



# Immediate Breast Reconstruction - Nationwide Trends in Hospital Charges

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# Introduction

- We sought to analyze the trends in total hospital charges and length of stay among patients undergoing immediate breast reconstruction – both implant based and autologous.

# Methods

- Nationwide Inpatient Sample was queried from 2000 to 2009 using ICD-9 codes to identify patients undergoing mastectomy and immediate reconstruction<sup>1</sup>.



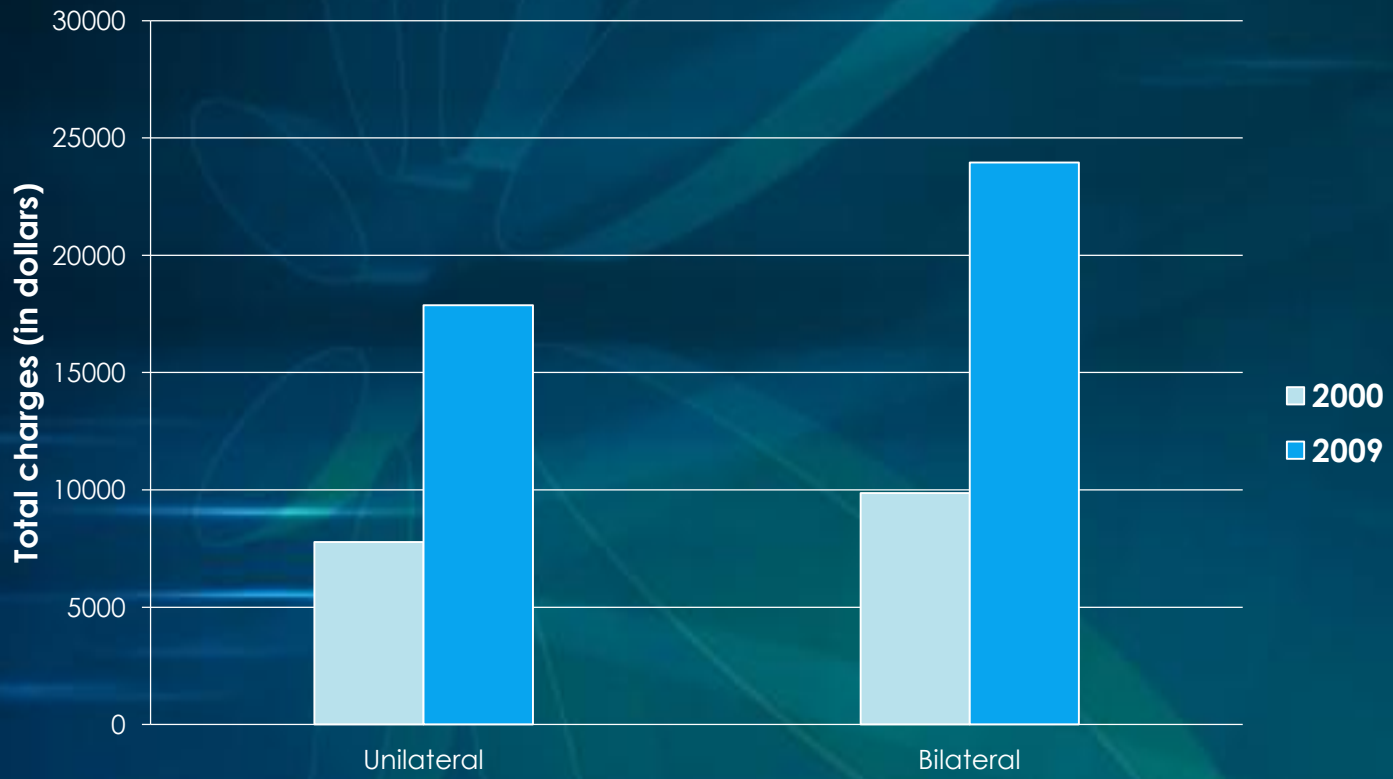
# Methods

- This data was analyzed to follow the rates of immediate reconstruction, total hospital charges (in dollars) and length of stay over this time frame.
- Statistical significance was assessed by linear regression and ANOVA using SPSS.

# Results

- After applying discharge weights, a total of 782,418 patients underwent mastectomy during the study period, out of which 253,238 (32.3%) underwent immediate reconstruction.
- Rate of immediate reconstruction increased from 26.3% in 2000 to 43.9% in 2009 ( $p < 0.001$ )

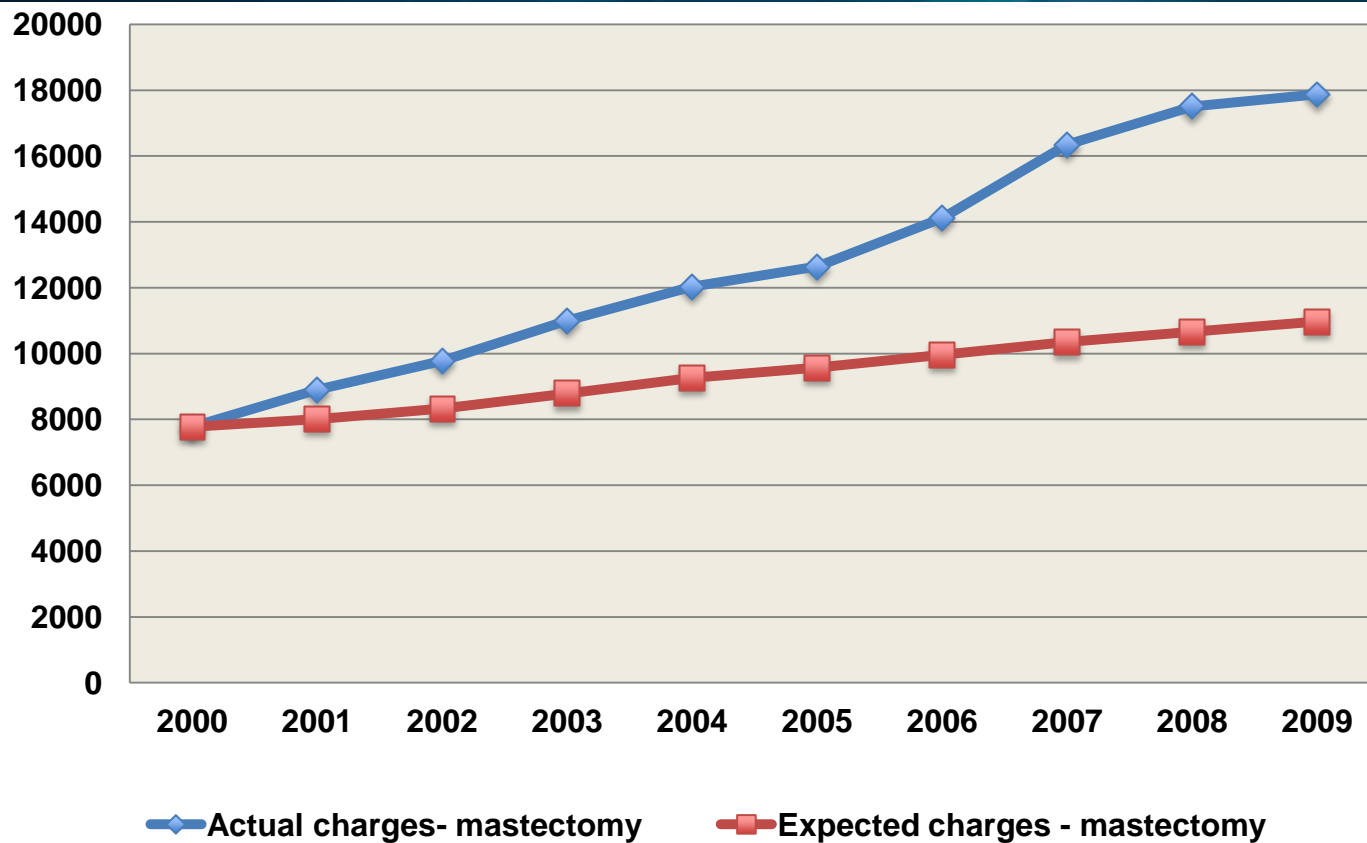
# Mastectomy - charges



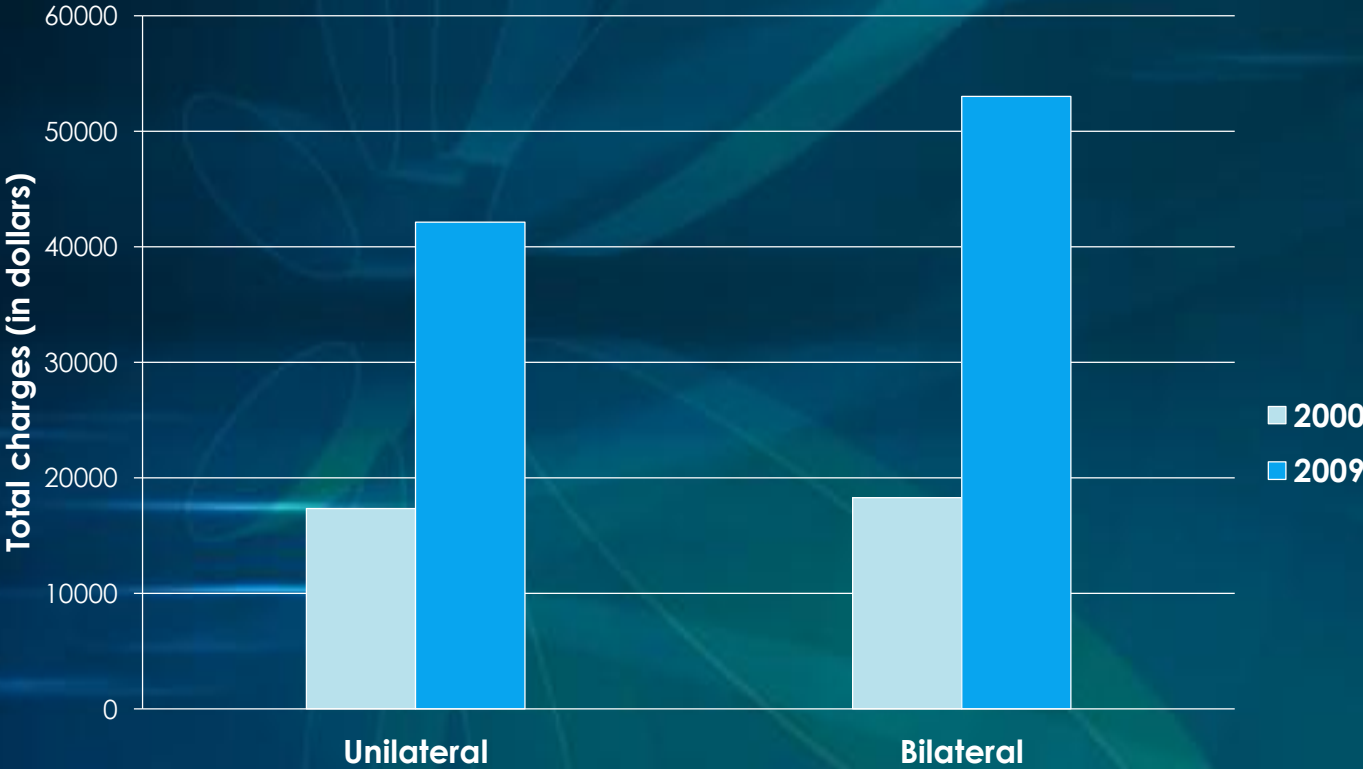
**Mastectomy charges – Comparison 2000 vs 2009**

## Expected vs actual charges for mastectomy

Total hospital charges (in dollars)



# Autologous reconstruction charges

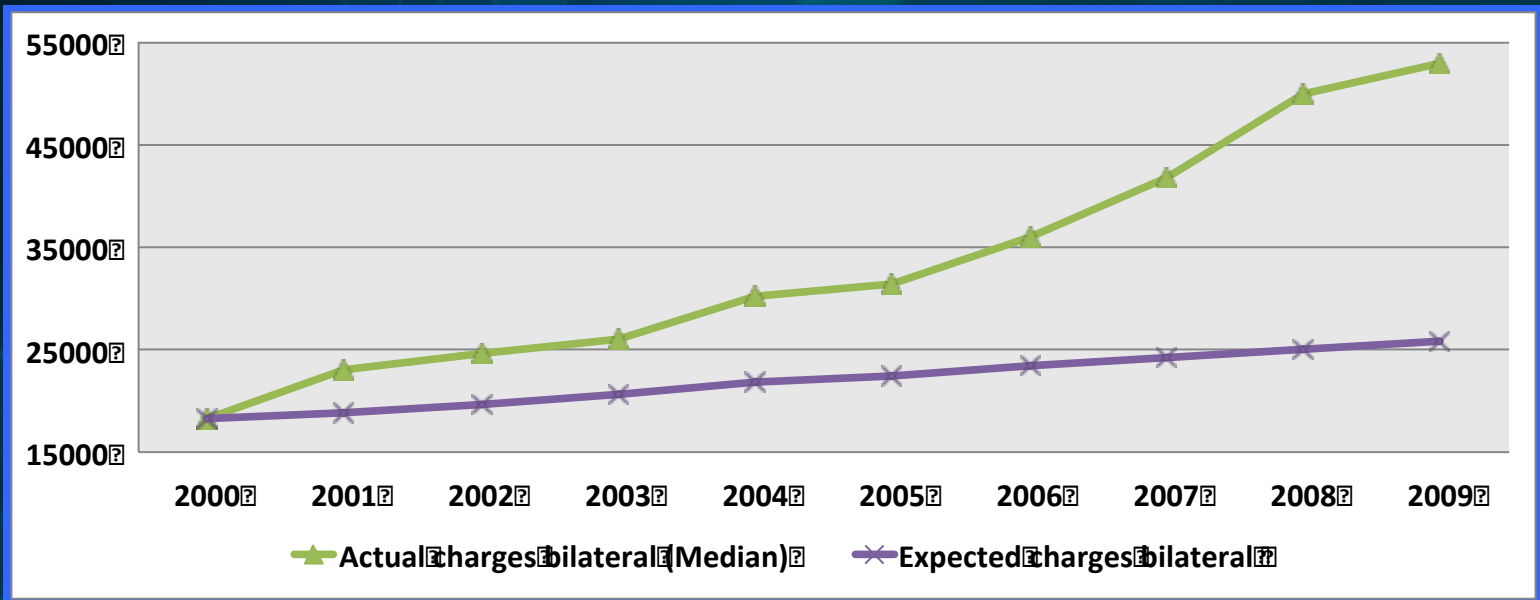


Autologous Reconstruction - Comparision 2000 vs 2009



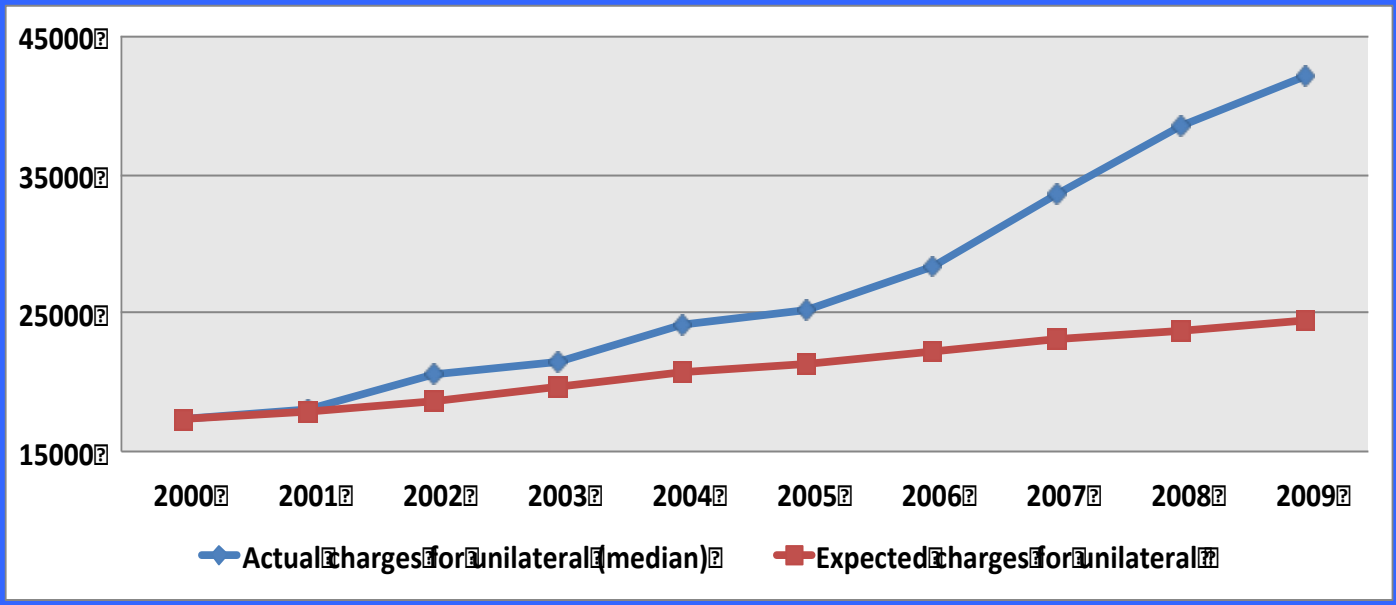
# Expected vs actual increase in charges autologous - bilateral

Total hospital charges (in dollars)

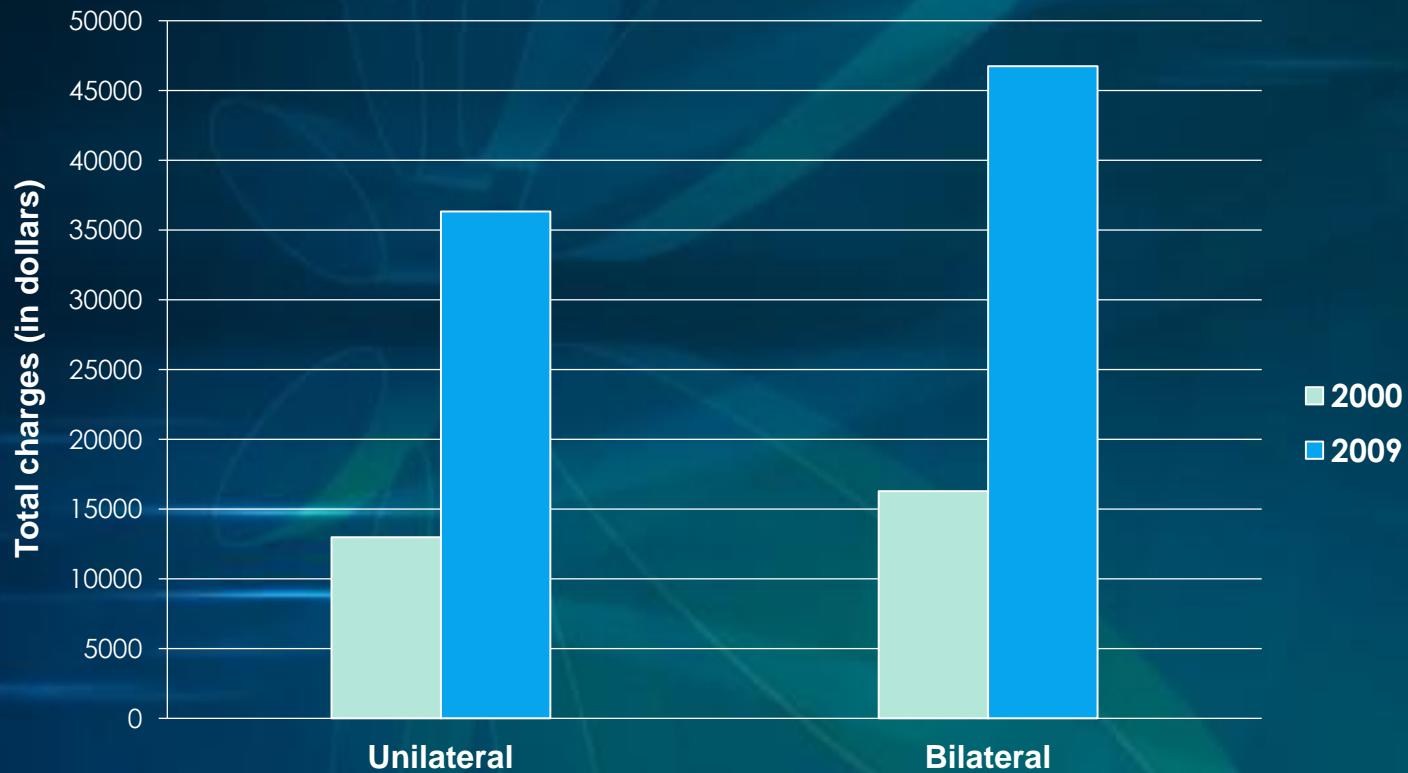


# Expected vs actual increase in charges autologous - unilateral

Total hospital charges (in dollars)



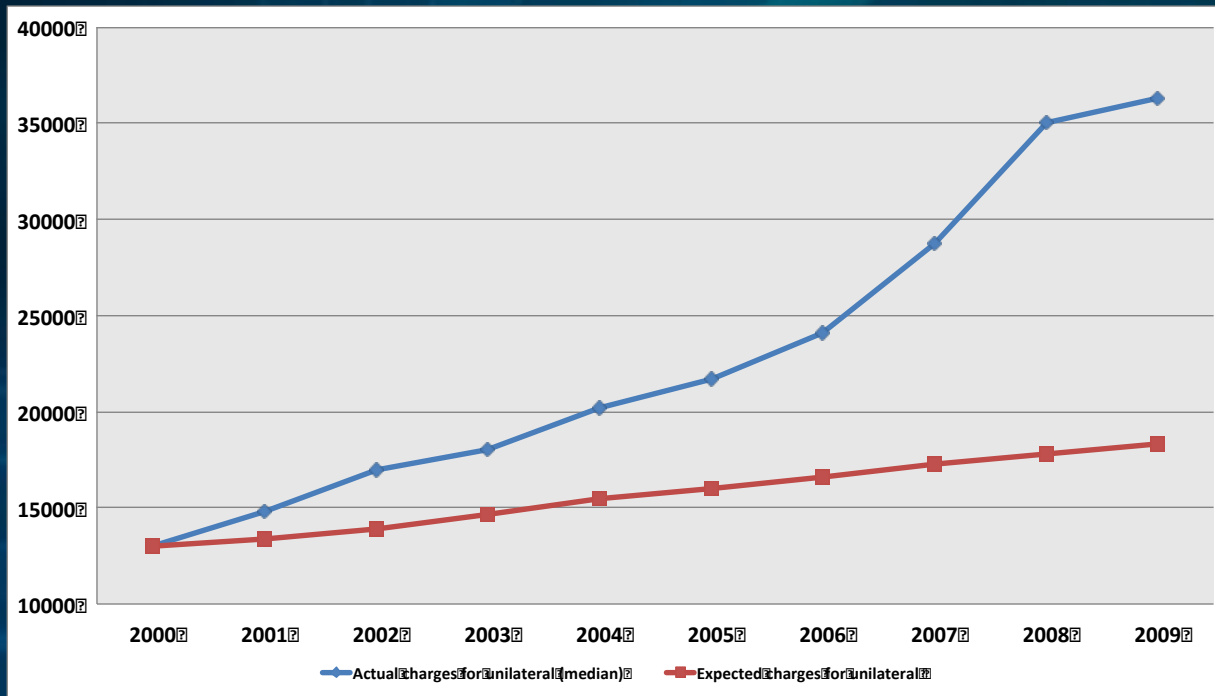
# Implant-based reconstruction charges



Implant-based reconstruction - Comparison 2000 vs 2009

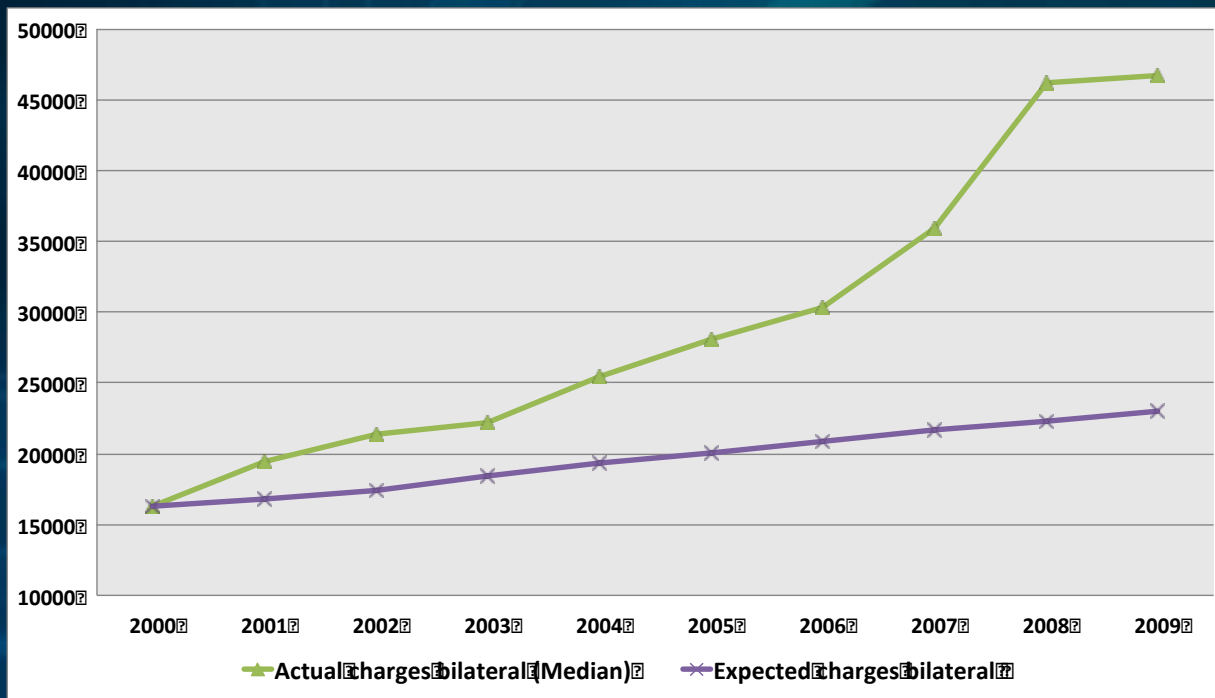
# Expected vs actual charges Implant based - unilateral

Total hospital charges (in dollars)



# Expected vs actual charges Implant based - bilateral

Total hospital charges (in dollars)



- Increase in charges for breast reconstruction procedures are significantly higher than the 3.5% per year rise in Medicare spending from 1992 to 2006<sup>2</sup>.
- Adjusting for inflation using the PHCE (Personal Health Care Expenditure) Price Index from the CMS office of actuary allows for healthcare expenditure rise of 141% in this study period<sup>3</sup>.

## Length of Stay

- The mean length of stay for patients undergoing implant-based reconstruction changed from 2.2 to 2.04 days.
- Mean length of stay for patients undergoing autologous reconstruction changed from 3.86 to 3.06 days.

## Conclusions

- The total charges for all immediate breast reconstruction cases have shown a disproportionate increase over the past decade.
- Further studies are needed to identify the factors



## Explanations

- Use of ADMs
- Costlier implants
- Increase in microvascular reconstruction
- Increase in complexity of cases
- Increased mark-up of medical devices

## References

1. HCUP Nationwide Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). 2007-2009. Agency for Healthcare Research and Quality, Rockville, MD. [www.hcup-us.ahrq.gov/nisoverview.jsp](http://www.hcup-us.ahrq.gov/nisoverview.jsp)

2.

<http://www.ahrq.gov/research/findings/factsheets/costs/expriach/index.html>

3.

[http://meps.ahrq.gov/about\\_meps/Price\\_Index.shtml](http://meps.ahrq.gov/about_meps/Price_Index.shtml)