Harnessing the Power of Robotic Process Automation for Efficient and Effective Workflow of Infection Preventionists

Isis Lamphier, MPH, CIC

Manager of Infection Prevention, Moffitt Cancer Center

Background

The field of infection prevention plays a critical role in safeguarding patient well-being, necessitating continuous advancements to enhance operational efficiency and patient safety.

The intricate nature of infection prevention workflows poses a challenge, with manual processes consuming significant time and hindering the swift and efficient execution of essential tasks by infection preventionists.

This study investigates how implementation of robotic process automation (RPA) in an infection prevention department at a comprehensive cancer center can address the challenge of complex workflows, specifically focusing on how it enhances efficiency, saves time for infection preventionists, and contributes to the consistent and timely review of microbiology results.

Methods

This study was conducted in the infection prevention department over a 12-month period, involving a sample of 9 infection preventionists and their corresponding workflows. The automation deployed within the department systematically examined microbiology findings. It then meticulously organized crucial information, including medical record numbers, patient names, specimen sources, collection locations, and collection dates. From there, it showcased its efficacy by distinguishing among different organisms and strategically compiling them into designated line lists. Following the automation process, infection preventionists proceeded to analyze the data, implement needed isolation measures, and monitor the incidence of hospital-acquired cases. Crucial organisms automated included all respiratory viruses, vancomycin-resistant Enterococcus (VRE), methicillin-resistant Staphylococcus aureus (MRSA), Clostridioides difficile, and Candida auris. This facilitated swift and targeted reviews and interventions by infection preventionists with no room for human error identifying and transcribing appropriate microbiology results.

Automation is Deployed

- An automation runs every morning that collects new microbiology results for the Infection Prevention department.

Automation Collects Data

- The automation is programmed to identify key positive microbiology results such as VRE, MRSA, and Candida auris.
- From those results, it also collects information regarding the specimen and the patient's demographics.

Automation Organizes Data

- The automation sorts the microbiology data and places it on a line list based on the organism type.

Infection Prevention Analyzes Data

- An infection preventionist uses the data to implement appropriate isolation measures and monitor incidence of infections.

Results

The implementation of RPA resulted in significant time savings for the department. The analysis, conducted through paired t-tests comparing pre- and post-implementation periods, revealed an annual time savings of 627 hours which translated to $30,848. The calculation of time and cost savings was derived from the salary rate of infection preventionists conducting the task, alongside factors such as task frequency, duration, and volume. The statistical significance of this result was established with a p-value of less than 0.05, affirming the positive impact of RPA on workflow efficiency in the infection prevention department. In the upcoming year, there is an expectation of further growth in both time savings and cost efficiency, as the department has expanded, and the salaries of employees continue to rise.

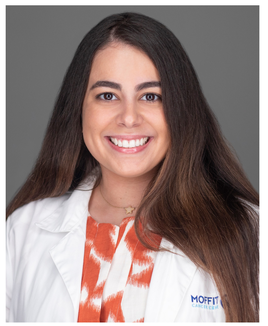
One Year of Automation

- Time savings of 627 hours
- Cost savings of $30,848
- Elimination of human error

Conclusion

This study establishes that the implementation of RPA in an infection prevention workflow yielded a substantial annual savings of 627 hours, equivalent to $30,848, thus validating the efficacy of RPA in enhancing workflow efficiency. As RPA begins to integrate into infection prevention strategies, this marks just the dawn of its potential in this field, with future advancements likely to see even greater utilization and innovation in leveraging automation for more robust infection control measures. RPA is poised to revolutionize infection prevention by streamlining data analysis, automating repetitive tasks, and enhancing the efficiency of surveillance systems, ultimately contributing to more effective and proactive measures against infectious diseases.

Author Information



Isis Lamphier, MPH, CIC

Isis.Lamphier@moffitt.org

The author has nothing to disclose.