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Evaluation of Cost Savings with the Addition of a Matrix Assisted Laser Desorption Ionization-Time of Flight Machine (MALDI-TOF) at a Tertiary Hospital

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Introduction

- Matrix assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF) is a process that can identify microbes using either intact cells or cell extracts and is rapid, sensitive, and economical.[1]
- Implementation of a MALDI-TOF has been equal or superior to standard methods in the detection and identification of organisms.[1]
- The addition of a MALDI-TOF machine has been associated with cost savings at large institutions.[2] It is unknown if a similar cost advantage can be realized by smaller institutions.
- Currently, at St. Cloud Hospital, certain organisms are sent to a secondary facility for identification at an increased cost.

Purpose

- To evaluate potential cost savings of the addition of a MALDI-TOF machine in comparison to current costs of standard methods at St. Cloud Hospital, a tertiary community hospital with 489 licensed beds

References

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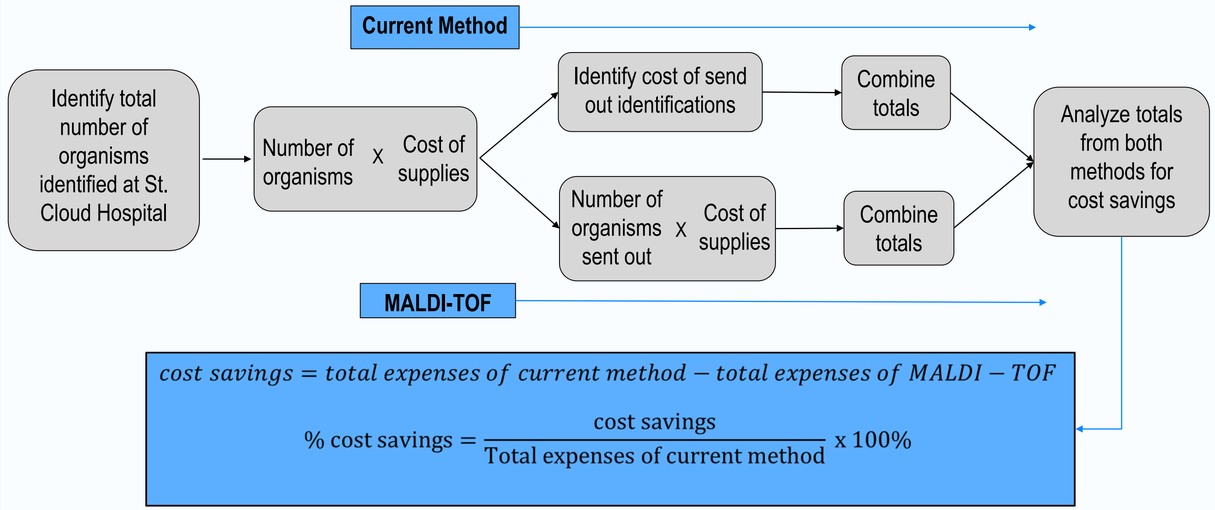
2. Tran A, Alby K, Kerr A, Jones M, Gilligan PH. 2015. Cost savings realized by implementation of routine microbiological identification by matrix-assisted laser desorption ionization–time of flight mass spectrometry. *J Clin Microbiol* 53:2473–2479. doi:10.1128/JCM.00833-15.

Methods

- A report was generated with the total number of organisms identified at St. Cloud Hospital between July 2016 and June 2017. A microbiology technical specialist identified the cost of supplies utilizing current methods of identification within the microbiology lab and obtained a report regarding the total cost of send out identifications during the time period. A previous study was utilized to identify the projected cost of supplies when using a MALDI-TOF. Costs were compared between the two methods using the following calculations.



Results

	Number of organisms in house	Cost of supplies per test	Number of organisms sent out	Send out costs	Total expenses
Current Method	3096	$3.603	182	$16,004.45	$27,242.93
MALDI-TOF	3278*	$0.43	0	0	$1,409.54

*number includes organisms that were sent out for identification that could be identified in house if using MALDI-TOF

Cost savings
$25,833.39 (94.8%)

Evaluation

- When looking at the cost of supplies utilized in testing, it would appear that having a MALDI-TOF would provide significant cost savings.
- This cost evaluation does not consider the cost of the yearly maintenance contract for the MALDI-TOF, the potential decrease in technician time spent during the identification process, and whether the savings is large enough to offset initial cost of the MALDI-TOF within a reasonable time-frame.
- This study does not account for impact on patient length of stay or duration of inappropriate antibiotics based on the two methods.

Conclusion

- Based on the cost of supplies to identify an organism, the MALDI-TOF has an estimated savings of 94.8% over current methods utilized at St. Cloud Hospital.

Disclosure

- Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation

Hannah Packer: Nothing to Disclose
Ann Wigton: Nothing to Disclose