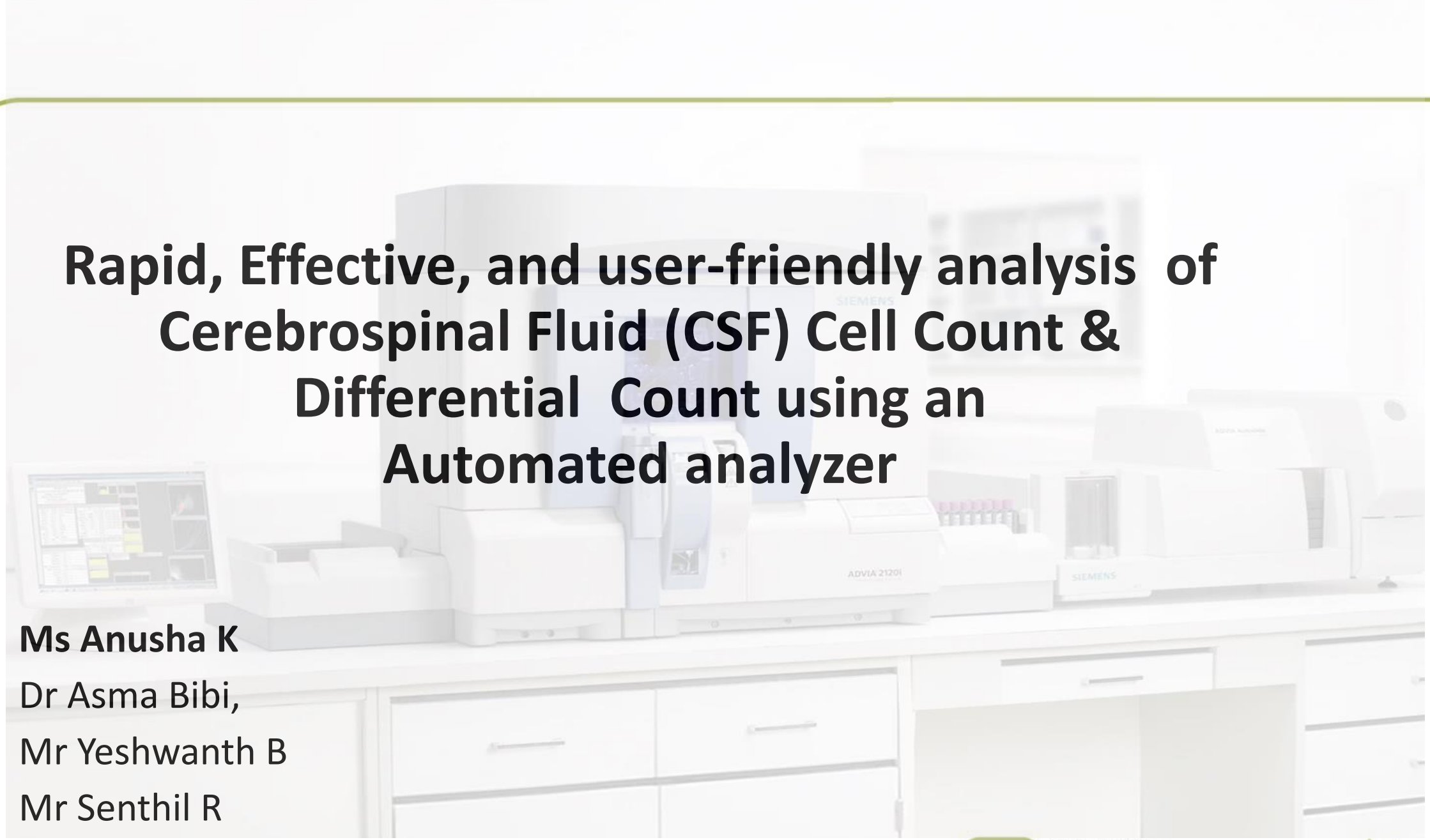
Rapid, Effective, and user-friendly analysis of Cerebrospinal Fluid (CSF) Cell Count & Differential Count using an Automated analyzer



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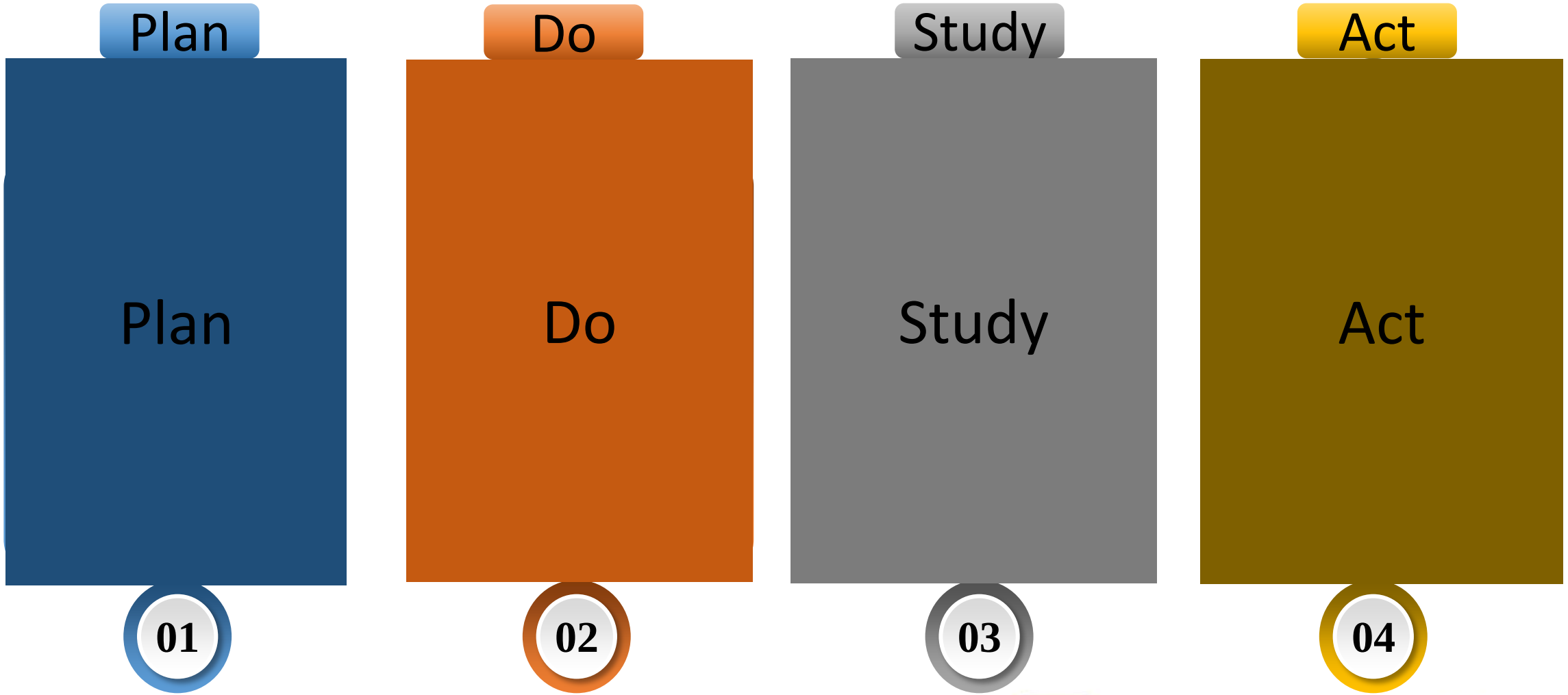
Background

- CSF analysis usually recommended for
  - suspicion for meningitis, head injuries, seizures, or status epilepticus
  - staging in cases of hematological neoplasms
  - post-operative monitoring in neurosurgical cases
- CSF sample analysis : Total White Blood Count (TWBC), Differential Count (DC), microscopic examination, microbiological and for biochemical parameters
- Conventional technique of CSF analysis: Neubauer chamber, Cytospin, and smear examination
- Prolonged turnaround times (TAT) with conventional methods of CSF analysis

Objective /Study/Design/Methodology

Objectives

- To estimate the TAT time to process CSF samples using the conventional technique (Neubauer chamber, cytospin, and smear examination)
- To evaluate the TAT time using automatic analyzer (Automated CSF analyser mode, cytospin, and smear examination)
- **Sample Size:** 154
- **Duration:** January 2023 to December 2023
- **Inclusions:** All CSF Samples for TWBC and DC
- **Exclusions:** CSF Samples received in non-working hours (17:30hrs – 9:00hrs)
- **Study Design:** PDSA cycle


Plan
Do
Study
Act
Plan
Do
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Act
01
02
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04

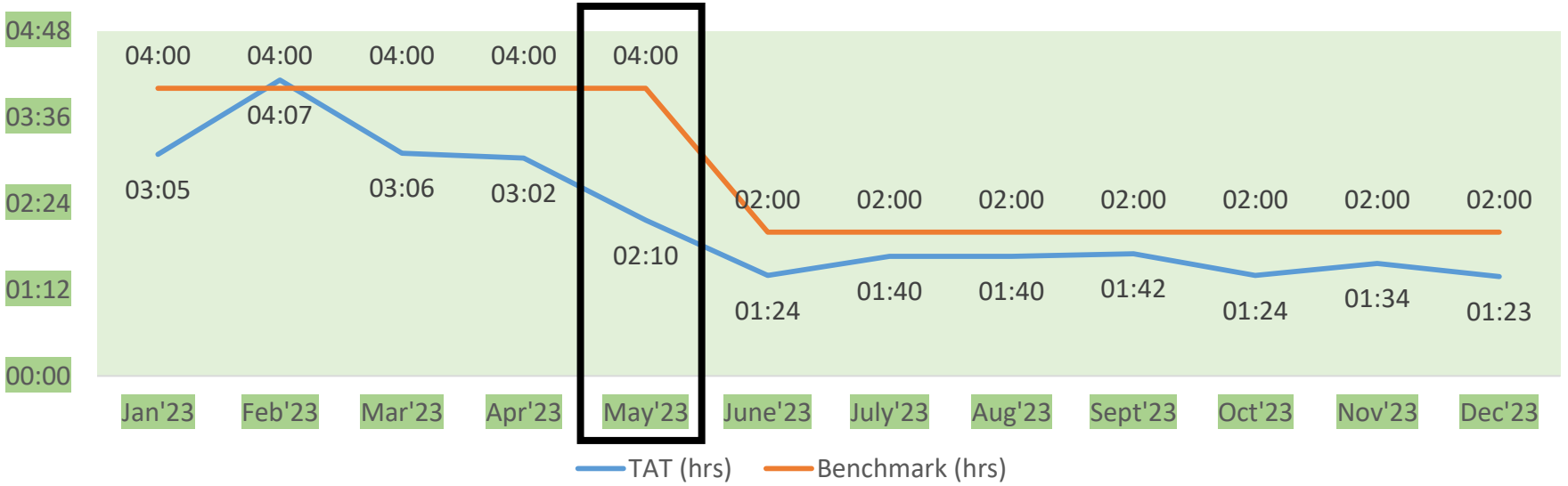
CSF sample – TWBC & DC using Automatic Analyzer

CSF automated analyser process flow.mp4

References

- Validation of the cerebrospinal fluid module of the Siemens ADVIA® 2120i for automated cell counts of cerebrospinal fluid | The Journal of Medical Laboratory Science and Technology of South Africa (journals.co.za)
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6977140/
- Accuracy of automated analyzers for the estimation of CSF cell counts: A systematic review and meta-analysis (researchgate.net)

Results



- TAT has come down after the implementation of automated CSF analyzer for cell count
- Average of 50% reduction in TAT
  - TAT 3:06 hrs in the period Jan’23 – May’23
  - TAT 1:32 hrs in the period Jun’23 – Dec’23

Sustenance Activities

- CSF cell count analysis performed within 1 hr of sample collection
- TAT maintained within 1:30 hrs in 2024 (Jan’24 – Mar’24)
- For samples received in nonworking hours - Provisional report of CSF cell count using automated analyzer has been released in HIS

Conclusion

Efficient

- TAT maintained within 1.5 hrs

Effective

- Advanced technology & Increased consultant satisfaction

Economical

- No additional cost to patient

Thank You

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