An RCT of Depression Care for Acute Coronary Syndrome Patients—Mortality and Major Cardiac Event Outcomes

Investigators

Karina W. Davidson, PhD
Siqin Ye, MD
Jonathan Shaffer, PhD
Nina Rieckmann, PhD;
Lynn Clemow, PhD;
Joseph E. Schwartz, PhD;
Daichi Shimbo, MD;
Vivian Medina, MSW;
Gabrielle Albanese;
Ian Kronish, MD;
Mark Hegel, PhD;
William Whang, MD
Matthew M. Burg, PhD

# Depression leads to Increased risk of ACS recurrence/mortality

- Independent of traditional risk factors
- Reduced long-term survival (up to 5-years) post ACS
- Dose-dependent
- Highly prevalent
  - 35-45 % of with elevated depressive symptoms
  - 10-20% with Major Depressive disorder

Depression Conceptualizations

**Current depression/
depressive symptoms**

Acute coronary disease event
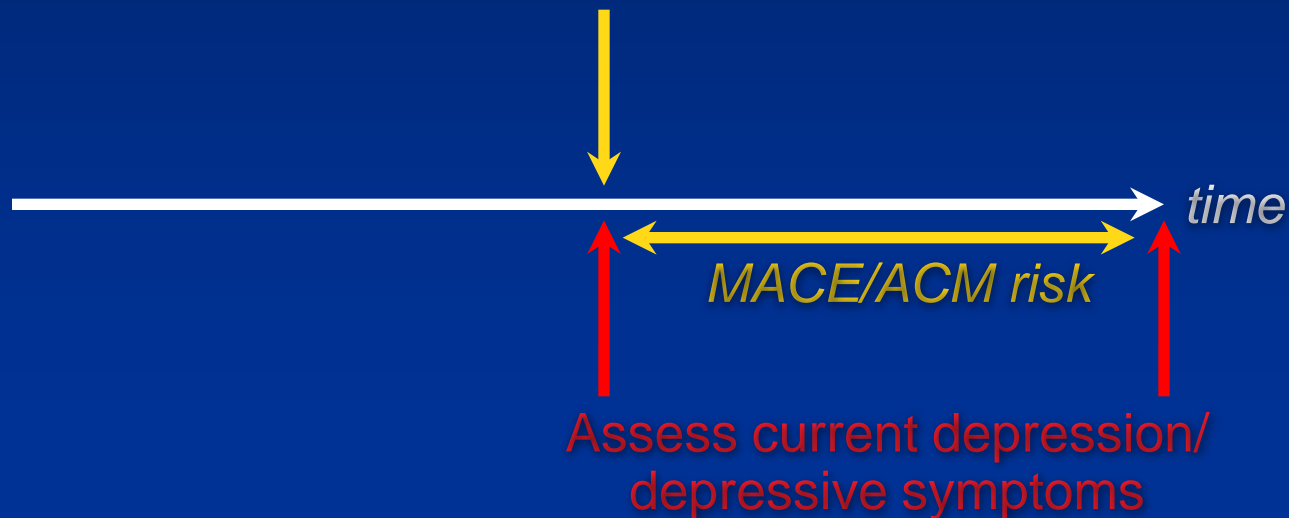

time

MACE/ACM risk
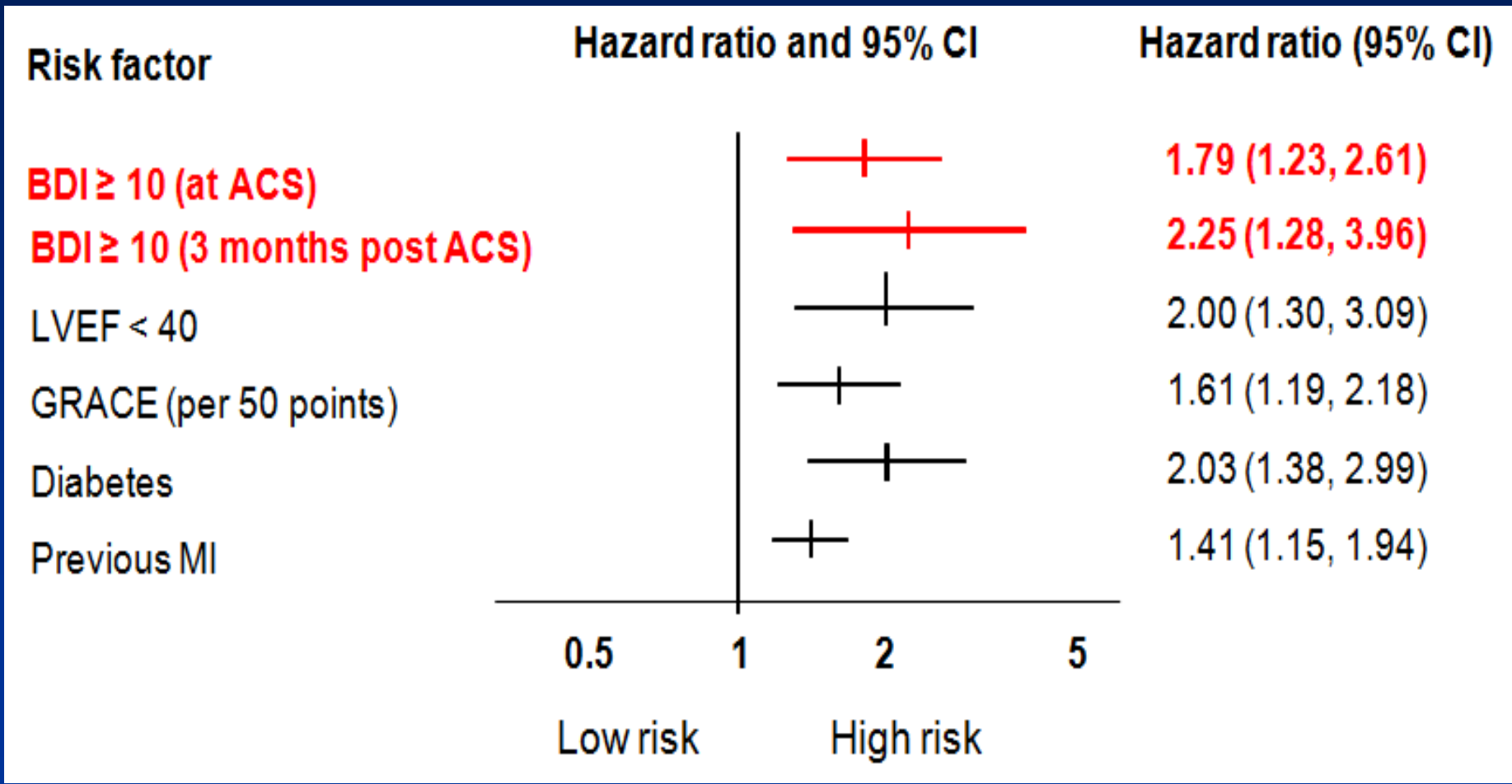
Assess current depression/
depressive symptoms
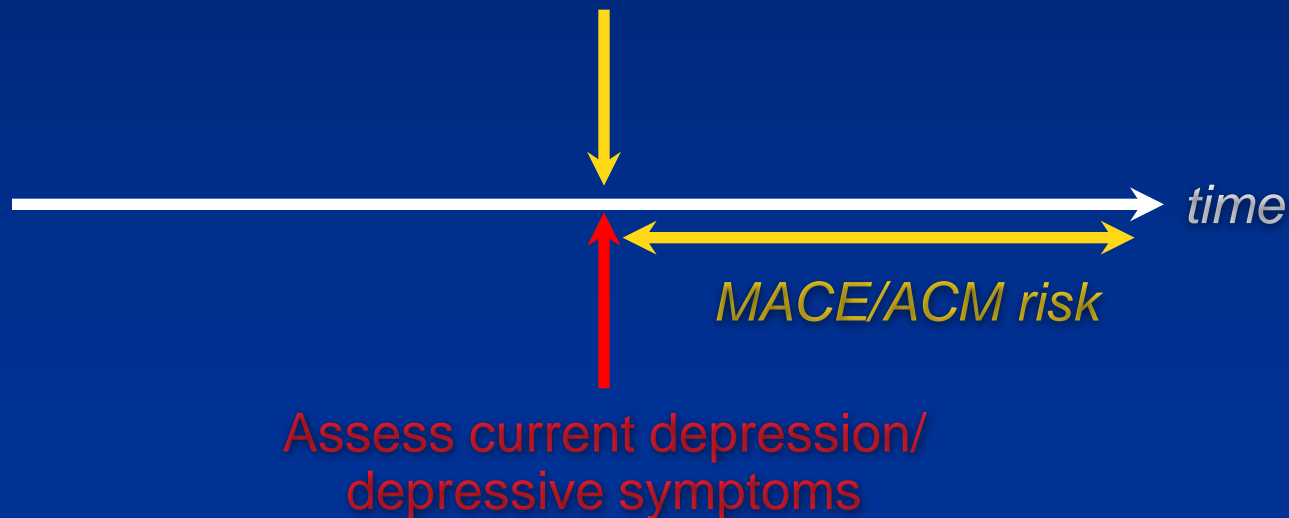
Depression Conceptualizations

Persistent depressive symptoms

Acute coronary disease event

time

MACE/ACM risk

Assess current depression/
depressive symptoms

Association of depression and traditional cardiovascular risk factors with 42-month MACE/ACM

Risk factor	Hazard ratio and 95% CI	Hazard ratio (95% CI)
BDI ≥ 10 (at ACS)		1.79 (1.23, 2.61)
BDI ≥ 10 (3 months post ACS)		2.25 (1.28, 3.96)
LVEF < 40		2.00 (1.30, 3.09)
GRACE (per 50 points)		1.61 (1.19, 2.18)
Diabetes		2.03 (1.38, 2.99)
Previous MI		1.41 (1.15, 1.94)

0.5   1   2   5

Low risk   High risk

Would you rather take medication or get counseling
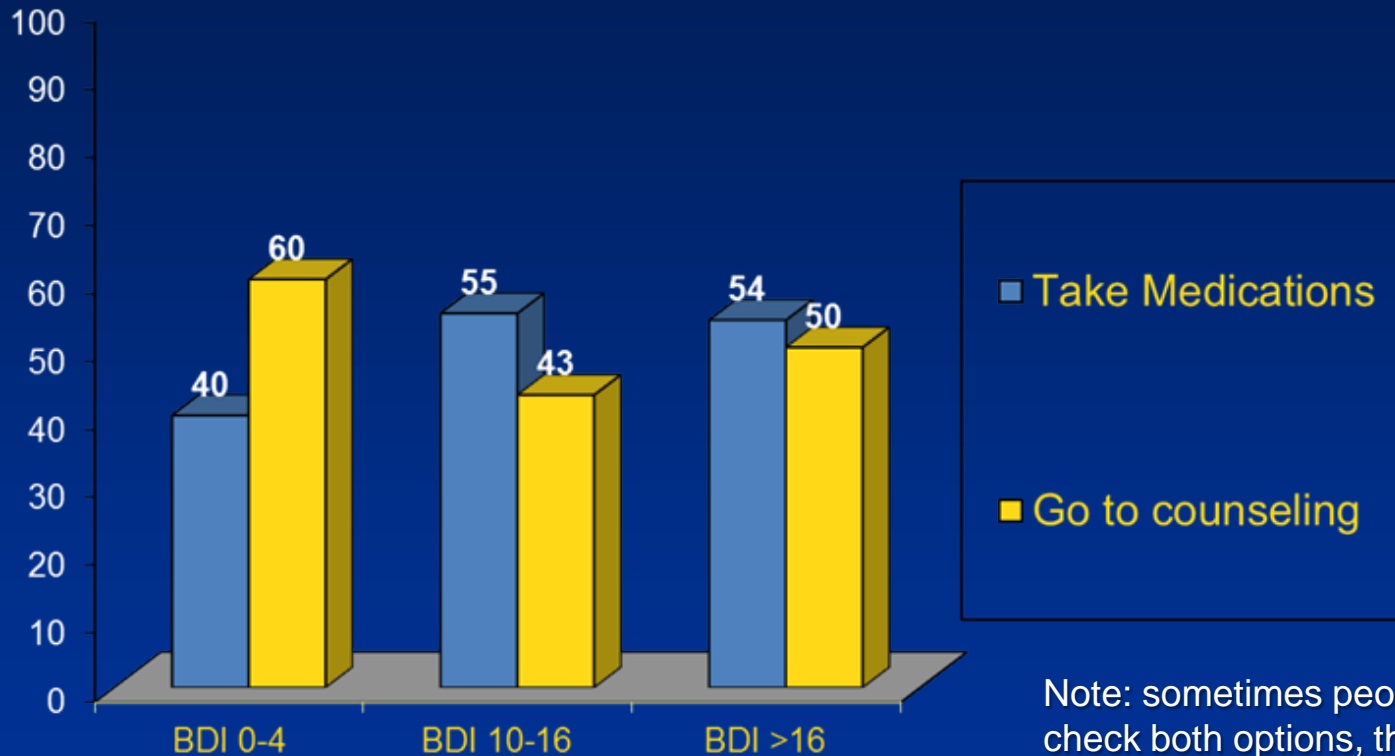
Note: sometimes people check both options, thus total is > 100%

The COPES trial needs to consider:

An observation period to rule out those with remittent depression

Medical patients have strong preferences for, and against, both psychotherapy and medication to treat their depressive symptoms

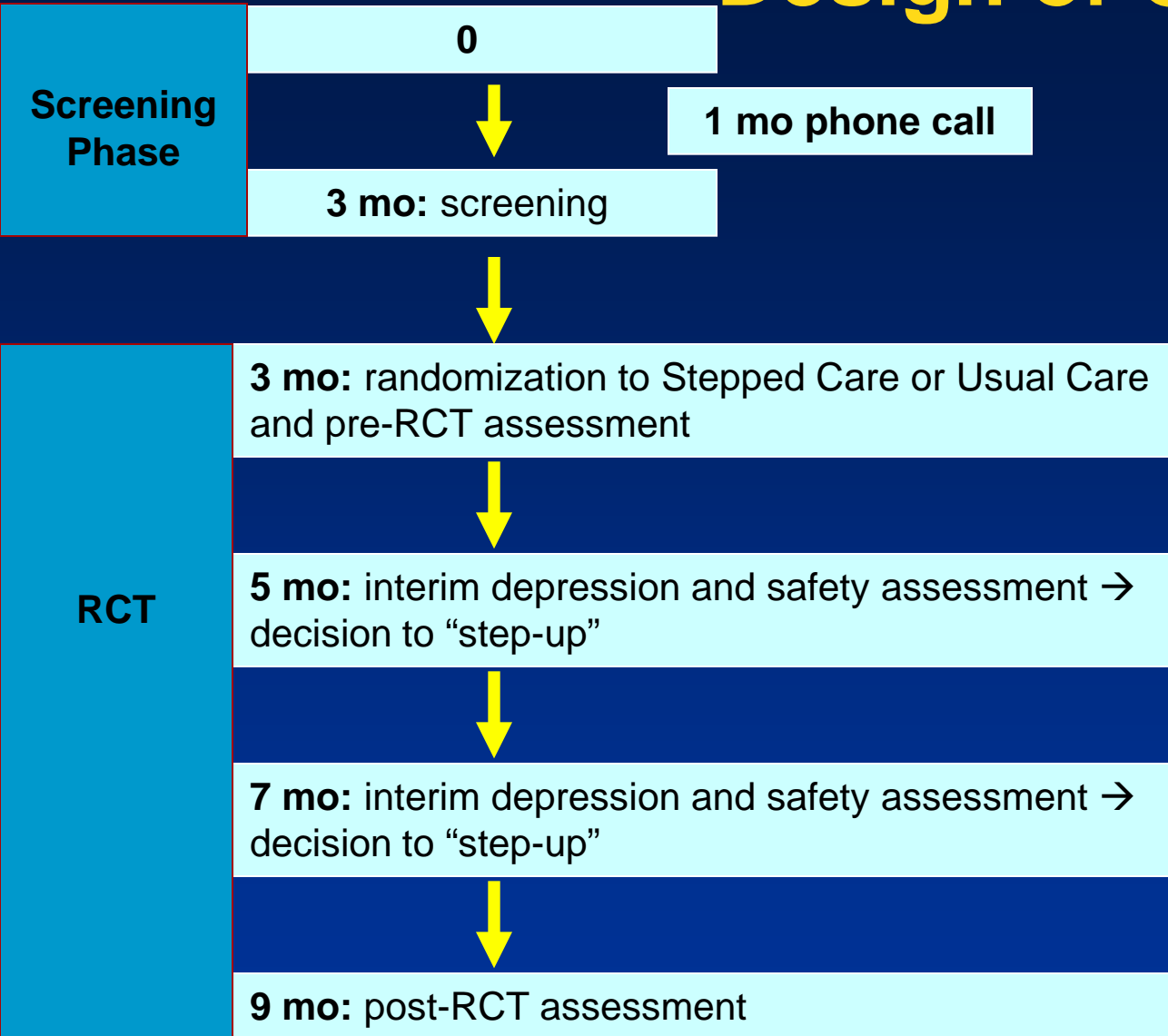# COPES RCT Aims

To explore in a depression intervention RCT the patient satisfaction and depressive symptom reduction of a **patient-preference, stepped-care model** (where steps include either problem-solving and/or antidepressant medication), as compared to **usual care** in patients with ACS and persistent depressive symptoms.

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Design of COPES

Screening Phase

0

↓

1 mo phone call

3 mo: screening

↓

RCT

3 mo: randomization to Stepped Care or Usual Care and pre-RCT assessment

↓

5 mo: interim depression and safety assessment → decision to "step-up"

Step-up?

↓

7 mo: interim depression and safety assessment → decision to "step-up"

Step-up?

↓

9 mo: post-RCT assessment

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Assessed for initial eligibility (n=561)

Not Depressed (n=85)

Excluded (n=18)
Refused (n=13)
Deceased/Moved (n=5)

Assessed for eligibility at 3mo (n=543)

Not depressed again at 3mo (n=80)

Excluded (n=386)
   No longer depressed (n=208)
   Ineligible (n=143)
   No 3mo BDI (n=101)
   Refused (n=35)
   Other (n=42)

Randomized (n=157)

Allocated to intervention (n=80)
   Did not receive allocated Intervention (n=12)

Allocated to Usual Care (n=77)

No 9mo Outcome Data Available (n=10)

No 9mo Outcome Data Available (n=3)

No Outcome Data Available (n=6)

Analyzed (n=80)

Analyzed (n=77)

Analyzed (n=80)

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Baseline Characteristics

Variable	INT	UC	p*
Gender, N(%) female	41 (54)	44 (54)	0.96
Age, mean $\pm$ sd	59.6 $\pm$ 10.6	60.7 $\pm$ 10.6	0.50
Hispanic status, N(%)	33 (44)	36 (44)	0.96
Afr-Am, N(%)	12 (16)	17 (21)	0.40
BDI score	19.4 $\pm$ 6.1	19.2 $\pm$ 6.9	0.87
BDI $\geq$16, N(%)	50 (67)	53 (65)	0.87
DISH diagnosis of MDD, N(%)	20 (34)	21 (34)	0.99
Type of ACS, N(%)			0.92
Unstable angina	57 (76)	57 (73)	
Non-ST elevation MI	12 (16)	14 (18)	
ST elevation MI	6 (8)	7 (9)	

* p-value based on chi-square test for categorical measures and t-test for continuous measures
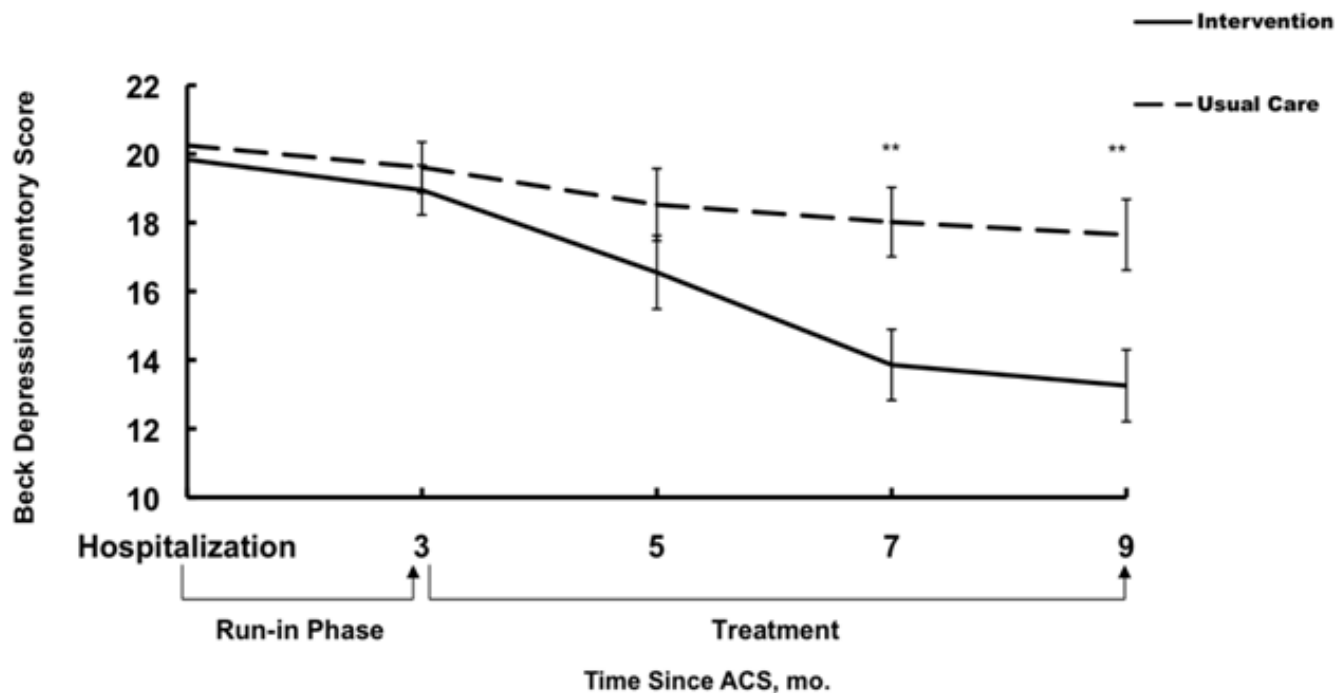
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Primary Outcome

Depression Care Rated as…	UC (n=77)	INT (n=80)	OR (95% CI)	P
excellent or very good at 3 mo	13.2 (6.5-19.6)	21.6 (12.9-29.7)	1.8 (0.8-4.5)	.18
excellent or very good at 9 mo	**18.8 (10.4-26.7)**	**54.2 (41.9-63.6)**	**5.4 (2.2-12.9)**	**<.001**
no care at 3 mo, No. (%)	56 (73.7)	53 (71.6)	…	…
no care at 9 mo, No. (%)	43 (62.3)	19 (27.1)	…	…

Beck Depression Treatment Differences during RCT


Depressive Symptom Scores During COPES Trial

Legend: — Intervention, – – Usual Care

Y-axis: Beck Depression Inventory Score (10, 12, 14, 16, 18, 20, 22)

X-axis: Time Since ACS, mo. (Hospitalization, 3, 5, 7, 9)

Run-in Phase | Treatment

BDI Score Differential Group Differences

BDI Score	UC (n=77)	INT (n=80)	INT vs UC Between-Group Difference	P
Overall Change	−1.9 (−3.8 to −0.1)	−5.7 (−7.6 to −3.8)	**−3.8 (−6.5 to −1.2)**	**.005**
Men (n=73)	−1.2 (−3.9 to −1.5)	−4.8 (−7.6 to −2.0)	**−3.6 (−7.5 to 0.3)**	**.07**
Women (n= 84)	−2.6 (−5.1 to 0.0)	−6.5 (−9.1 to −4.0)	**−4.0 (−7.6 to −0.3)**	**.03**
Hispanic (n=68)	−1.6 (−4.4 to 1.3)	−5.1 (−7.9 to −2.2)	**−3.5 (−7.6 to 0.5)**	**.09**
African American (n=29)	−1.5 (−5.3 to −2.4)	−7.9 (−12.7 to −3.1)	**−6.4 (−12.6 to −0.2)**	**.04**

Estimate of Depression Effect Size from different RCTs

Depression Effect Size in RCTS

ENRICHD 6 mo	0.31
COPES 6 mo	0.59
COPES 18 mo	0.57
CODIACS I 6 mo	0.62
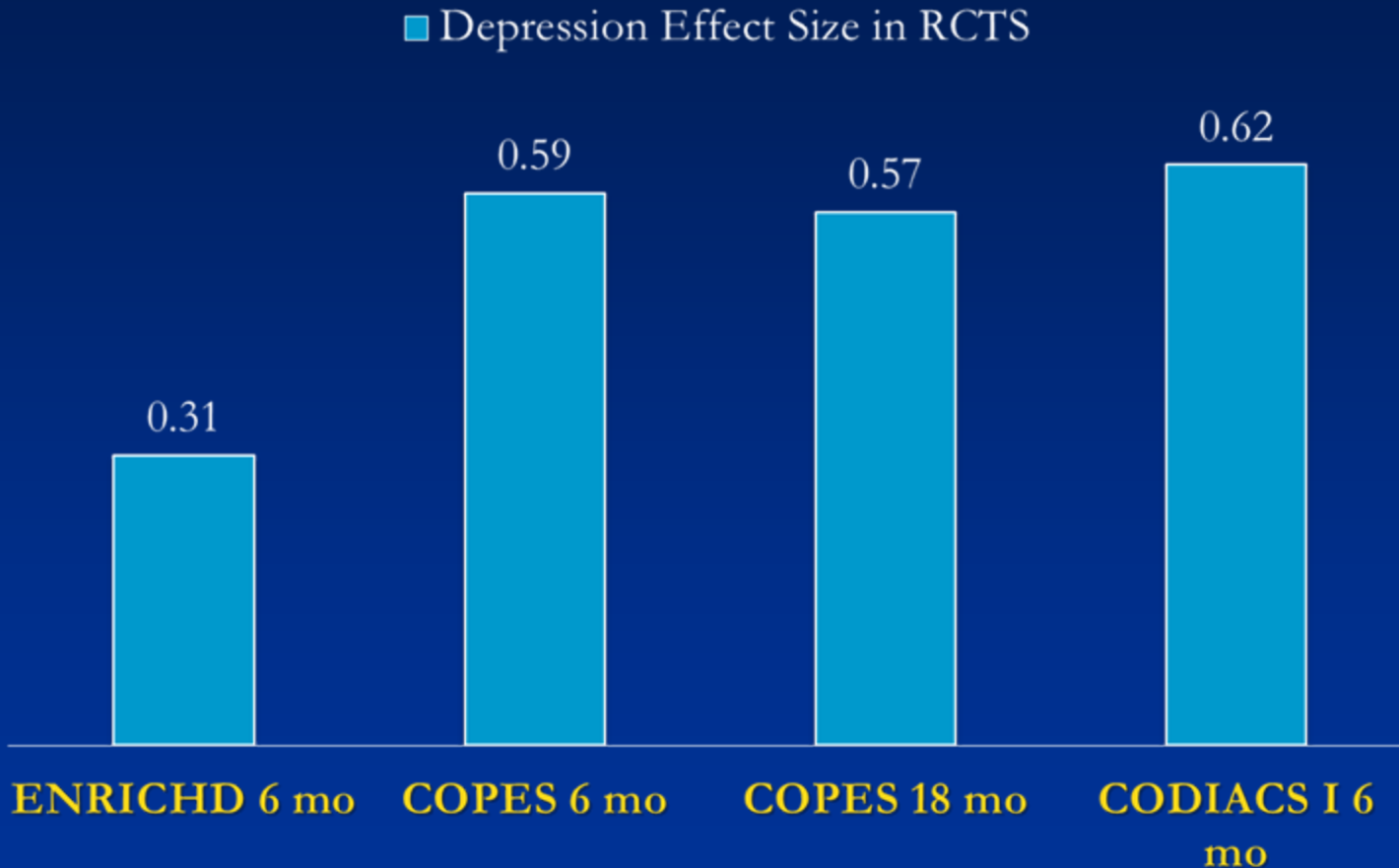
Days to Major Adverse Coronary Event/Death by Group Status
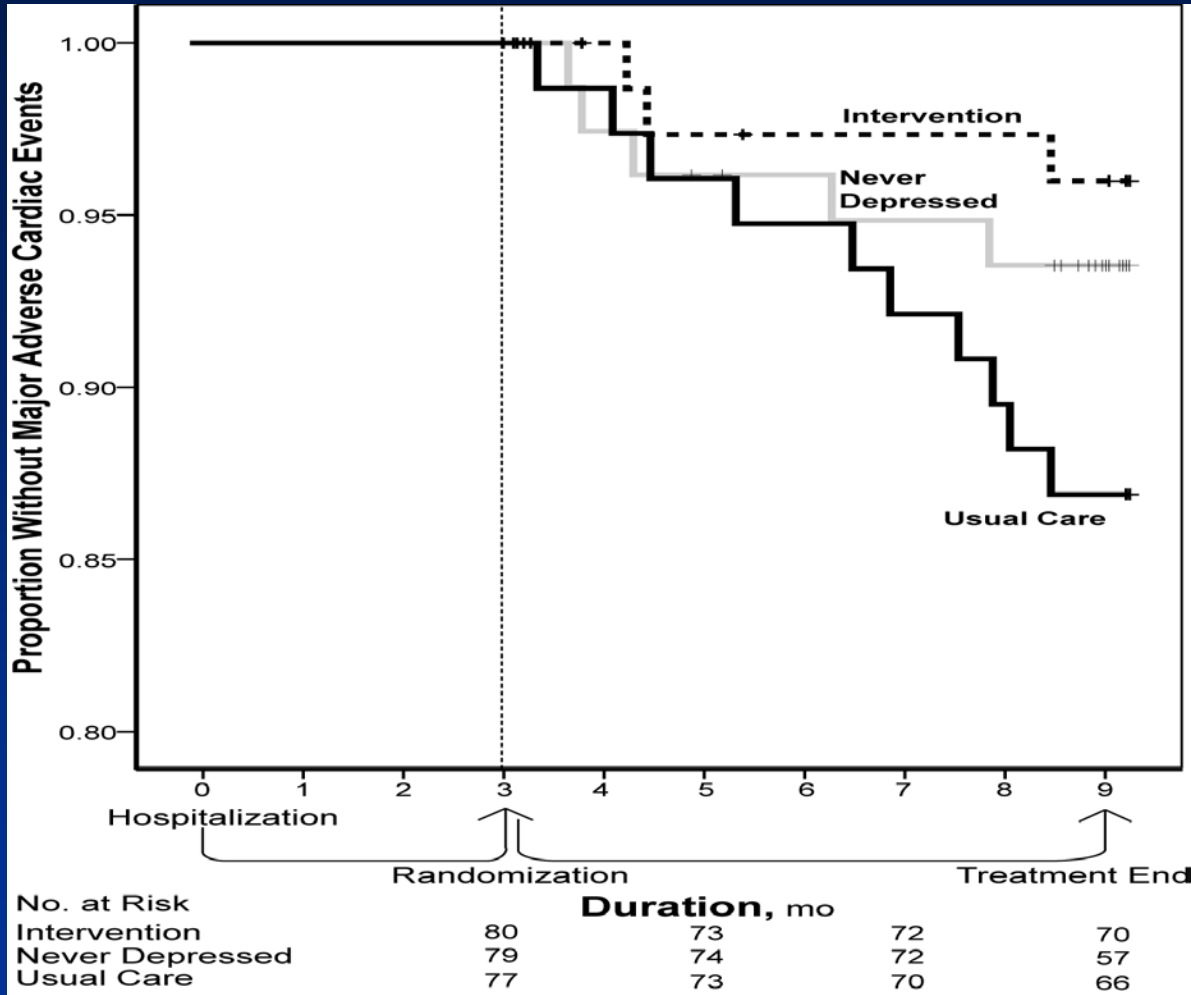
4% Intervention and 13% Usual care; log-rank test, $\chi^2(1)=3.78$; $P=.048$; 5 nondepressed patients had MACE (6%).

- We have a small trial, with some promising results

- We need expert opinion and collaboration to think through the economic inputs and results that could be found in a next, larger RCT

Thank you!

Davidson KW, Rieckmann N, Clemow L, Schwartz JE, Shimbo D, Medina V, Albanese G, Kronish IM, Hegel M, Burg MM. Enhanced depression care for Acute Coronary Syndrome patients with persistent depressive symptoms. Coronary Psychosocial Evaluation Studies (COPES) randomized controlled trial. *Arch Int Med.* 2010;170(7):600-08. PMCID: PMC2882253