

Economic Impact of an IV Team on Central Line Associated Bloodstream Infections (CLABSI)

Dr. Vivek Agnihotri

Dr. D Napierkowski, Dr. K Phillips, Dr. A Ratcliffe
WILLIAM PATERSON UNIVERSITY

PROBLEM/BACKGROUND

- Hospital acquired infections (HAI) is a worldwide problem (WHO, 2011). Annually approximately 250,000 central line associated bloodstream infections (CLABSIs) occur in U.S. (Maki, 2006).
- CLABSIs are significant financial burden to hospitals costing hospitals \$25,155 - \$75,000 (DiGiovine, 1999; Dimick, 2001; Hollenbeak, 2011; Hollenbeak, 2012; Kilgore, 2008; Laupland, 2006; Pittet, 1994; Shannon, 2006; Warren, 2006)
- Under the new guidelines from Centers for Medicare and Medicaid Services (CMS, 2009), there will be decreased to no reimbursement from third party payers (Joint Commission, 2012) for CLABSIs
- Therefore CLABSIs must be addressed. Preventing CLABSI is one of the top 20 national priorities moving ahead (IOM, 2003)

PLAN

- Research Hypothesis: Intravenous team is cost effective in reducing CLABSI rate.
- The Purpose of this study was to evaluate the financial impact of IV team initiative in reducing CLABSI.
- Null Hypothesis: There is no financial benefit for a designated IV team related to CLABSI rate

METHODOLOGY

Design:

This was a retrospective, non experimental, comparative study. The data analysis was done using current literature review of the cost of CLABSI pre and post IV team implementation and compared to Salaries and benefits of Nurses in the IV team.

Setting:

The data collection was completed at a non teaching, 250 bed community hospital in a suburb of northern New Jersey.

Sample:

- Archived Aggregated data on # of CLABSI was obtained from the epidemiology department.
- Cost of CLABSI was obtained from the Association of Professionals in Infection Control and using the available literature (Hollenbeak, 2012).
- IV team salaries and benefits was obtained from the Nursing Administration.

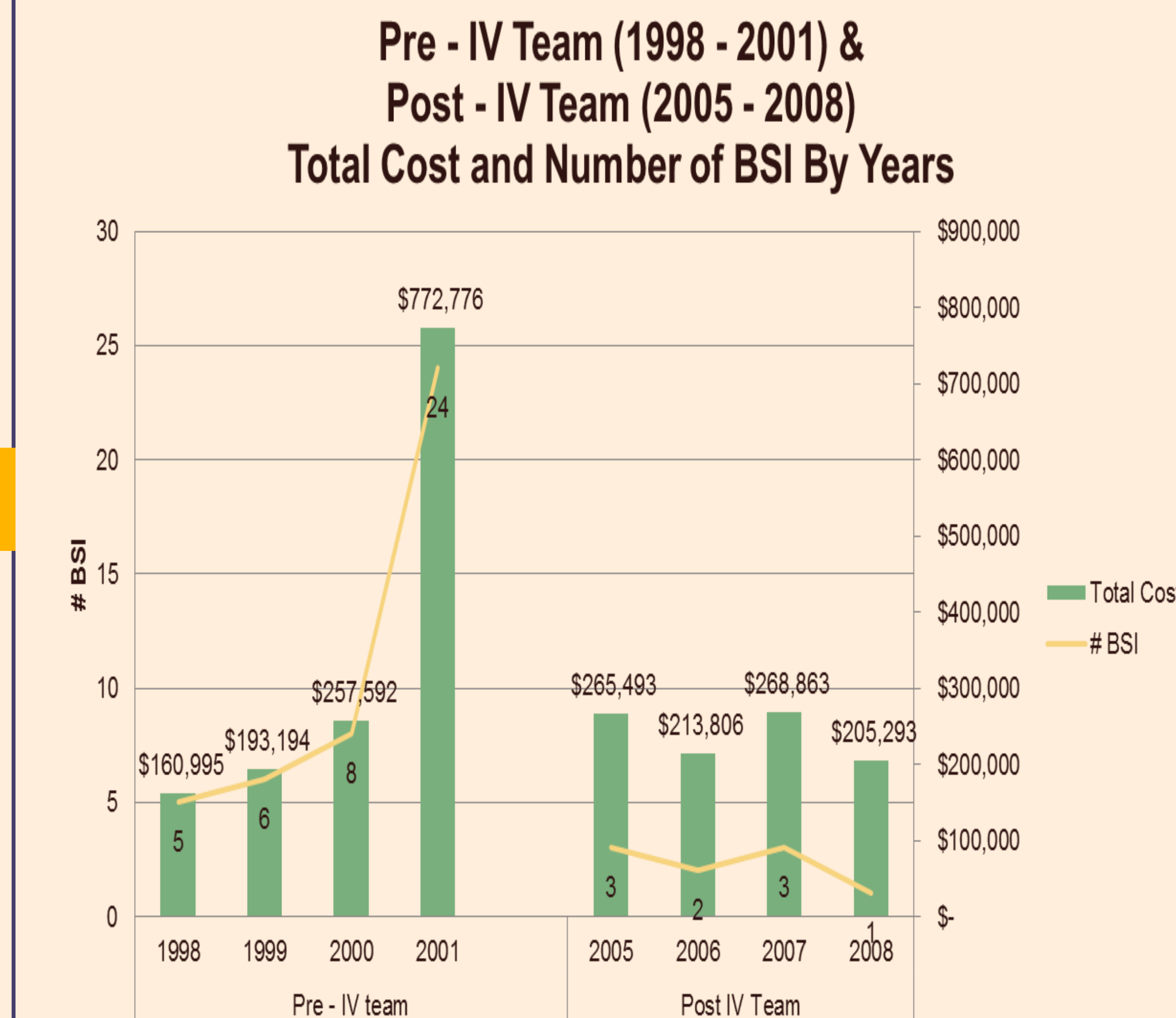
PROCEDURE

The study was completed in 16 weeks
IRB approval was obtained from William Paterson University
IRB was also obtained from Saint Clare's Hospital's Research Evaluation Department.
No human subjects involved therefore no risks involved.

PRE-IV TEAM 1998-2001

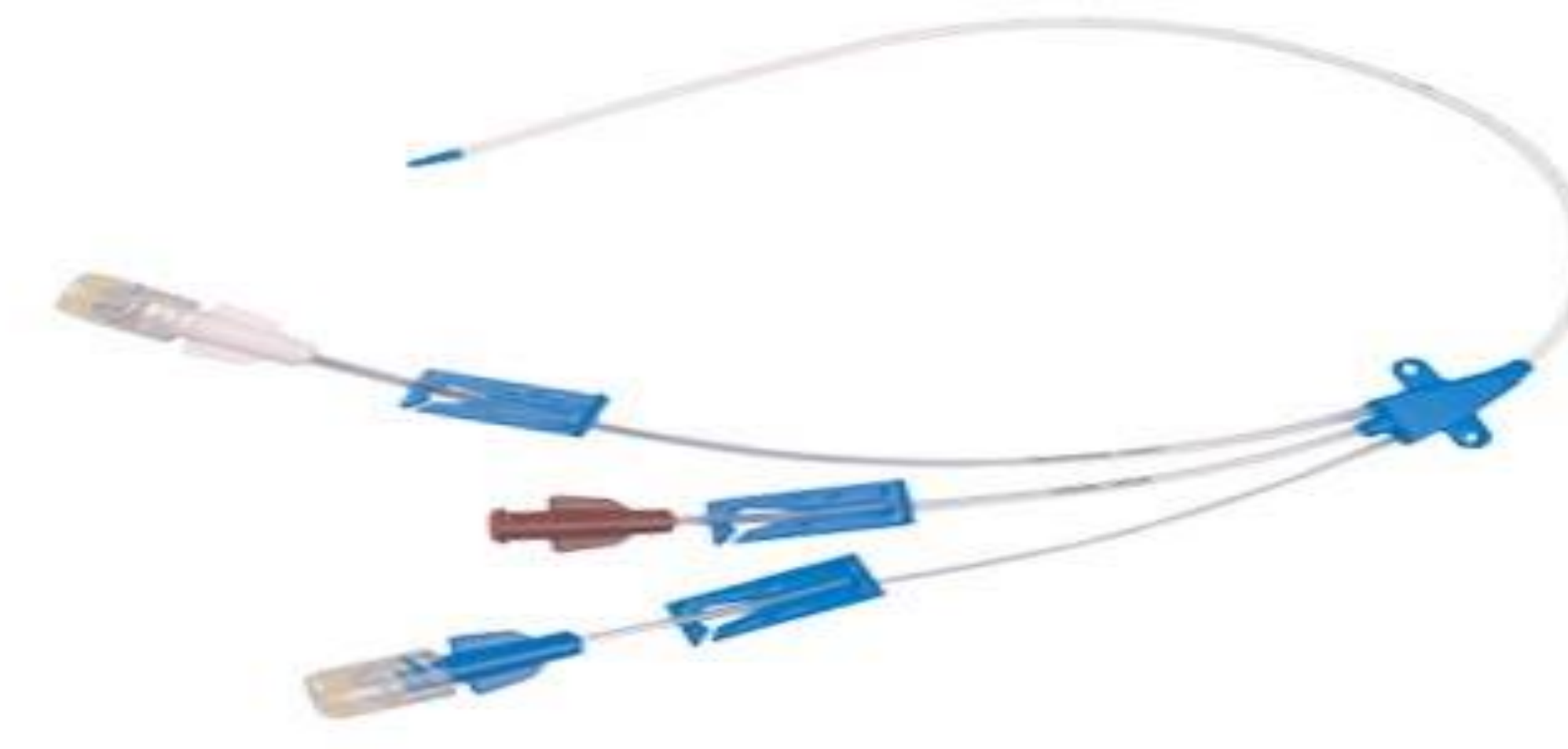
Year	Number of CLABSI	Cost of CLABSI in \$
1998	5	160,995
1999	6	193,194
2000	8	257,592
2001	24	772,796
Total	43	1,384,557

POST IV TEAM



IMPLICATIONS

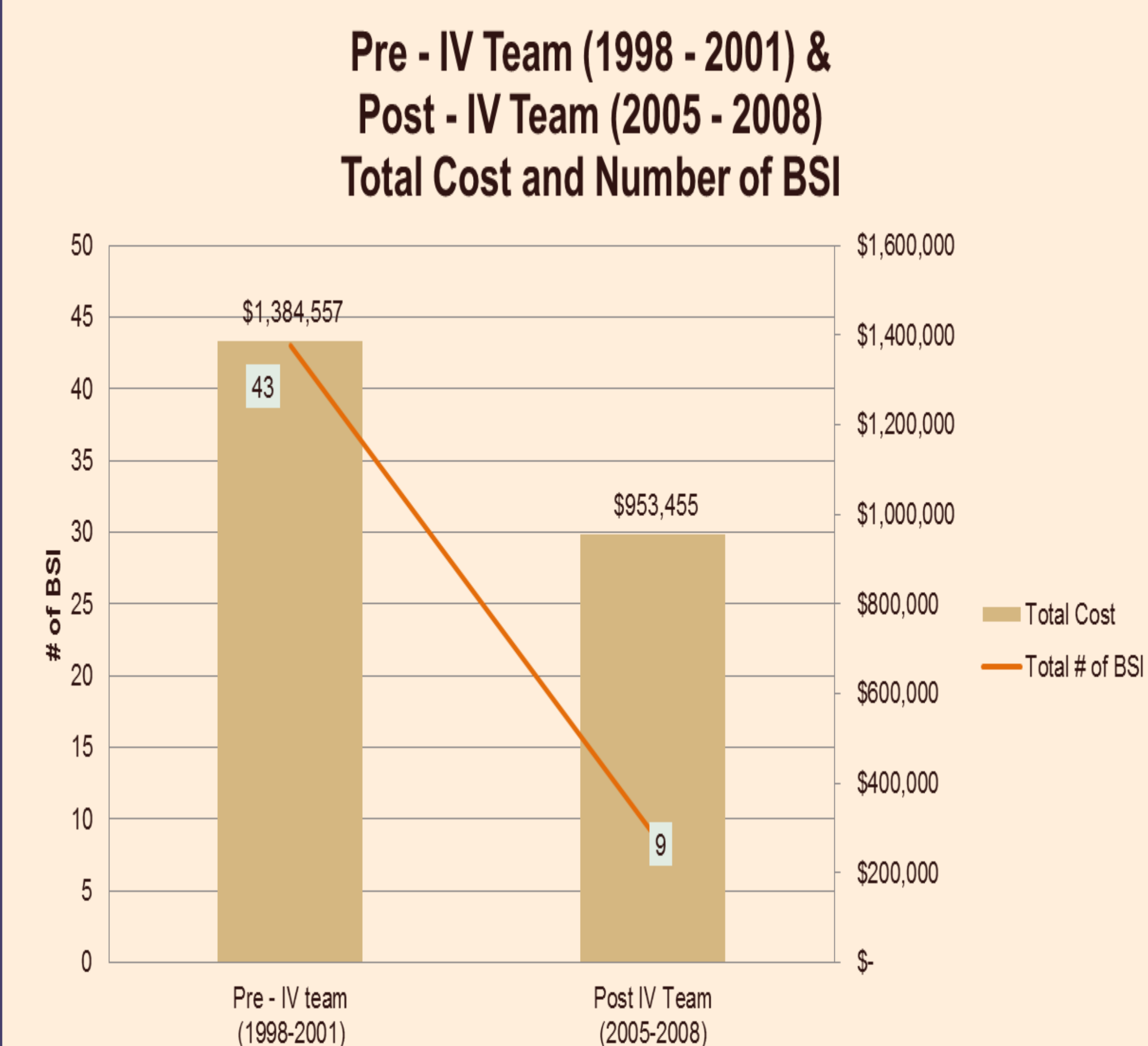
- Quantifying the cost of central line associated bloodstream infection is complex.
- It is important to have a good and reliable surveillance to understand the costs associated with central line associated bloodstream infection.
- There is increasing demand for infection prevention and programs that are cost effective. A business case for prevention of central line associated bloodstream infection can be made to the leadership.



POST IV TEAM

Year	Number of CLABSI	Cost of CLABSI in \$
2005	3	96,597
2006	2	64,398
2007	3	96,597
2008	1	32,199
Total	9	289,791

FINANCIAL IMPACT



LIMITATIONS OF THE STUDY

- The study used single, midsize, non-teaching community hospital.
- This study was a retrospective study; the study used already existing archived data that did not identify patient's admitting diagnosis.
- The study could not identify other contributing factors that may have had impact on central line associated bloodstream infection rates, the associated cost as well as any mortality, co-morbid conditions and impact of the severity of illness.
- The data of this study can be generalized to similar non-teaching midsize hospitals in the northeast region; in order to generalize the findings, additional prospective multi-centric studies are needed.

DNP ESSENTIALS

Essential I: The nursing actions and processes through scientific underpinning for practice affecting positive changes. The study found that the process change, a new practice approach by instituting dedicated team of nurses (IV team) and nursing actions by IV team had positive effect on the central line associated bloodstream infections.

Essential II: Organizational and systems leadership to improve patient and healthcare outcomes. This study demonstrated that when dedicated team of nurses provide care of central lines, there is decrease in central line associated bloodstream infections leading to improved patient and healthcare outcomes and patient safety.

Essential VII: Clinical prevention and population health for improving the Nation's health. The clinical prevention activities are central to achieving the national goal of improving the health status of the population of the country. Prevention of central line associated bloodstream infection was identified as one of the top 20 national priorities in Institute of Medicine report (2003). The implementation of IV team was instrumental in decreasing central line infections there by preventing deadly hospital acquired infection in a specific population at risk for central line associated bloodstream infection.

Importance of Practice/ Future Study

Preventing CLABSI is one of the top 20 national priorities (IOM, 2003., JC, 2012)
Nurses are important in patient safety, and keep the cost down.

Effective nursing initiative is to have the IV team, who will provide consistent standardized care day in and day out without compromising infection control practices leading to consistent and sustained decrease in CLABSI (Brunelle, 2003; Holzman, 2012; Menedez, 1987; Miller, 1996).

In this retrospective study, the data collection was limited. A prospective multi-centric study with a defined standardized role for IV team would be beneficial where patient data regarding admitting diagnosis, comorbidities and length of stay and actual cost and outcome data would be collected.

Conclusion

This study of a two nurse IV team in a 250 bed suburban hospital demonstrated the efficacy of this IV team to decrease central line associated bloodstream infections in hospitalized patients with central lines.

- The reduction of hospital acquired infections lowers the overall hospital length of stay and reduces the cost associated in treating these infections and hospitals risk management and legal costs.
- Utilization of nurses in specific roles that are focused on reducing healthcare associated infections while continuing to provide patient centered holistic and fiscally competent care can benefit the patient and the healthcare facility.