

BACKGROUND

- Pharmacy students' clinical interventions have historically equated to cost savings or cost avoidance for health systems.
- One study tracked interventions of an entire pharmacy school's APPE students over four years. The results showed an estimated cost savings/avoidance of \$8,583,681 from 59,613 interventions, based on Elsevier Gold Standard Clinical Measures® software. These interventions included items such as chart reviews, dosing issue resolutions, medication reconciliation, etc.¹
- Using the same software, another study looked at cost savings from pharmacy students completing APPEs at federally qualified health centers. It resulted in 490 clinical interventions and an estimated cost savings of \$92,803 over 69 APPEs.²
 - This software incorporates cost avoidance into the calculation as well, and although this will not be calculated in our study, it shows the economic impact pharmacy students can have on a health system.
- Data is lacking regarding the impact of pharmacy students' impact on clinical services and cost savings during employment outside of rotations.

OBJECTIVES

- To investigate whether integrating clinical service management into the role of a pharmacy student employed by a health system will result in pharmacist cost savings

METHODS

- Study Design:** one-armed interventional study completed at a single hospital site
- Employed pharmacy students were trained on VTE prophylaxis and vancomycin dosing protocols using online modules, health-system protocols, investigator-created presentations, and competencies.
- Once students completed required training, they began to complete protocols that were then reviewed by a pharmacist.
- Students documented their interventions in the electronic health record.
- A chart review was completed to determine the total number of protocols completed, breaking it down by protocol type.
- Cost savings was calculated by adding the cost it takes students to complete a protocol (hourly wage multiplied by fraction of hours) to the cost for the pharmacist to review the student protocol (hourly wage multiplied by fraction of hours) compared to the previous cost it took a pharmacist to complete a protocol (hourly wage multiplied by fraction of hours).
- Hourly wage used in calculations was \$60/h for pharmacists and \$17.50 for students.

RESULTS

- Between 9/10/22 and 12/10/22, 33 protocols were completed by students.
 - 22 vancomycin dosing consults and 11 VTE prophylaxis

Consult Type	Pharmacist time to complete consult	Student time to complete consult	Pharmacist time to review student consult
Vancomycin Dosing	9 minutes	11 minutes	5 minutes
VTE Prophylaxis	5 minutes	7 minutes	3 minutes

Table 1: Time to complete and review protocols

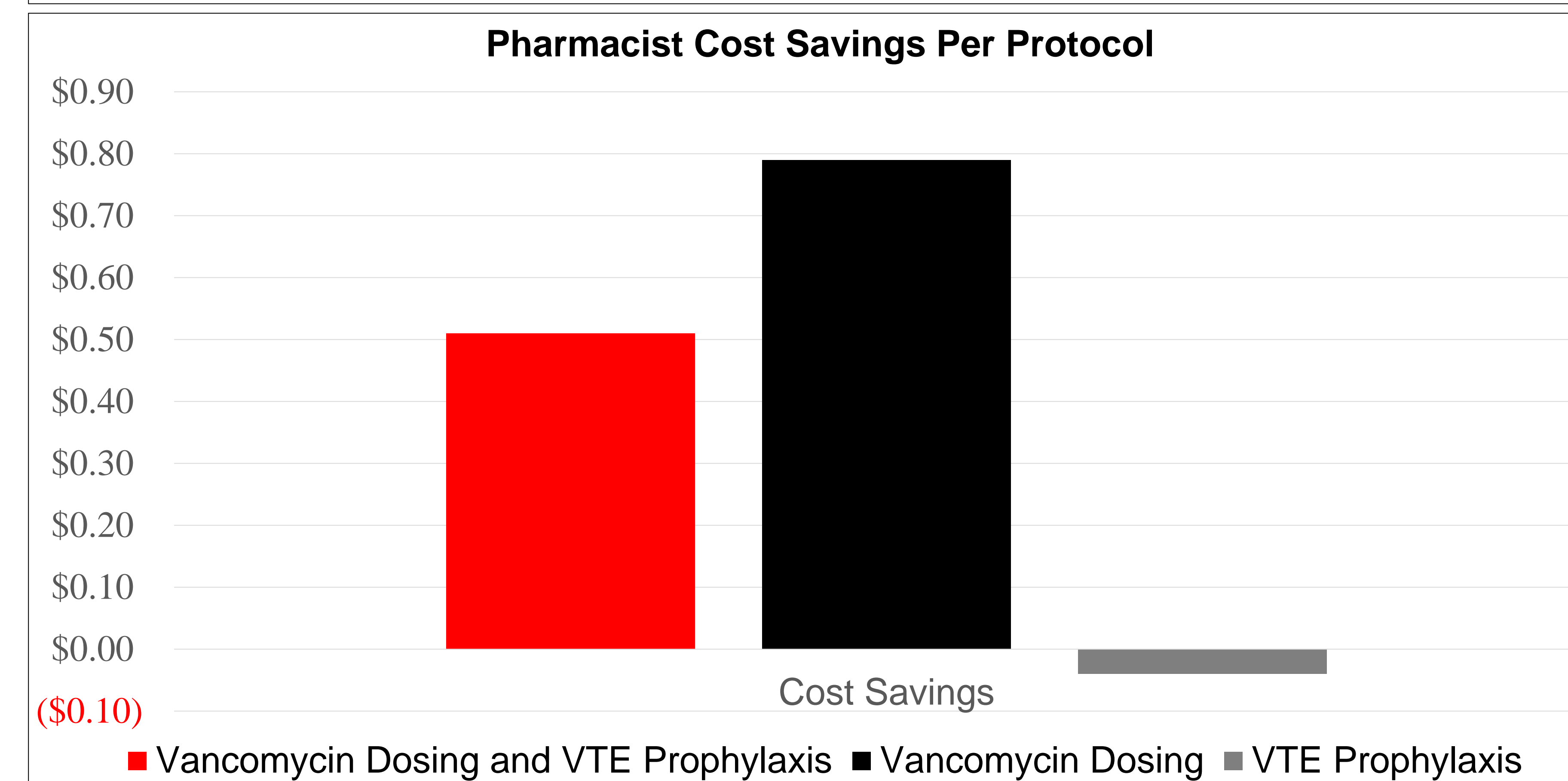
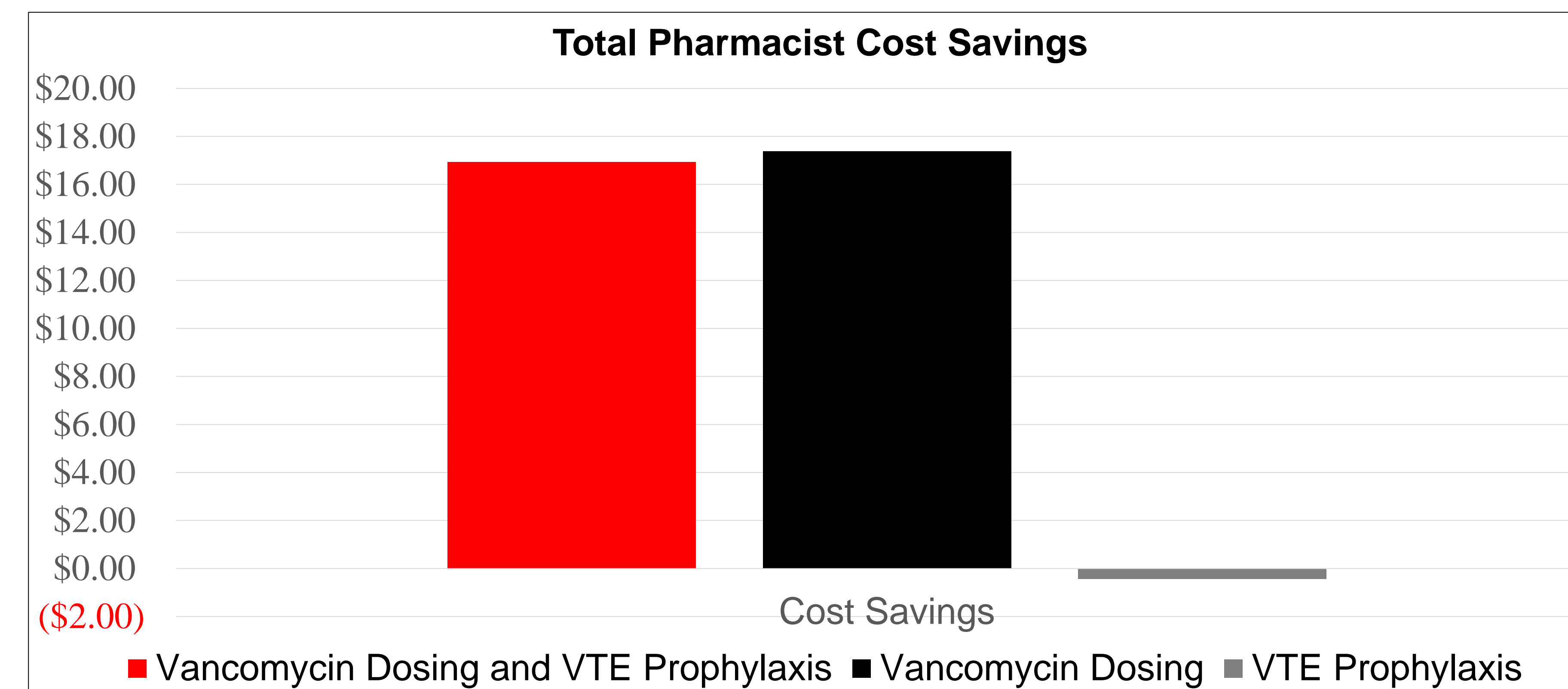


Figure 1 & 2: Total cost savings and cost savings per protocol after implementation

DISCUSSION

- This initiative showed a positive financial benefit to having pharmacy students employed by health systems complete clinical protocols.
- A major limitation is given the short timeframe, the magnitude of savings is minimal at this time.
 - Savings could become more substantial if this was implemented at a system level and if it was included in the on-boarding process to maximize the amount of time protocols could be completed.
 - Savings may also increase with the following:
 - Students become more efficient at completing protocols
 - Pharmacists become more efficient at reviewing protocols
 - More pharmacy students begin completing protocols
- This could also provide a recruitment advantage for pharmacy students.
- Further research is needed to assess students' perceptions about job satisfaction with addition of more clinical responsibilities, similar to a career ladder.
 - There is data on improved job performance, improved culture from increased job satisfaction and retention rates, more competitive recruiting, and salary increases after implementation of career ladders for pharmacy technicians.³
 - Data is lacking in regards to career ladders among pharmacy students.
- This would allow pharmacy students to practice at the top of their licenses and help to decrease pharmacist workload.

CONCLUSION

- Completion of clinical protocols by pharmacy students employed by a health system resulted in a net total cost savings.
- Vancomycin dosing appeared to provide a larger cost savings of 79 cents per protocol, whereas VTE prophylaxis resulted in a loss of four cents per protocol.
- A long-term study assessing the cost savings of student completed protocols is needed to determine the true magnitude of the savings
- Further research is needed to assess students' perceptions about job satisfaction with addition of more clinical responsibilities

REFERENCES

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