Achieving Coordinated Identification,
Detection and Treatment of Heart Failure Summit

April 12th, Hyatt Regency Bethesda, MD

Role of Population Health in Heart Failure Management

Dr. Paul Heidenreich

American Heart Association | American Stroke Association
life is why™

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How Can We Deliver Population Health Care for Future Heart Failure?

Paul Heidenreich MD, MS

American Heart Association | American Stroke Association

life is why™

American Heart Association | American Stroke Association
life is why

No Conflicts of Interest

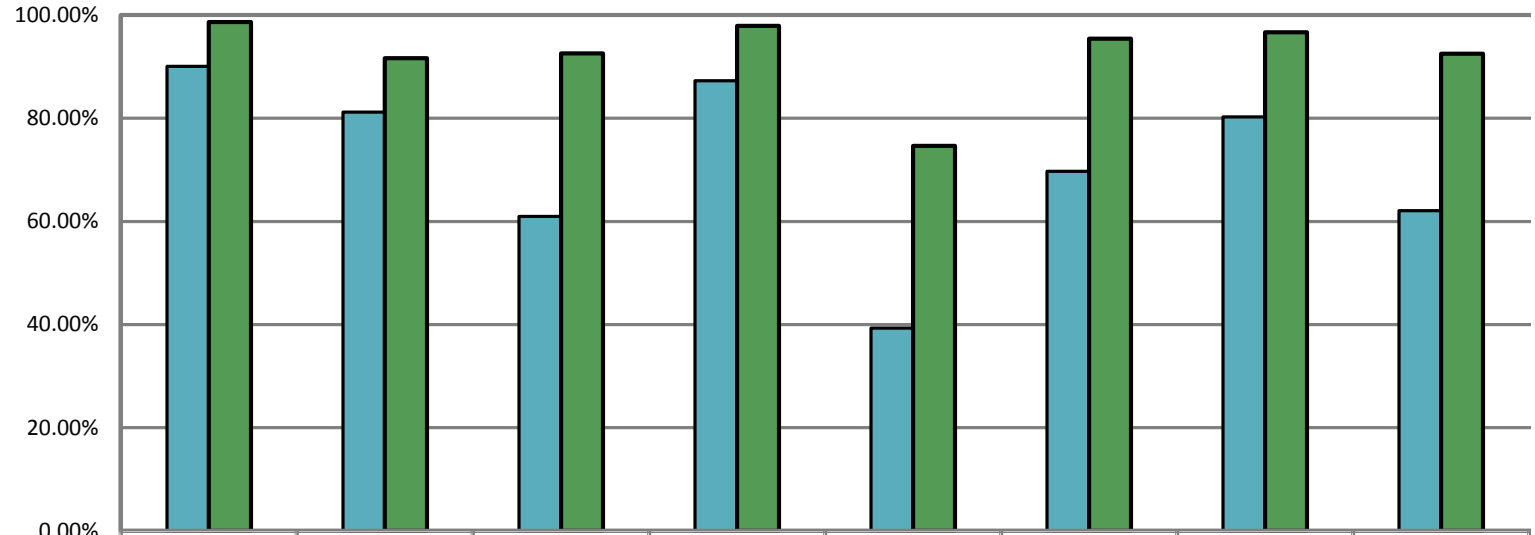
VA and Stanford Health Care Employee

American Heart Association | American Stroke Association
life is why

Outline

- **The case for population health for heart failure**
- **Implementing population health (examples)**
  - Notes to providers for ICDs
  - Reminders in echo reports
  - Patient outreach for cholesterol testing
  - Nurse titration clinics
- **Questions**

GWTG-HF: Achievement Measures

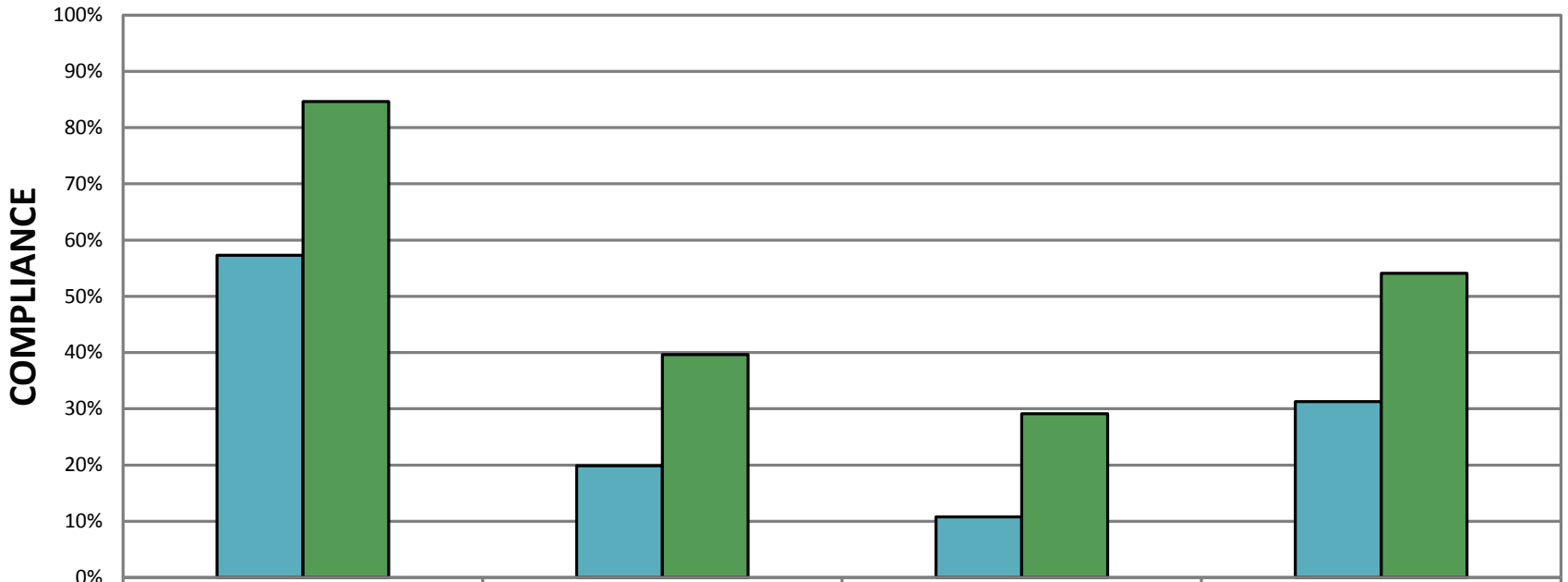


	LV Function Measurement	ACEI or ARB at D/C for LV SD	Evidence-Based Beta Blocker at D/C for LVSD	Beta Blocker Discharge	Post Discharge Appointment for HF patients	Discharge Instructions	Composite Performance Measure*	100% Compliance Measure*
Baseline	90.10%	81.20%	61.00%	87.30%	39.30%	69.70%	80.30%	62.10%
Current	98.64%	91.68%	92.60%	97.90%	74.64%	95.42%	96.68%	92.52%

ACHIEVEMENT MEASURE

* Modified to include Beta Blocker at Discharge and Discharge Instructions rather than Evidence-Based Beta Blocker at D/C and Post Discharge Appointment
Baseline = Admissions Jan2005 – Dec2005
October 2016
Current = Overall

GWTG-HF: Quality Measures (1)

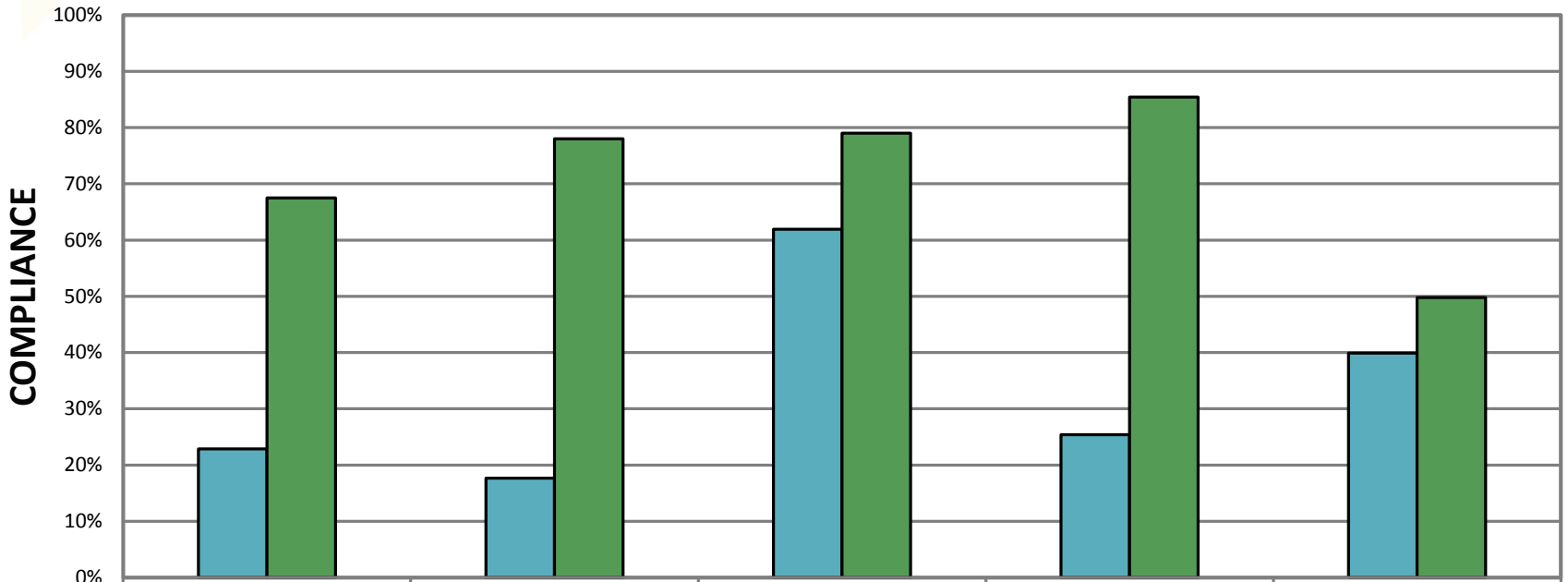


	Warfarin at D/C	Aldostrone anatagonist at D/C for LVSD	Hydralazine/Isosorbide at D/C for AA	ICD Counseling or ICD placed or prescribed at D/C
Baseline	57.30%	19.90%	10.80%	31.30%
Current	84.61%	39.62%	29.14%	54.10%

QUALITY MEASURE

Baseline = Admissions Jan2005 – Dec2005
October 2016
Current = Overall

GWTG-HF: Quality Measures (2)



	Pnemococcal Vaccine	Influenza Vaccine	Follow-up visit within 7 days	DVT Management	CRT placed or prescribed at discharge
Baseline	22.90%	17.70%	61.90%	25.40%	39.90%
Current	67.50%	78.00%	79.03%	85.42%	49.78%

QUALITY MEASURE

Baseline = Admissions Jan2009 – Dec2009
October 2016
Current = Overall

Heart Failure Clinics Can See only a Minority of HF Patients

Recommendations by the Heat Failure Society of America:

- **Patients recently hospitalized for heart failure**
- **Persistent New York Heart Association Class III or IV symptoms**
- **Frequent hospitalizations for any cause**
- **Renal insufficiency**
- **Diabetes**
- **Chronic obstructive pulmonary disease**
- **Elderly patients and other patients with multiple active comorbidities**
- **A history or depression, cognitive impairment, persistent nonadherence to therapeutic regimens, or inadequate social or economic support**

Hauptman, J Card Failure 2008

Population Health vs. Traditional Care

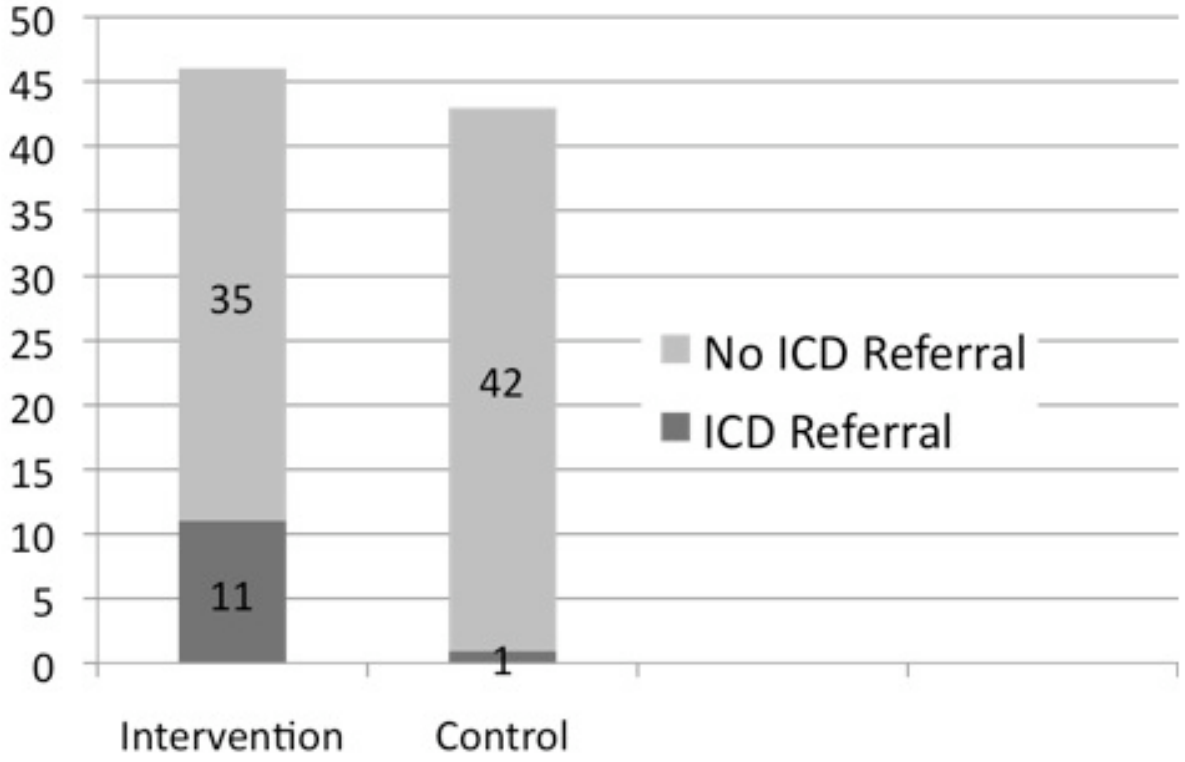
- **Traditional Care**
  - Health Care Team reactive
  - Patient must bring problems to the attention of the team
  - Number of HF patients in the system unknown
- **Population Health**
  - Health Care Team identifies all patients in the system with heart failure
  - Patients possibly in need of care identified and contacted
  - Number of HF patients known-registry

Population Health Steps

1. **Database Creation**
   - HF codes (e.g. ICD10)
   - LV ejection fraction (may require natural language processing)
2. **Link to available data**
   - Pharmacy
   - Lab
   - Encounters (inpatient and outpatient)
   - Devices
2. **Determine possibly under/over treated patients**
3. **Prioritize**
4. **Intervene (depending on resources)**
   - Computer Reminders, Patient mailings (inexpensive, small effect)
   - Patient calls, new visits/clinics (expensive, larger effect)

Impact of ICD Note in the Medical Record

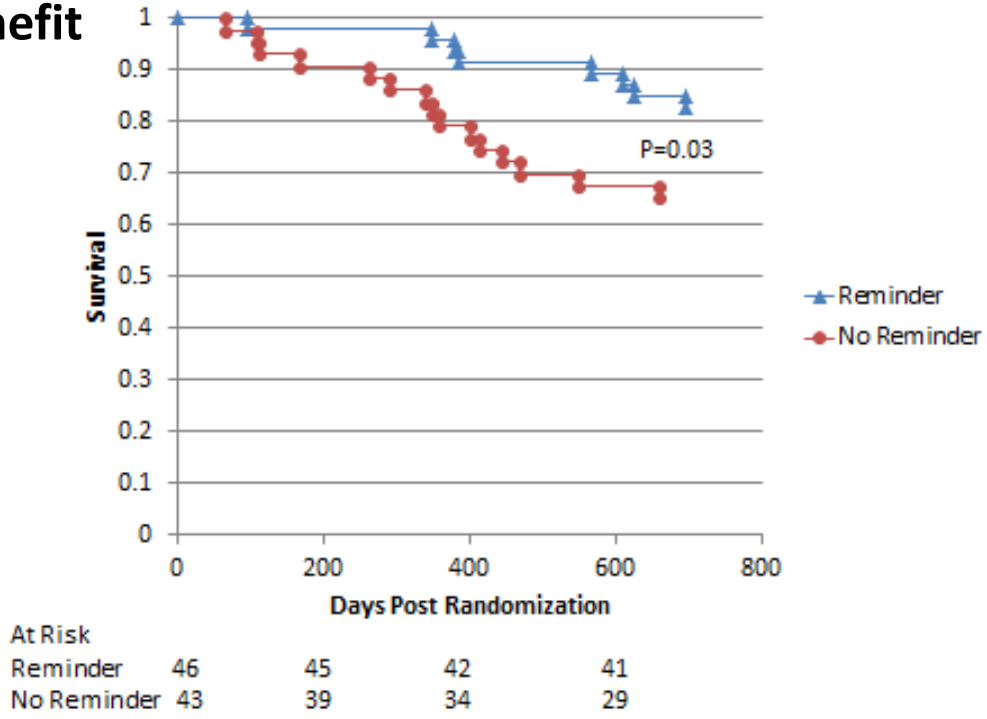
LVEF <=35% and age < 80 years, not in ICD clinic



Gupta, Circ HF, 2013

Other Impacts of ICD Note

- **Improvement in medication use through referral to cardiology**
- **More discussion of end of life plans**
- **? Mortality benefit**

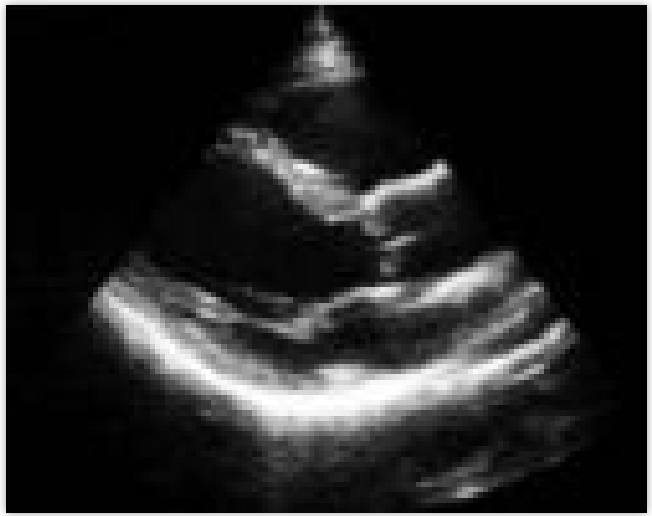


Gupta, Circ HF, 2013

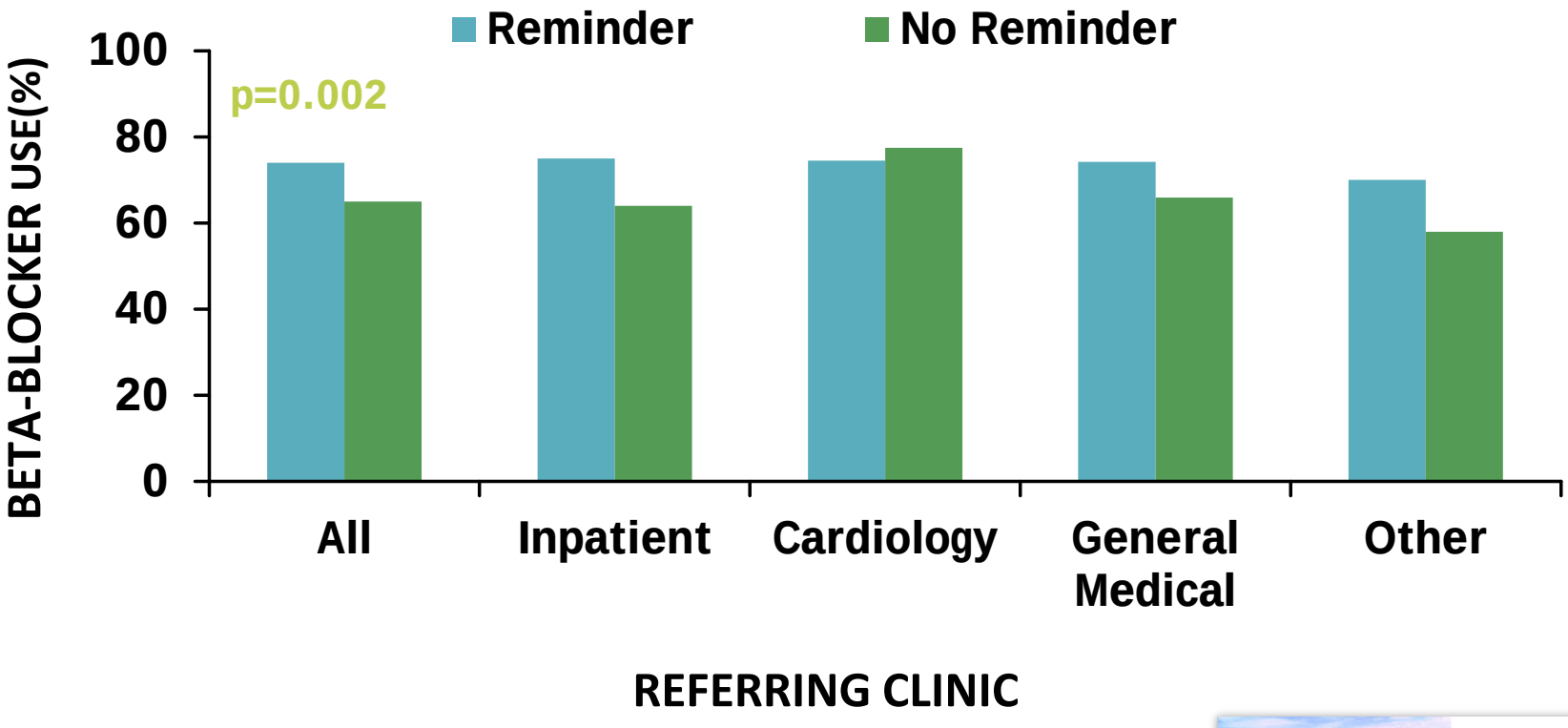
VA Beta-Blocker Reminder Study

Could a clinical reminder attached to the echocardiography report (that provides ejection fraction data) be effective in increasing prescriptions for beta-blockers?

VA QUERI
Quality Enhancement Research Initiative
CHRONIC HEART FAILURE

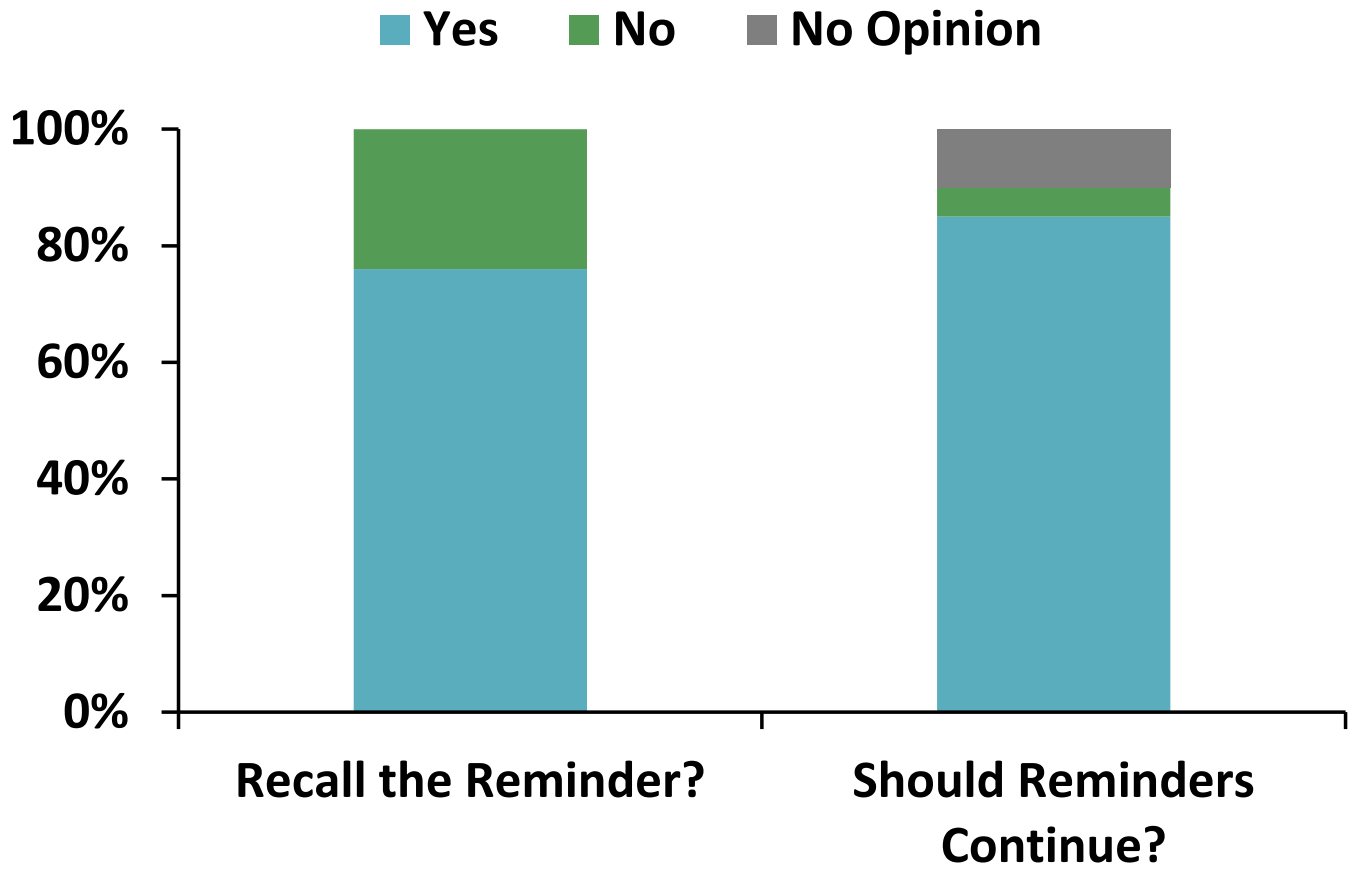


Reminder in the Echo Report for Beta-blockers



Heidenreich, Circulation 2007 ;115:2829

Primary Care Provider Survey



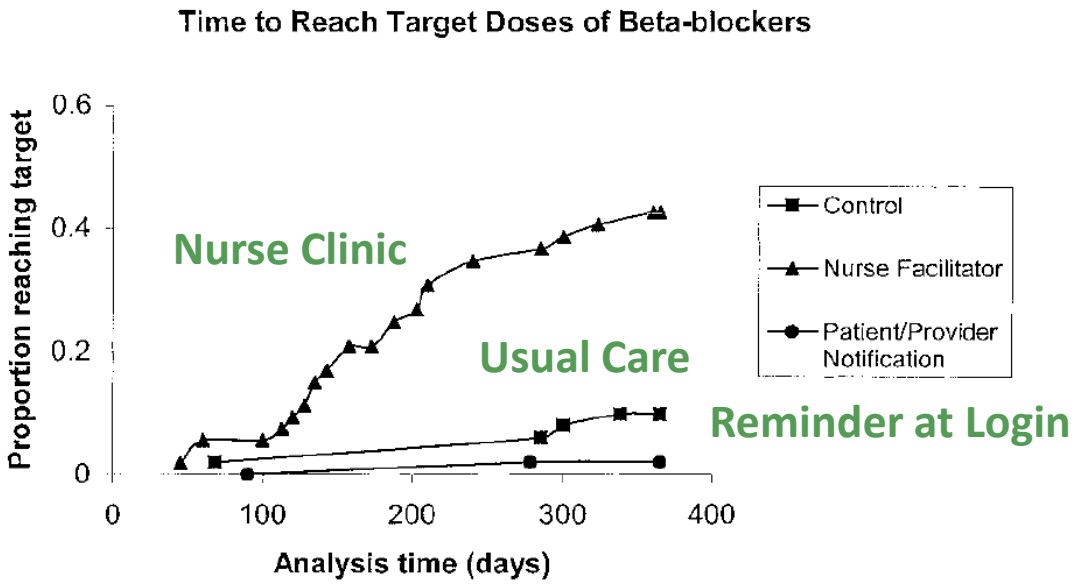
Heidenreich, Circulation 2007 ;115:2829

Patient Outreach: Cholesterol Screening

- **No CVD and no Lipid test in 5 years (Persell J Eval Clin Pract. 2016)**
  - 480 Patient randomized
  - Intervention (mailing, testing available without appointment)
  - Outcome (cholesterol testing)
    - 13% (intervention) vs. 11% (control, p=NS)
- **High risk Patients without CVD (Persell, Circ CVO, 2015)**
  - 646 randomized
  - Intervention (mailing and telephone calls)
  - Outcome: Discussion with primary care provider
    - 13% (intervention) vs. 11% (control, $p<0.01$)
  - Outcome: Statin Use
    - 10% (intervention) vs 6% (control, p=NS)

Nurse Medication Titration Clinic

169 patients randomized (beta-blocker candidates) to:
Nurse Clinic, Reminder/Notification, or Usual Care



Population Health Questions

- **Which patients should be tracked?**
- **What treatments (underuse, overuse) are most important?**
  - Impact on outcome, gap in care, cost
- **What interventions?**
- **What is the business case for population health in HF?**

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Implementation of the Reminder:

51 Echocardiography Labs: 3 Months Post-Intervention