

# **CLINICAL OUTCOMES OF THE SMALL ACUTE URETERAL STONE PROTOCOL AT AN AMBULATORY UROLOGY CLINIC**

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# Declaration of Conflicts of Interest

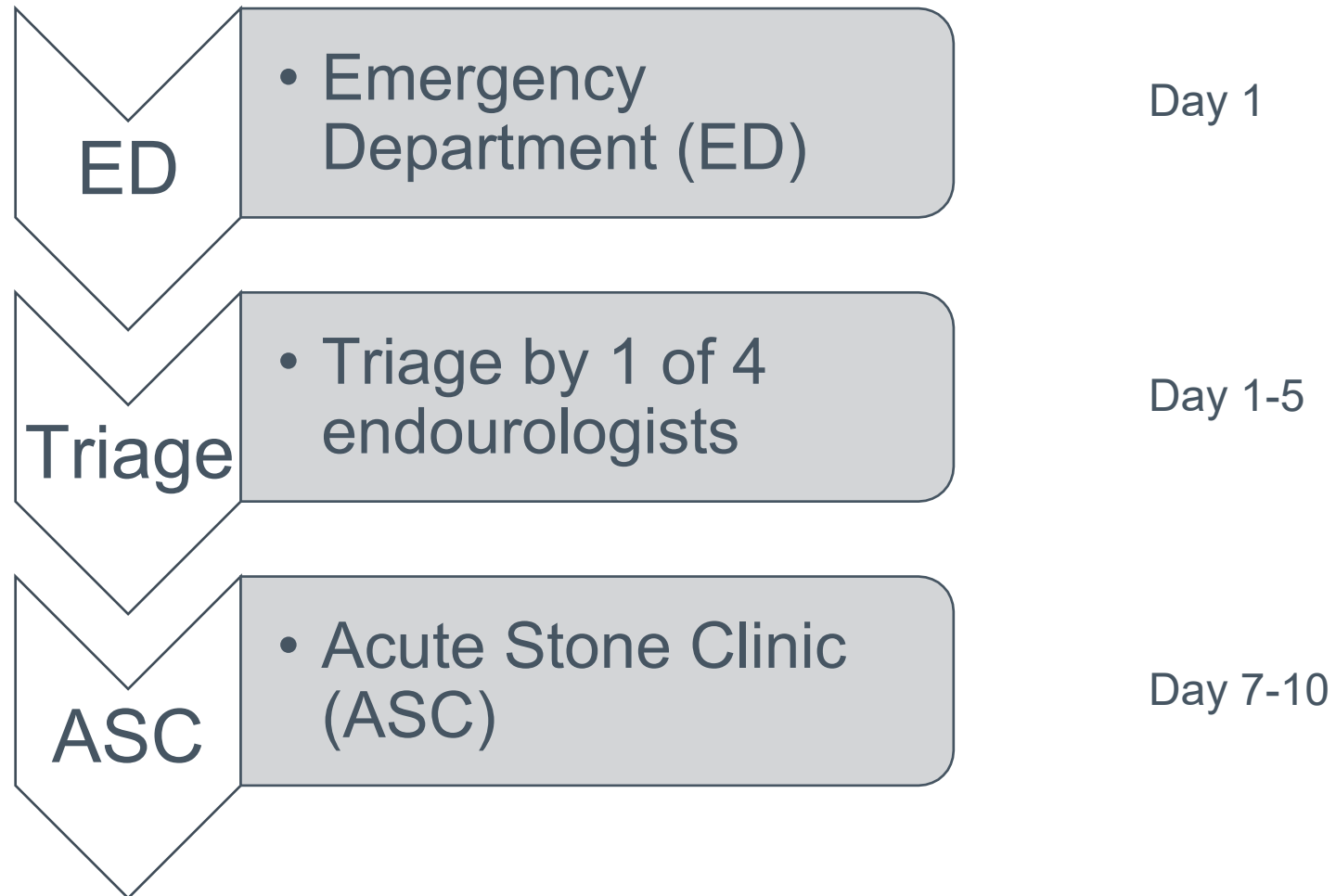
Advisory Boards	Speaker's Bureau	Payment/ Honoraria	Grants/ Research Support	Clinical Trials	Investments	Patents							
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# Background

- › Kidney stones affect 10.6% of men and 7.1% of women (Scales et al., 2012)
- › They are a common and growing source of emergency department (ED) visits (Graham, 2011)



# The Past



# The Problem: no shows

- › Patients referred to the ASC with stones <5mm were more likely to miss their appointment
  - Urology underutilization
  - Impaired access

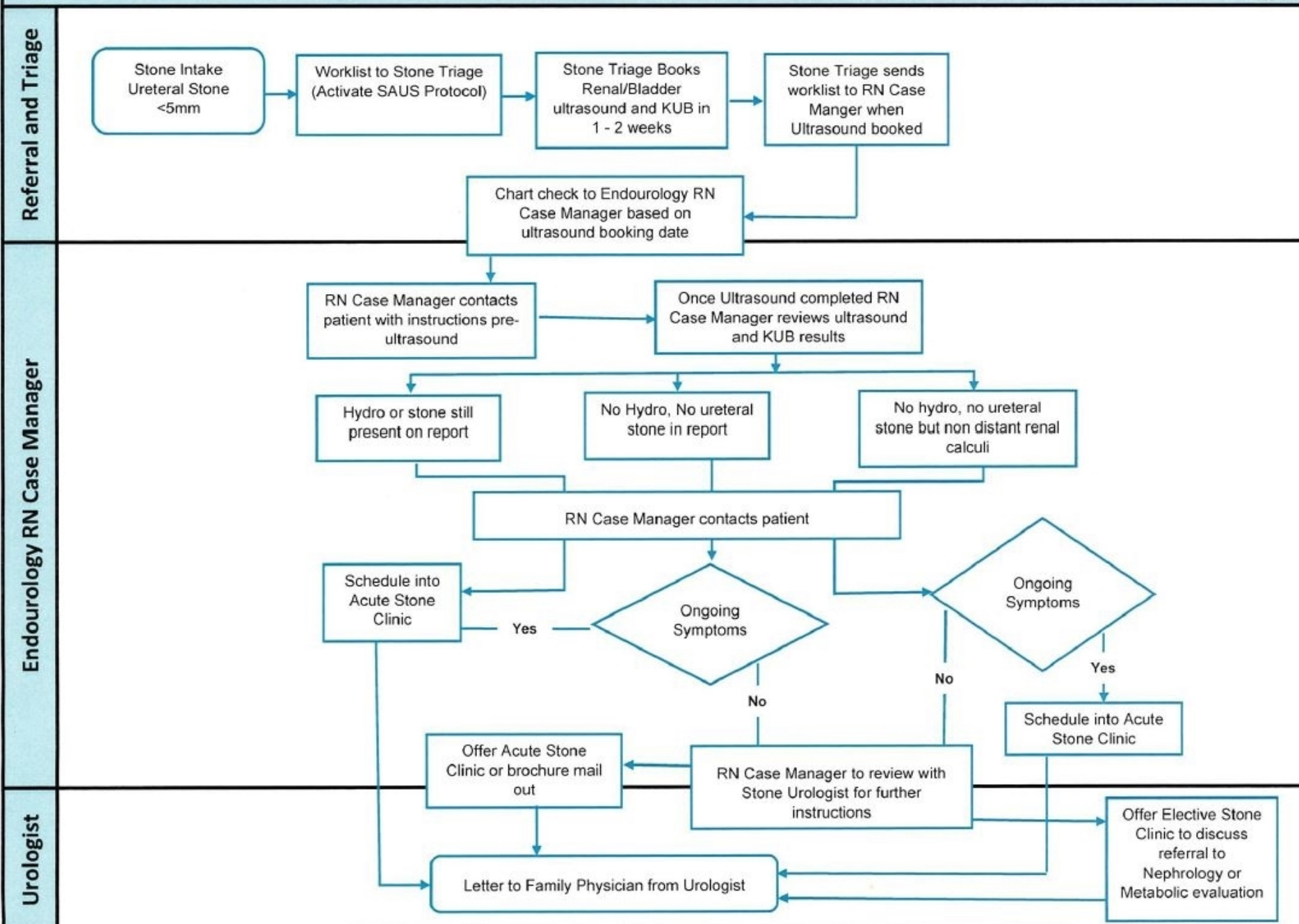


- › Commonly cited reasons
  - symptom resolution
  - spontaneous stone passage

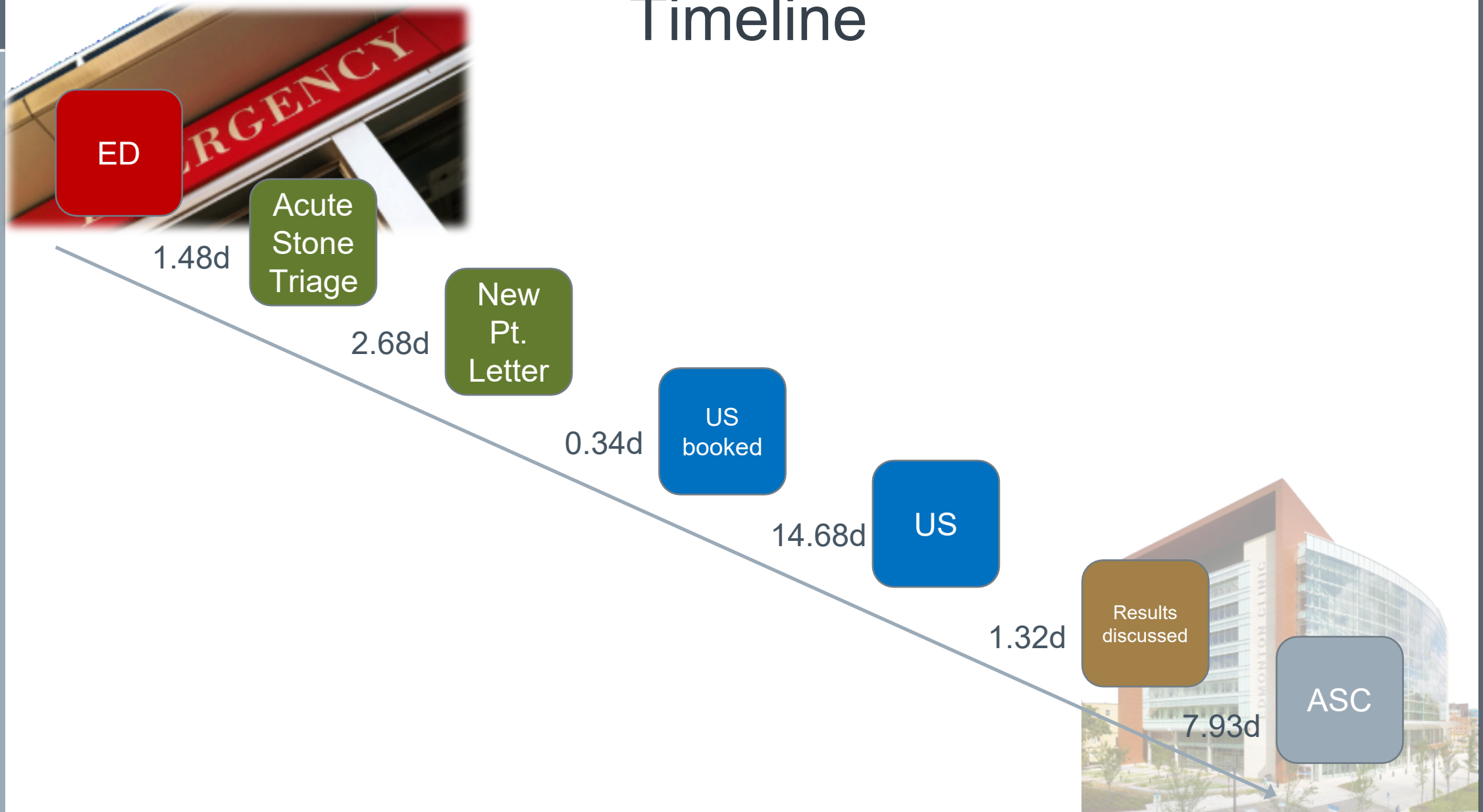


# Small Acute Ureteral Stone Workflow (SAUS Protocol)

2018



# Timeline



# Objectives

1. Review **clinical outcomes** of all patients enrolled in the SAUS Protocol since its inception
2. Delineate the **natural history** of small acute ureteral stones and their **passage rate**



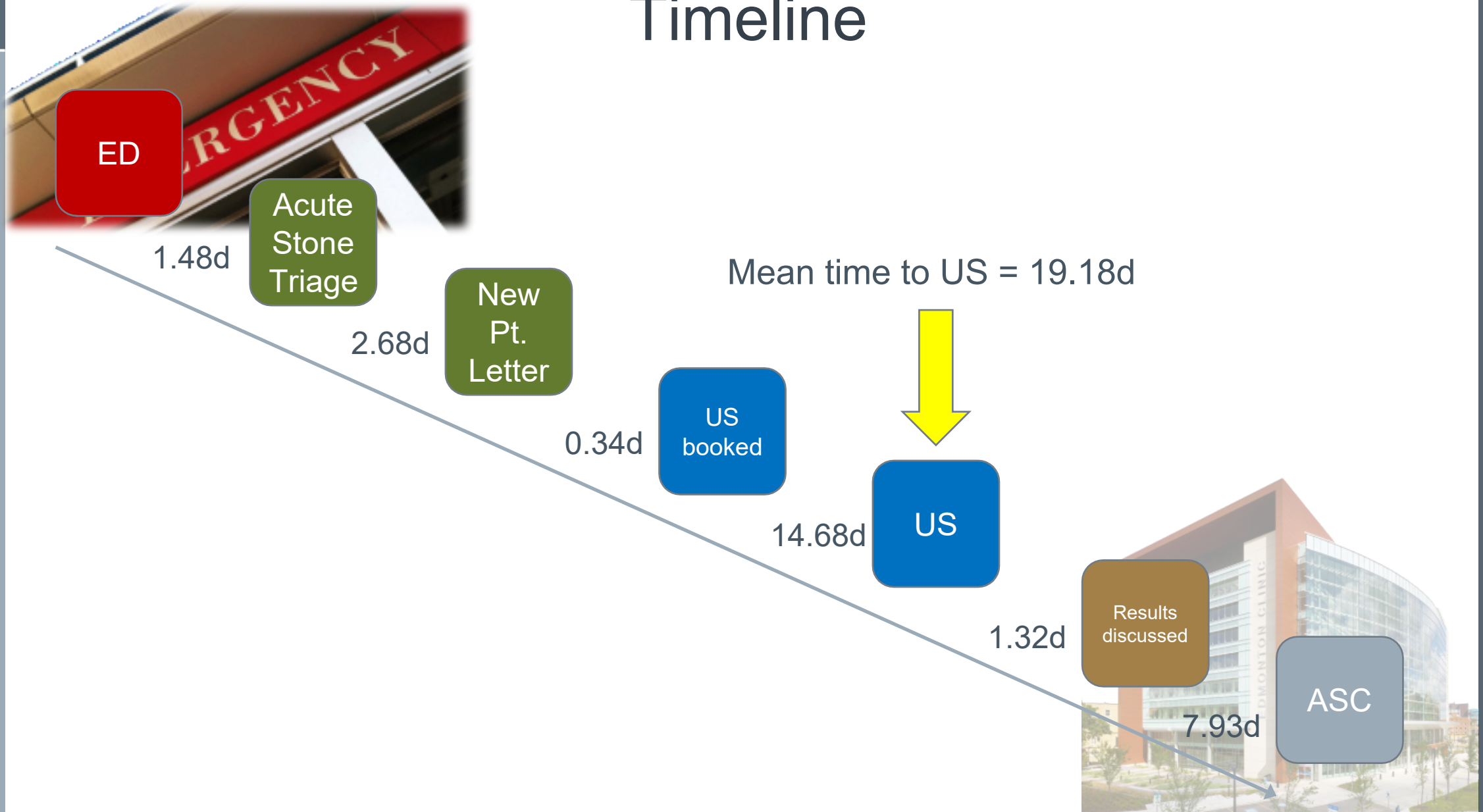
# Methods

- › Retrospective EMR (HealthQuest) review of all patients enrolled in the SAUS Protocol since its inception
  - June 21<sup>st</sup> 2018 → June 26<sup>th</sup> 2019
  - 216 adult patients identified
- › Data collected and stored in an encrypted REDCap database

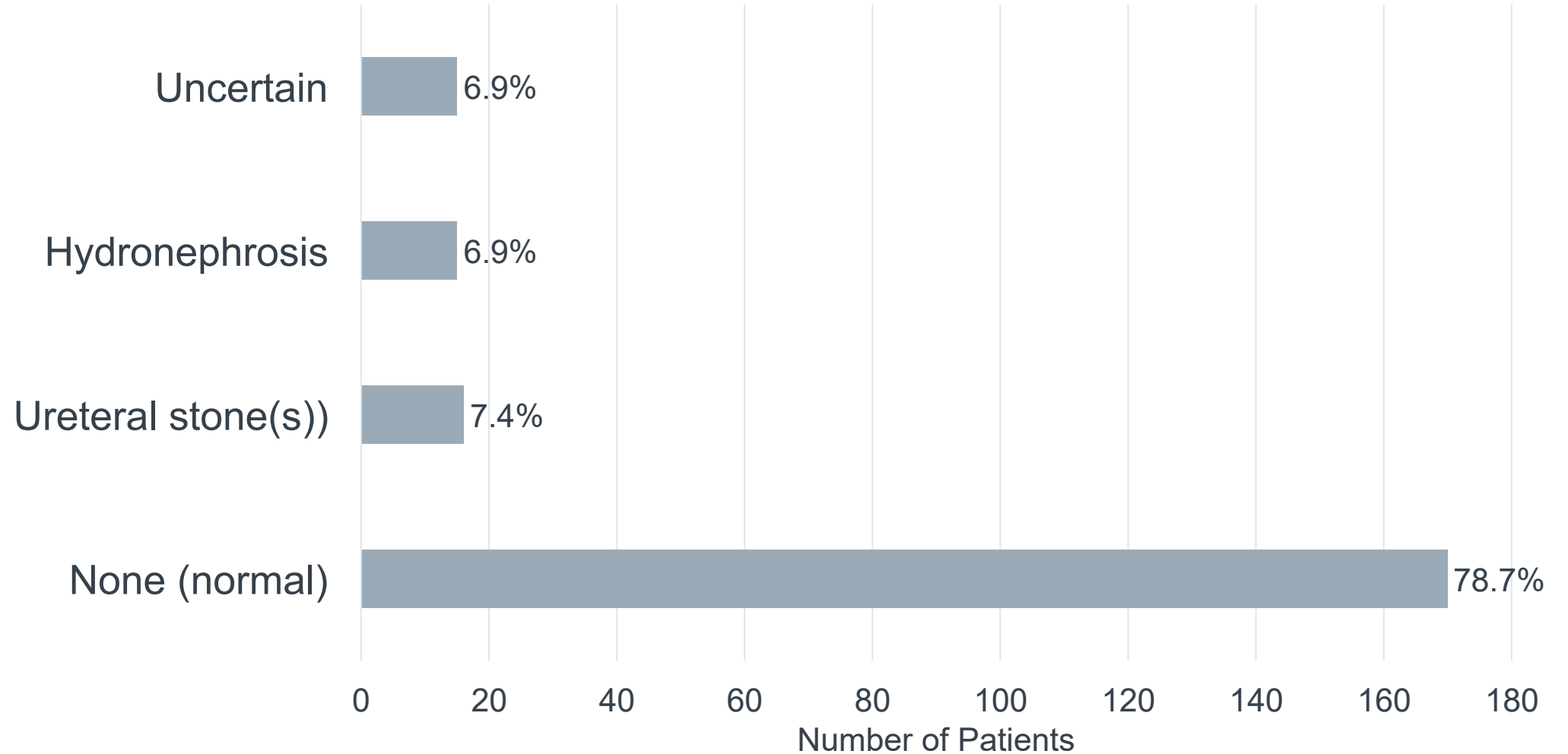
# Patient Demographics

Characteristic	Male	Female	Total
Mean patient age (y)	48.7	49.9	49
Mean stone size (mm)	3.91	3.63	3.82
Number of patients	147	69	2:1 m:f

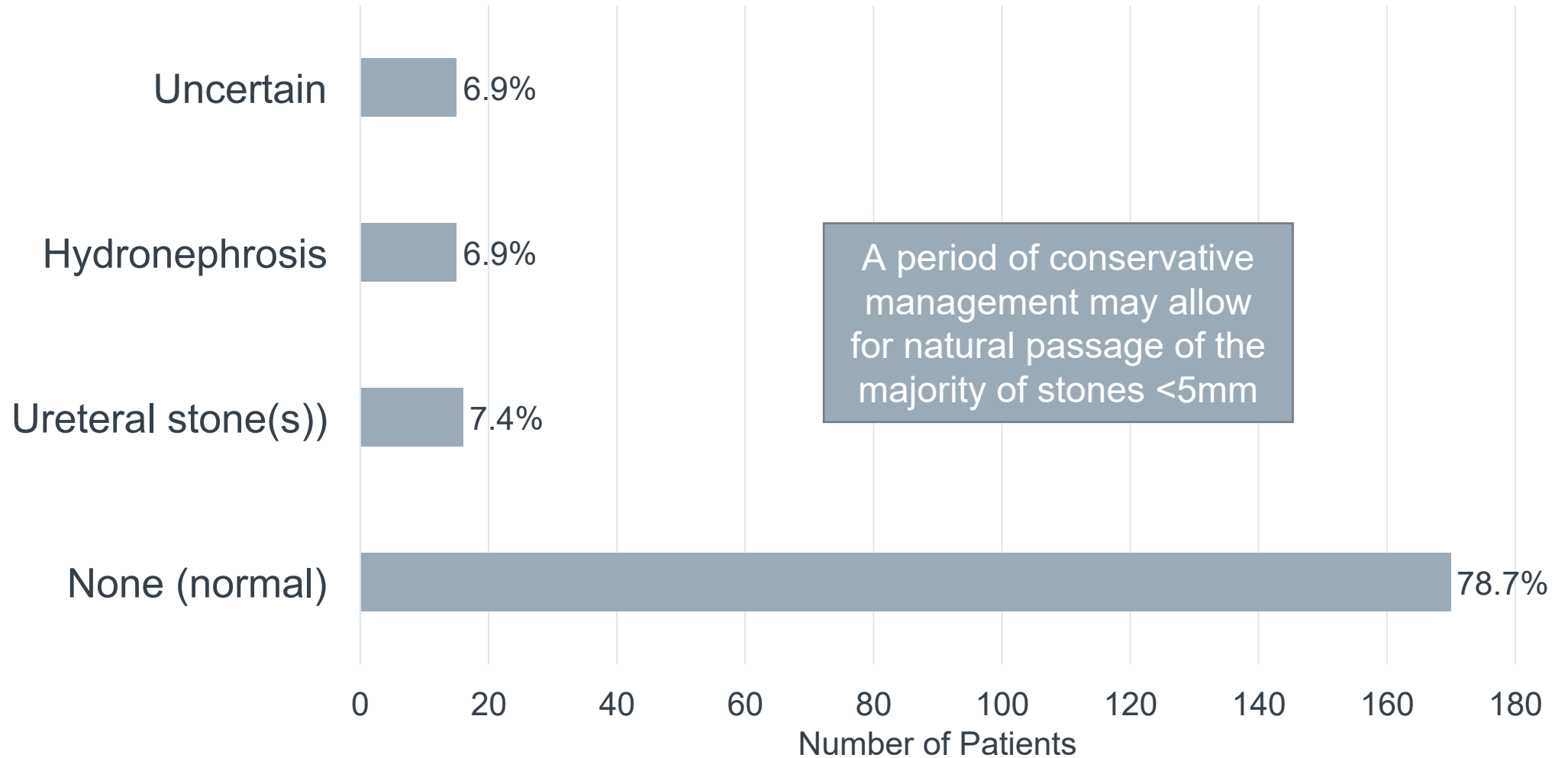
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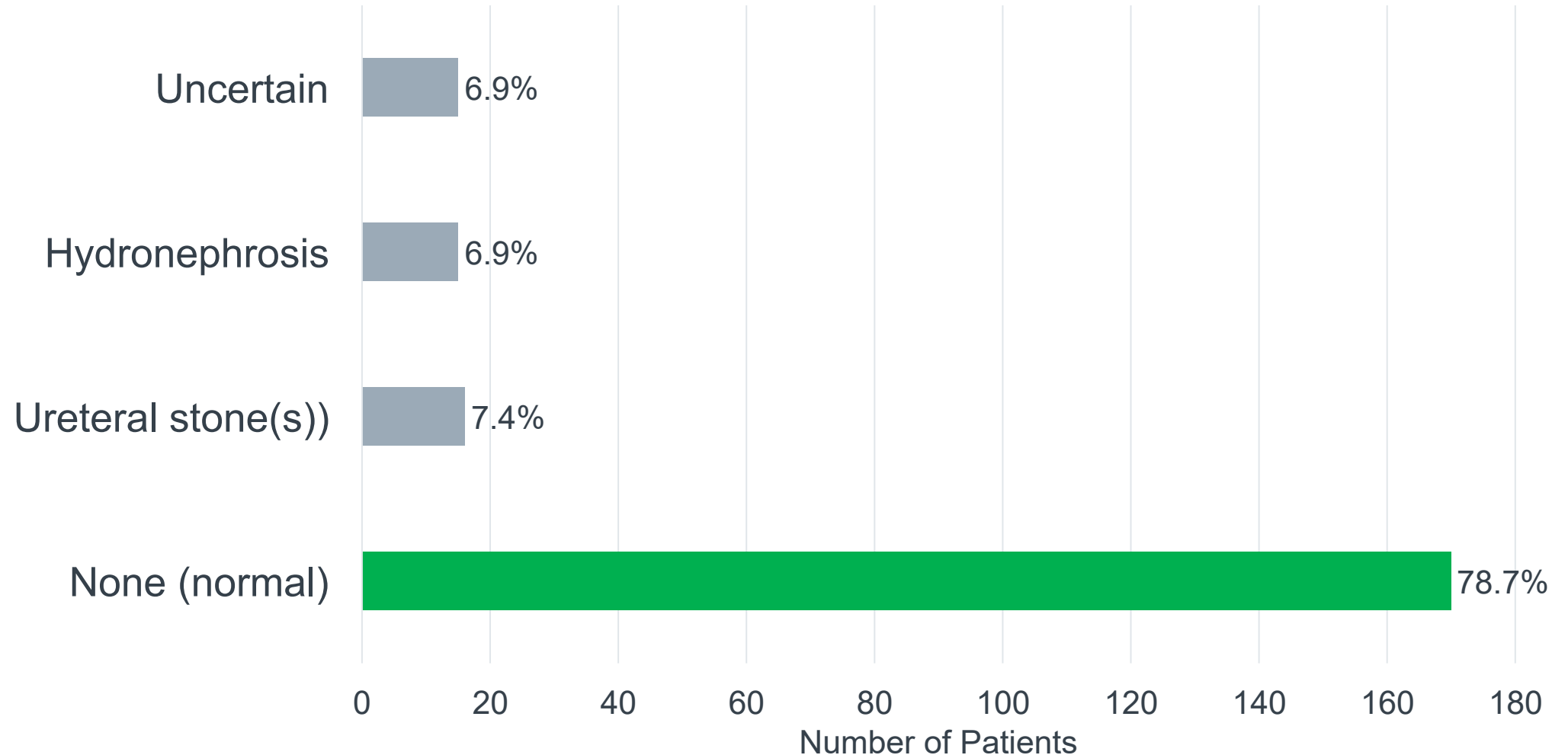
# Imaging: Findings on Follow Up Ultrasound



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## Imaging: what happened to patients with **negative** ultrasounds?



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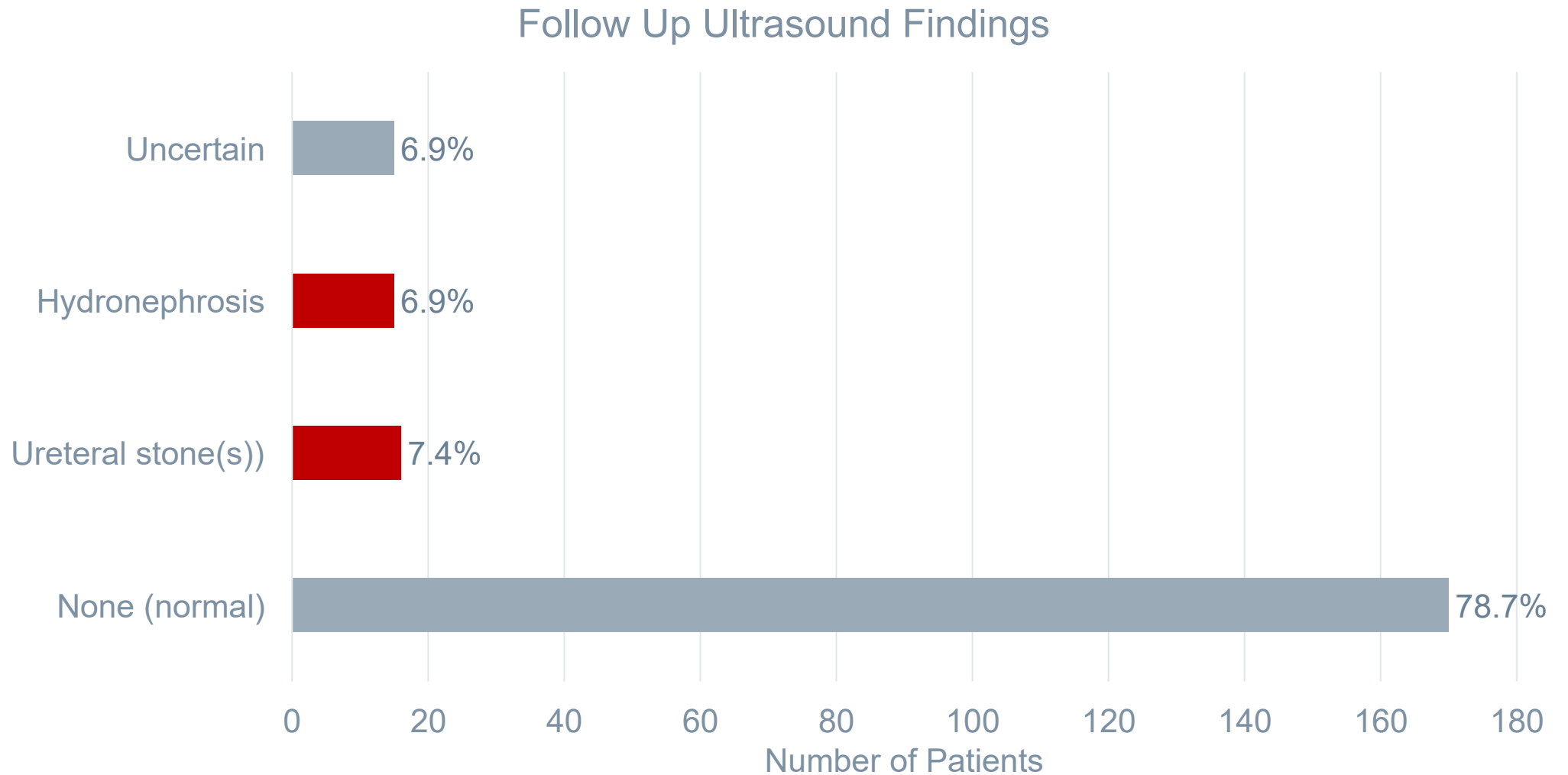
Disposition	F/U w GP	ASC	ESC	Refused all F/U
# of pts (n=163)	40.5% (66)	37.4% (61)	15.9% (26)	5.5% (9)

## › ASC:

- 24/61 (39%) because they still had symptoms
- 11/61 (18%) because the RN Case Manager was not able to reach them so the ASC appointment was never cancelled
- 26/61 (43%) unknown

The SAUS Protocol redirected 62.6% of stone-free patients bound for the ASC

# Imaging: what happened to patients with **positive** ultrasounds?





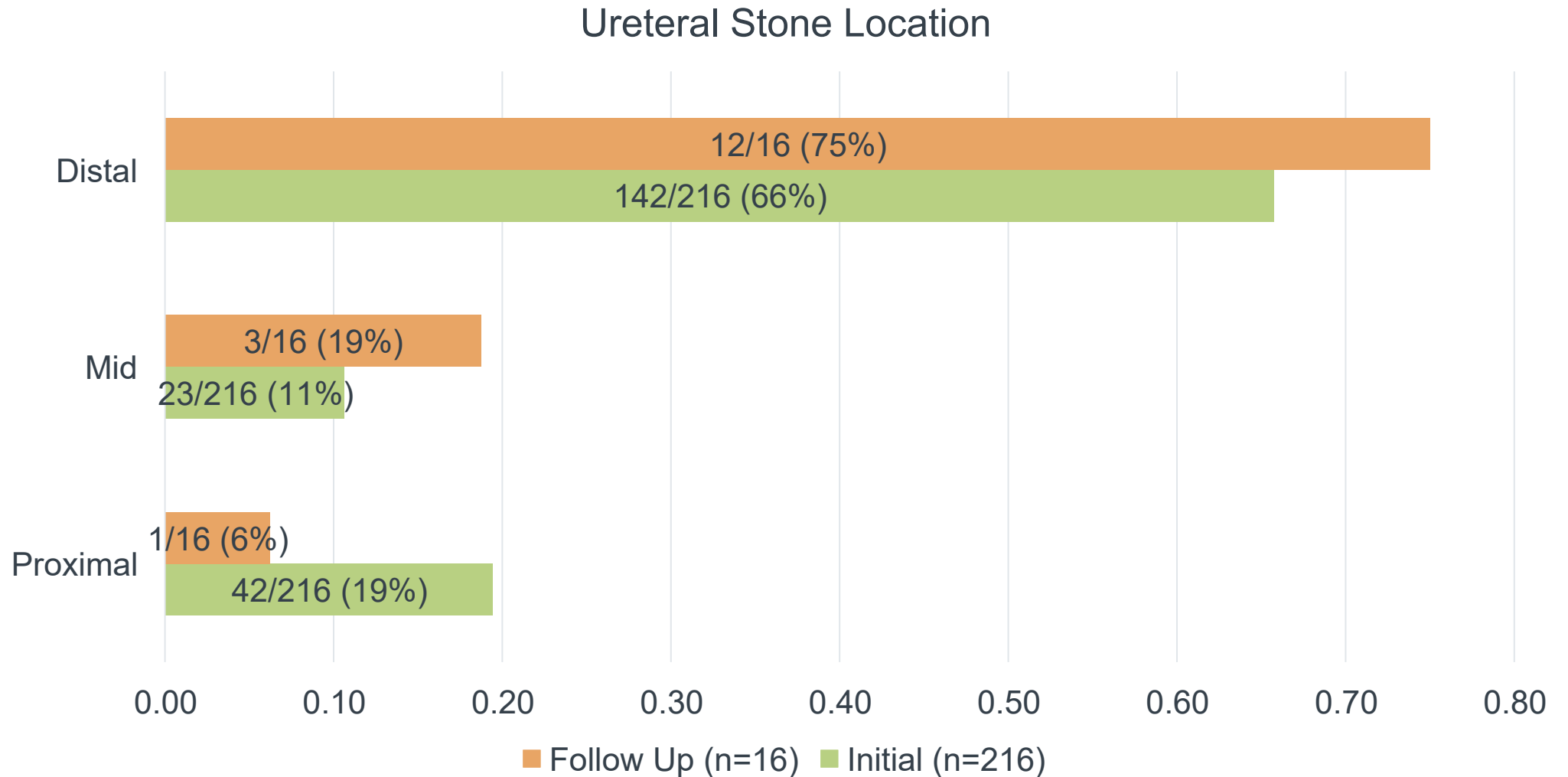
# Imaging: what happened to patients with **positive** ultrasounds?

DISPOSITION	ASC	ESC	F/U w GP	Cystoscopy
# of Pts (n=31)	<u>90.3%</u> (28)	3.2% (1)	3.2% (1)	3.2% (1)

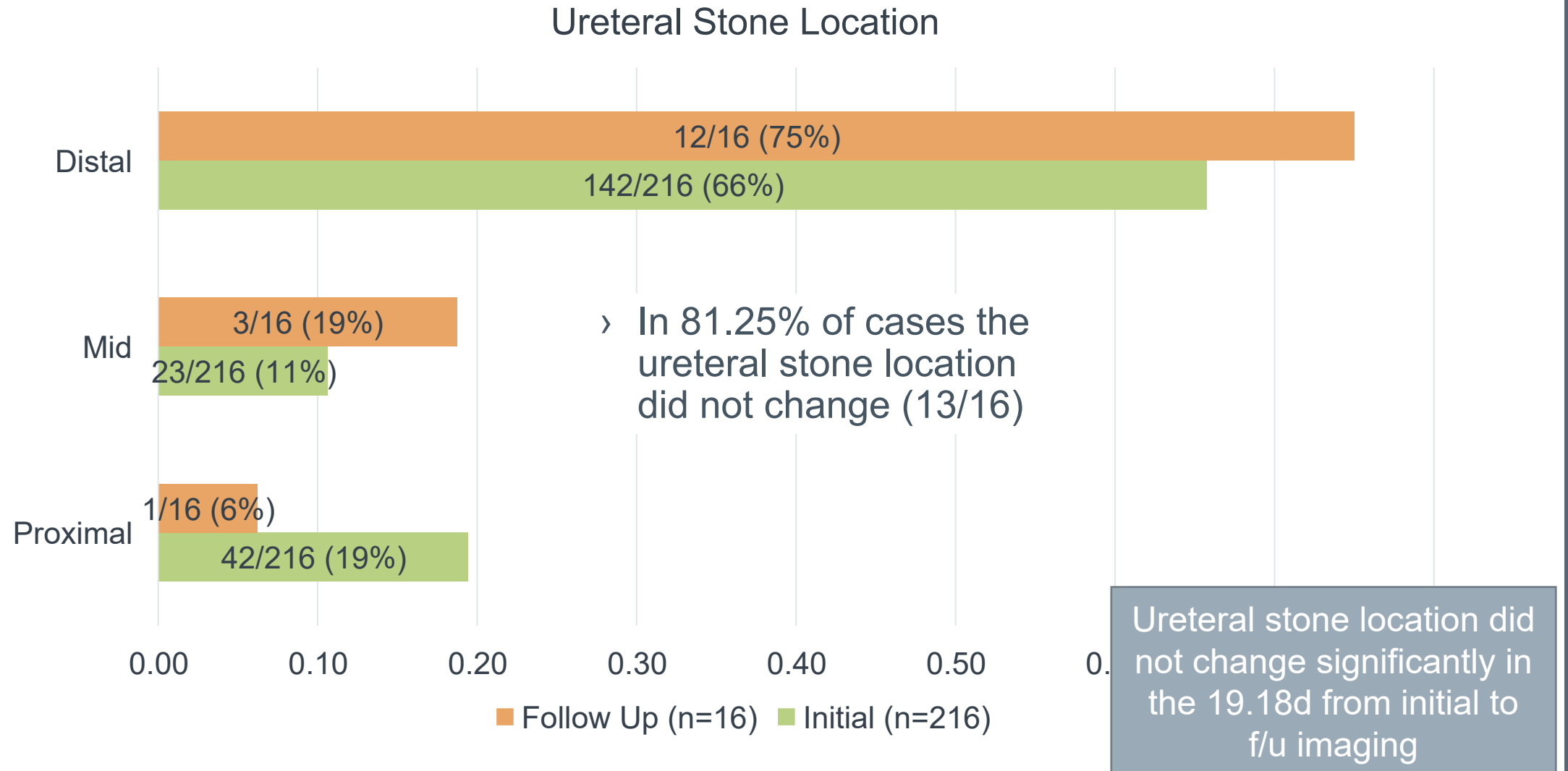
INTERVENTION	None (stone passed)	URS	F/U Imaging	SWL	No Show
# of Pts (n=31)	38.7% (12)	38.7% (12)	9.7% (3)	6.5% (2)	6.5% (2)

F/U US directs most patients with a stone to the ASC, but <50% require intervention

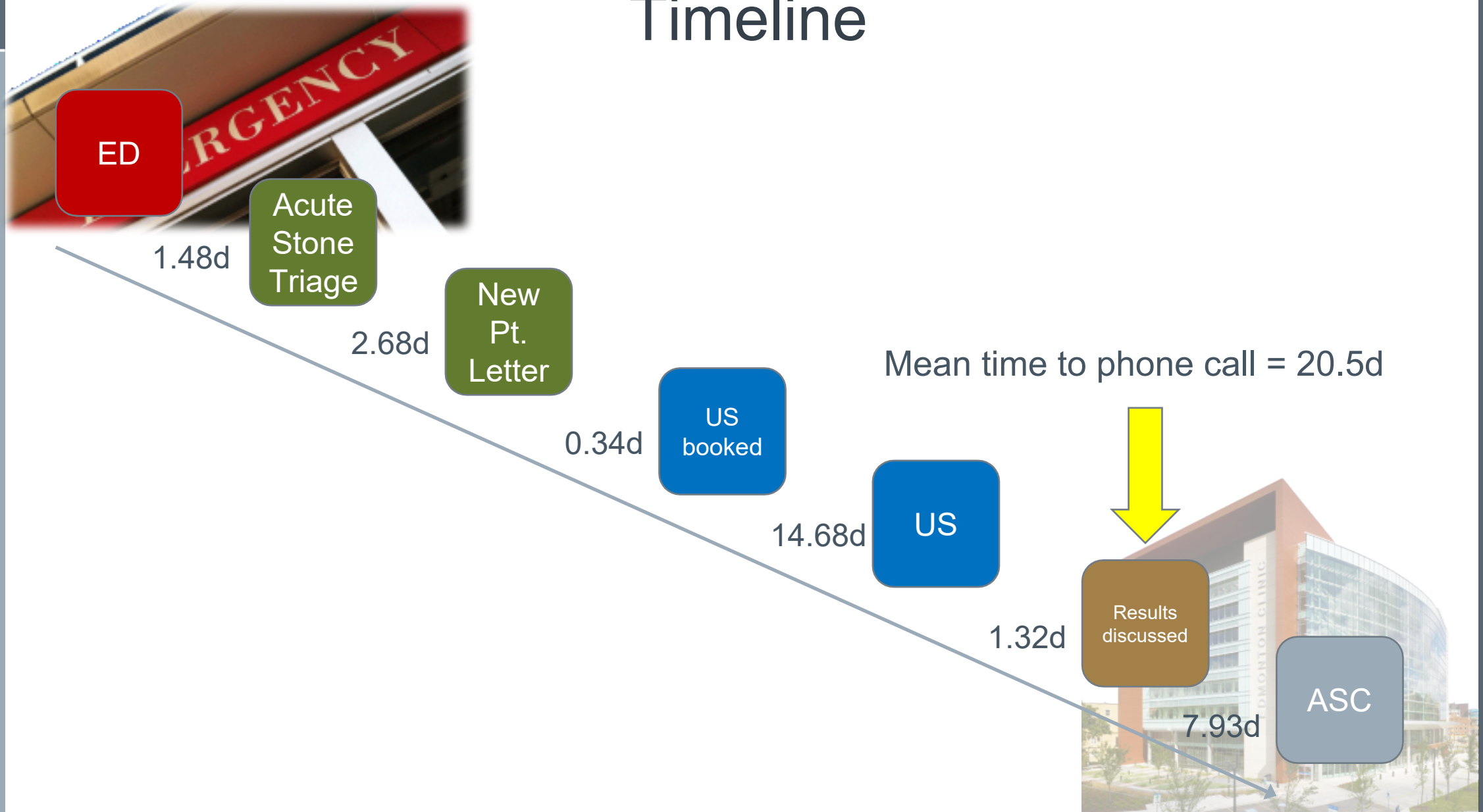
# Imaging: ureteral stone location



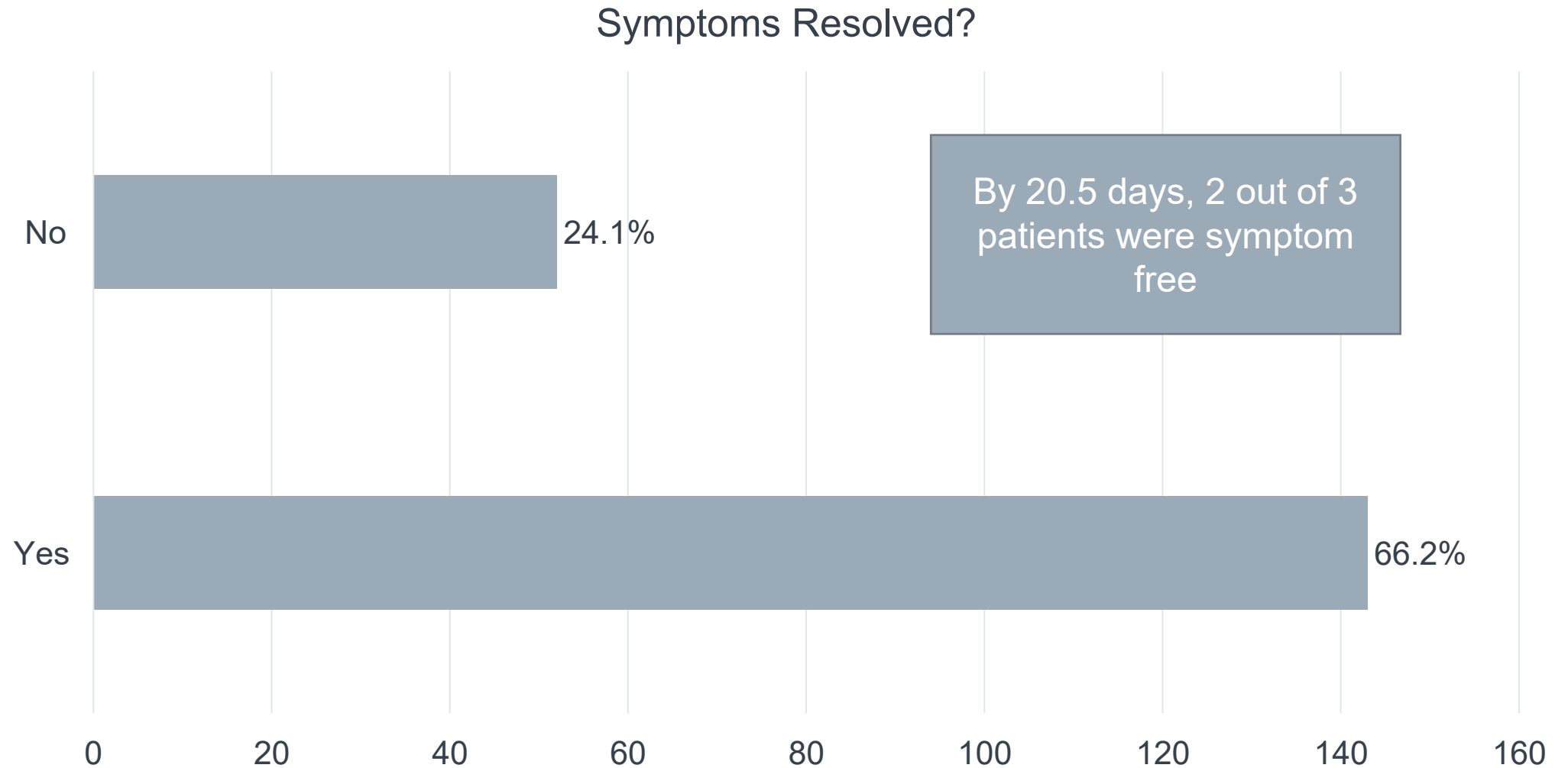
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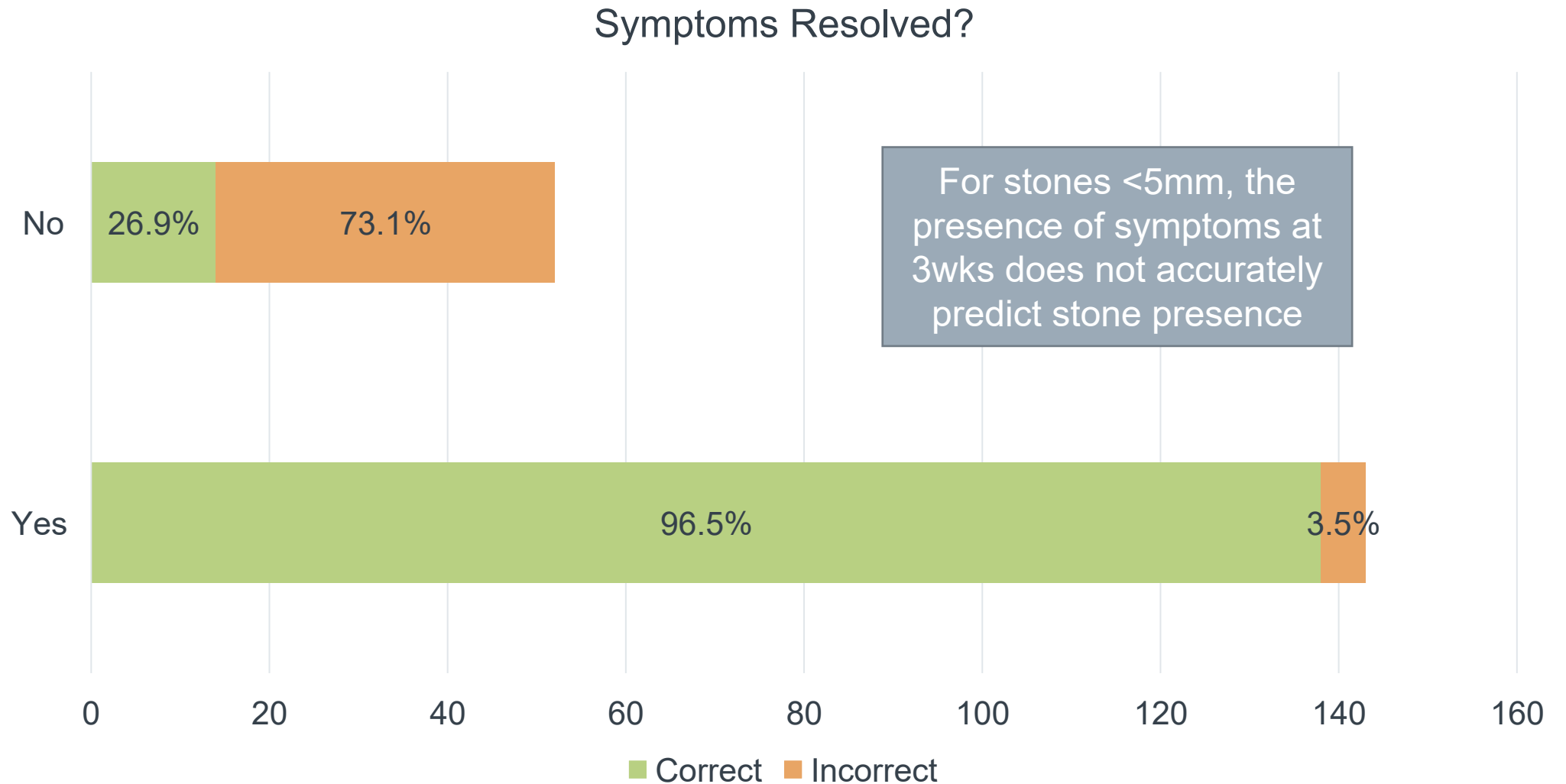
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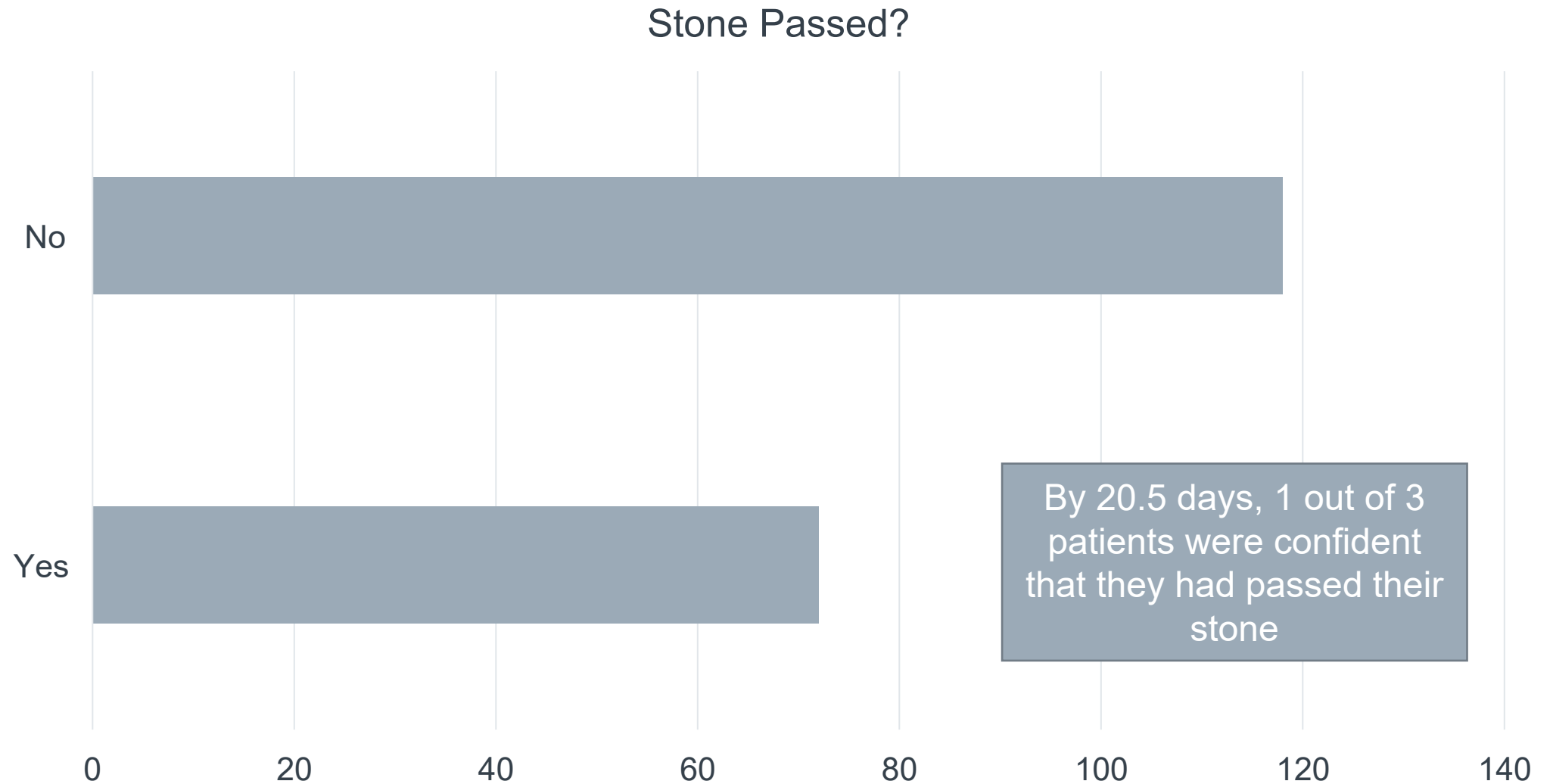
# Phone call: Symptoms



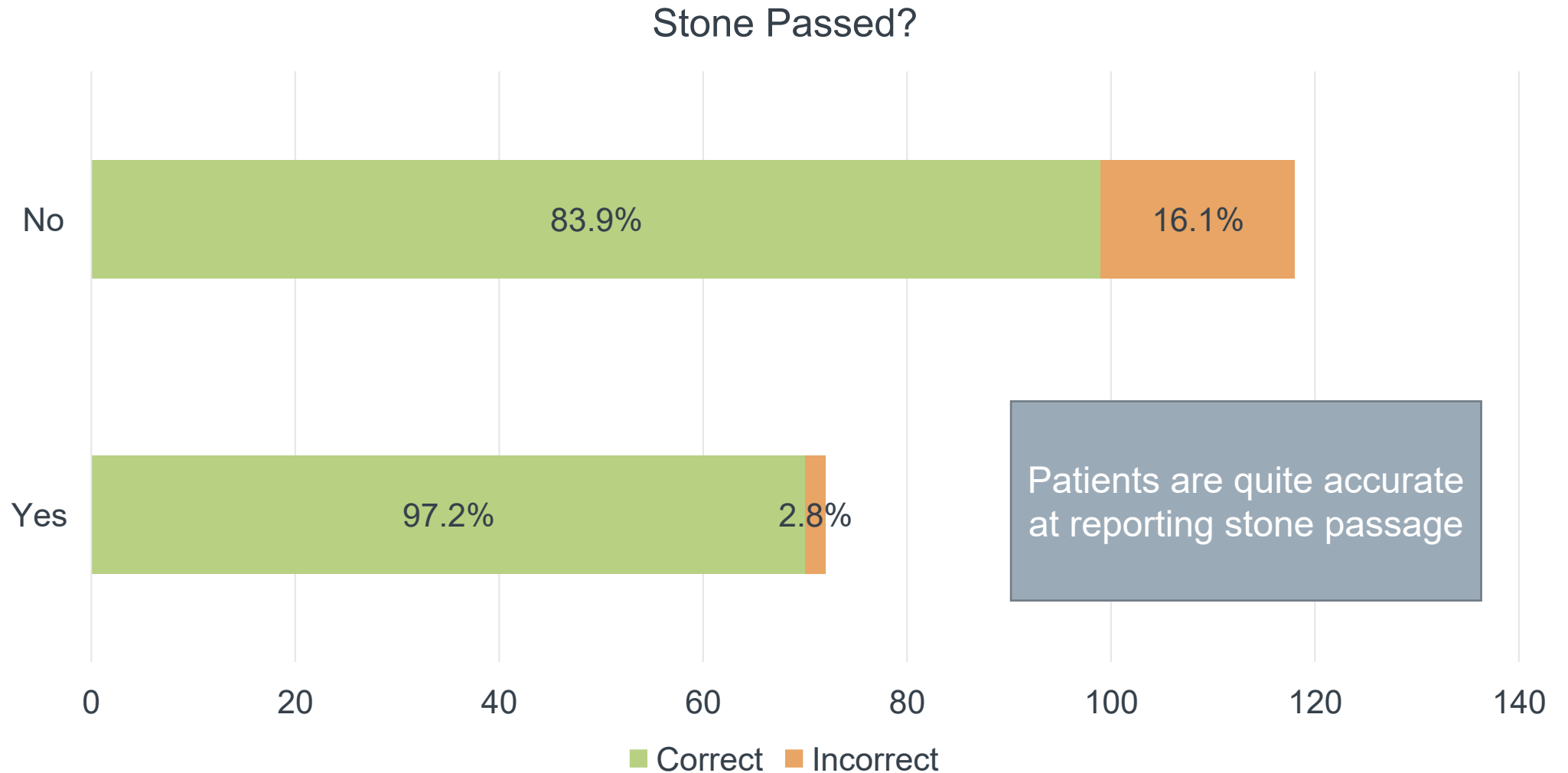
# Phone call: Symptom accuracy



# Phone call: Stone Passage

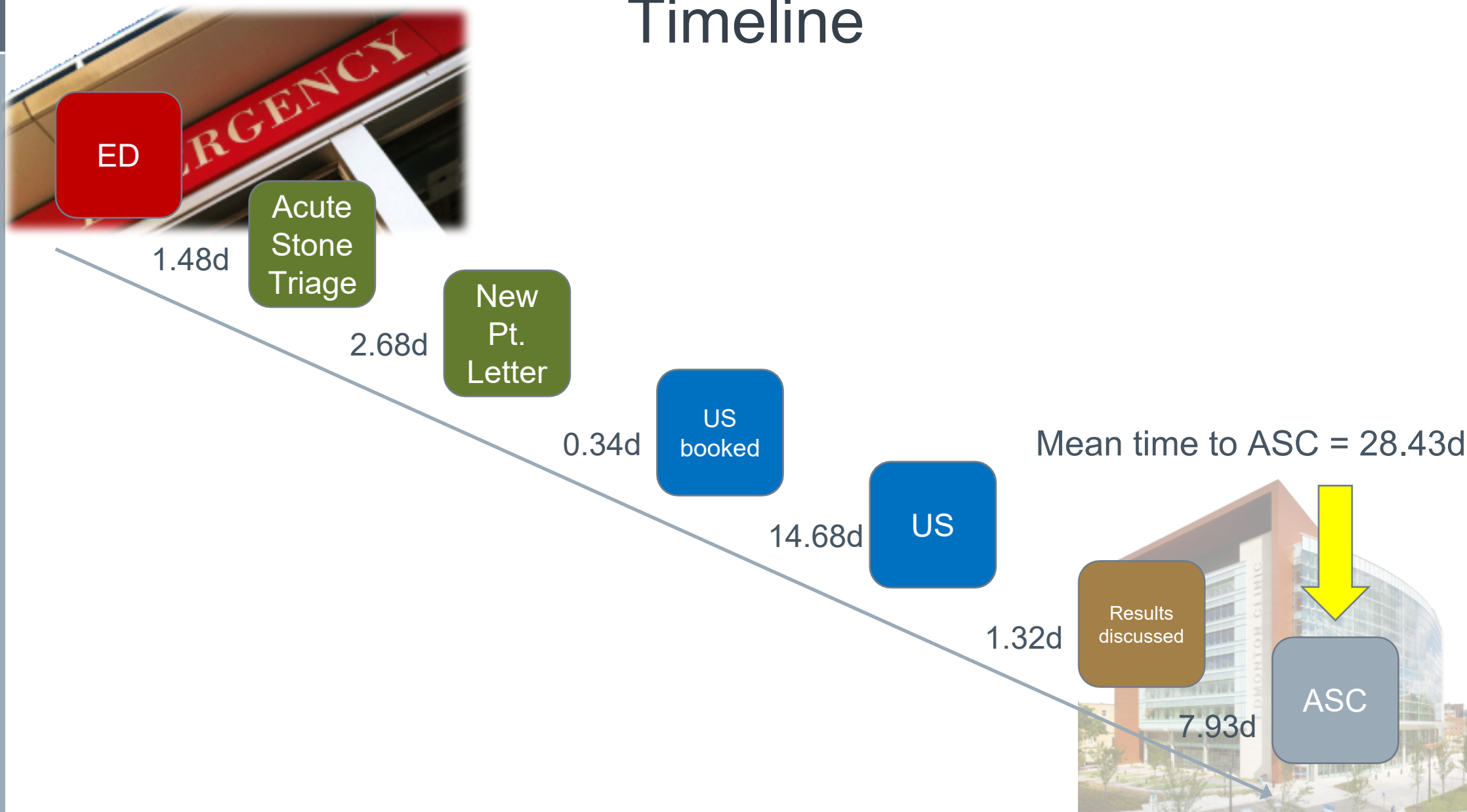


# Phone call: Stone Passage Accuracy

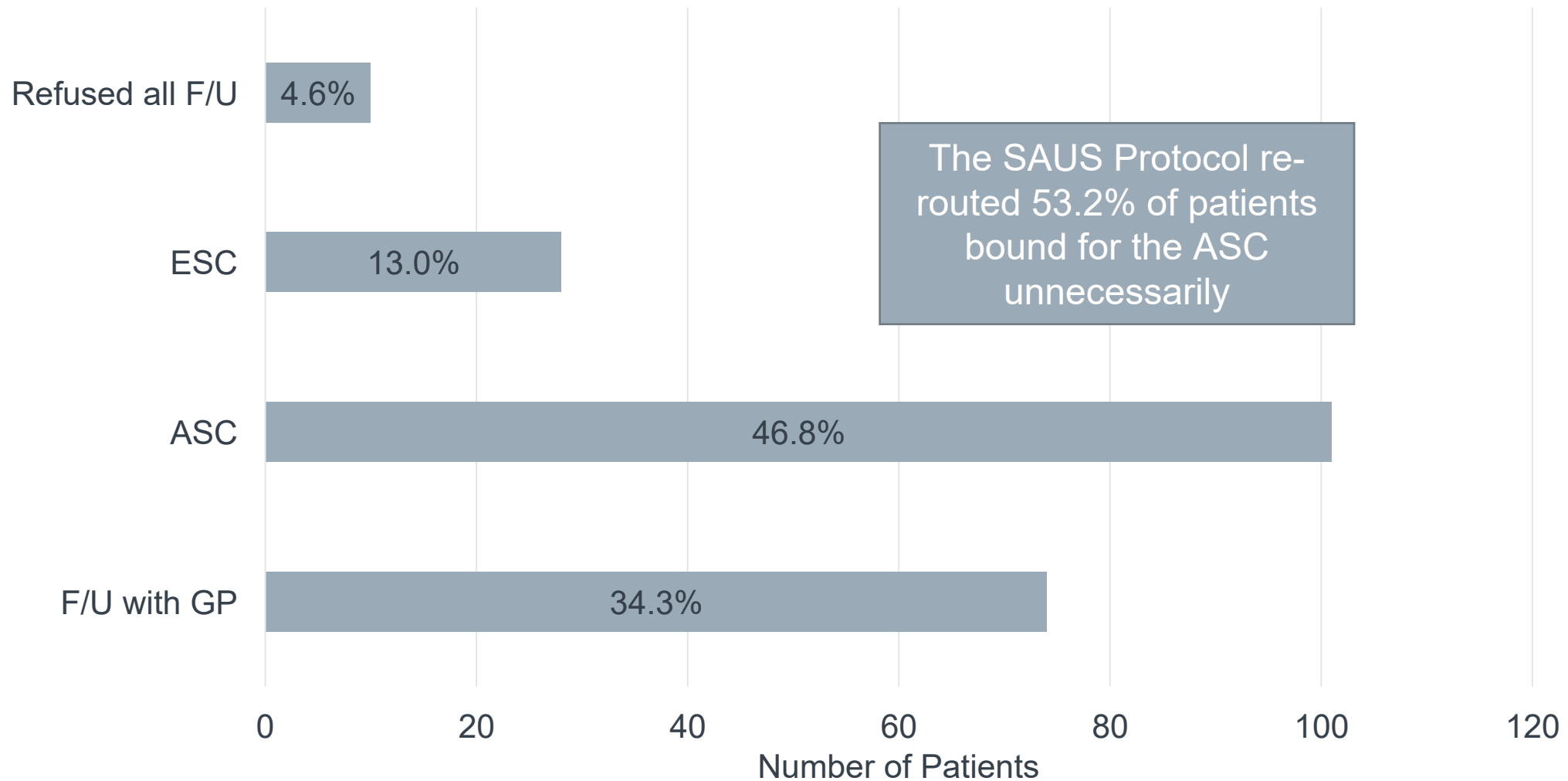




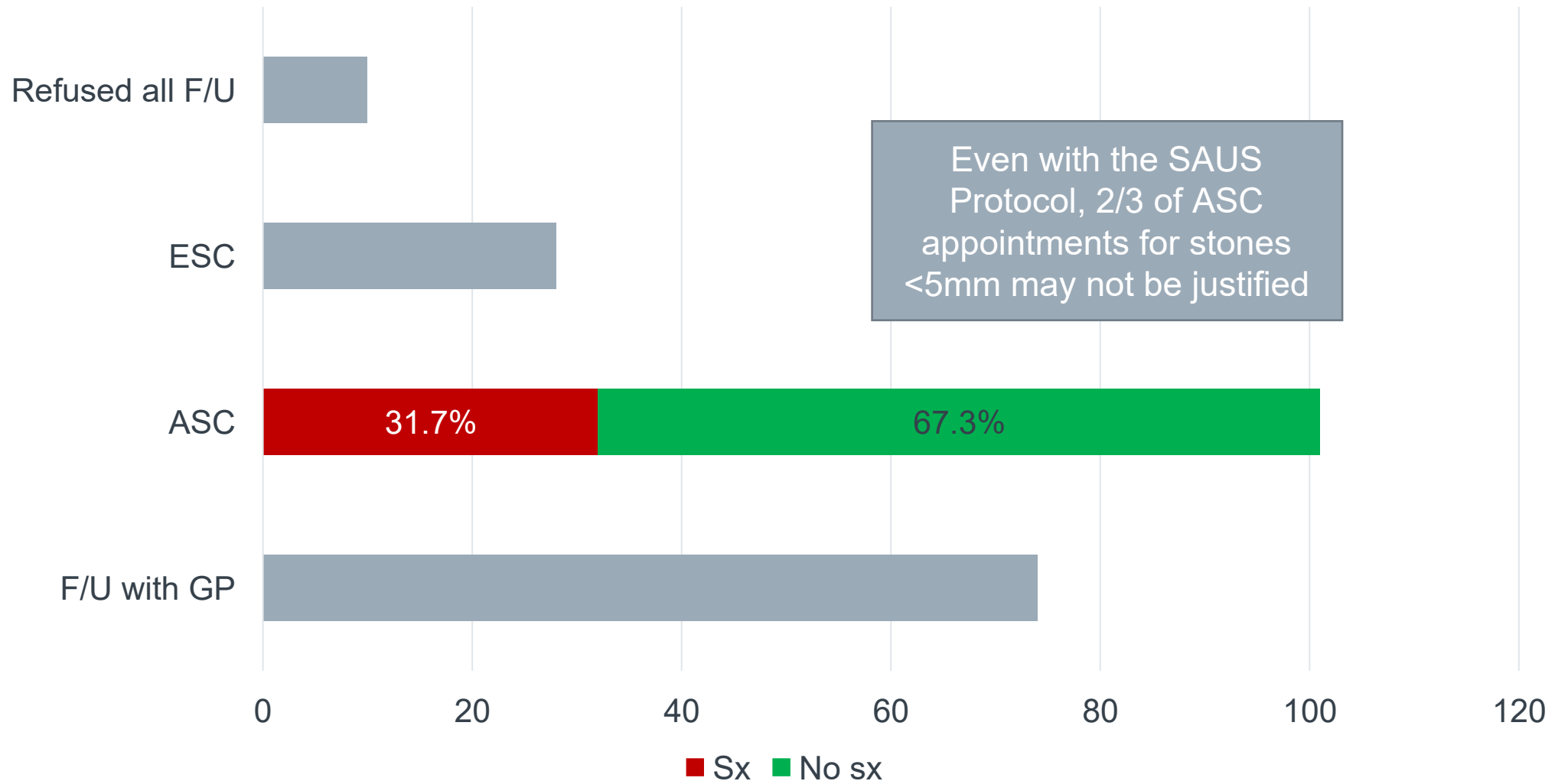
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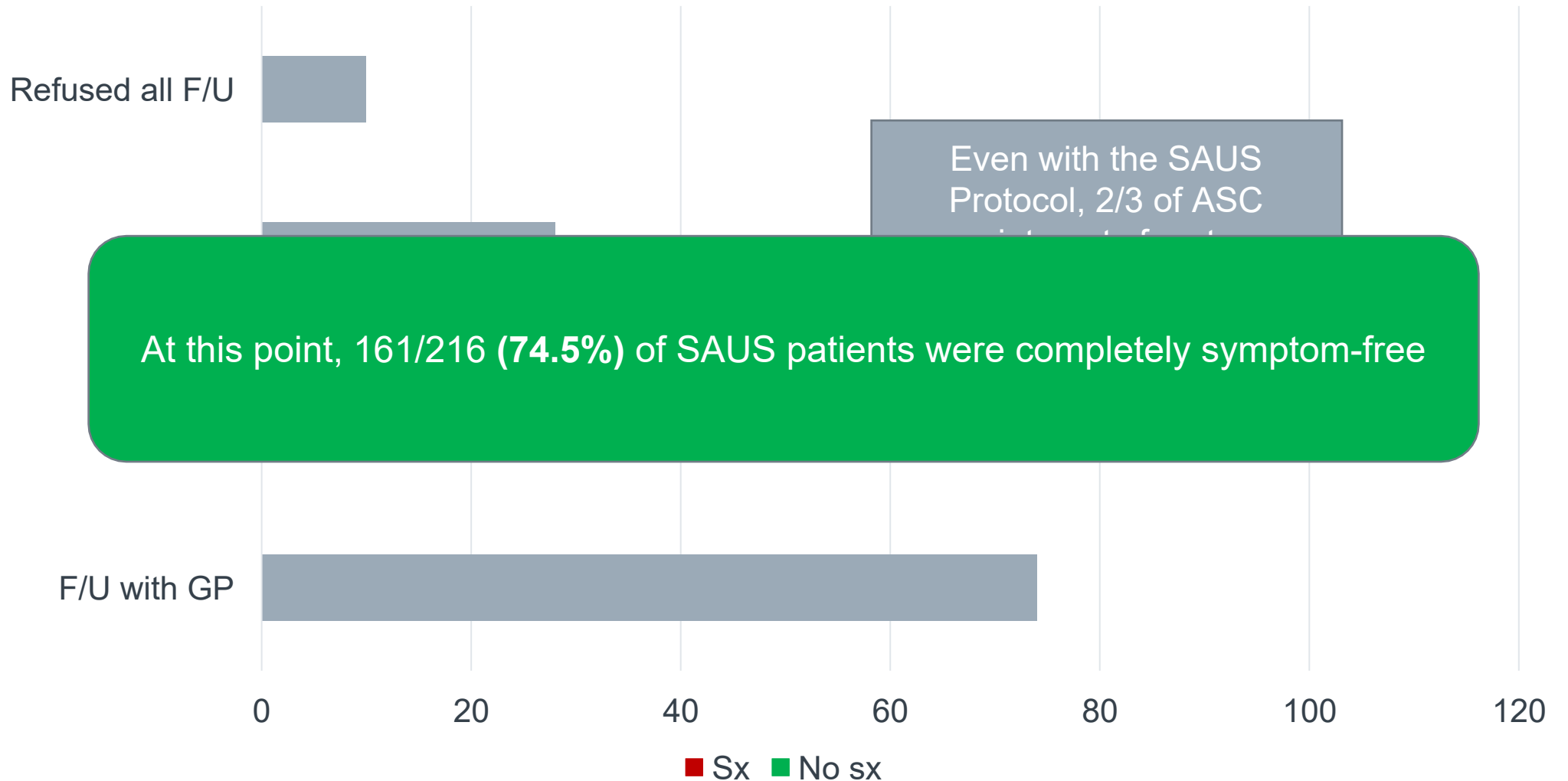
# Disposition



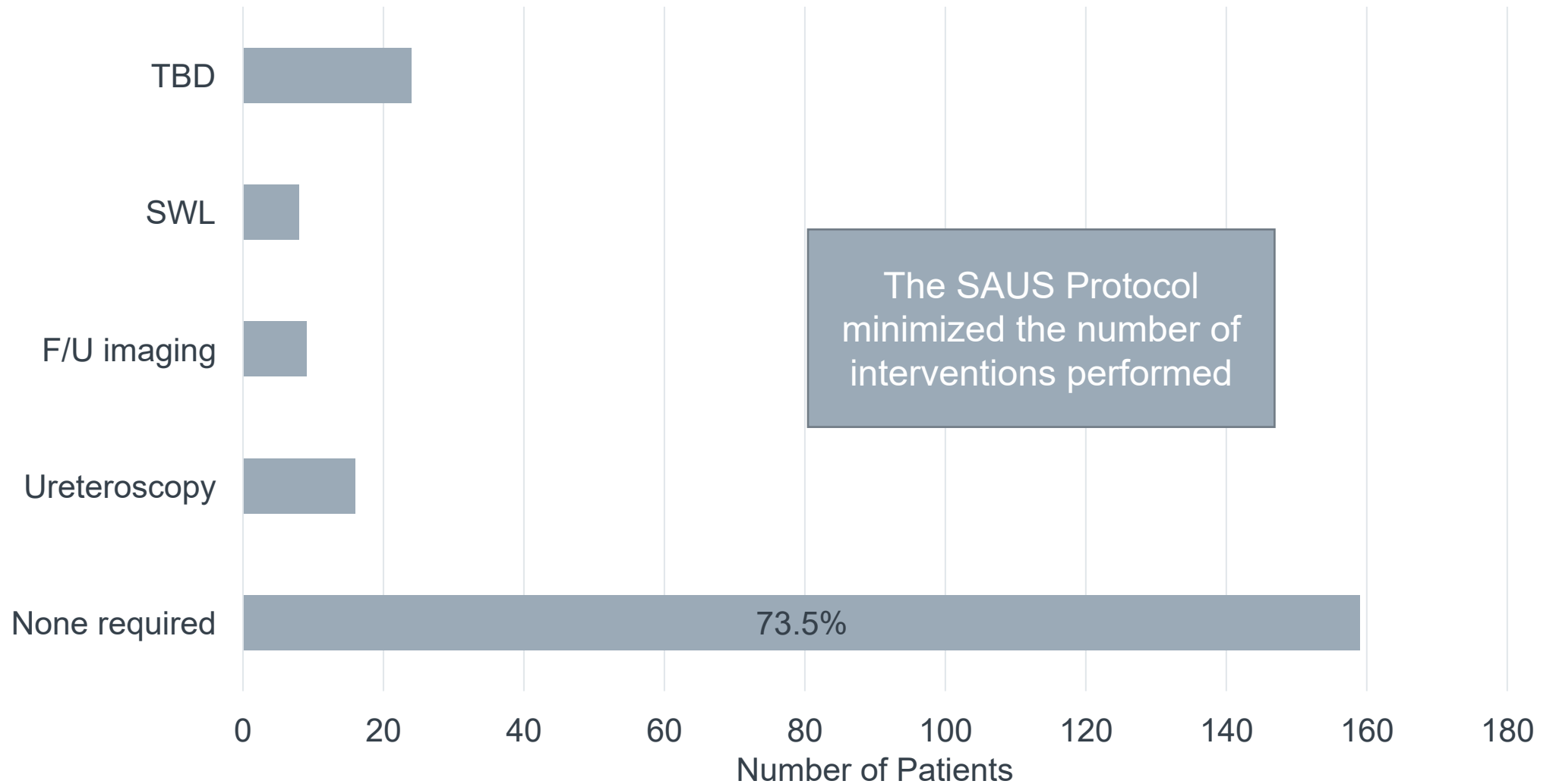
# Disposition – ASC Symptoms



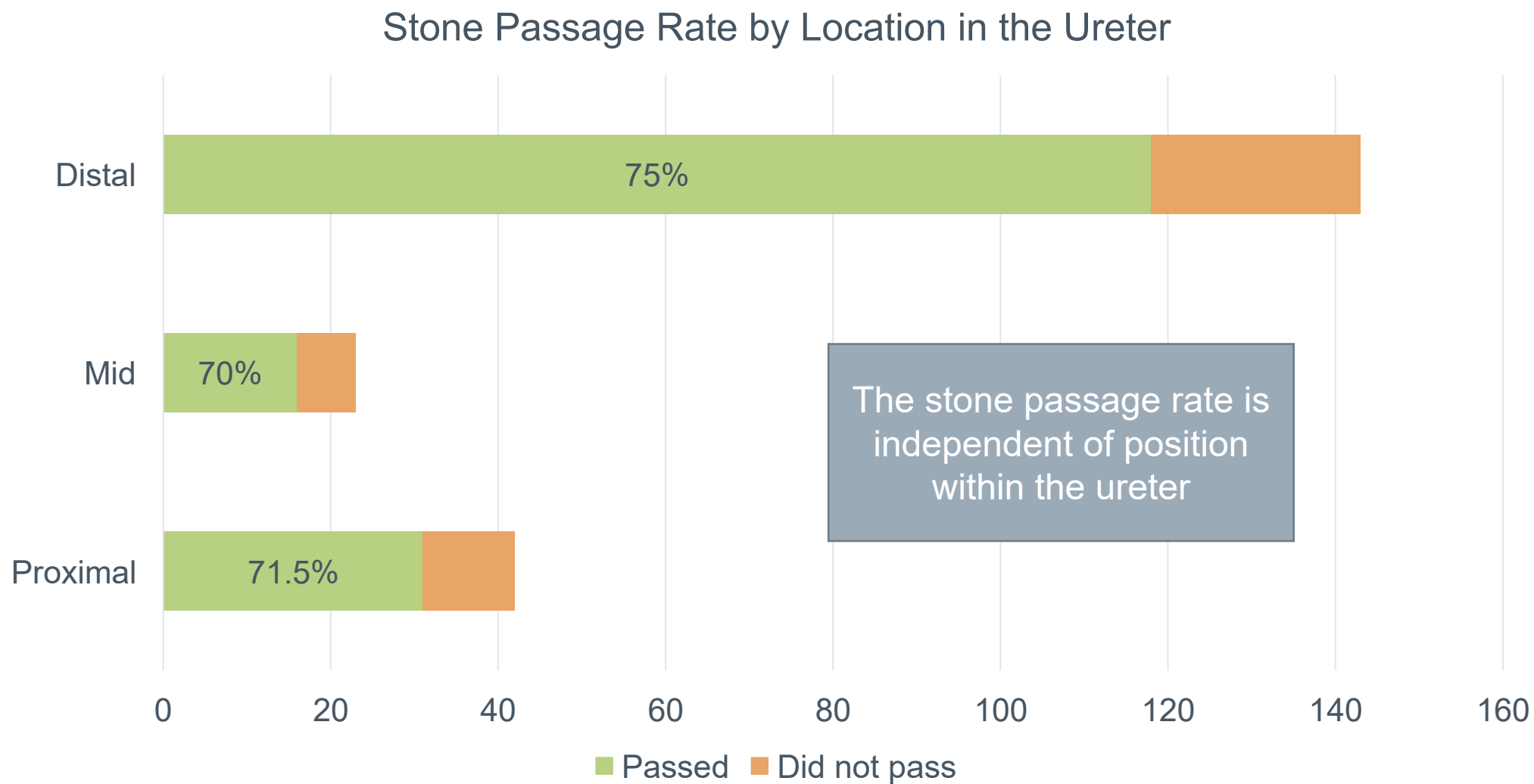
# Disposition – ASC Symptoms



# Interventions



# Stone passage by location



# Conclusions

Ureteral stone location did not change significantly in the 19.18d from initial to f/u imaging

The stone passage rate is independent of position within the ureter

For stones <5mm, the presence of symptoms at 3wks does not accurately predict stone presence

F/U US directs most patients with a stone to the ASC, but <50% require intervention

Even with the SAUS Protocol, 2/3 of ASC appointments for stones <5mm may not be justified

Patients are quite accurate at reporting stone passage

A period of conservative management may allow for natural passage of the majority of stones <5mm

By 20.5 days, 1 out of 3 patients are confident that they have passed their stone

By 20.5 days, 2 out of 3 patients were symptom free

The SAUS Protocol re-routed 53.2% of all patients bound for the ASC unnecessarily

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The SAUS Protocol is not perfect

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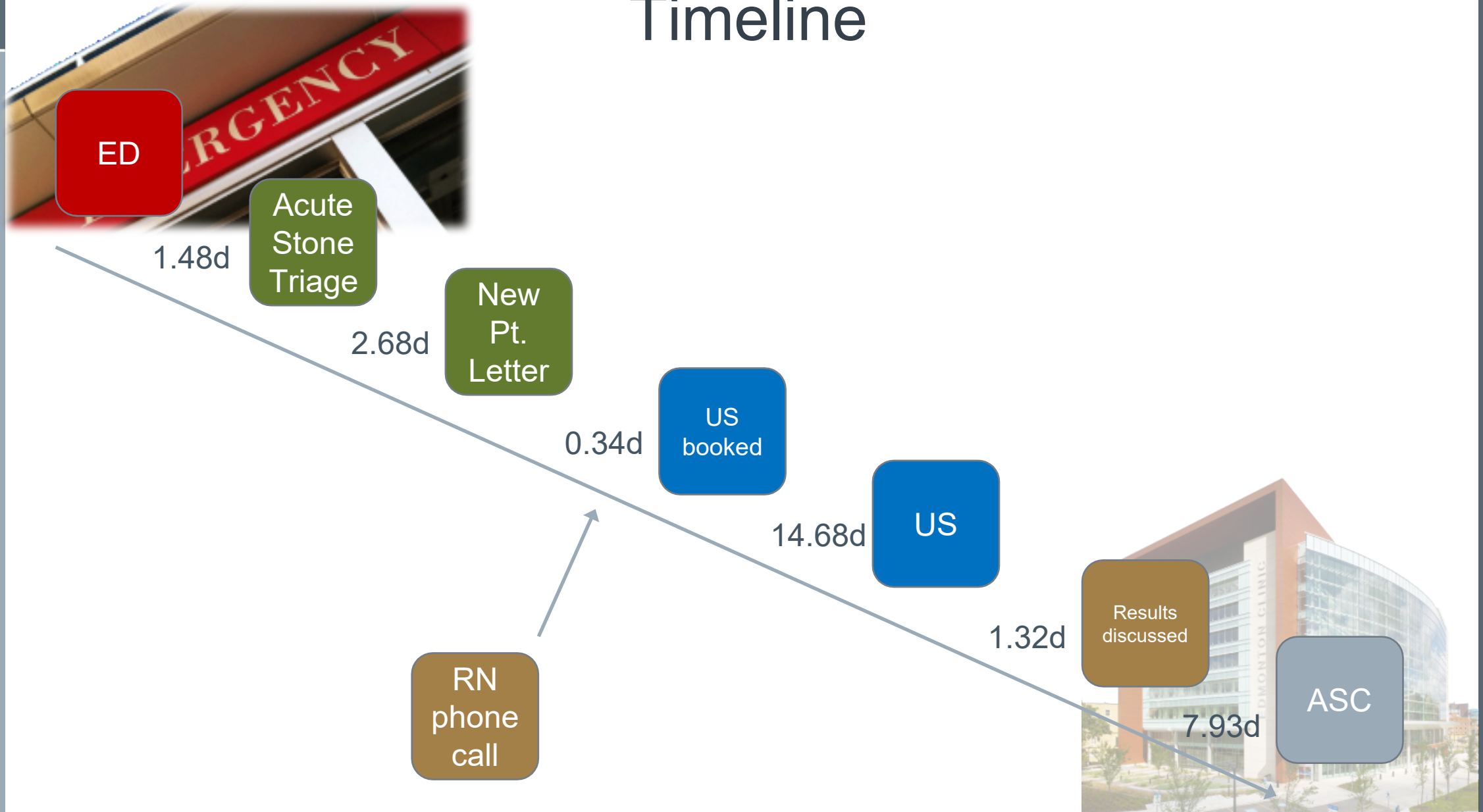
# LIMITATIONS

- › Retrospective chart review
  - Weakness inherent in the design
- › Ultrasound assessments of stone burden
  - Inter-observer variability
- › ED revisit rate unknown
  - Data acquisition currently underway

## FUTURE DIRECTIONS

- Elucidate impact of protocol on ED revisit rates
- Examine what happens to patients that did not see urology
  - How many are referred back to urology within a year
- Improve SAUS protocol
  - Adjust timing of patient call

# Timeline



# References

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Questions?