

# Reduced Cardiovascular Disease Risk Factors and Risk Biomarkers From a Population Based Intervention: The Heart of New Ulm Project, Two-year Results

Thomas Knickelbine<sup>1</sup>, Jackie Boucher<sup>2</sup>, Abbey Sidebottom<sup>3</sup>, Raquel F. Pereira<sup>2</sup>, Betsy Pieser<sup>3</sup>, Arthur Sillah<sup>3</sup>, Craig Strauss<sup>1</sup>, Charles Stephens<sup>4</sup>, Kevin Graham<sup>1</sup>  
<sup>1</sup>Minneapolis Heart Institute, Minneapolis, MN <sup>2</sup>Minneapolis Heart Institute Foundation, Minneapolis, MN; <sup>3</sup>Allina Hospitals & Clinics, Minneapolis, MN; <sup>4</sup>New Ulm Medical Center, New Ulm, MN.

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## PROGRAM DESCRIPTION

- The Heart of New Ulm Project (HONU) is a 10-year demonstration project aimed at reducing heart attacks and coronary heart disease (CHD) in a rural Minnesota community (New Ulm, MN).
- The long-term goal is reduction of acute MI and the moderate-term (5-year) goal is to reduce modifiable heart disease risk factors at a community level.
- Interventions are delivered through worksites, health care and the community. Methods range from individual behavior change, education and clinical care to environmental reengineering, social marketing and policy implementation. Sample program components:
  - Community heart health screenings
  - Health promotion programs targeting residents
  - Partnerships with restaurants to increase healthy offerings
  - Clinic-based phone coaching program for high-risk patients
  - Consultations with worksites to help them develop or improve employee wellness programming and policies

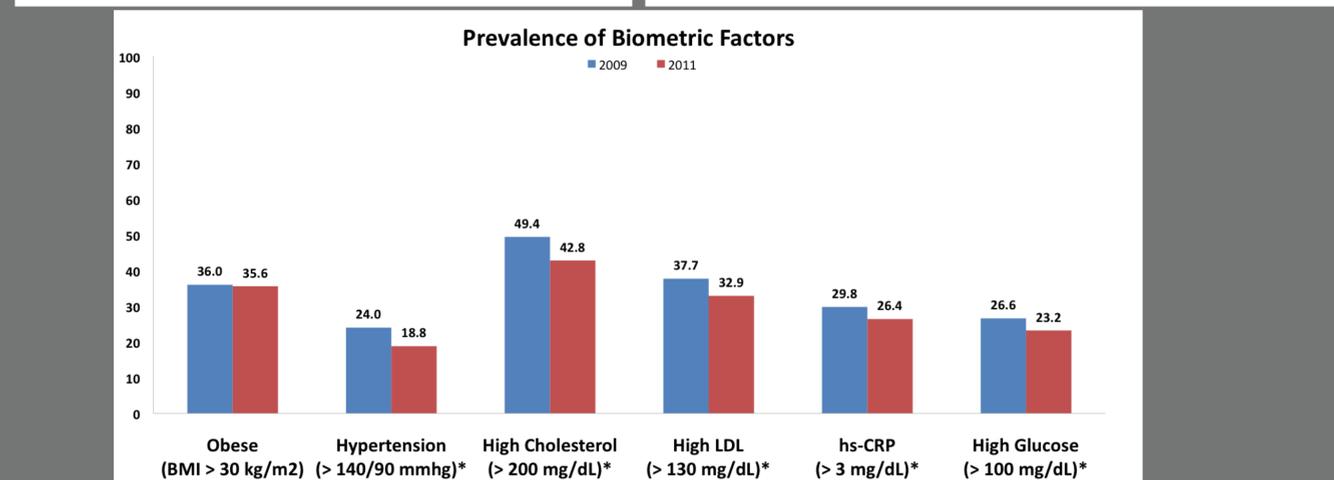
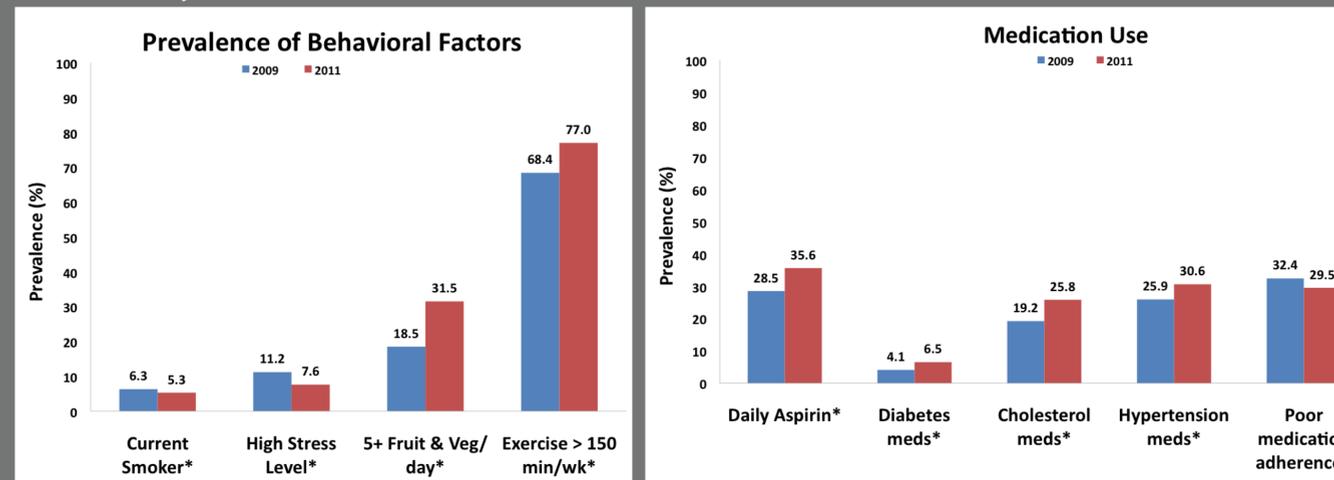
## METHODS

- Free heart health screenings were offered to any adult resident in target zip code.
- Those participating in both years (2009 and 2011) comprised the study group.
- Screenings were held at a variety of locations including worksites, medical center, churches and other community spaces.
- Participants completed a questionnaire and biometric measures (i.e., blood pressure, height, weight, waist circumference, fasting blood draw).
- Scorecards showing selected risk factors (behavioral, BMI and blood pressure) were generated and health coaches reviewed the results with participants at the screening. More comprehensive scorecards that included lab results were mailed after processing.
- High-risk individuals were targeted for more aggressive treatment with direct phone calls, medication initiation and scheduling of follow-up visits with primary care providers at a single medical institution (New Ulm Medical Center).

## RESULTS

### Participation

- Approximately 10,000 adult residents of target zip code
- 4,166 residents from the target zip code participated in 2009, and 2,509 participated in 2011
- 1,766 adults participated in both screenings (42% of baseline participants)
- People returning for screening in 2011 were more likely to be female, less likely to be smokers, be obese or have diabetes. Returnees had slightly healthier behaviors at baseline but were also more likely to have high cholesterol at baseline. There were no differences in baseline hypertension, triglycerides, or CRP.
- Mean age of re-screening cohort in 2011 was 55.5; 64% were female and 97% were white which aligns with county census information



### Gender-specific cardiovascular risk factor changes

Behavioral Factors (in %)	Females (n = 1124)			Males (n = 642)		
	2009	2011	Δ ('11 - '09)	2009	2011	Δ ('11 - '09)
Current Smoker *	6.0	5.2	-0.8	6.9	5.5	-1.4
High Stress Level † ‡	13.0	7.6	-5.4	7.9	7.5	-0.4
5+ Fruit & Veg/day † * ‡	22.3	37.3	15.0	11.8	21.4	9.6
Exercise ≥ 150 min/wk † * ‡	66.5	76.5	10.0	71.8	77.8	6.0
Medication Use (in %)	Females (n = 1124)			Males (n = 642)		
	2009	2011	Δ ('11 - '09)	2009	2011	Δ ('11 - '09)
Daily Aspirin † *	23.5	30.5	7	37.0	44.3	7.3
Diabetes Meds † *	4.3	6.2	1.9	3.9	6.9	3
Cholesterol Meds † *	15.7	22.7	7	31.2	25.2	-6
Hypertension Meds † * ‡	24.6	28.4	3.8	28.2	34.6	6.4
Poor Medication Adherence † * ‡	32.2	25.0	-7.2	32.6	35.9	3.3
Biometric Factors (in %)	Females (n = 1124)			Males (n = 642)		
	2009	2011	Δ ('11 - '09)	2009	2011	Δ ('11 - '09)
Obese (BMI ≥ 30 kg/m <sup>2</sup> )	34.8	34.2	-0.6	38.1	37.9	-0.2
Hypertension (> 140/90 mmHg) † * ‡	22.0	18.4	-3.6	27.5	19.7	-7.8
High Cholesterol (> 200 mg/dL) † * ‡	52.3	47.3	-5	44.2	34.9	-9.3
High LDL (> 130 mg/dL) * ‡	37.6	34.9	-2.7	38.0	29.3	-8.7
hs-CRP (> 3 mg/dL) † ‡	34.3	29.8	-4.5	21.8	20.3	-1.5
High Glucose (> 100 mg/dL) †	22.5	19.0	-3.5	33.8	30.4	-3.4
High Trig(> 150 mg/dL) †	25.7	21.9	-3.8	34.1	31.8	-2.3

(-)Decreased change from baseline (2009); (+)Increased change from baseline (2009)  
 † significant change at α = 0.05 for females; \*significant change at α = 0.05 for males  
 ‡ changes differ by gender at α = 0.05

## CONCLUSIONS

- A population-wide community and clinical prevention program can meaningfully reduce cardiovascular risk profile among a substantial portion of the population as indicated by those participating in screenings.
- Reductions were found in smoking, stress levels, hypertension, hyperlipidemia and fasting glucose and hs-CRP.
- Increases were seen for medication use, fruit and vegetable consumption, and optimal weekly exercise.
- Women had larger decreases in stress levels and larger increases in fruit and vegetable consumption compared to men. Men were more likely to start blood pressure medications.
- hs-CRP decreases were more pronounced in women than men despite similar changes in aspirin use and non-significant gender differences in cholesterol medication use. This may be related to exercise and stress.
- Findings are limited to those who elected to participate in screenings.

\* significant differences at α = 0.05

Note: The authors have no conflicts of interest to report.