

# A RETROSPECTIVE STUDY OF MENINGITIS CASES IN A RURAL HOSPITAL IN THE PHILIPPINES: CHALLENGES AND OPPORTUNITIES

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## BACKGROUND OF THE STUDY

Meningitis is an inflammatory process that affects the brain and the spinal cord. Every year, approximately 2.5 million cases are recorded globally, with 250,000 of which result in deaths. Meningitis can be due to bacteria, viruses, parasites, fungi, and protozoans, but the most common pathogen involved is bacteria. One of the main challenges to achieving a timely diagnosis and drug therapy is the standard clinical feature shared by meningitis regardless of etiology.

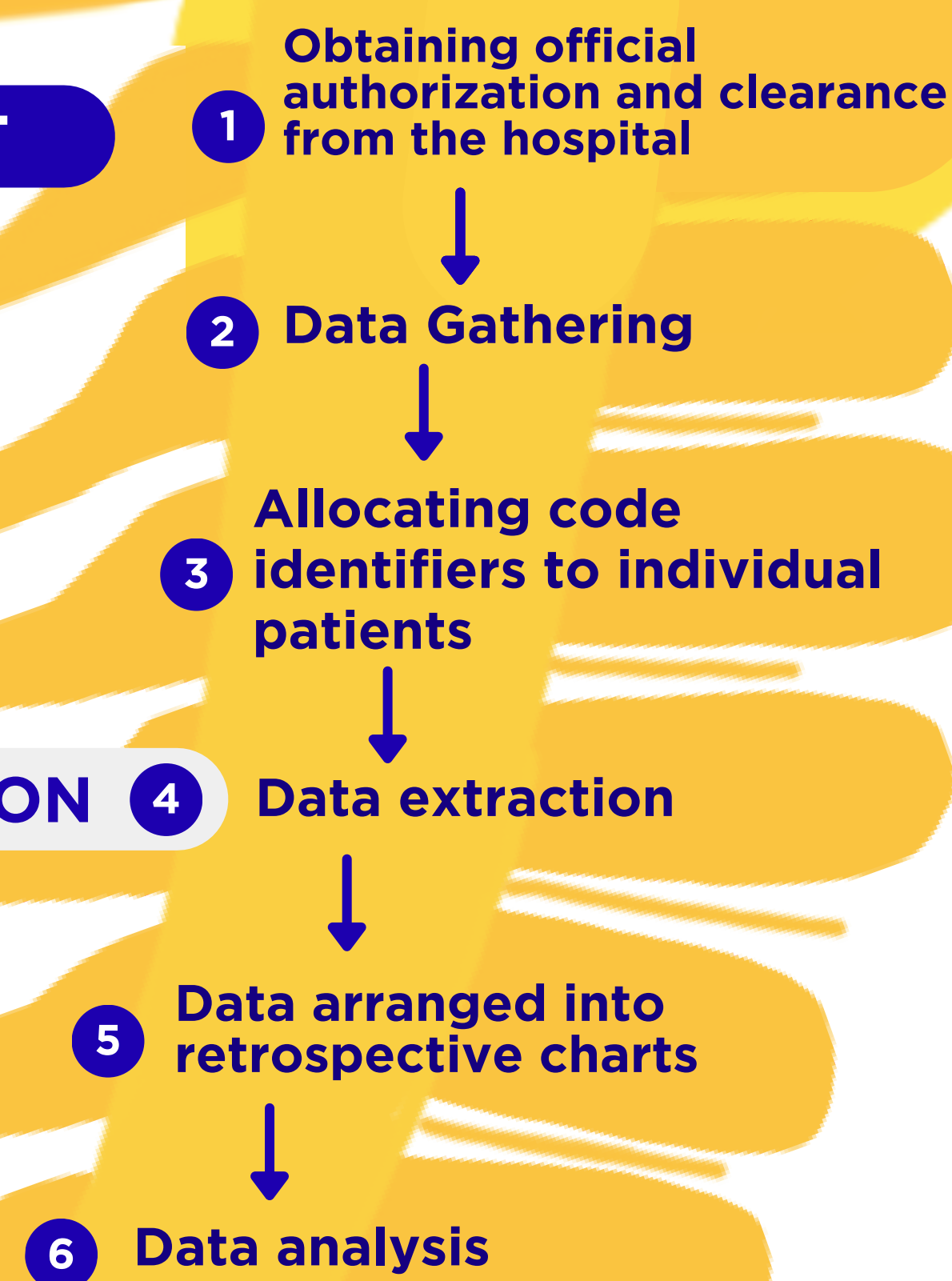
## OBJECTIVES

This retrospective study aims to establish gaps and opportunities in the current diagnostic tools used in managing meningitis in the Philippines through 3-year research of meningitis cases in a rural tertiary hospital.

## METHODOLOGY

A **retrospective review** was conducted on the medical records of in-patients and out-patients (n=35) who had sought treatment for suspected meningitis at a rural hospital in the Philippines between **2018 and 2021**.

### FLOWCHART



### KEY INFORMATION

Demographic Profile

Type of Meningitis

Initial Diagnosis

Procedures Performed

Final Diagnosis

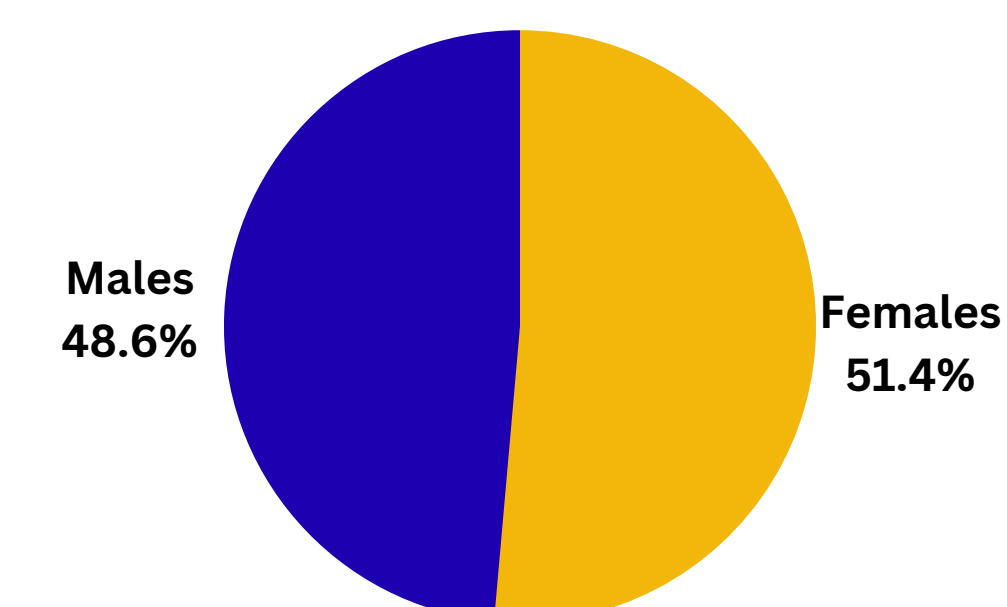
Final Patient Outcomes

## RESULTS AND DISCUSSION

The study explores meningitis management in the Philippines and other countries, identifying strengths and weaknesses. It highlights the benefits of access to medical records, detailed reports on procedures, and detailed diagnoses. However, it also highlights the limitations of not having access to patient history, community-acquired or nosocomial condition, and treatment regimen. These limitations are common in retrospective studies due to data availability from cooperating health institutions.

### A Case fatality vs Demographics of meningitis cases

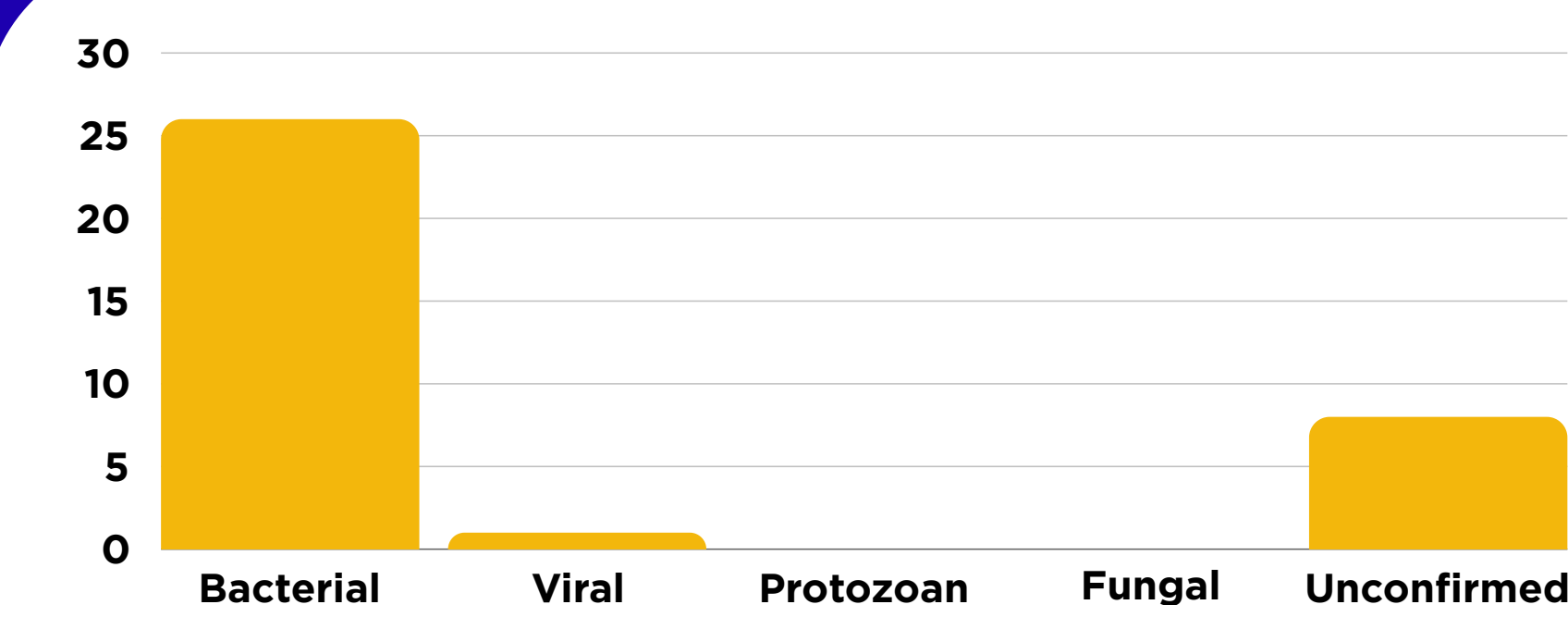
The data collected presented a higher population of pediatric cases with ages < 17 years old. Most patients who sought medical care were females. While high fatality rate is observed in younger age groups, our data showed an inverse statistic (age > 20 years old).



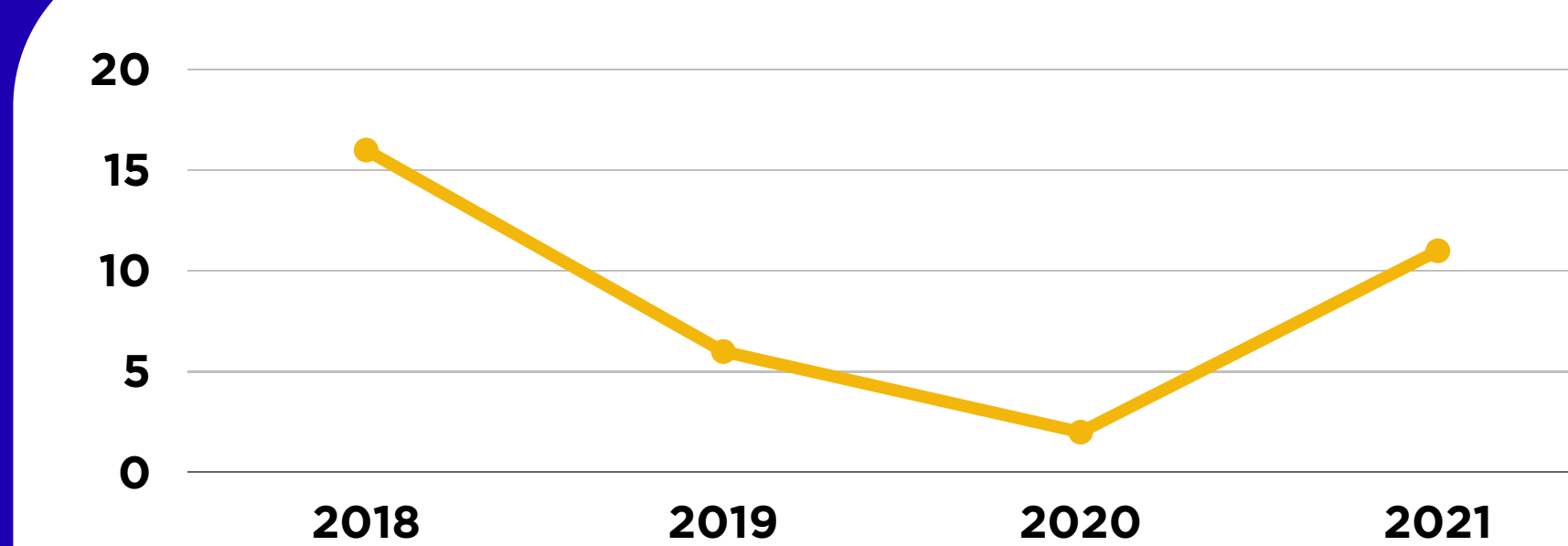
**Fig 1.** Gender distribution of patients who consulted in the study site from 2018 to 2021.

### B Meningitis cases in the study site from 2018 – 2021

The number of patients admitted that are suspected of having meningitis from 2018-2020 (n=35) consist of the study's sample population. There is a predominance of diagnosed bacterial meningitis (26) in the 3-year study, a low count for diagnosed viral meningitis (1) due to effective local government immunization, and a significant number of unspecified/unconfirmed cases (8) that raise concern due to their mimicry of the symptomatology of bacterial and viral types. With reference to national statistics, there are more unconfirmed (t/c meningitis) cases than unclassified meningitis cases—both requiring a more specific identification method that may include protocols other than additional laboratory procedures.



**Fig 2.** The number of meningitis cases per cause.



**Fig 3** The number of patients admitted per year suspected of having meningitis.

### C Challenges in meningitis diagnosis in the Philippines

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Specimen	Culture Results	
	(+)	(-)
Blood	4	13
Traceheal aspirate	2	0
CSF	0	1
Urine	1	0
<b>Total</b>	<b>7</b>	<b>14</b>

**Table 1.** Culture results from patients confirmed with bacterial meningitis.

Procedure	Patient Count
Blood Chemistry	8
Complete Blood Count	7
Serology (Typhoid/Dengue test)	2
Urine Analysis	4
Total Peripheral Resistance	2
Culture	2
Imaging (CT scan/X-ray)	4

**Table 2.** Procedures performed on patients with unspecified bacterial meningitis diagnosis in study hospital.

## CONCLUSION

Today, meningitis continues to be a global medical challenge, and proper diagnosis and therapeutic management of cases are the key factors in prompt treatment. This study has shown strengths and potential gaps in the clinical management of meningitis, the latter of which limit the accurate diagnosis of said condition. Since current protocols are established at a national rather than an institutional level, we strongly recommend revisiting national policy and protocol on managing meningitis locally. Finally, developing simpler, yet more advanced methods may be explored for faster, more accurate, and more efficient diagnosis of meningitis.

## ACKNOWLEDGMENTS

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REFERENCES

SCAN ME!