

### Background

Serum ascites albumin gradient (SAAG) is the difference between the serum albumin level and ascitic fluid albumin. SAAG  $\geq$  1.1 gm/dL is consistent with portal hypertension. In its 2021 guidelines, American Association for the Study of Liver Diseases (AASLD) recommends calculating SAAG in every new onset ascites. (1) Ascetic protein calculation guides SBP prophylaxis in patients with ascitic protein  $<1.5$  g/dL. (1,2)

### Problem Statement

There was anecdotal evidence of categorical values of ascitic fluid albumin and total protein being reported by Tower Health Reading Hospital (THRH) laboratory potentially impacting patient care decisions.

### Aim Statement:

**Primary Aim:** We aimed to improve the accurate reporting of serum ascites albumin gradient as a continuous variable from 71% to 100% for patients admitted at Reading Hospital by May 30th, 2023. **Secondary aim:** We aimed to improve the accurate reporting of ascitic fluid protein from 32% to 100% for patients admitted at Reading Hospital by May 30th, 2023.

### Secondary aim:

We aimed to improve the accurate reporting of ascitic fluid protein from 32% to 100% for patients admitted at Reading Hospital by May 30th, 2023.

### Methodology

#### Baseline Data:

A retrospective review of data from 07/01/2012 to 12/12/2022 was conducted on patients admitted to THRH to establish baseline. Data was extracted from electronic medical record (Epic TM). 2866 records of ascitic/peritoneal fluid albumin were identified. Among those, 2102 (73.34%) had their results reported as a categorical value ( $<0.1$  (n=95, 3.3%),  $<1$ (n=53, 1.85%),  $<1.5$ (n=1950, 68%)). Then we used serum albumin to calculate SAAG. Among those with categorical albumin report, we were able to calculate SAAG in 1270 (60.42%) but were unable to calculate it in 832 (39.58%). This translates to an overall ability to calculate SAAG in 71% (n=2034). We also reviewed total protein reported in ascitic/peritoneal fluid and had 1223 reports. Among those, 335 (27.4%) had total protein reported as continuous variable while 888 (72.6%) had total protein reported as a categorical value. Among those with categorical total protein reports, we were unable to assess accurately the need for SBP prophylaxis based on total protein value of less than 1.5 g/dl in 836 reports (94.14%). This translates to an overall inability to assess the need for SBP prophylaxis in 68.35%.

### Intervention

A multidisciplinary team meeting between internal medicine, laboratory department, and information technology teams developed a unique approach to implement a system wide change where ascitic fluid albumin of less than 1.5, or ascitic fluid protein less than 2.5 would reflexively trigger the use of a more sensitive reagent.

### Results

This system has been in place since 05/16/2022 and since then, our reporting accuracy of ascitic fluid albumin, total protein and SAAG calculation has improved to 100%.

### Conclusion:

Clinical audits of care can trigger unique system wide single intervention solutions limiting the number of PDSA cycles to meet standard of care.

### REFERENCES

1. Biggins SW, Angeli P, Garcia-Tsao G, et al. Diagnosis, Evaluation, and Management of Ascites, Spontaneous Bacterial Peritonitis and Hepatorenal Syndrome: 2021 Practice Guidance by the American Association for the Study of Liver Diseases. *Hepatology*. 2021;74(2):1014-1048. doi:10.1002/hep.31884
2. Aithal GP, Palaniyappan N, China L, et al. Guidelines on the management of ascites in cirrhosis. *Gut*. 2021;70(1):9-29. doi:10.1136/gutjnl-2020-321790