



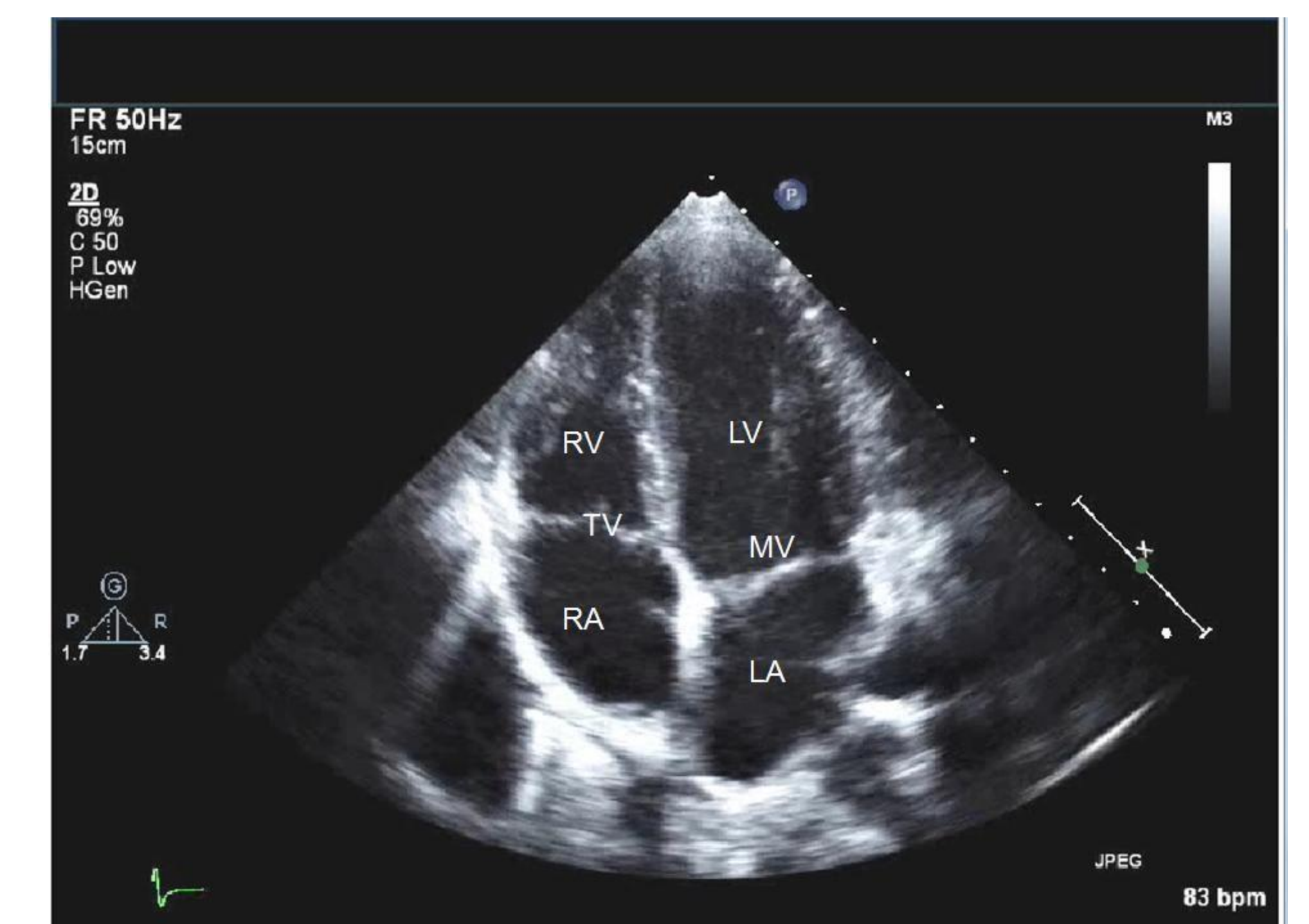
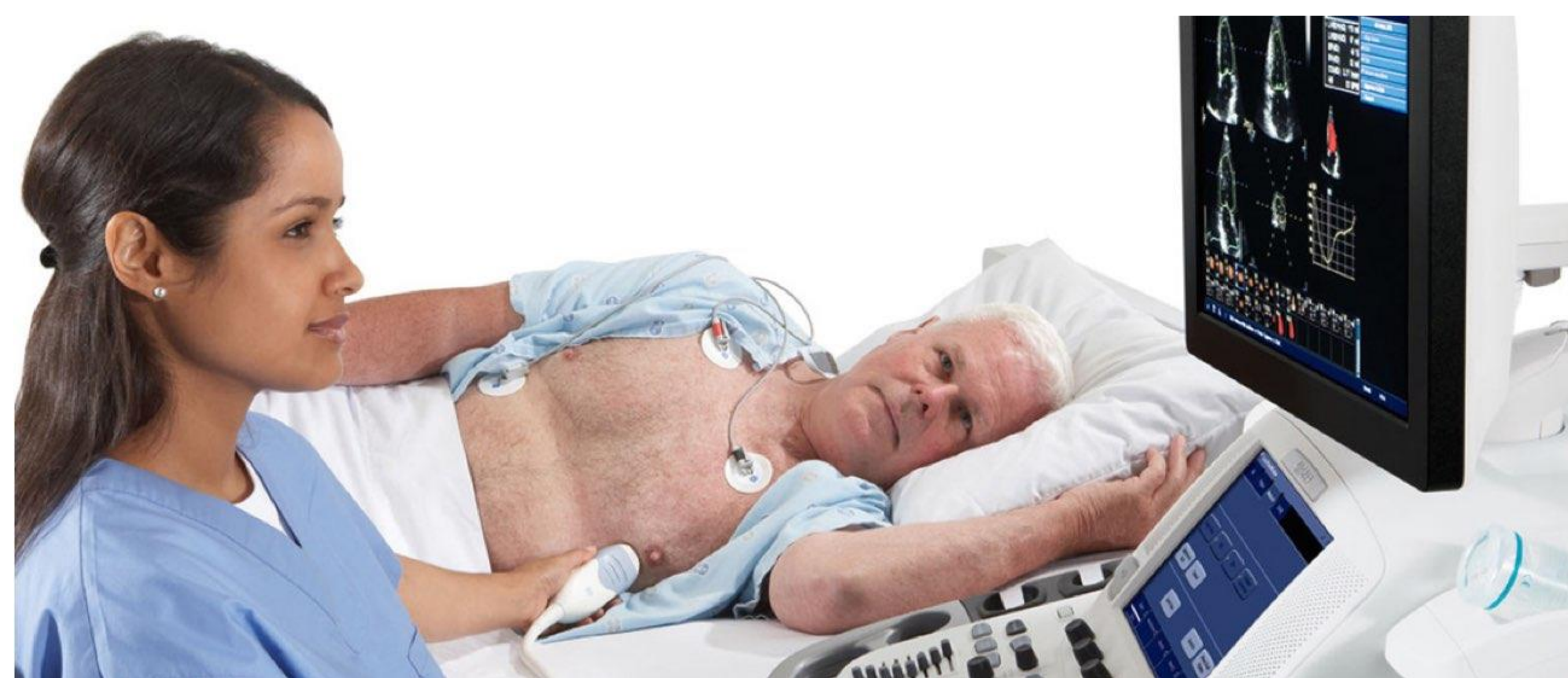
2020 LEAD Capstone Poster Session

An Iterative Quality Improvement Initiative to Improve the Value of Transthoracic Echocardiography (TTE)

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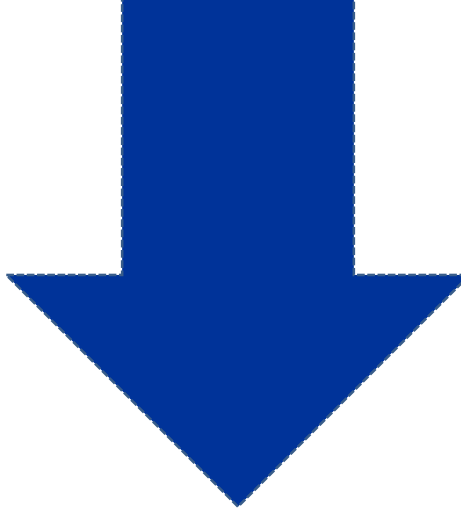
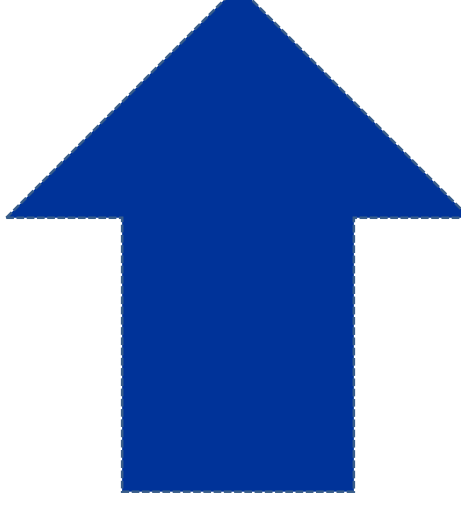



Abstract

- Transthoracic Echocardiograms are expensive
- Minority of studies result in active clinical change
- Interventions designed to inform providers of prior testing have been shown to lower TTE volume
- This project expands upon prior work to include a multimodal intervention to not only lower volume, but improve clinical impact of TTE
- This may ultimately lower health care costs by eliminating unnecessary testing



Objectives

-  proportion of low value TTEs by electronic medical record nudges, education and feedback
-  proportion of TTEs that result in **active** clinical change
-  expenditures that do not provide meaningful impact

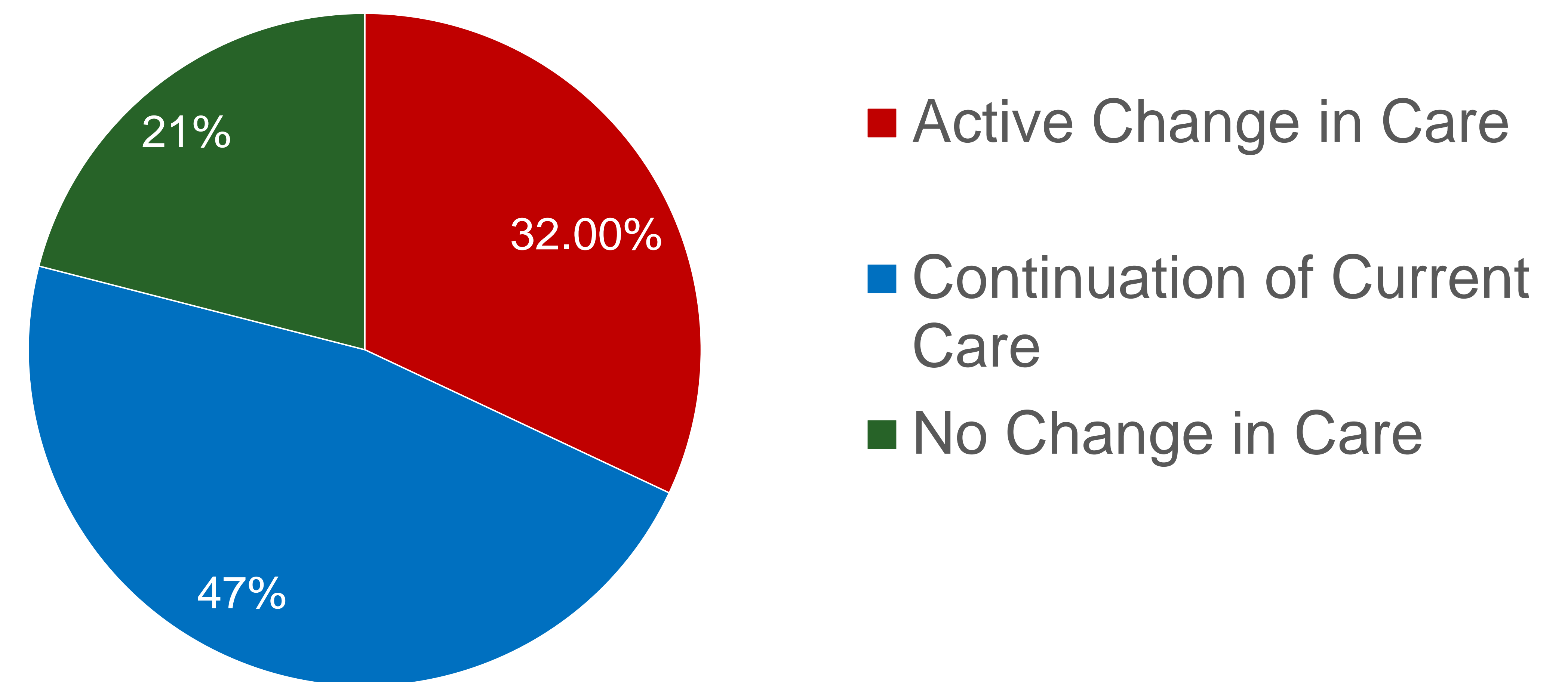


Background Information

- Transthoracic Echocardiography (TTE) accounted for \$1.1 billion (11%) of total Medicare imaging expenditures (FY 2010)

The Clinical Impact of TTEs at UTSW

- At UTSW, 68.2% TTEs resulted in continuation of or no change in care



- Over a 5 month period, a limited Best Practice Alert (BPA) at PHHS resulted in cancellation of 10% of orders among non-ICU patients who had a TTEs in the past 12 months



Specific Aims

- Determine whether expanding the current BPA to include a) *anticipated clinical change* and b) *charges* increases the *clinical impact* of repeat TTEs
- Evaluate whether an educational session for providers and provider feedback on ordering patterns impacts TTE volume

Anticipated clinical change/clinical impact:

- Medication changes
- Subspecialty consult
- Invasive procedures
- Diagnostic testing
- Transfer to another level of care
- Procedure cancellation



Project Plan

I. Expansion of Best Practice Alert:

- Require reporting what *active clinical change* ordering provider anticipates
- Add cost of complete vs. limited TTE

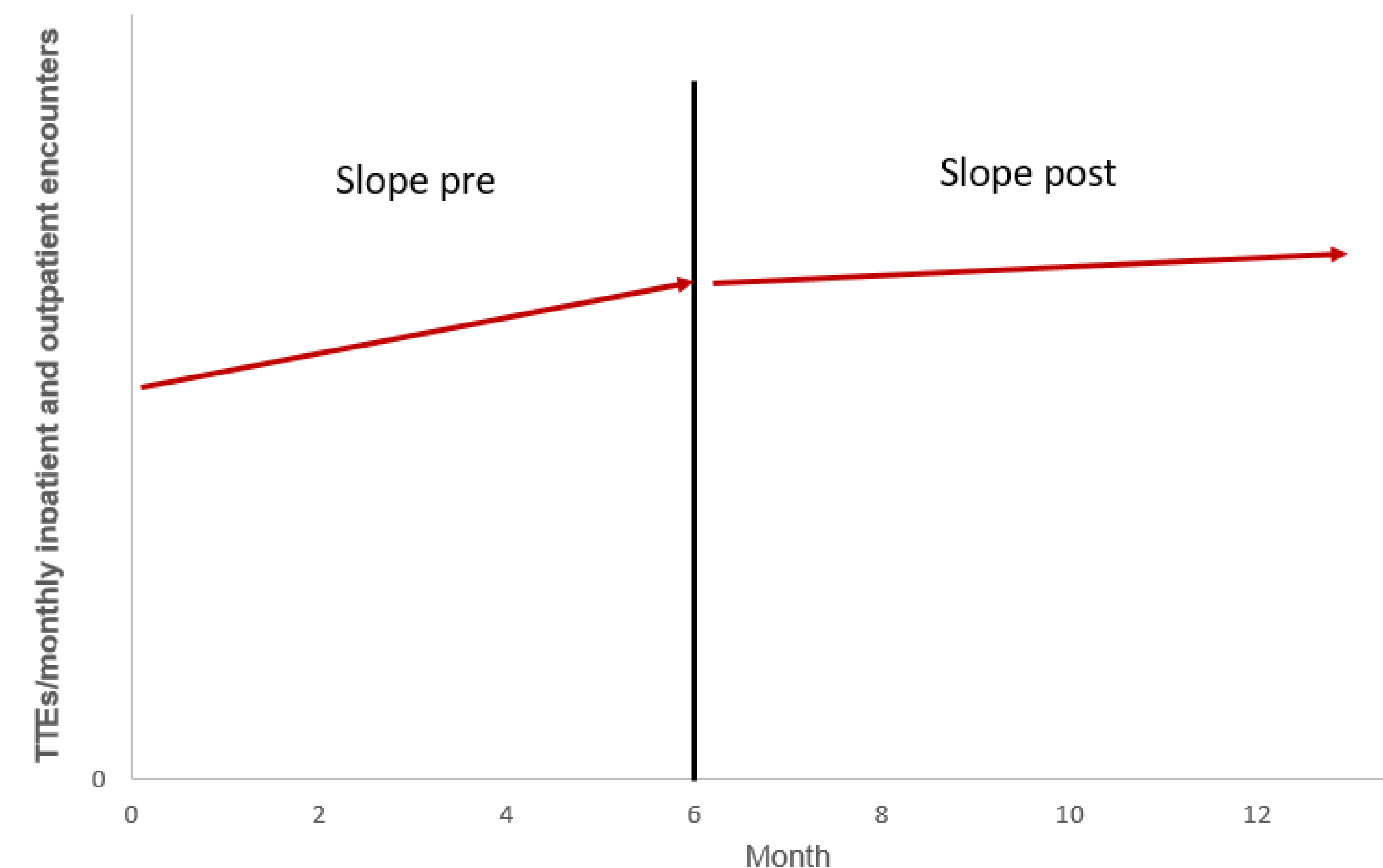
II. Provider Education Session re: TTE appropriateness

- How TTE is performed, complete vs. limited TTE, most common indications resulting in no clinical change

III. Provide clinical feedback re: TTE orders/encounter as compared to matched peers

A. Evaluation: Add the active clinical change that occurred from the TTE to the discharge summary. Compare rates of active clinical change over time to a random sample pre-intervention.

B. Evaluation: Rate of TTE growth pre and post-intervention





Application of What You Learned at LEAD

- Focusing on strengths
- Narrowing scope
- Delegating
- Engaging stakeholders
- Building a team



Proposed Budget

- Project manager: 20% time, \$16,000
- Publication: \$2000
- Statistical consultation: \$500



Innovation and Significance

- As hospitals are reimbursed by DRG codes, not procedures, this intervention can decrease hospital expenditures
- Plan to expand to other health care systems transitioning to value-based care models
- An iterative QI project with rigorous evaluation of outcomes



References

- Andrus, B. W. and H. G. Welch (2012). "Medicare services provided by cardiologists in the United States: 1999-2008." Circ Cardiovasc Qual Outcomes **5**(1): 31-36.
- Matulevicius, S. A., et al. (2013). "Appropriate use and clinical impact of transthoracic echocardiography." JAMA Intern Med **173**(17): 1600-1607.
- Fleddermann, A., et al. (2018). "Implementation of Best Practice Alert in an Electronic Medical Record to Limit Lower-Value Inpatient Echocardiograms." Am J Cardiol **122**(9): 1574-1577.