#### with our findings, we identified A. hydrophilia as the most predominant species accounting for skin and soft-tissue infections. (3, 4) Additionally, high antimicrobial resistance was observed for A. hydrophilia as the most predominant species accounting for skin and soft-tissue infections. (3, 4) Additionally, high antimicrobial resistance was observed for A. hydrophilia as the most predominant species accounting for skin and soft-tissue infections. (3, 4) Additionally, high antimicrobial resistance was observed for A. hydrophilia



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# PREVALENCE AND ANTIMICROBIAL RESISTANCE PROFILE OF AEROMONAS spp. A SINGLE-CENTER RETROSPECTIVE COHORT STUDY

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#### INTRODUCTION

Aeromonad is emerging as an opportunistic pathogen in humans, with increasing resistance to antibiotics. We aimed to elucidate the prevalence and AMR profiles of Aeromonas species in Melaka Hospital.



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#### METHOD

- Single-center retrospective cohort study of patients with *Aeromonas* spp. strain identified in any clinical culture between January 2020 and December 2023.
- Bacterial identification was performed with MALDI-TOF MS. AMS was evaluated using disc diffusion and interpreted according to the 3<sup>rd</sup> Edition M45 CLSI.

#### RESULTS

- A total of 72 patients (mean age: 55, male: 74%) were included.
- Predominance of Aeromonas
- A. hydrophilia (61%)
- A. caviae (21%)
- A. spp (11%)
- A. veronii (7%)
- Tissue was the most frequent source of strains, implicated by A. hydrophilia (14, 70%).
- AMR pattern of Aeromonads varied, with

#### Proportion of clinical samples with isolation of Aeromonas species



- 35% to ceftriaxone and piperacillin-tazobactam
- < 3% to ciprofloxacin, TMP/SMP, gentamicin, and meropenem.
- There was a substantial rise of resistance to all antimicrobials in 2022, including meropenem.
- Amongst all isolates, tissue strains demonstrated higher resistance to ceftriaxone (4/12, 33.3%), pip/tazobactam (3/11, 27.3%), TMP/SMX (1/6, 16.7%), ciprofloxacin (2/5, 40%), gentamicin (1/2, 50%), meropenem (1/1, 100%).

#### DISCUSSION

- A. hydrophilia, A. caviae, and A. veronii are the common causative agents, with A. hydrophilia accounting for SSTI with high AMR.
- ✤ Aeromonas species increasingly harbours AMR, with rate ranging 100% to Ampicillin, 92.5% to Penicillin, 52-65% to cephalosporins and 21.5% to colistin, owing to the proceeder of bota lasternase and proportion.

Fig. II illustrates the proportion of clinical isolates with Aeromonas strains.

Antimicrobial resistance pattern of Aeromonas strain between 2020 and 2023



presence of beta-lactamase enzymes and preponderant mobile resistance elements (including plasmids, transposons, and genomic islands).

Interestingly, our study showed that Aeromonas detection was shallow in 2021, followed by an exponential rise in 2022. This finding could be explained by reduced hospitalization of non-COVID-19 patients during the lockdown period, and restoration of healthcare services during the transition to endemic phase of COVID-19.

Emergence of antimicrobial resistant Aeromonas species may reflect the impact of antibiotic overconsumption and contamination in wastewater and environment.

Piperacillin-tazobactam	3	0	7	1
Trimethoprim- sulfamethoxazole	2	0	2	2
	1	1	2	1
Gentamicin	0	0	2	0
Meropenem	0	0	1	0

#### Fig. III describes the AMR pattern of Aeromonas strains between 2020 and 2023.

### CONCLUSION

# This study highlighted the predominance of A. hydrophilia in isolates, mainly tissue specimens, and its AMR to beta-lactams.

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