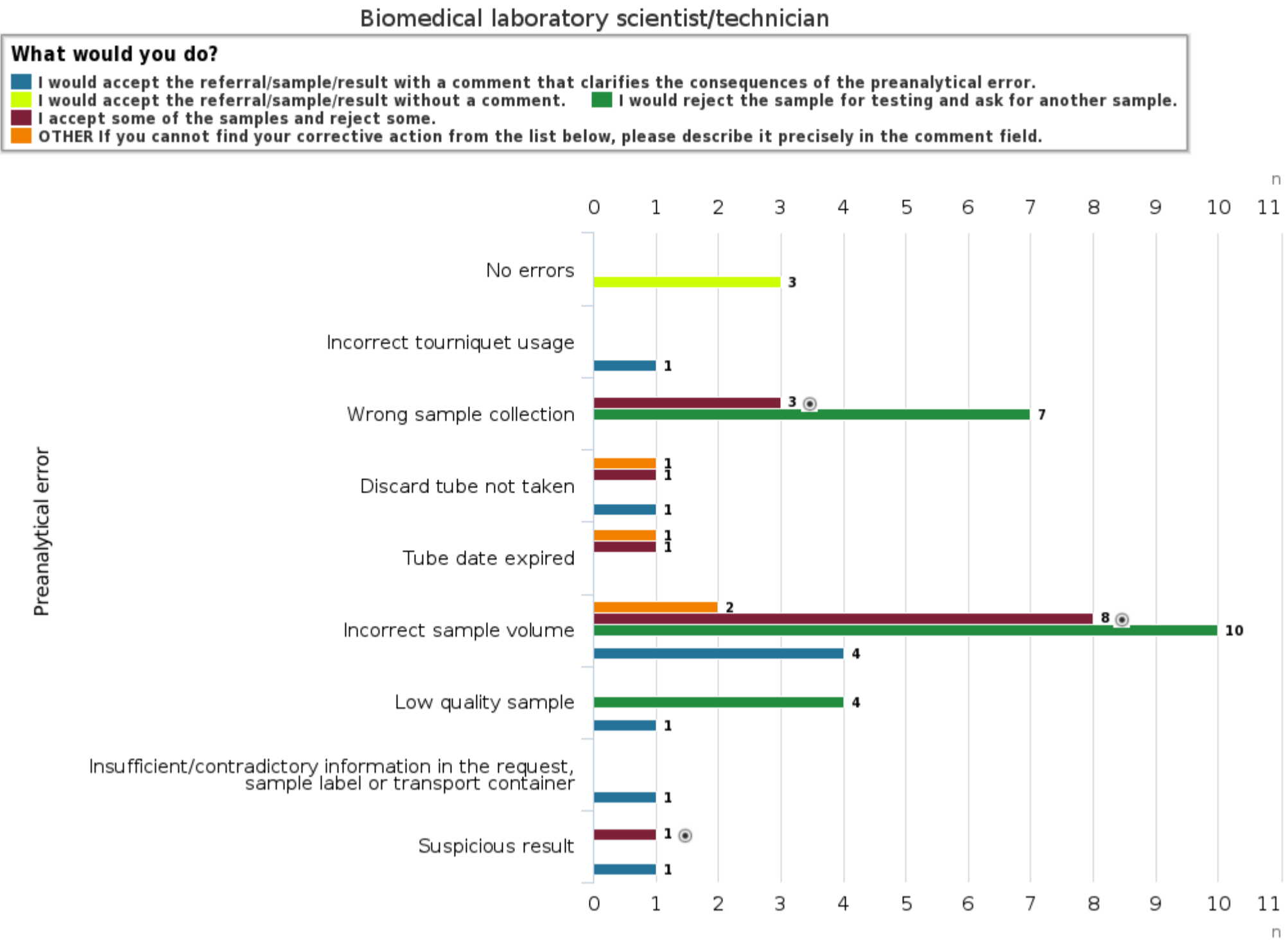
All profession groups

What would you do?

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Case 3|What would you do?|Biomedical laboratory scientist/technician | OLD



Report info**Participants**

53 participants from 16 countries.

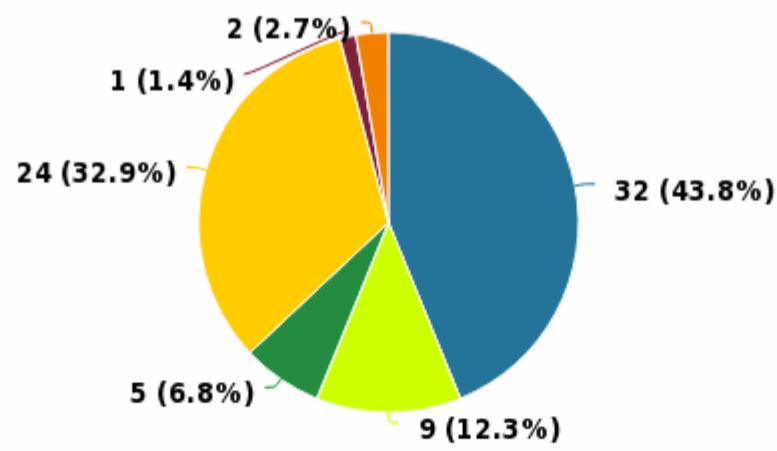
Report info

Suggestions of what would be the correct action in every case are done based on general recommendations. There might be some differences between organizations and countries, and some other action might also be valid and correct. The idea of these rounds is to get the participants to think about their own laboratory's procedures from a preanalytical point of view.

Results are grouped according to the informed participants' profession. Reported actions are shown in pie diagrams as percentages. Bar charts represent action answers in different colours as counts and they are grouped by different preanalytical errors. Laboratory's own results are marked with a black radio button . If you have not reported any results you will get a note: "You have not responded in time, only global report is available." In case you have any questions regarding the reports, please contact the EOA coordinator.

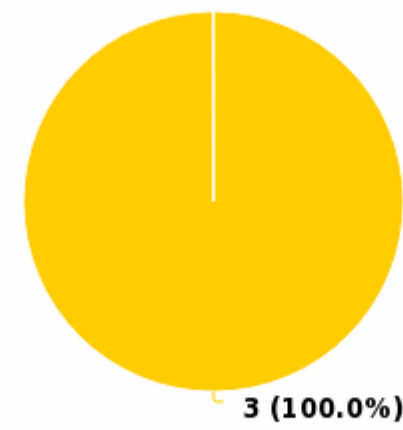
Case 1|What would you do?

All profession groups



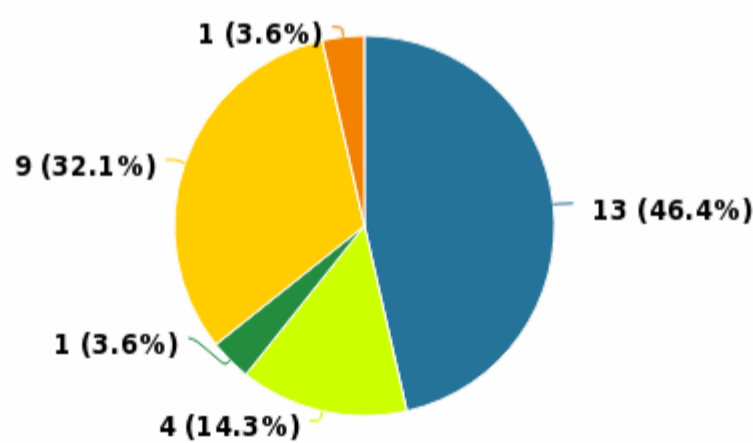
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Assistant at laboratory



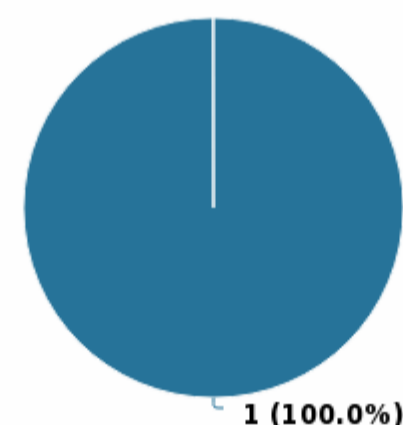
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Biomedical laboratory scientist/technician



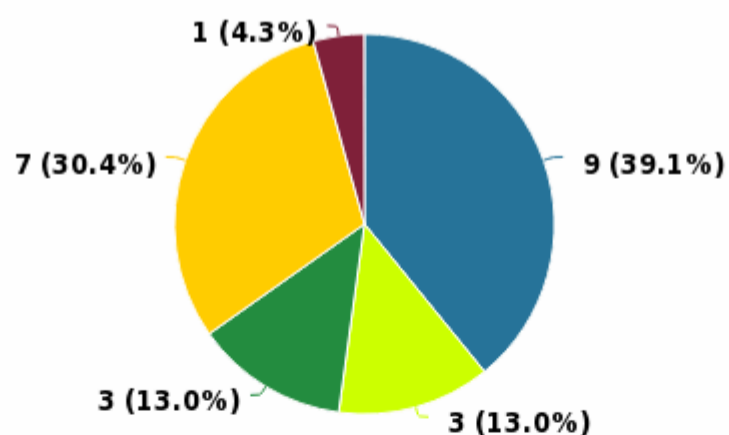
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Chemist



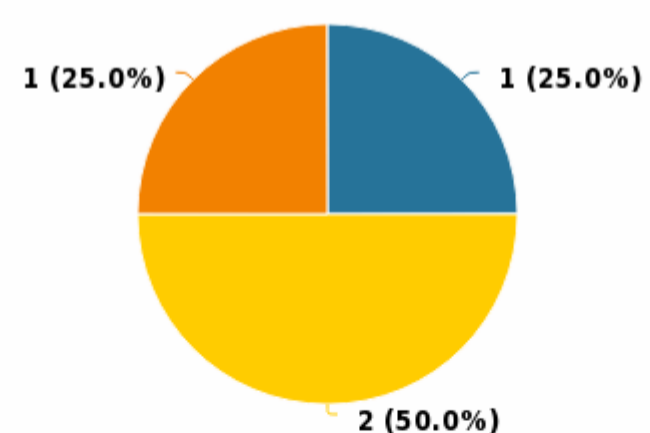
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.

Group reply



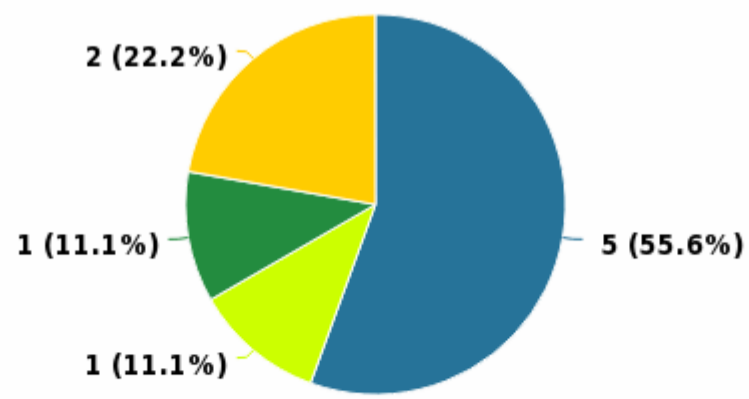
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Head of quality



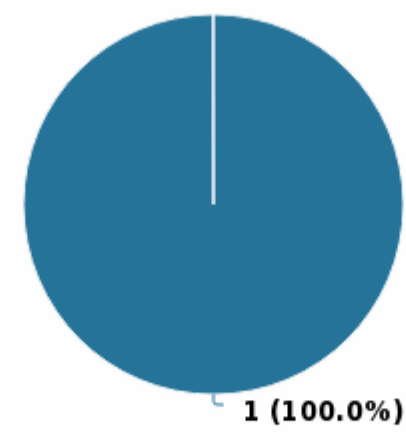
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- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Medical doctor (degree in lab. medicine)



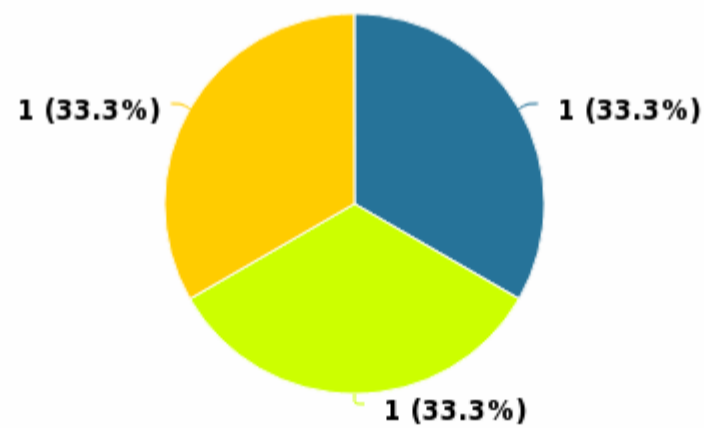
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Nurse



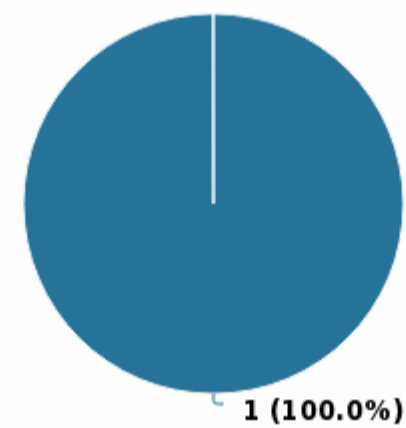
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.

Other, what?



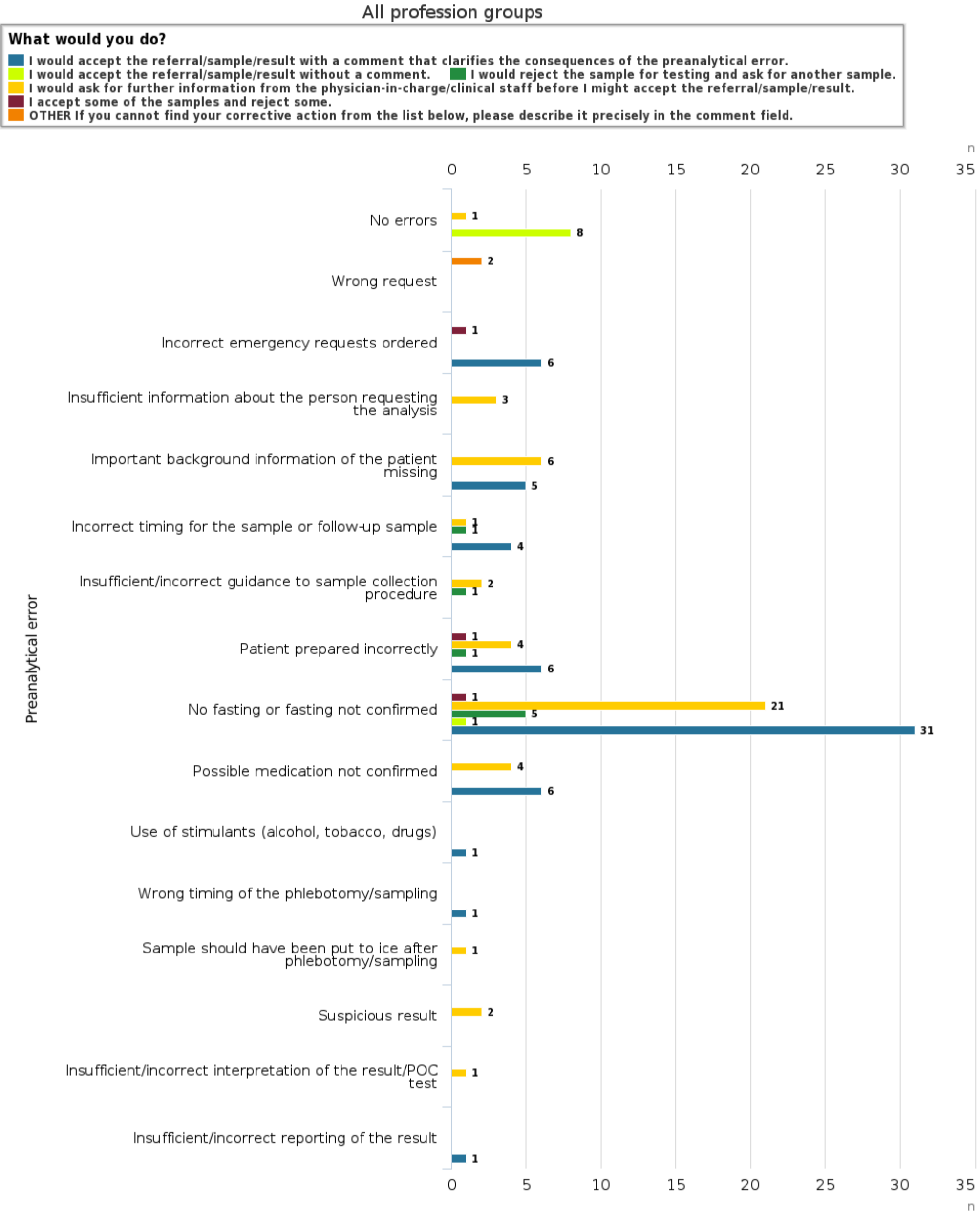
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Student

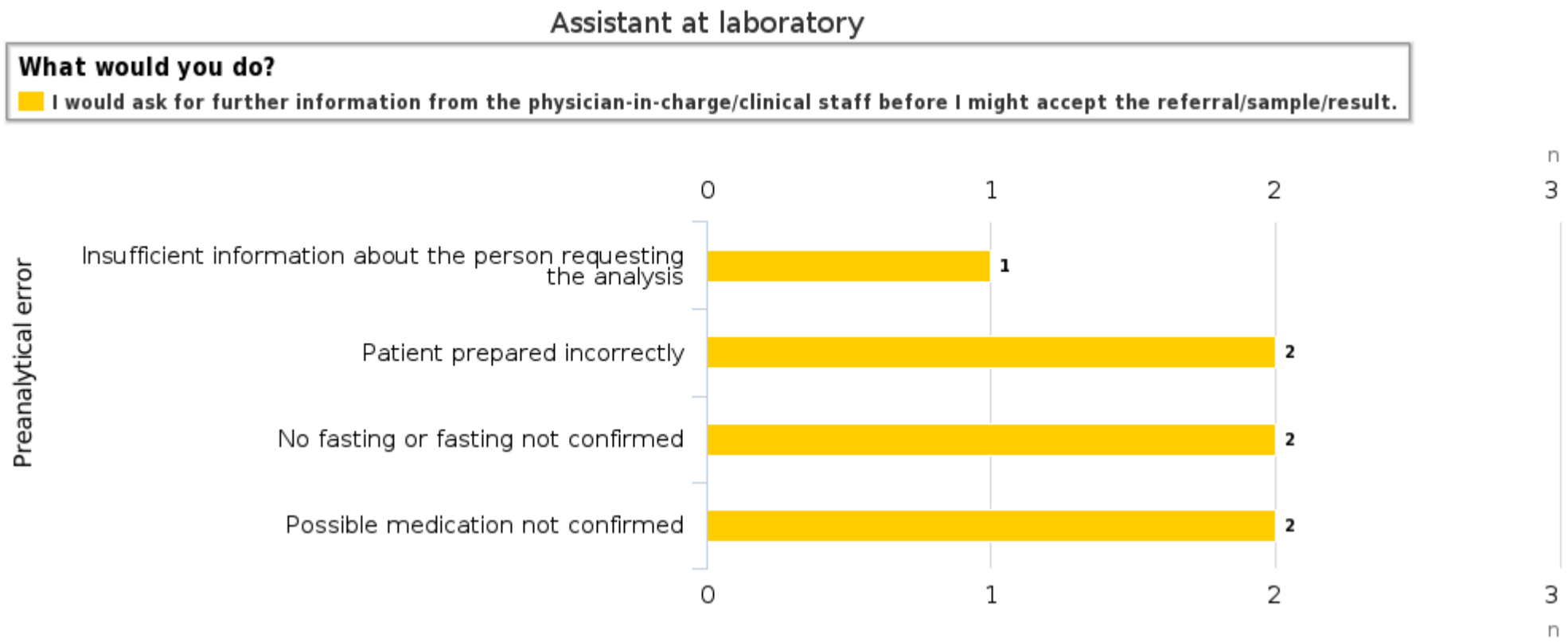


- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.

Case 1|What would you do?|All profession groups



Case 1|What would you do?|Assistant at laboratory

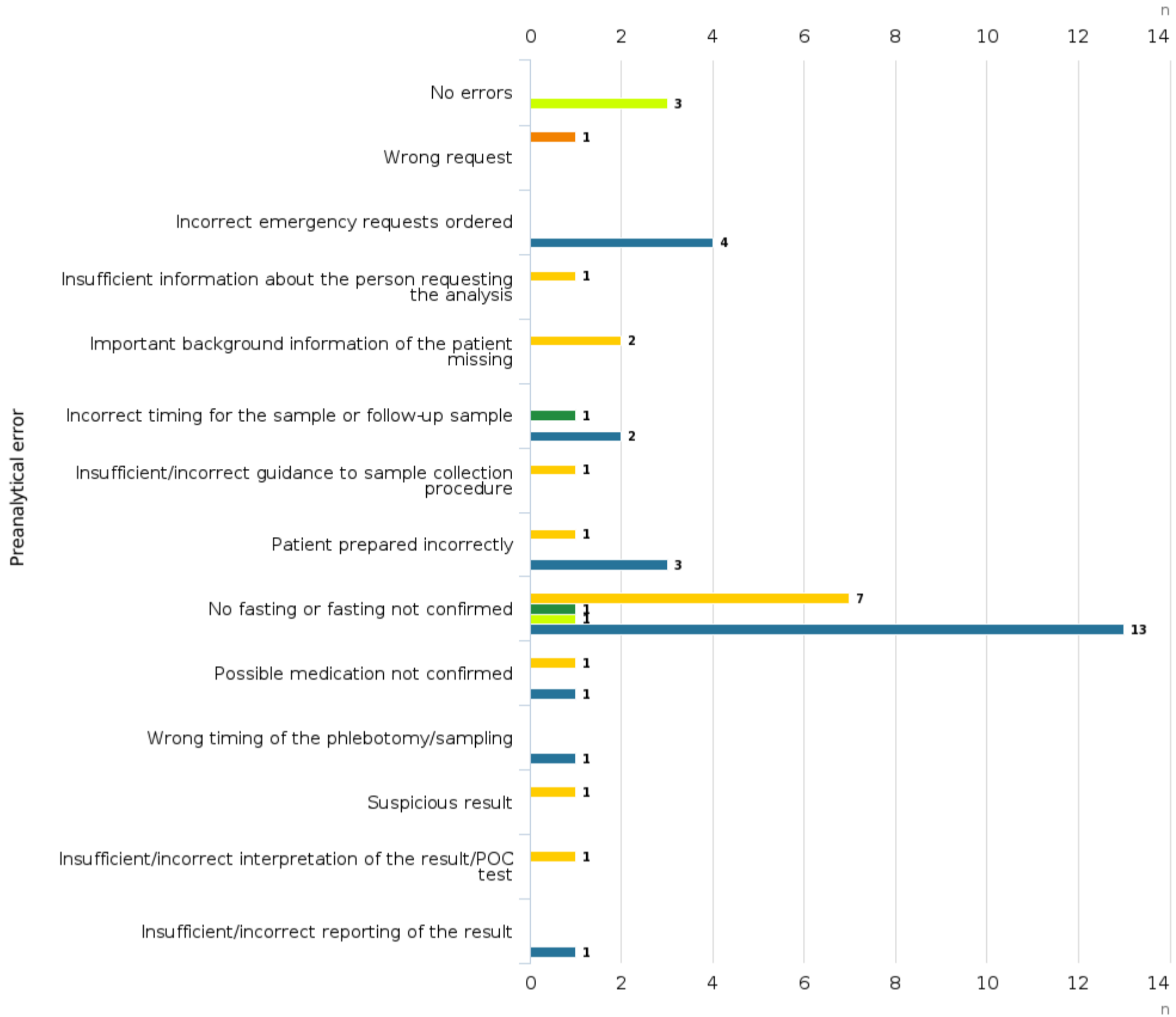


Case 1|What would you do?|Biomedical laboratory scientist/technician

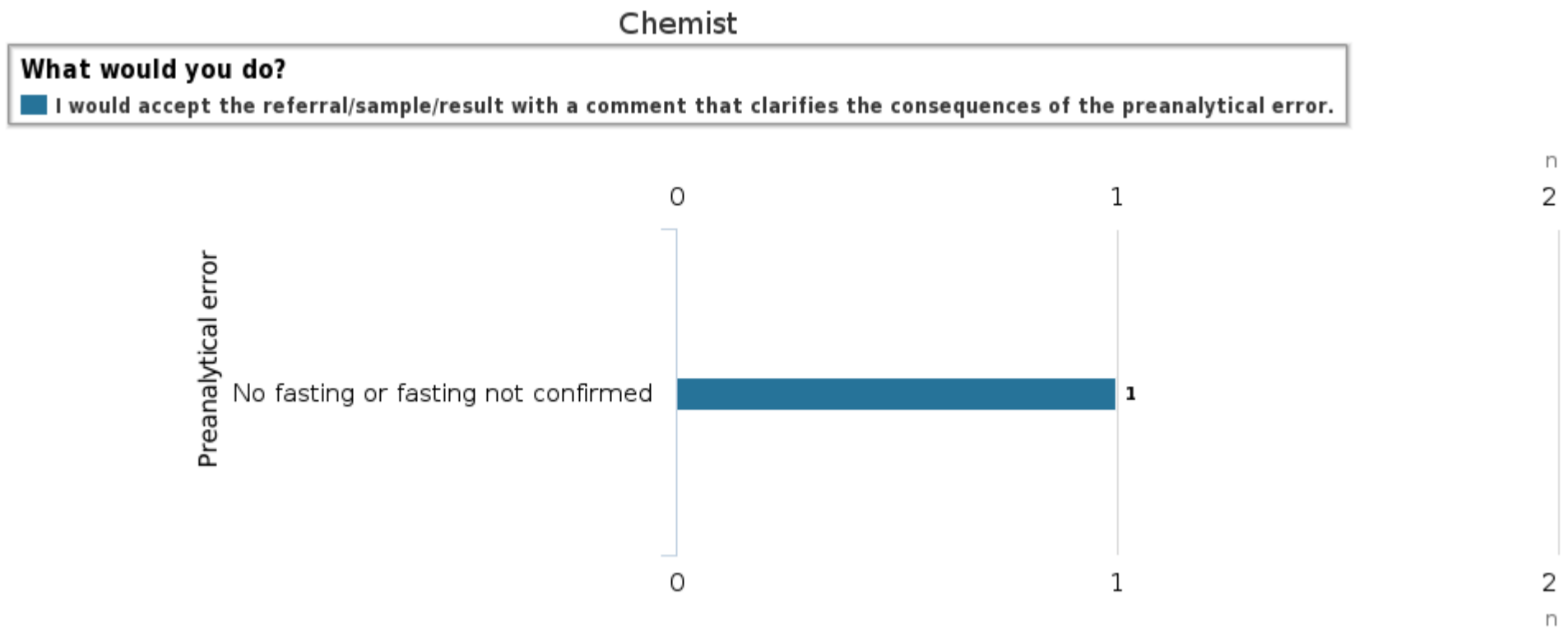
Biomedical laboratory scientist/technician

What would you do?

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Case 1|What would you do?|Chemist

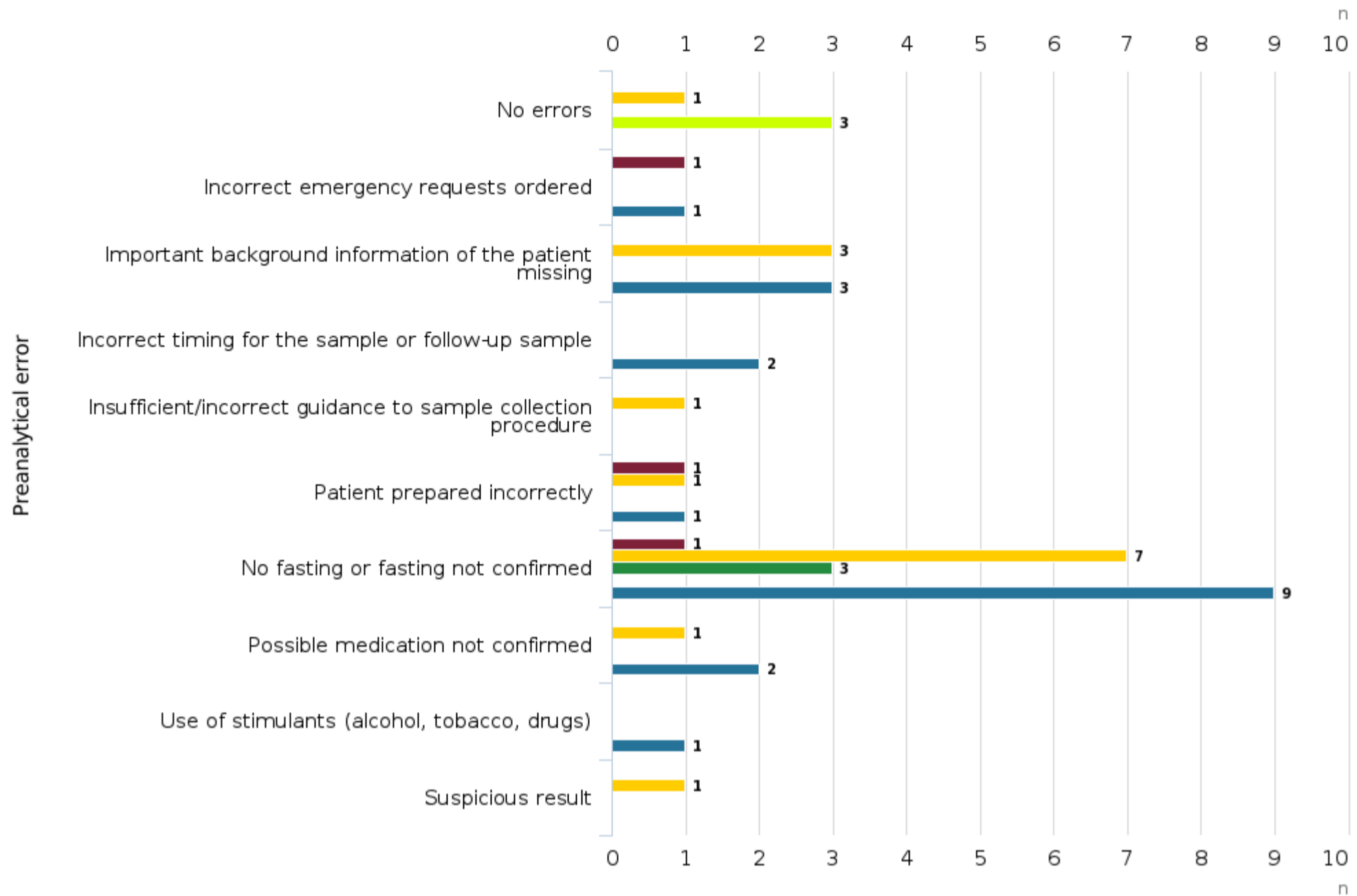


Case 1|What would you do?|Group reply

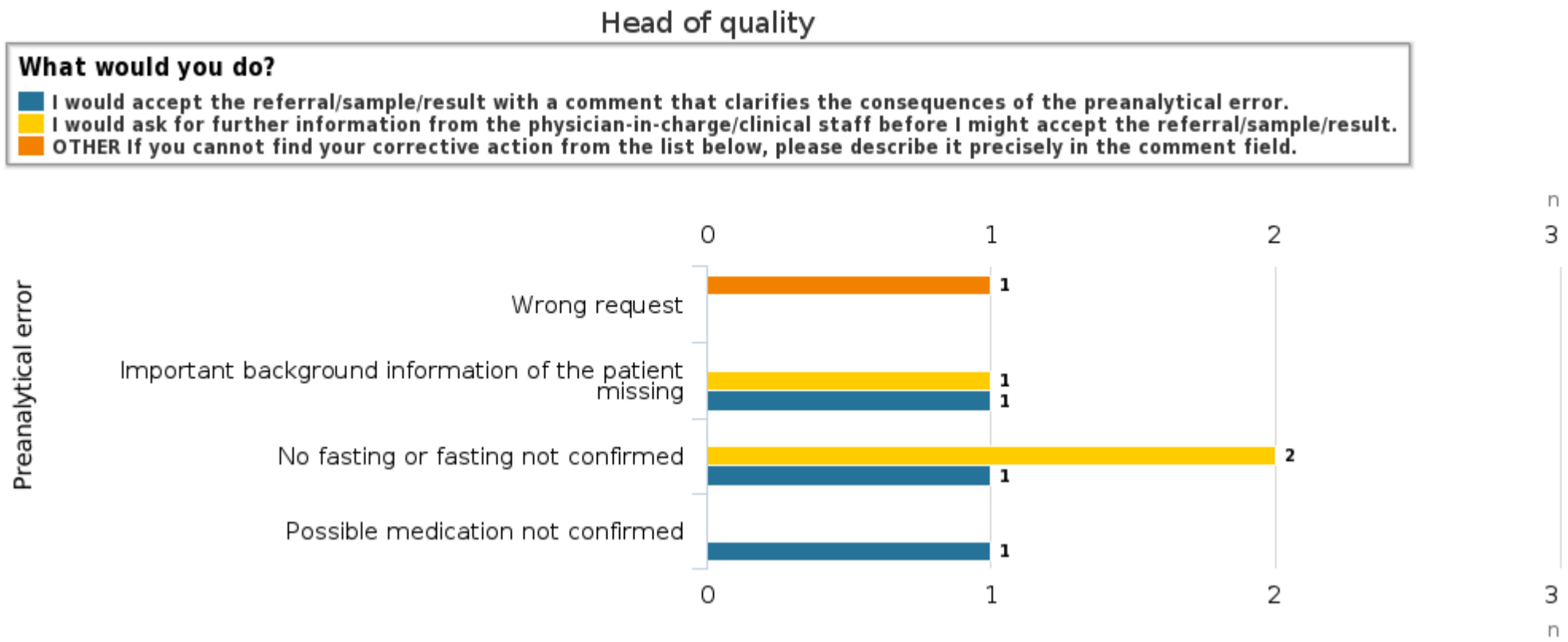
Group reply

What would you do?

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Case 1|What would you do?|Head of quality

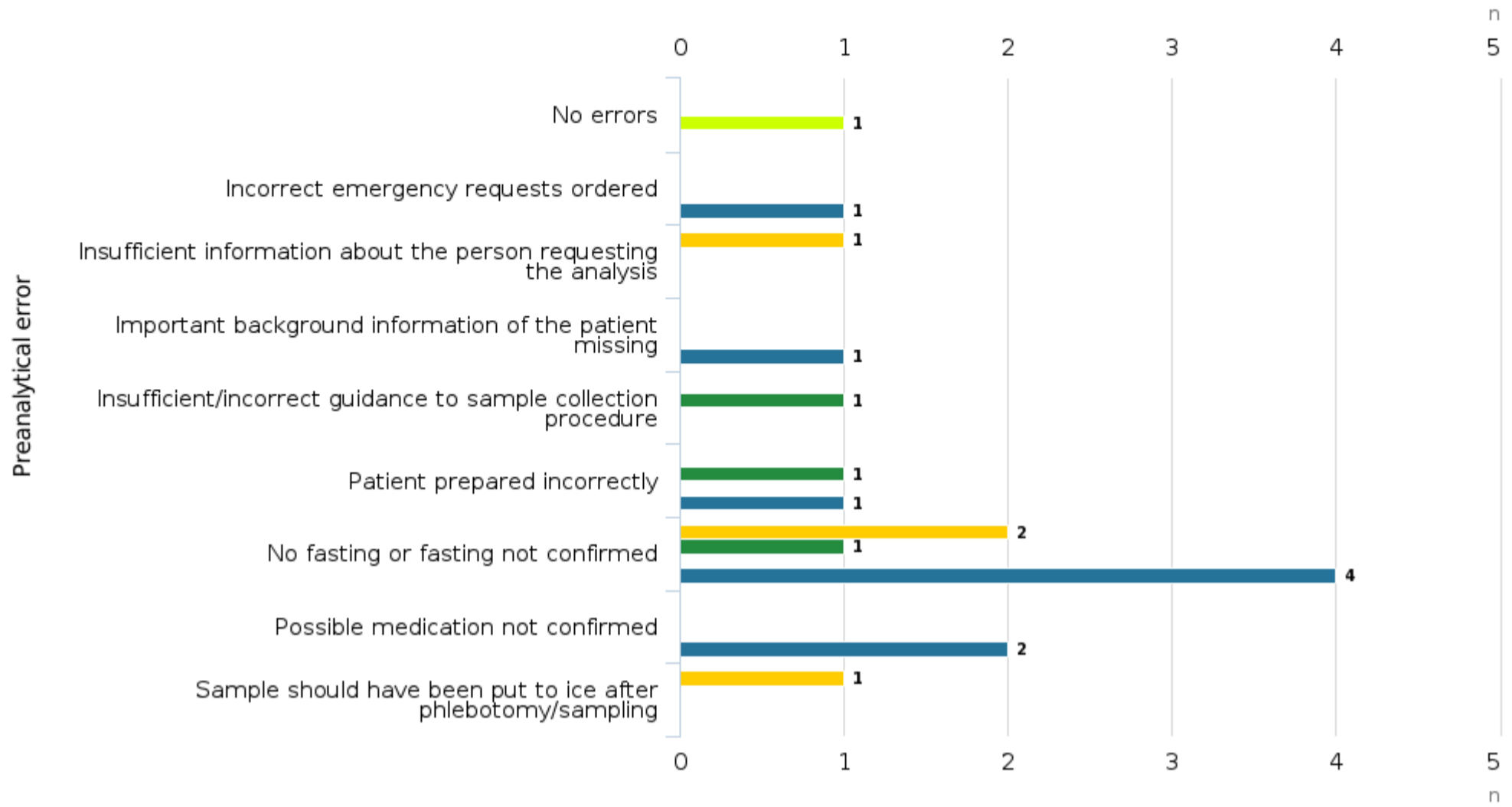


Case 1|What would you do?|Medical doctor (degree in lab.medicine)

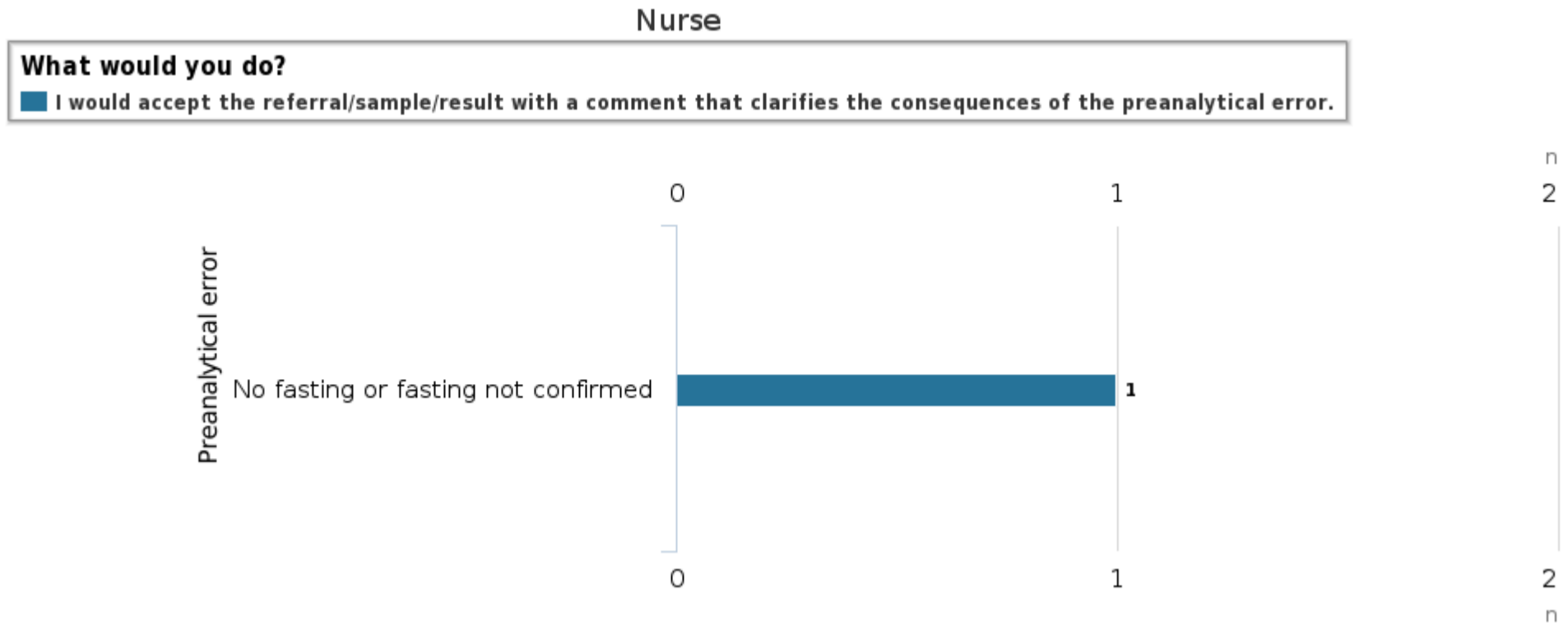
Medical doctor (degree in lab.medicine)

What would you do?

- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
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- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.



Case 1|What would you do?|Nurse

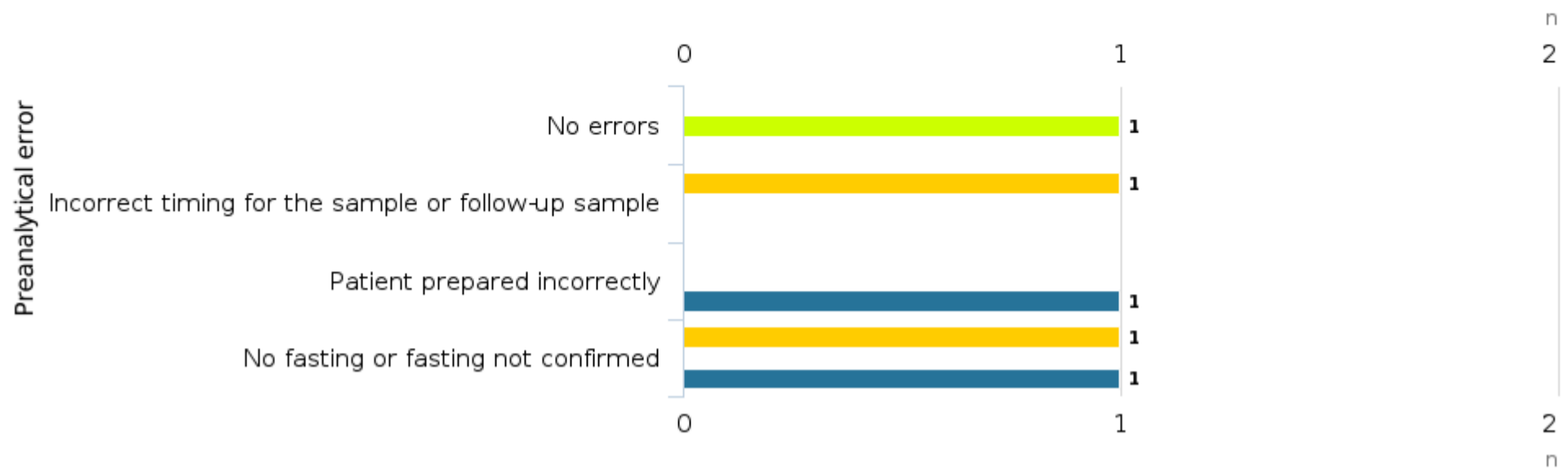


Case 1|What would you do?|Other, what?

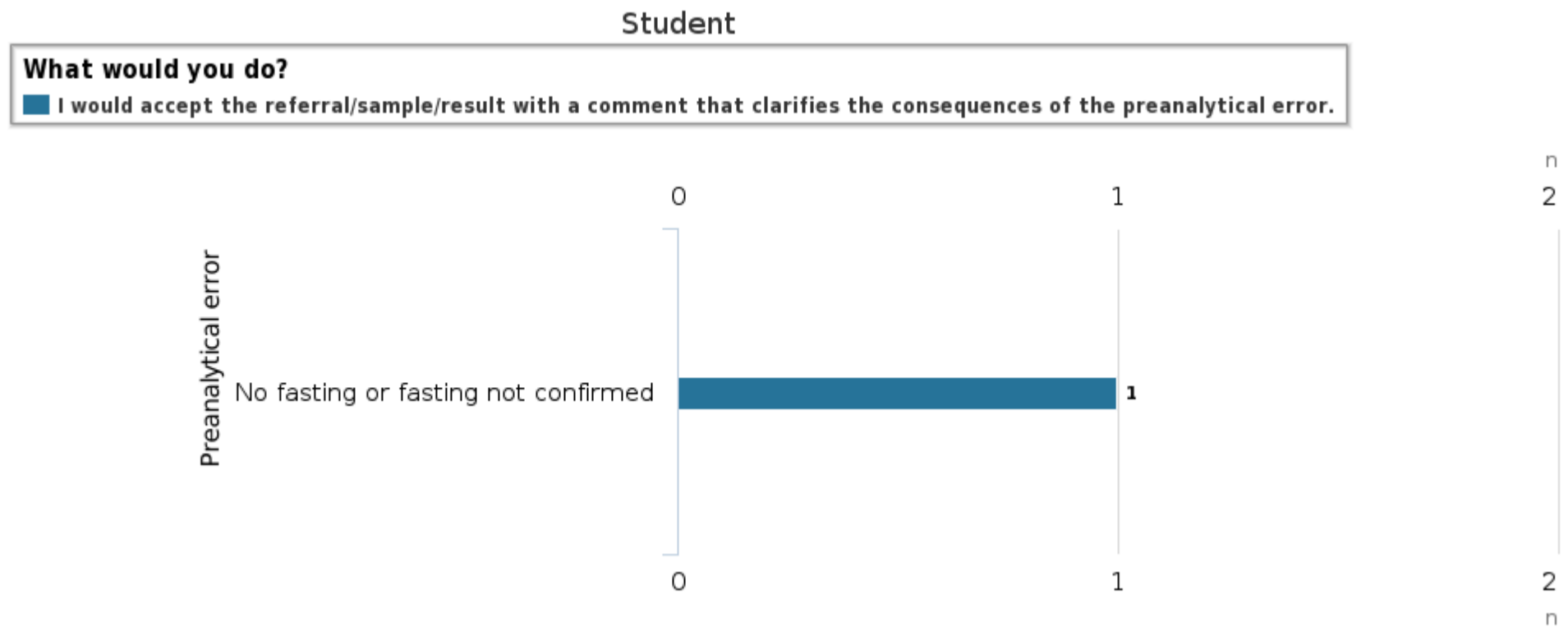
Other, what?

What would you do?

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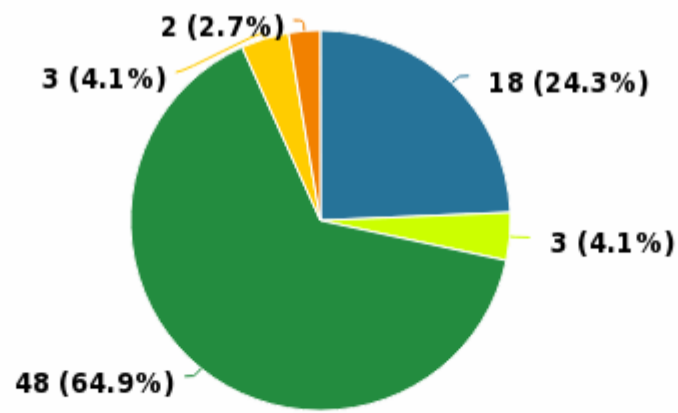


Case 1|What would you do?|Student

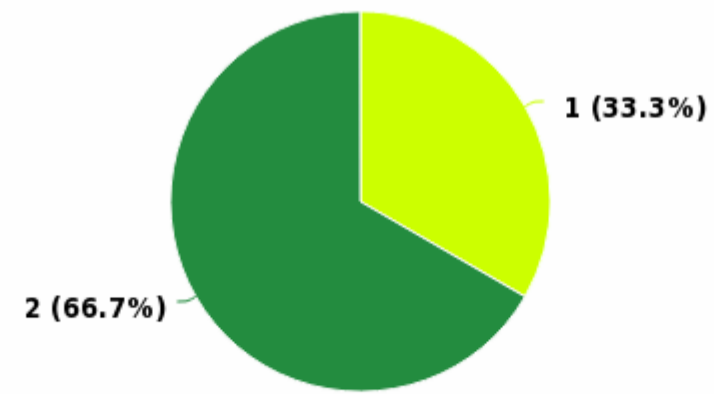


Case 2|What would you do?

All profession groups



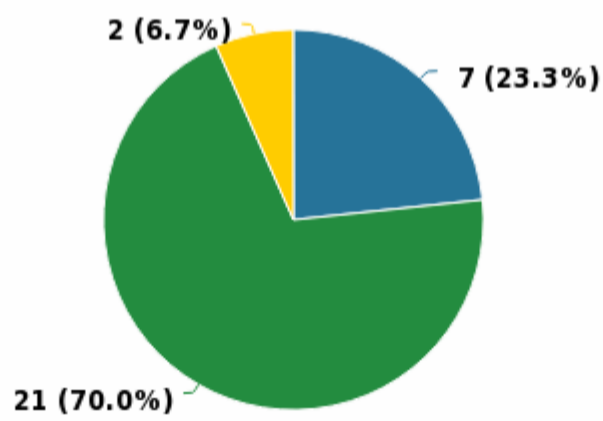
Assistant at laboratory



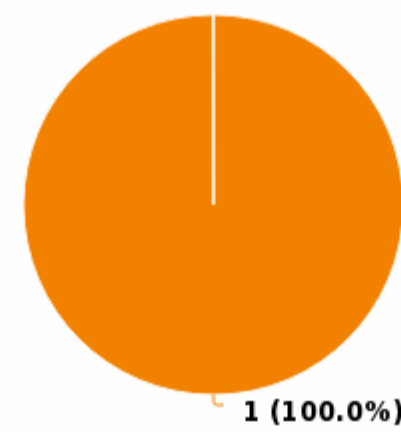
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
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- I would reject the sample for testing and ask for another sample.
- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

- I would accept the referral/sample/result without a comment.
- I would reject the sample for testing and ask for another sample.

Biomedical laboratory scientist/technician



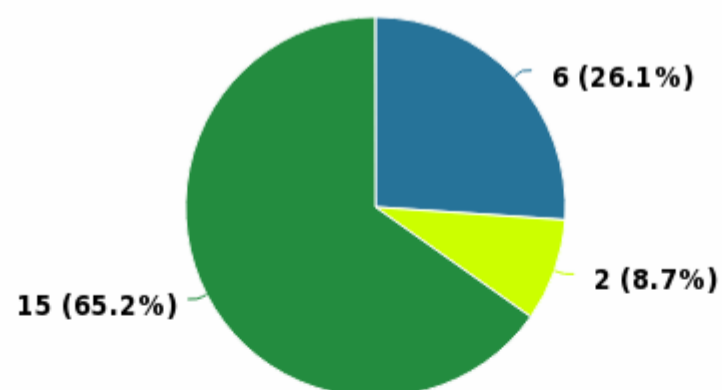
Chemist



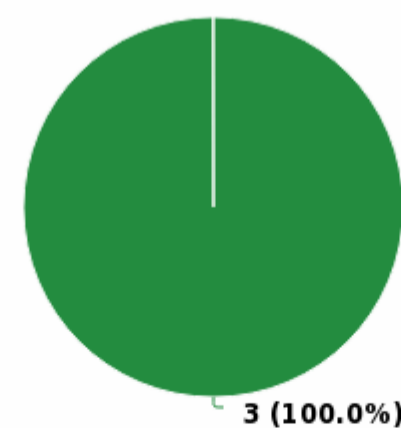
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
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- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Group reply



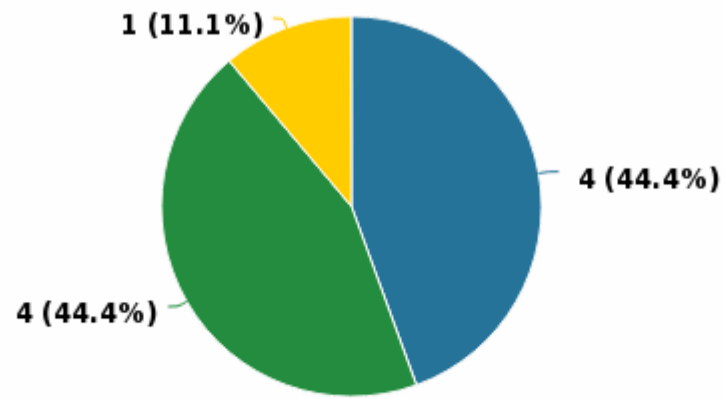
Head of quality



- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
- I would reject the sample for testing and ask for another sample.

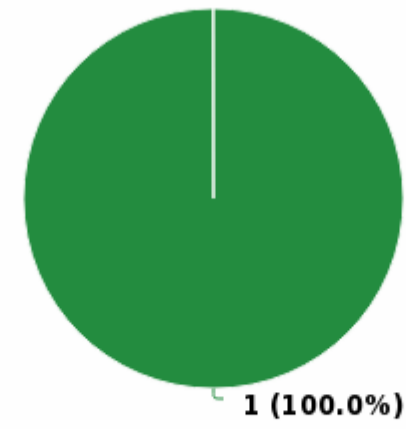
- I would reject the sample for testing and ask for another sample.

Medical doctor (degree in lab.medicine)



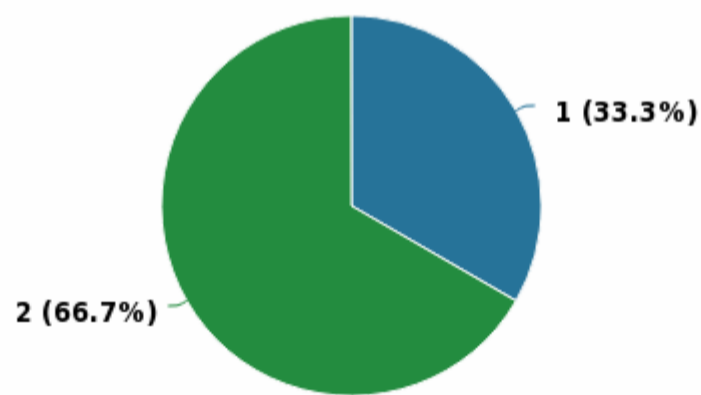
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would reject the sample for testing and ask for another sample.
- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.

Nurse



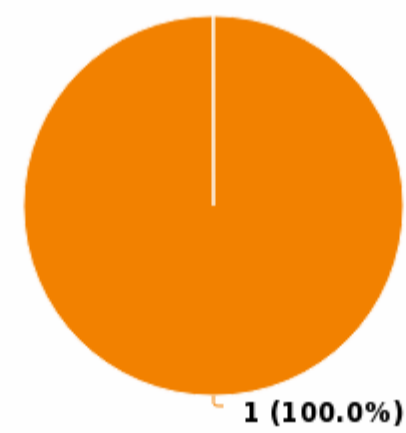
- I would reject the sample for testing and ask for another sample.

Other, what?



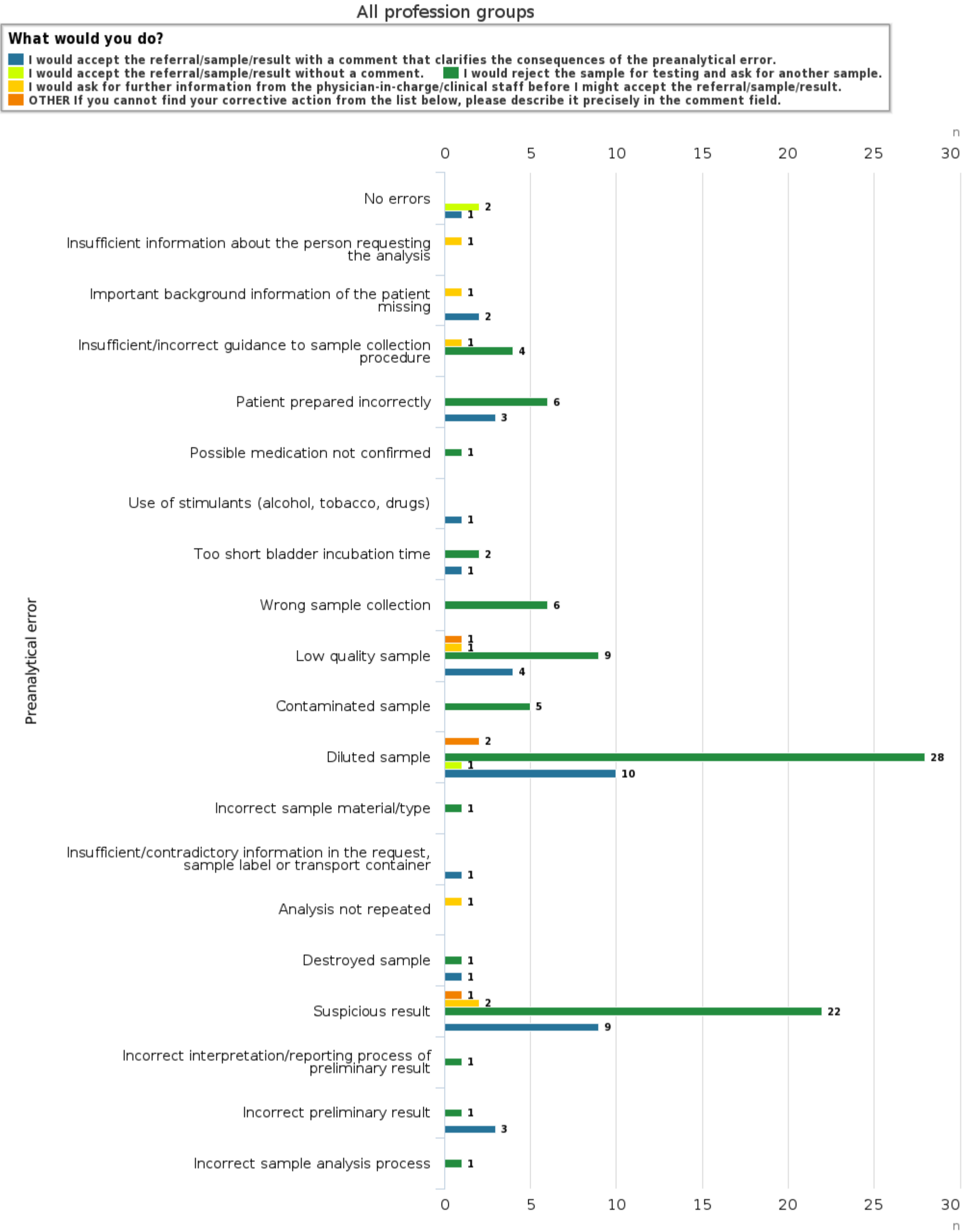
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would reject the sample for testing and ask for another sample.

Student



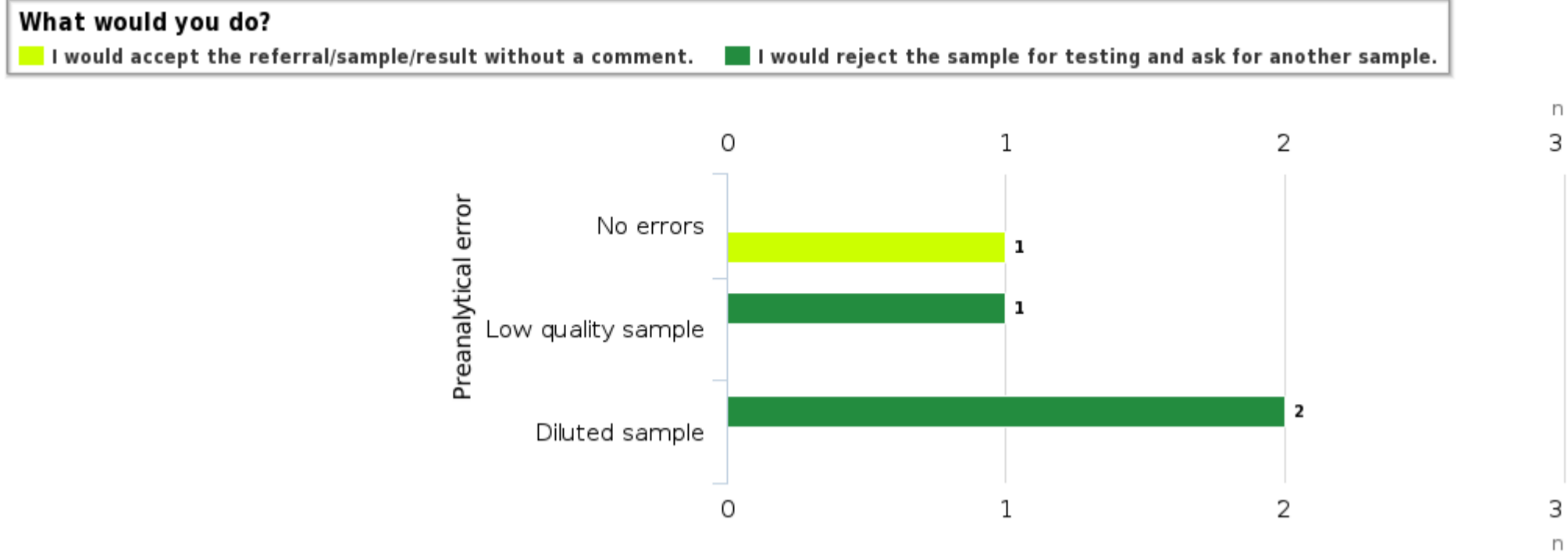
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Case 2|What would you do?|All profession groups

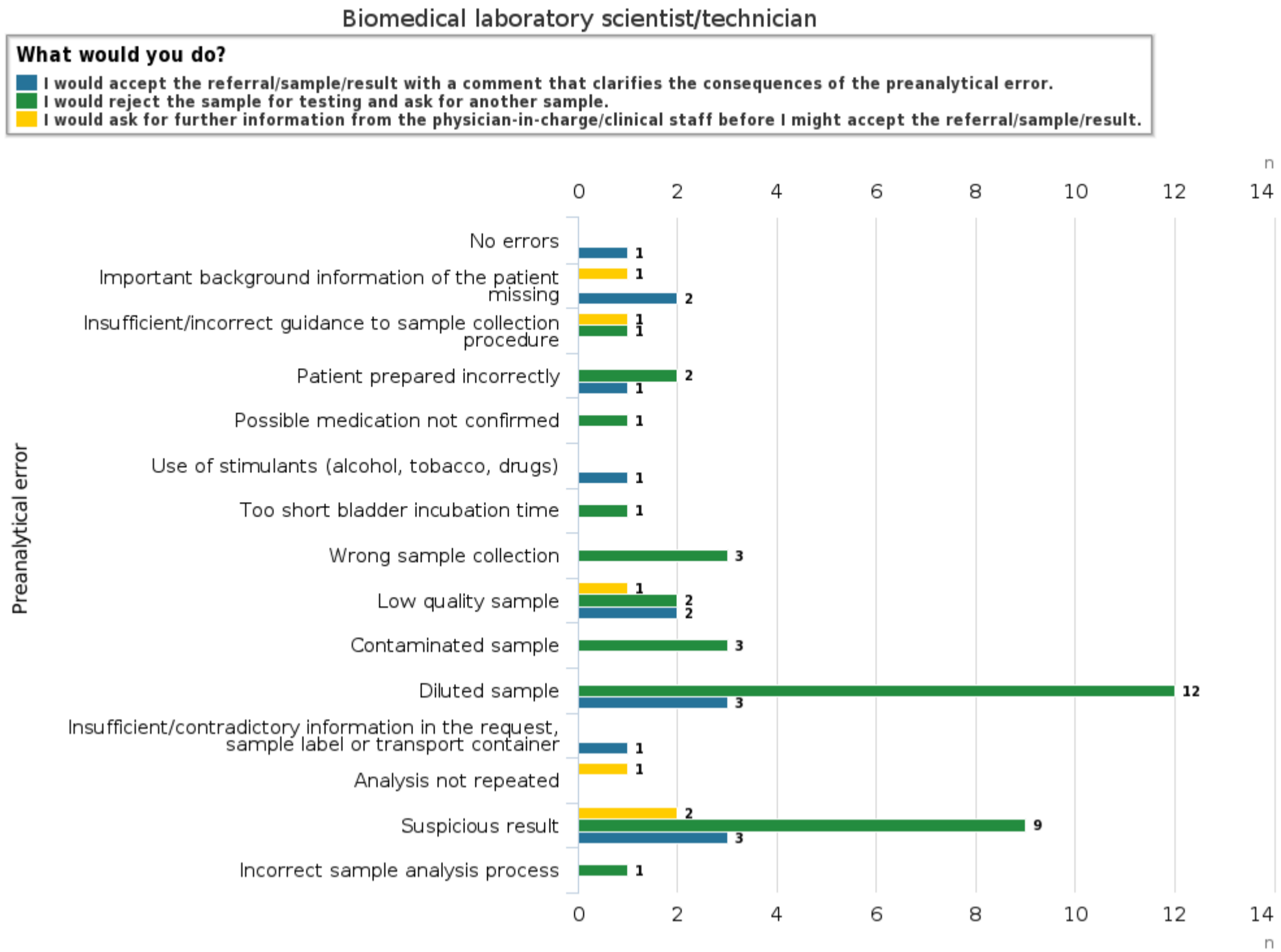


Case 2|What would you do?|Assistant at laboratory

Assistant at laboratory



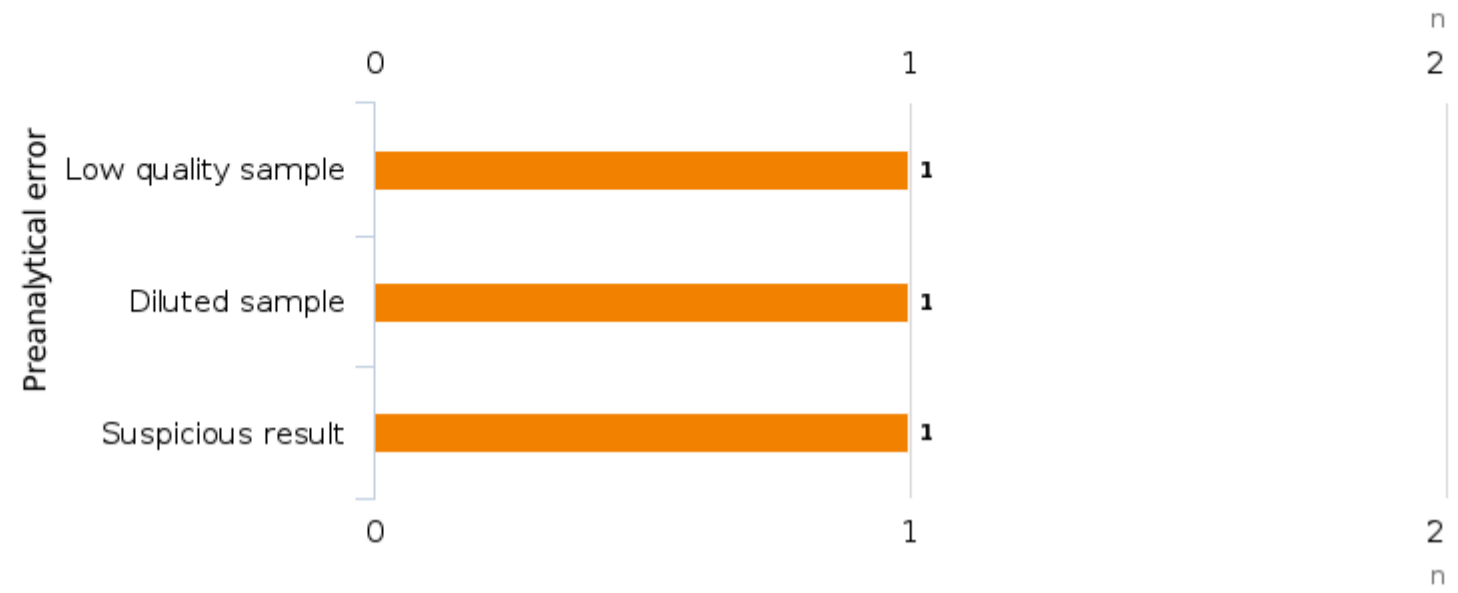
Case 2|What would you do?|Biomedical laboratory scientist/technician



Case 2|What would you do?|Chemist

Chemist

What would you do?
 ■ OTHER if you cannot find your corrective action from the list below, please describe it precisely in the comment field.

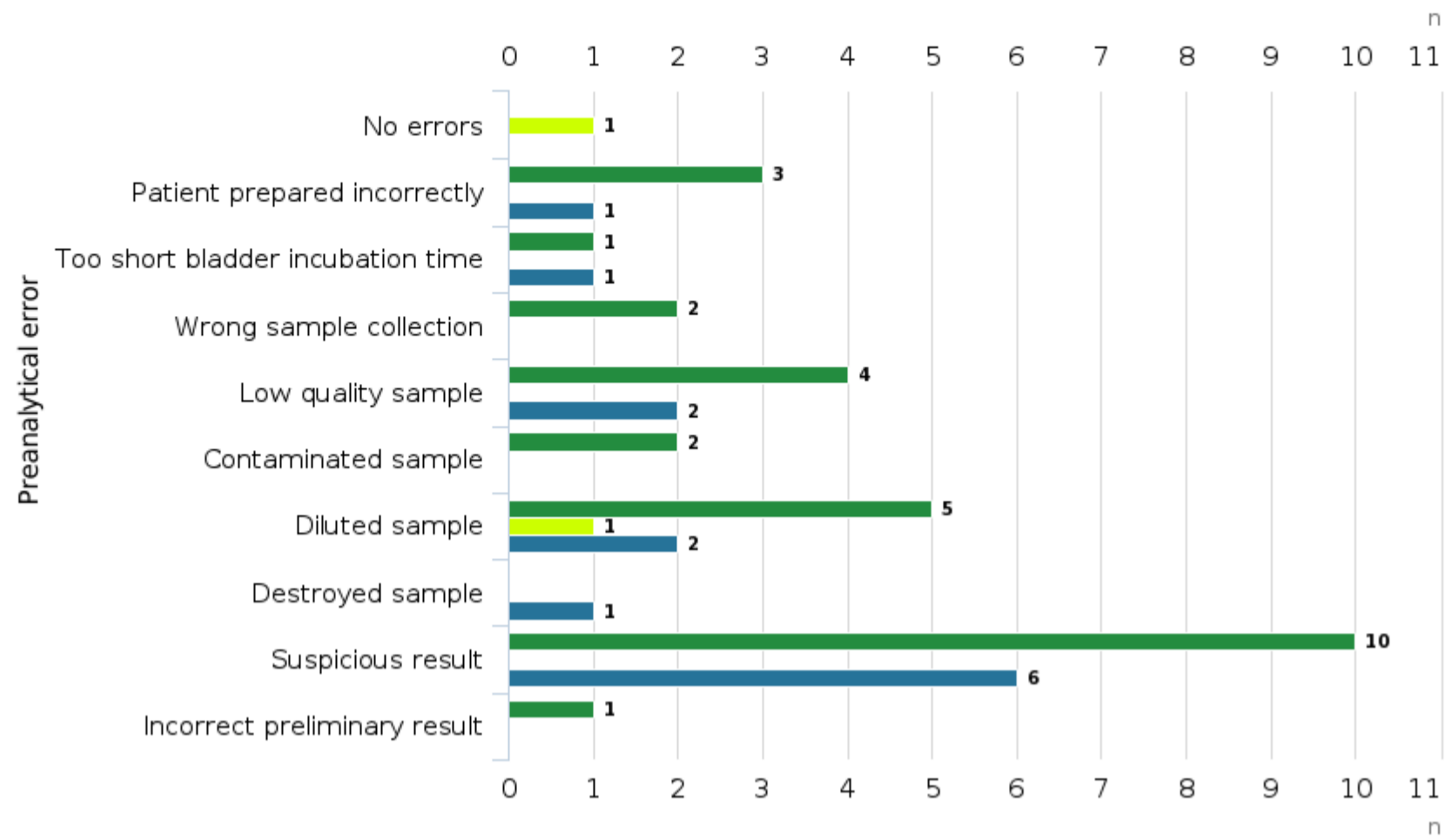


Case 2|What would you do?|Group reply

Group reply

What would you do?

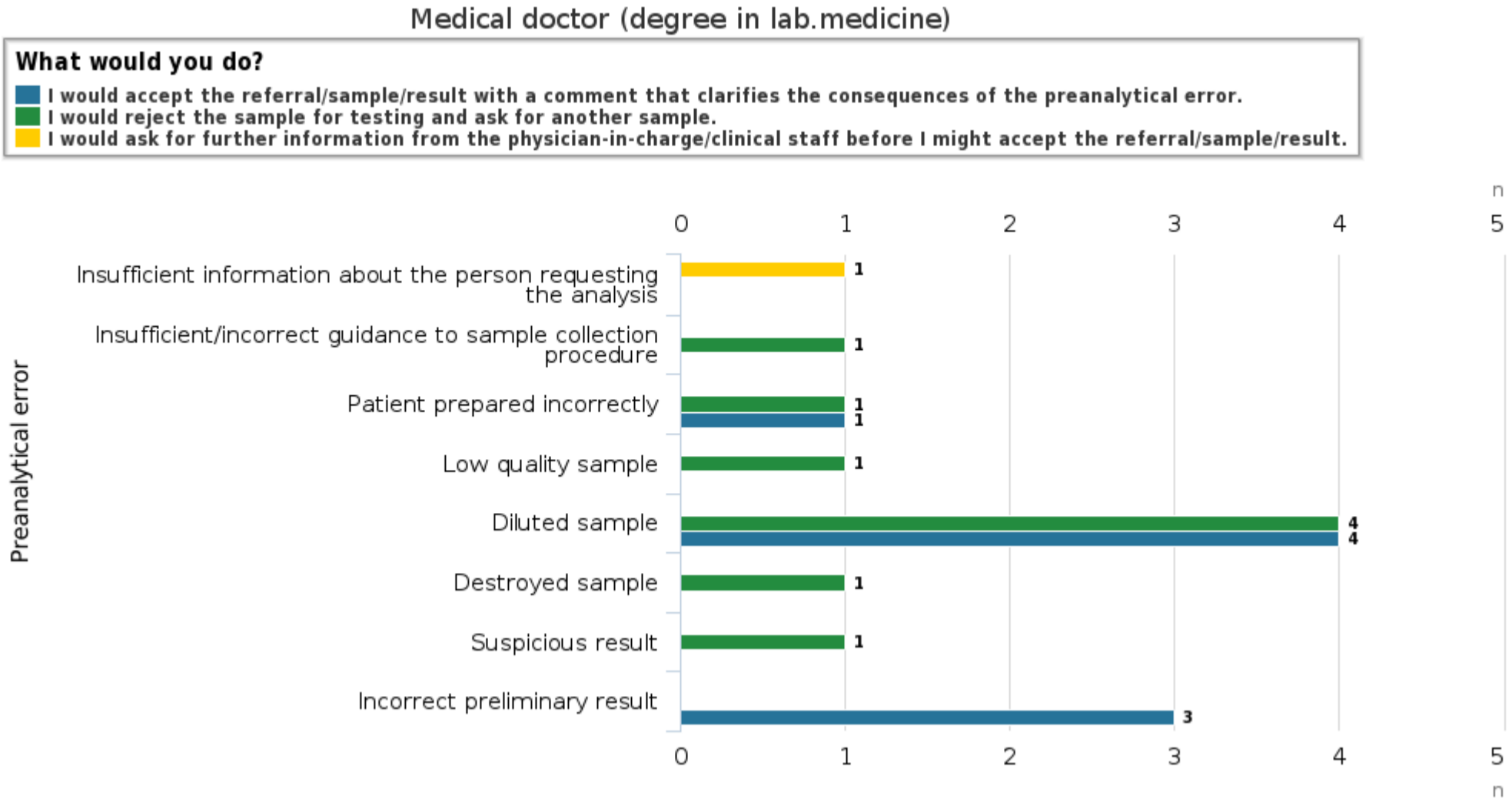
■ I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
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 ■ I would accept the referral/sample/result without a comment.



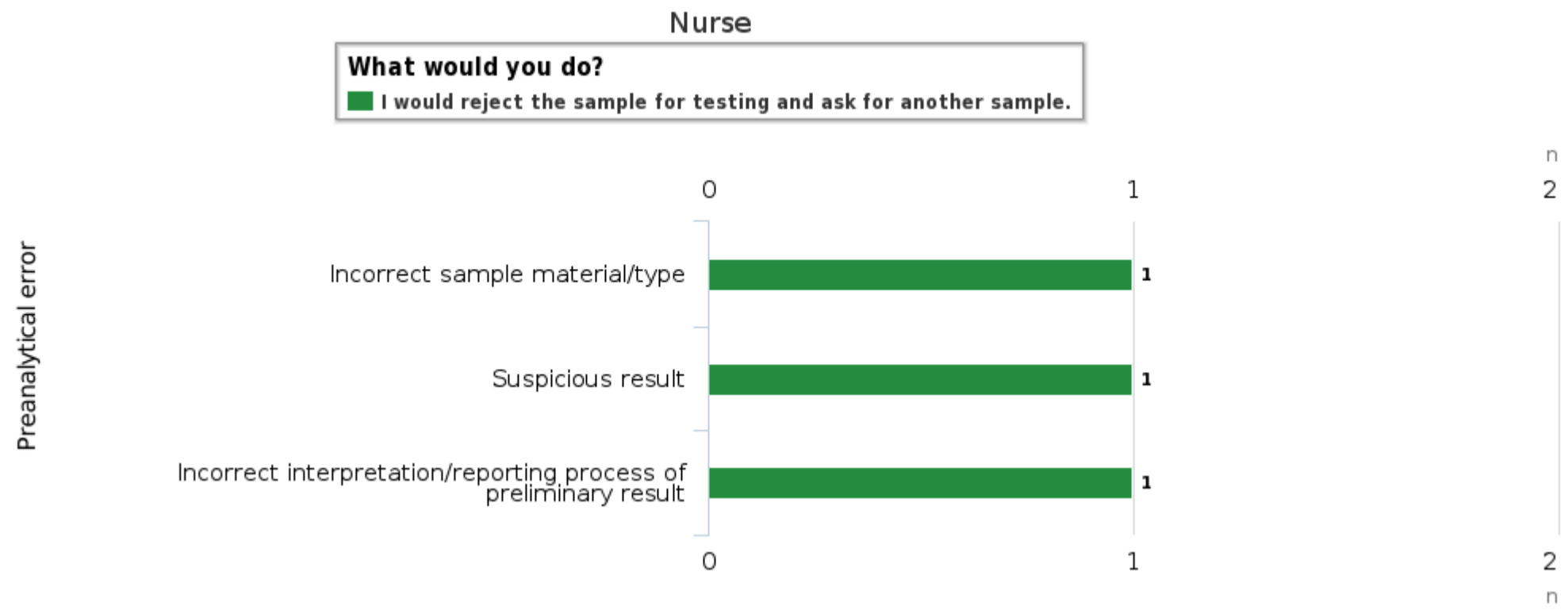
Case 2|What would you do?|Head of quality



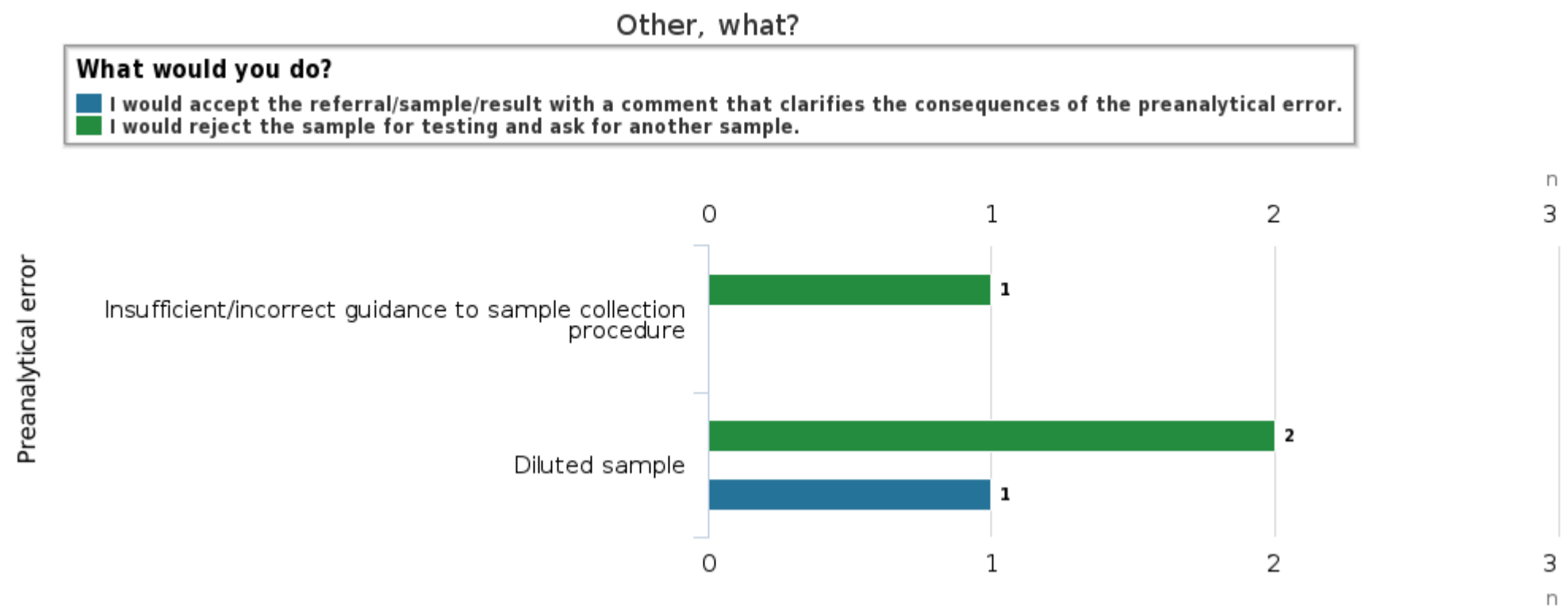
Case 2|What would you do?|Medical doctor (degree in lab.medicine)



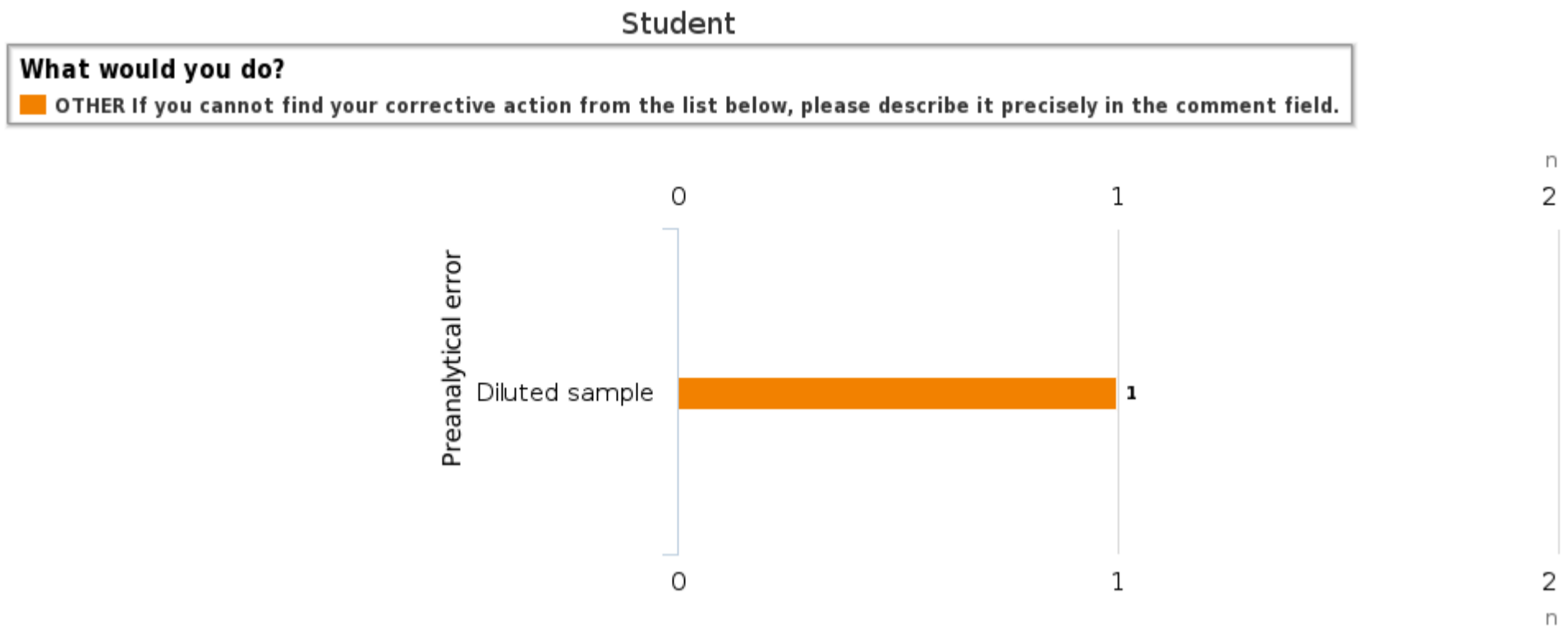
Case 2|What would you do?|Nurse



Case 2|What would you do?|Other, what?

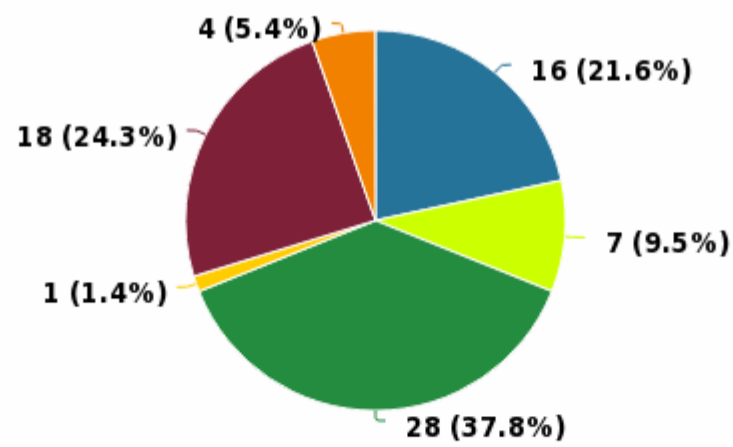


Case 2|What would you do?|Student



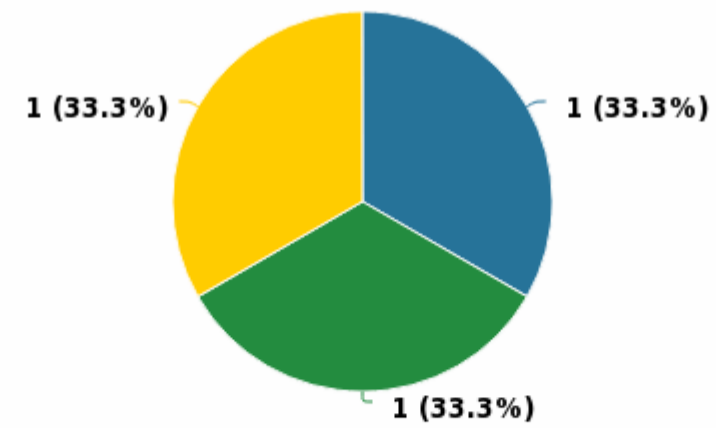
Case 3|What would you do?

All profession groups



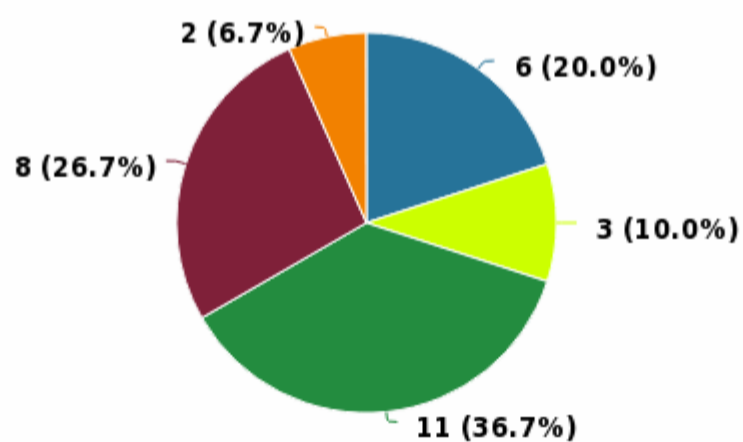
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
- I would reject the sample for testing and ask for another sample.
- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.
- I accept some of the samples and reject some.
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Assistant at laboratory



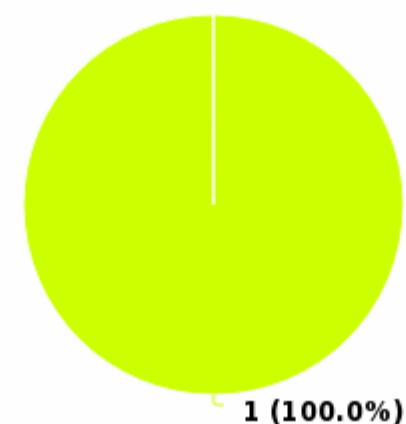
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Biomedical laboratory scientist/technician



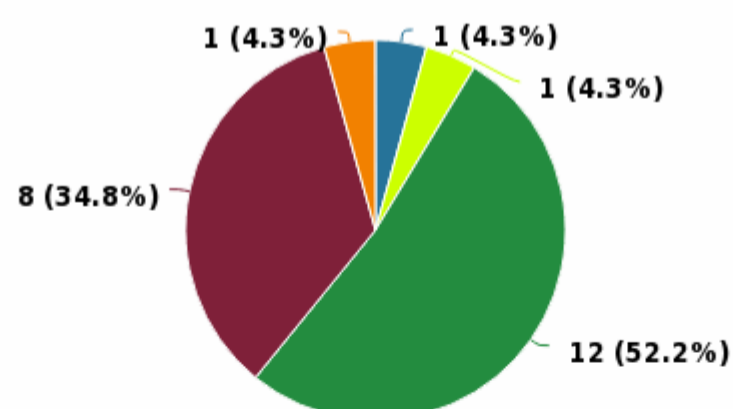
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
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- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Chemist



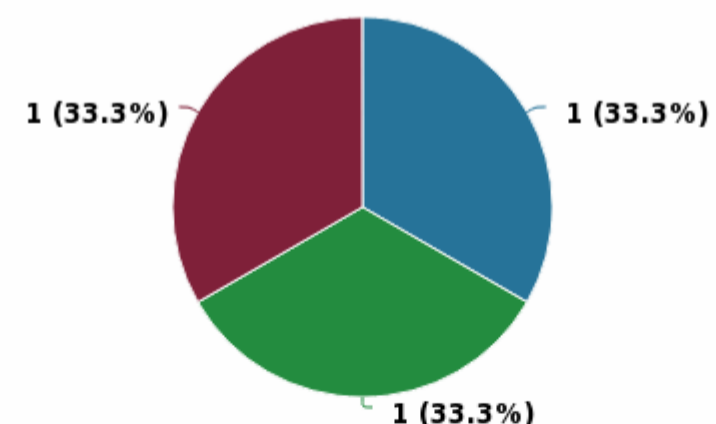
- I would accept the referral/sample/result without a comment.

Group reply



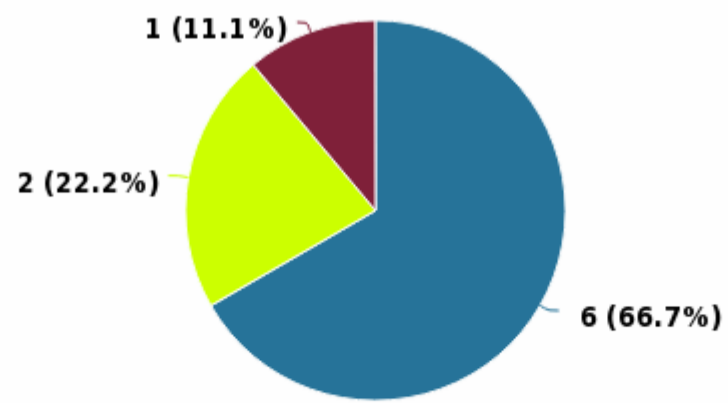
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Head of quality



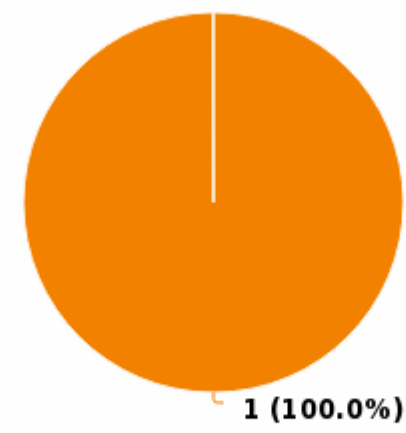
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
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Medical doctor (degree in lab.medicine)



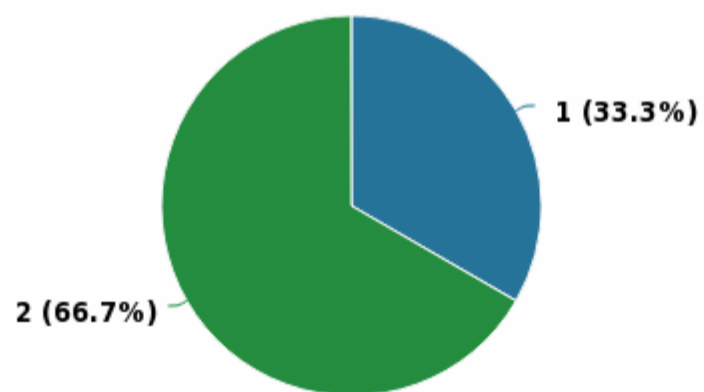
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
- I accept some of the samples and reject some.

Nurse



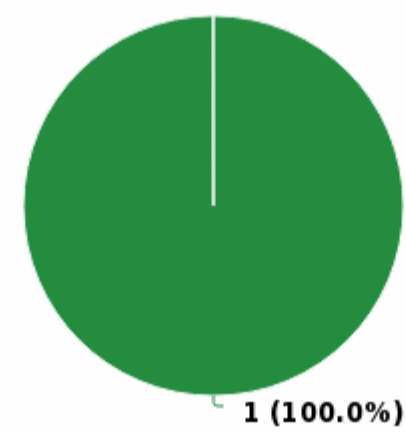
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.

Other, what?



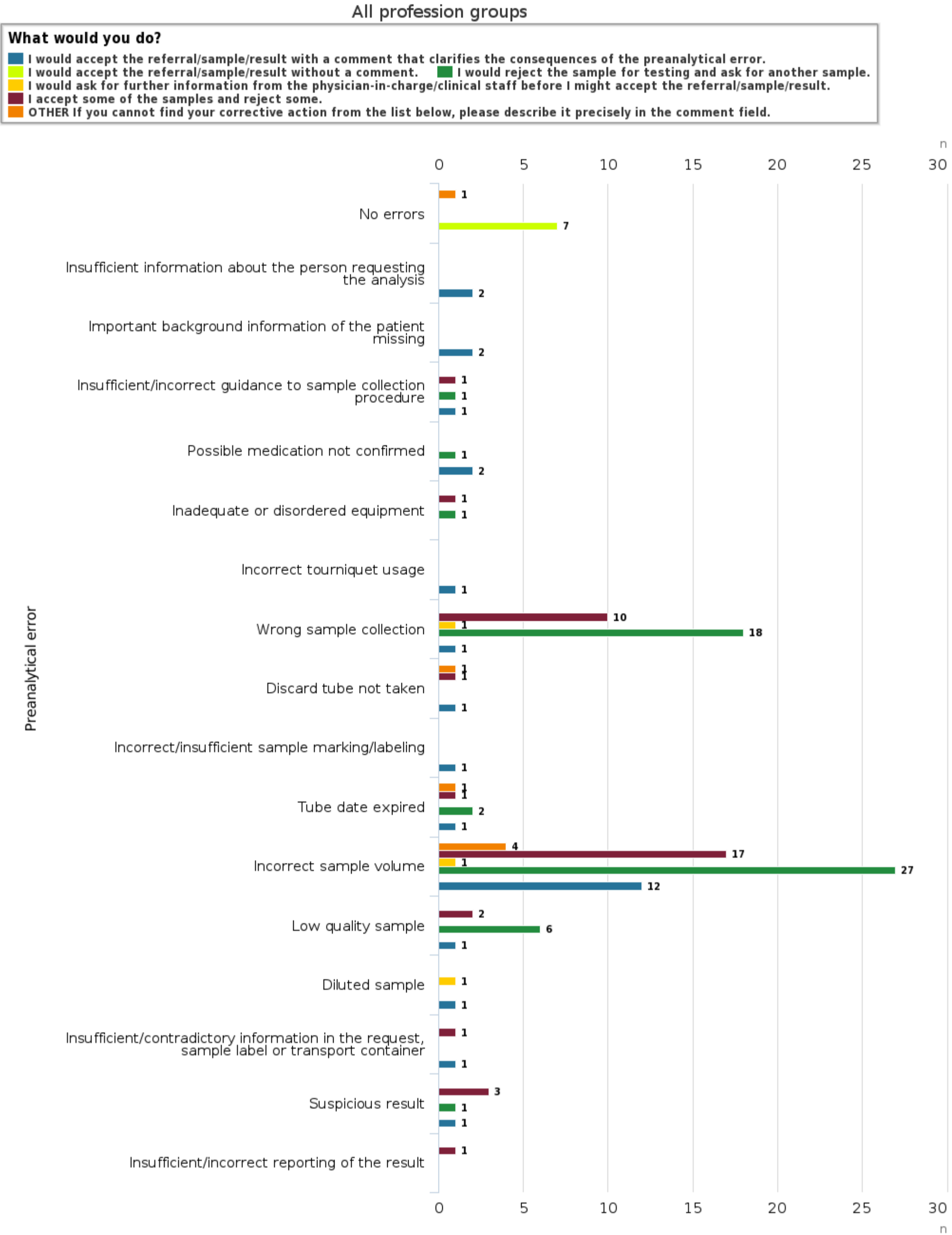
- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would reject the sample for testing and ask for another sample.

Student



- I would reject the sample for testing and ask for another sample.

Case 3|What would you do?|All profession groups

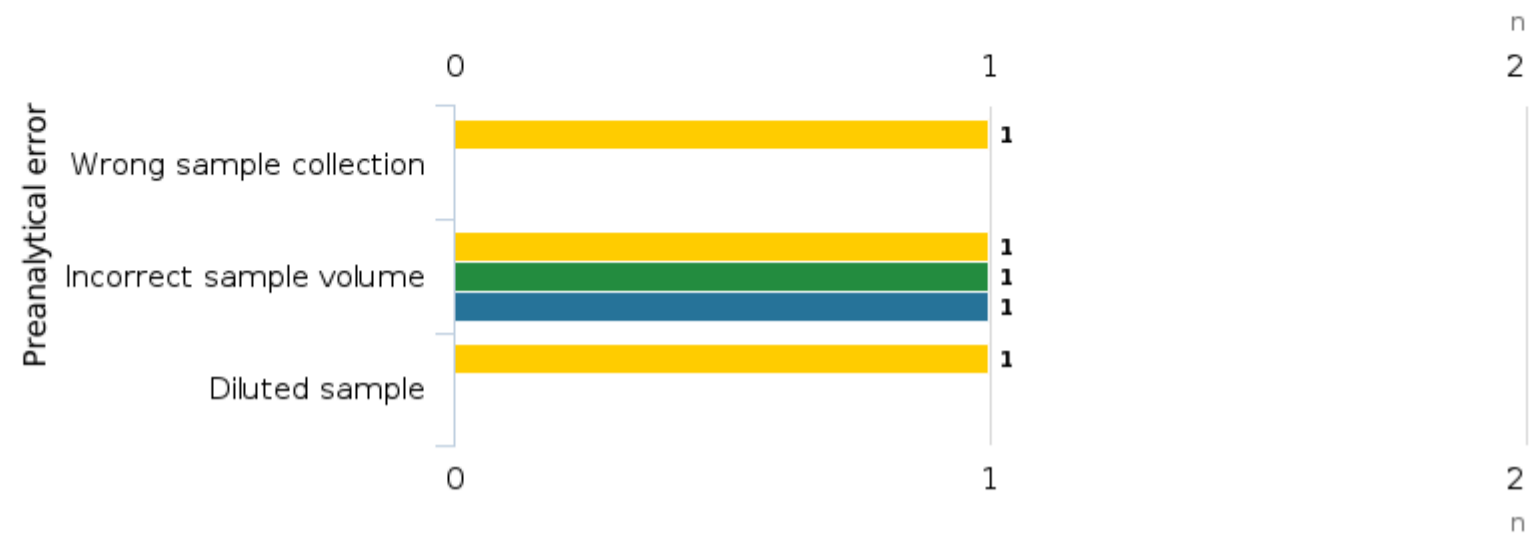


Case 3|What would you do?|Assistant at laboratory

Assistant at laboratory

What would you do?

- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would reject the sample for testing and ask for another sample.
- I would ask for further information from the physician-in-charge/clinical staff before I might accept the referral/sample/result.

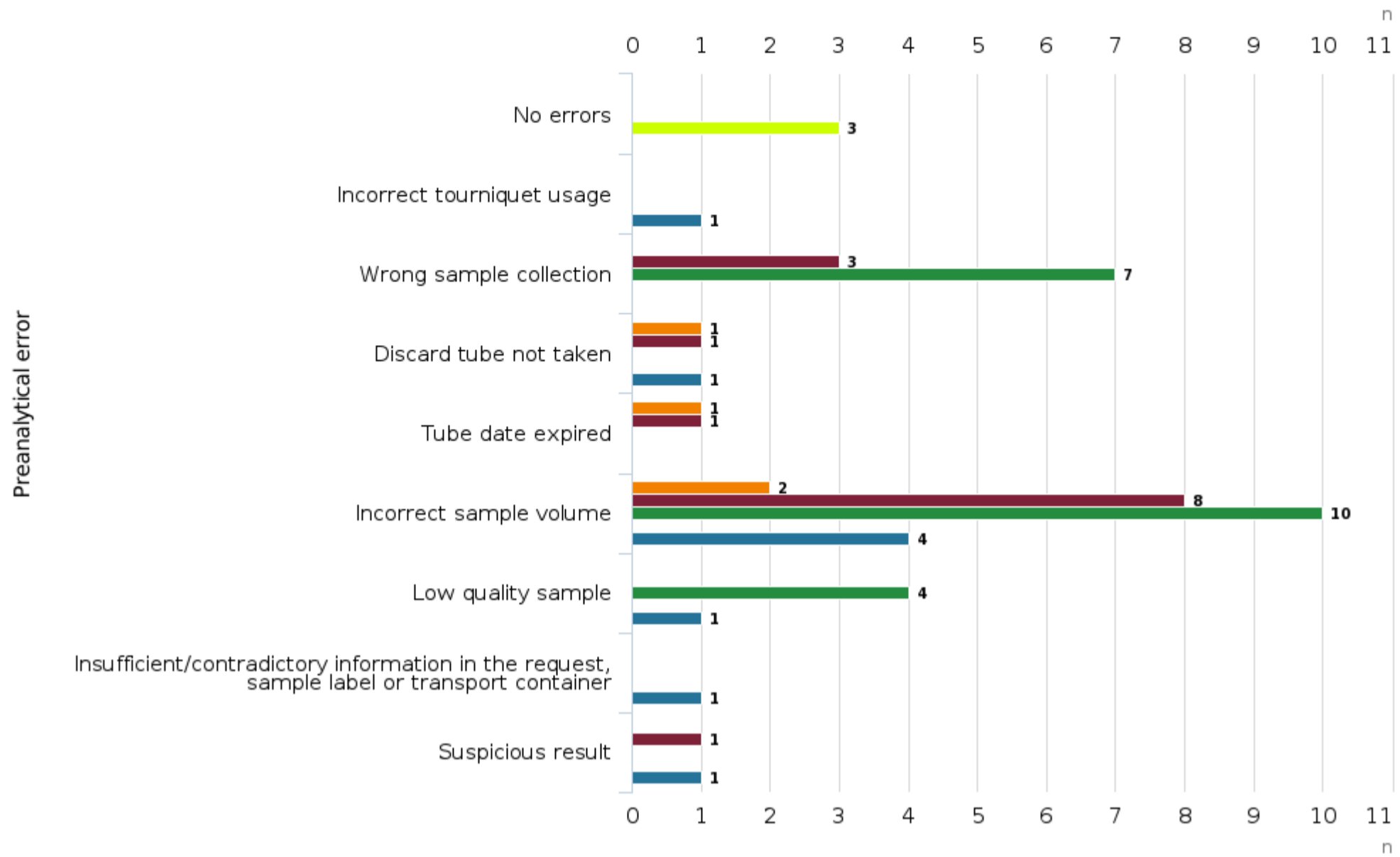


Case 3|What would you do?|Biomedical laboratory scientist/technician

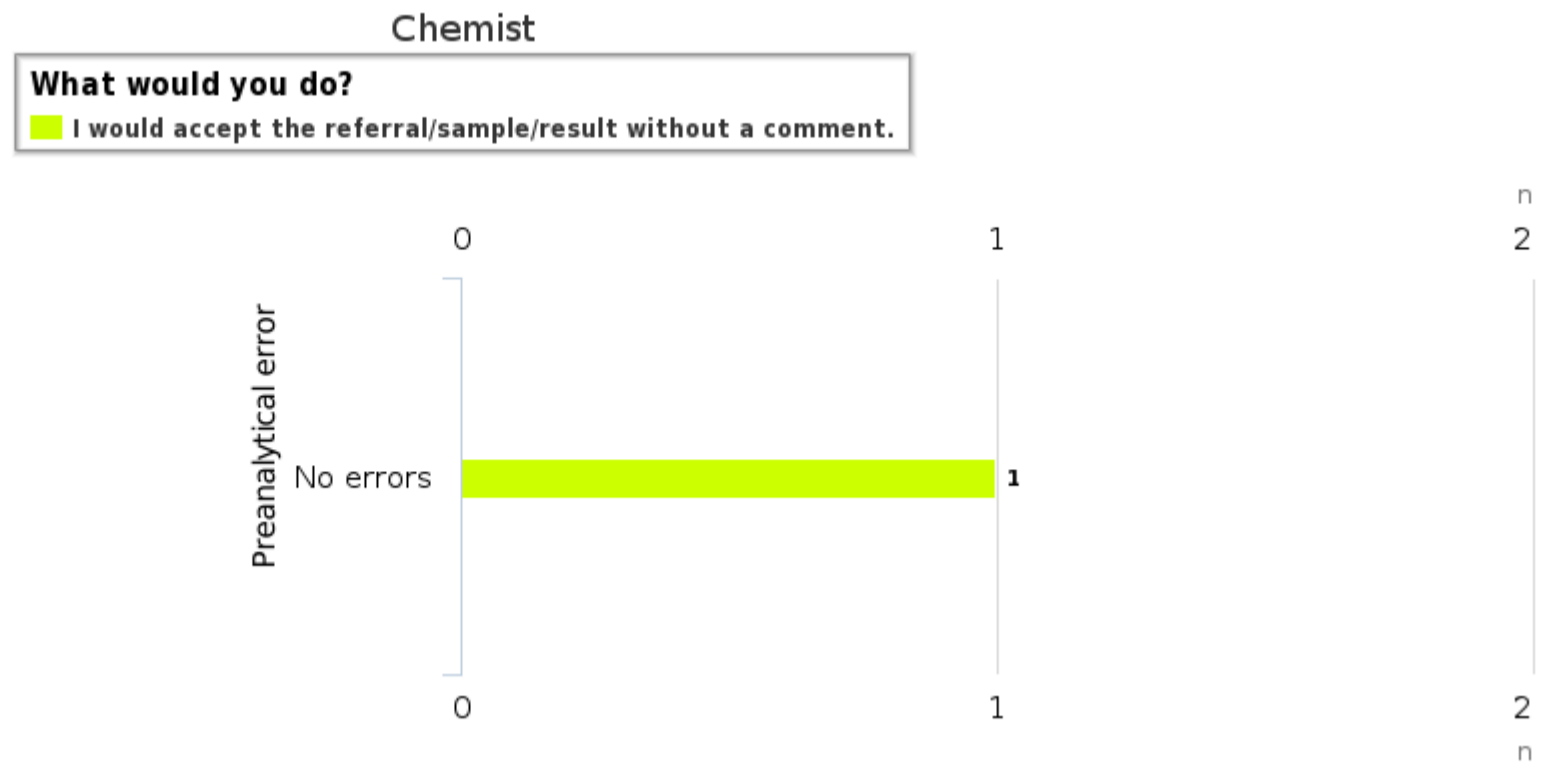
Biomedical laboratory scientist/technician

What would you do?

- I would accept the referral/sample/result with a comment that clarifies the consequences of the preanalytical error.
- I would accept the referral/sample/result without a comment.
- I would reject the sample for testing and ask for another sample.
- I accept some of the samples and reject some.
- OTHER If you cannot find your corrective action from the list below, please describe it precisely in the comment field.



Case 3|What would you do?|Chemist

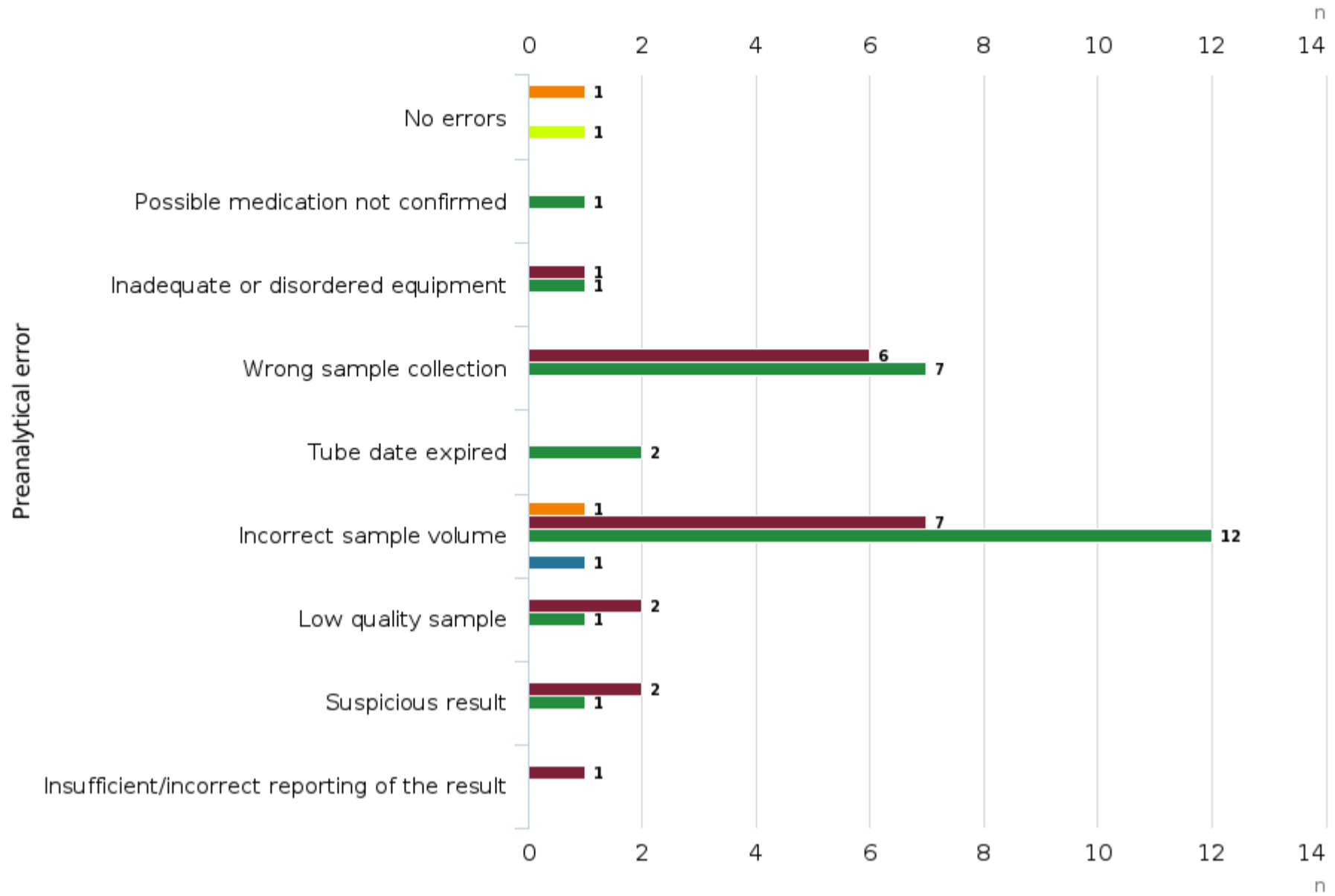


Case 3|What would you do?|Group reply

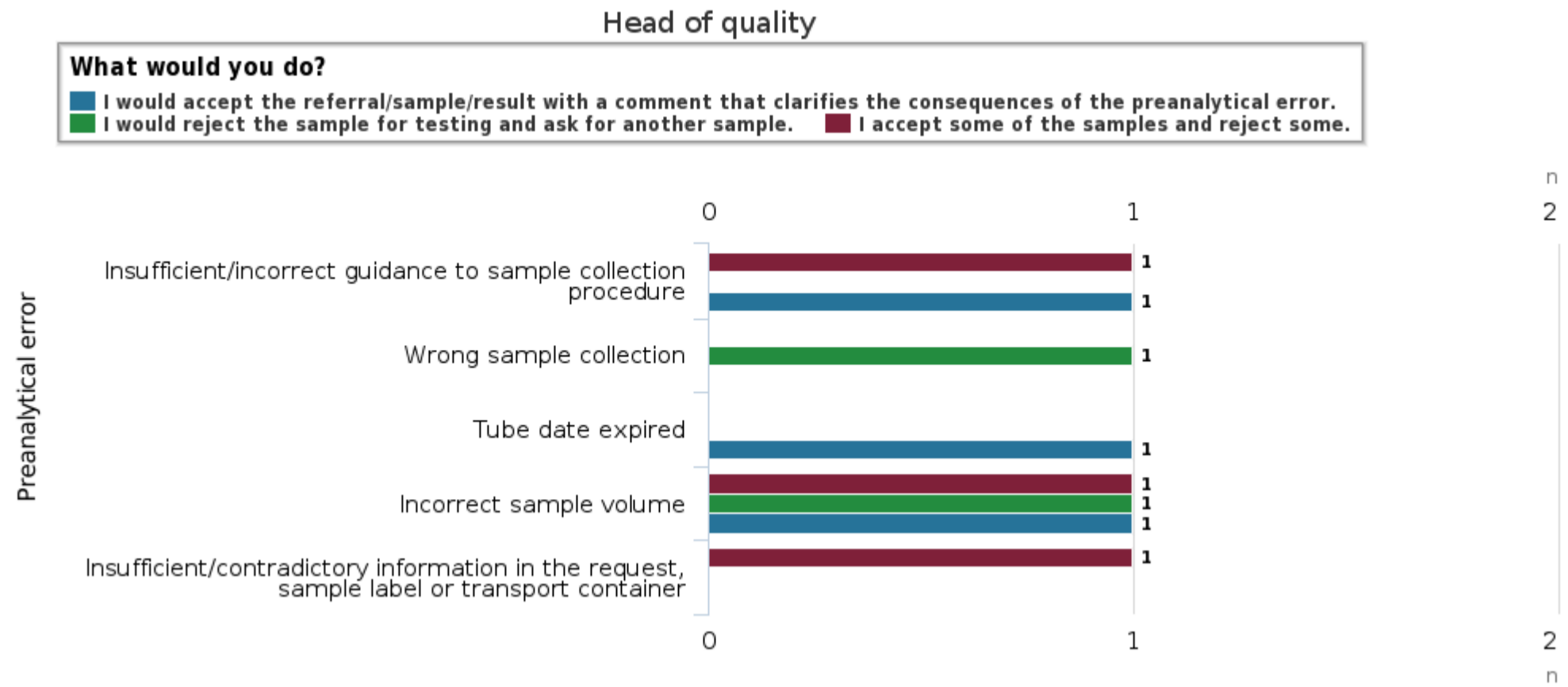
Group reply

What would you do?

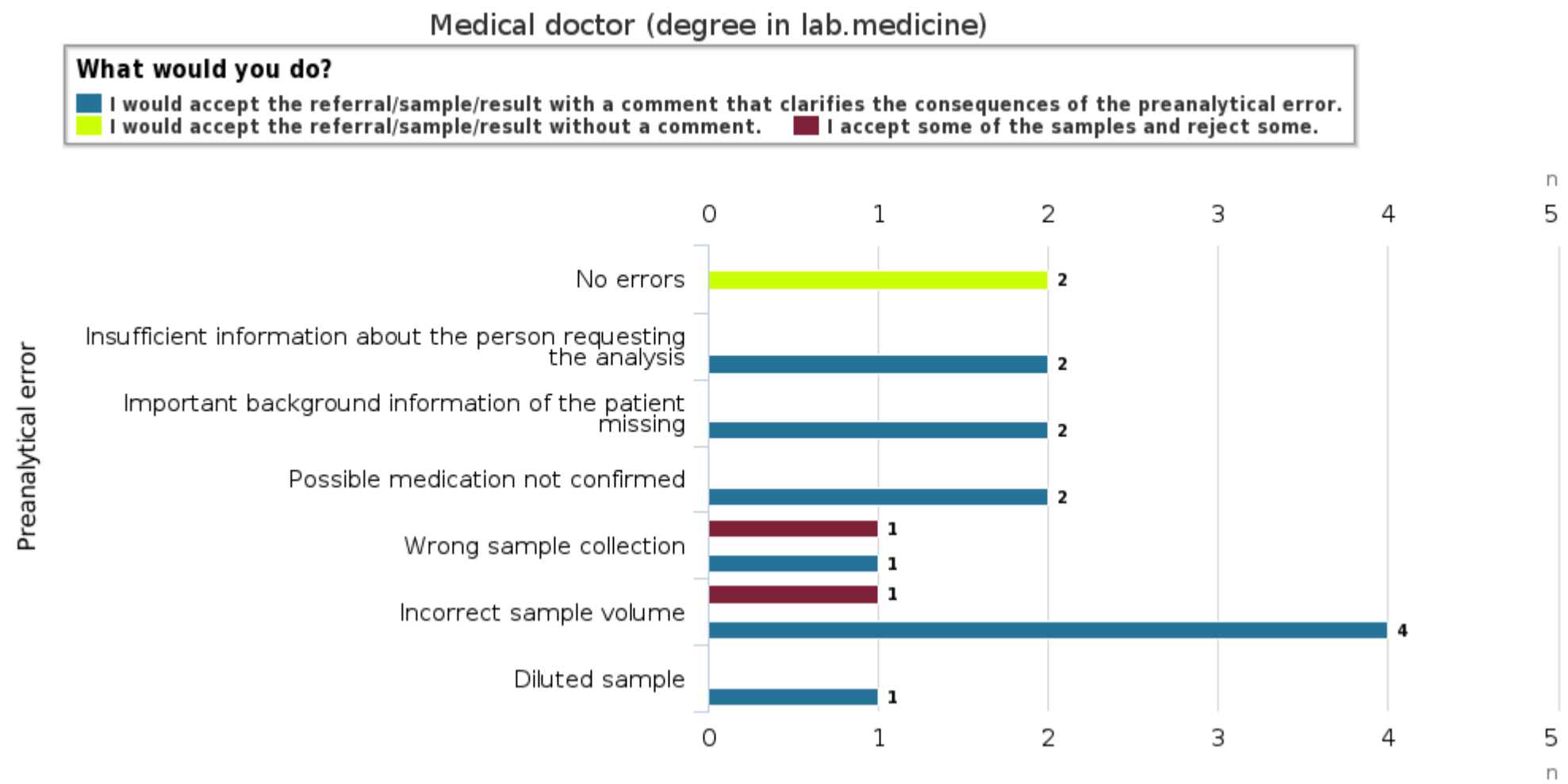
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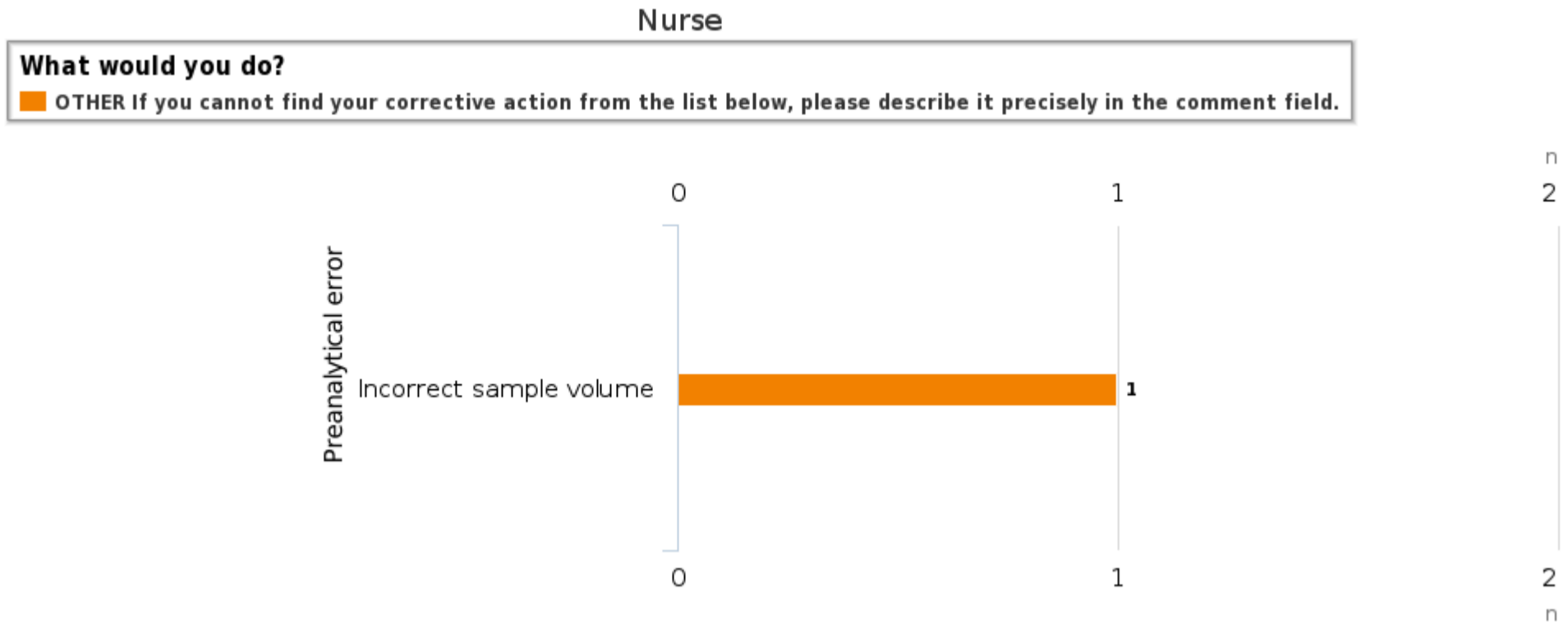
Case 3|What would you do?|Head of quality



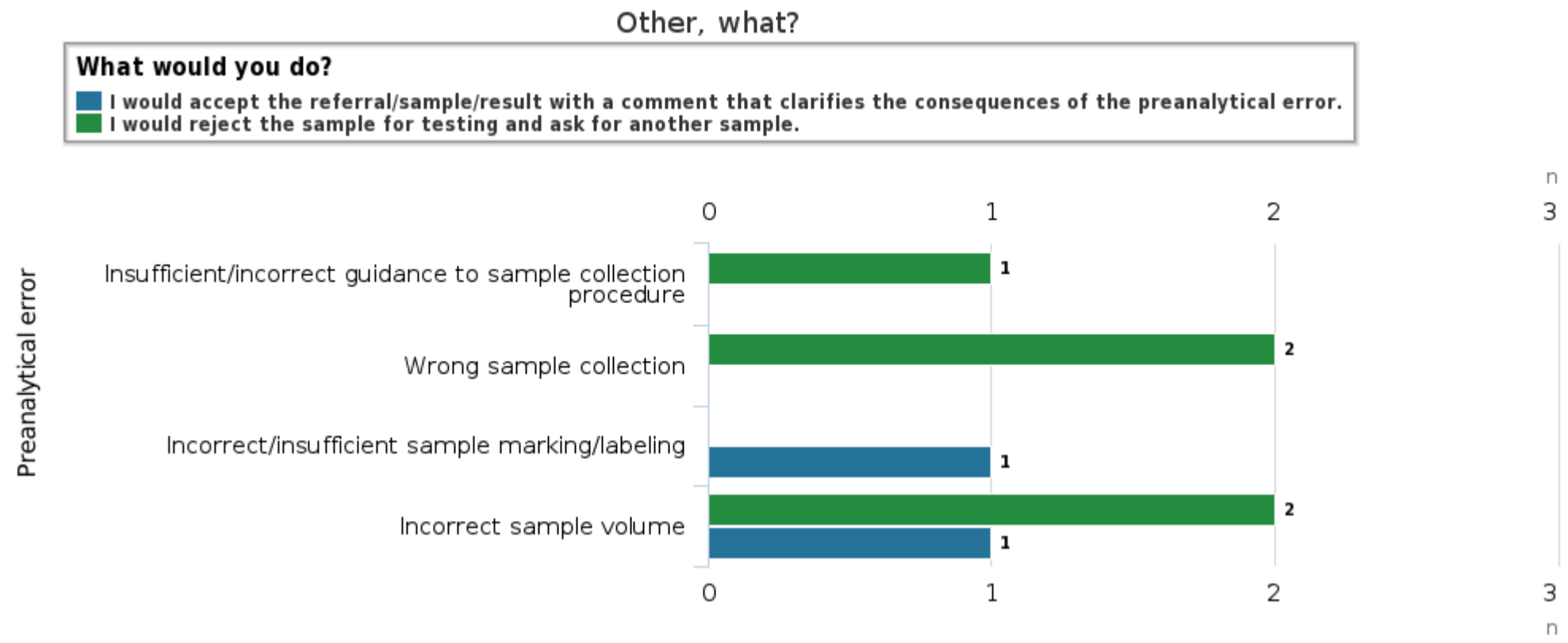
Case 3|What would you do?|Medical doctor (degree in lab.medicine)



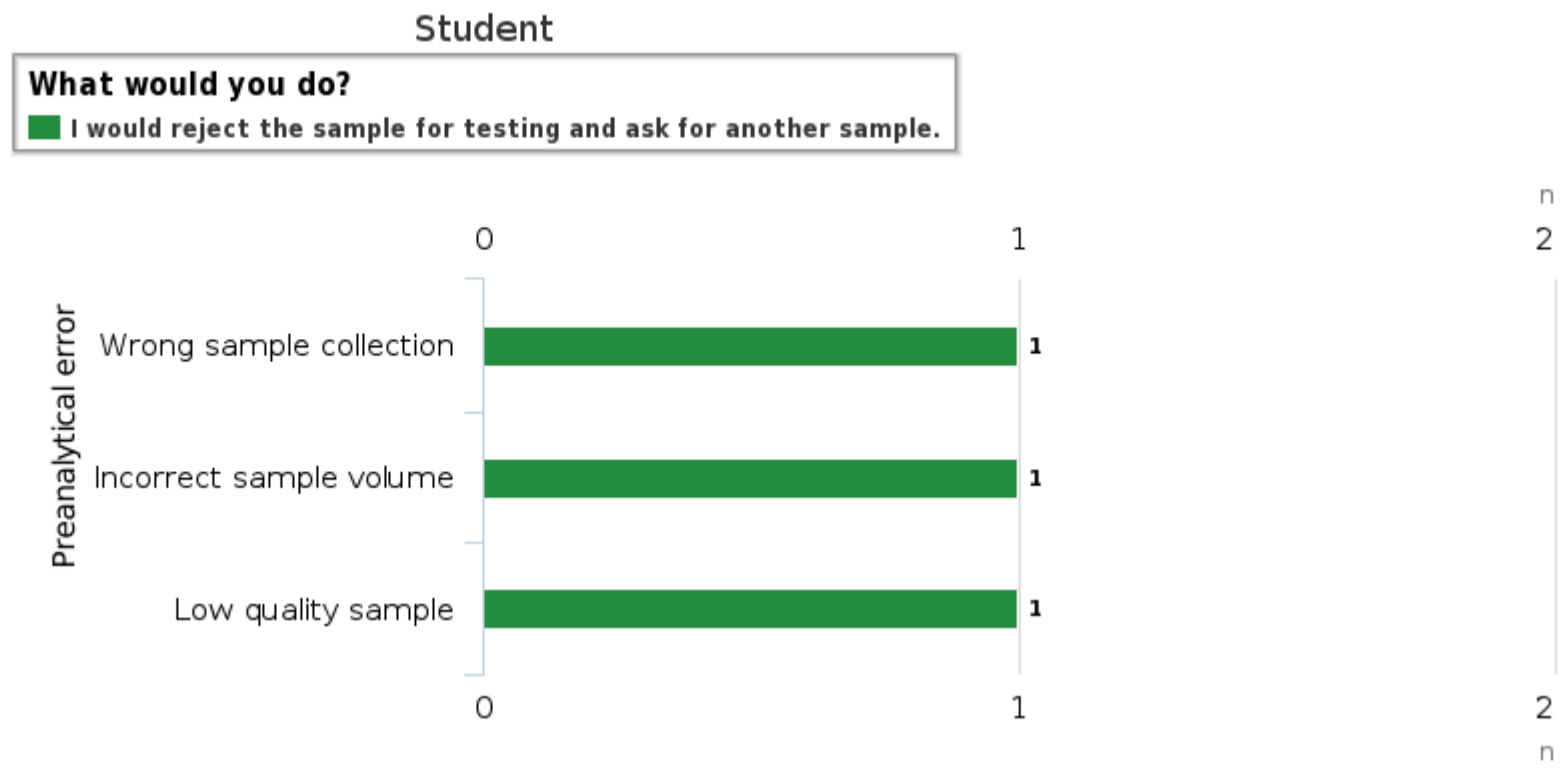
Case 3|What would you do?|Nurse



Case 3|What would you do?|Other, what?



Case 3|What would you do?|Student



Report info**Participants**

53 participants from 16 countries.

Report info

Suggestions of what would be the correct action in every case are done based on general recommendations. There might be some differences between organizations and countries, and some other action might also be valid and correct. The idea of these rounds is to get the participants to think about their own laboratory's procedures from a preanalytical point of view.

Results are grouped according to the informed participants' profession. Reported actions are shown in pie diagrams as percentages. Bar charts represent action answers in different colours as counts and they are grouped by different preanalytical errors. Laboratory's own results are marked with a black radio button . If you have not reported any results you will get a note: "You have not responded in time, only global report is available." In case you have any questions regarding the reports, please contact the EOA coordinator.

External Quality Assessment Scheme

Preanalytics, clinical chemistry Round 1, 2023

Specimens

Samples S001– S003 (LQ779123011 – LQ779123013) were case reports. In each case the participants were asked if the action was appropriate, and participants were also asked to identify potential preanalytical errors. It was possible to choose multiple errors per case.

Report info

Please see the description of the data analysis on the last page of the laboratory-specific histograms and Numerical Summary reports.

Comments – Expert

Case 1

A sample from a 55-year-old female is drawn for the analysis of total bile acid concentration at the emergency department. The sample is taken into a serum gel tube. There is no hemolysis or remarks of any unusual phlebotomy. The result 15 µmol/L.

The preanalytical error was that the sample was not a fasting sample. Fasting is recommended to avoid elevation of bile acids do to dining. Alternatively, the time of the meal should be known. In an emergency, fasting is rarely possible and it is better to draw the sample than to reject it. The preanalytical error (meal) and its significance and effect on the result should be reported. A large proportion (44 %) of the respondents would have done so. Some (33 %) would asked for additional information (e.g. the time of the meal) and some (12 %) would have accepted the sample without any comment. A small proportion of respondents (7 %) would have rejected the sample. An emergency sample can be diagnostically important, and one should be careful in rejecting it only because of lack of fasting. However, it is good to note that with this bile acid concentration, eating can elevate the concentration significantly (up to approximately twofold). Therefore, reporting the result without a comment on the preanalytical error may lead to false interpretation of the test result.

Case 2

A urinary sample for screening type detection of drugs is received in the laboratory. Urinary creatinine is 0.3 mmol/L.

The sample is too dilute and is not urine with full certainty. The sample should be rejected or dilution clearly reported, as it is possible that the sample has been artificially diluted and the result (drug test) is not reliable. The majority (65 %) of the respondents would have rejected the sample/result. Almost a quarter of the respondents (24 %) would have reported the result with a comment on the preanalytical error/finding. A small portion of the respondents (4 %) would have reported the result without any comments.

Case 3

A set on 10 samples in Na-citrate (3.2%) tubes arrives to laboratory for the analysis of plasma prothrombin time (P-PT). The amount of blood in the tubes somewhat varies in relation to the mark. All samples give P-PT within reference range.

There is a suspicion that the sample tubes have not been filled correctly. This can lead to an incorrect blood-anticoagulant -ratio in the sample. In coagulation studies, the right anticoagulant ratio is important to ensure a correct result. A result within the reference range is not a guarantee that there is no preanalytical error.

2023-04-17

FINAL REPORT

Product no. 7800

Samples sent	2023-02-27
Round closed	2023-03-24
Final report	2023-04-17

Request for correction

Typing errors in laboratory's result forms are on laboratory's responsibility. Labquality accepts responsibility only for result processing. Requests must be notified by writing within three weeks from the date of this letter.

Authorized by

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Pia Eloranta
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www.labquality.com



Incorrectly filled sample tubes should be discarded or the preanalytical error should be reported with the result. Re-drawing a sample should be considered if a false result is suspected.

In this case, the answers were divided. Of all respondents, 22 % would have accepted the sample with a comment on the preanalytical error and 38 % would have rejected the sample, while 24 % of the respondents would have accepted some of the samples and rejected some. Up to 10 % would have accepted the samples/results without commenting, which is not recommended with incorrectly filled coagulation sample tubes.

End of report

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