1. Full Title: Trends in atypical symptoms in myocardial infarction in Poland and US populations  
   Abbreviated Title (length 26): Atypical symptoms in MI US and PI

2. Writing Group (list individual with lead responsibility first):
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3. Timeline:  
   Analysis could begin Fall 1996.

4. Rationale:  
   Findings from POL-MONICA Krakow Project indicate that the proportion of hospitalized MI with atypical symptoms have been increasing since 1984. Similar trends have not been evaluated in the ARIC data.

   Atypical symptoms are related to unrecognized MI, which is related to higher mortality compared to MI with typical pain. However, hospitalized MIs with atypical symptoms may also be subjected to different management, different procedures and medication, which can effect the outcome. Preliminary data from ARIC suggest that MI patients without classical chest pain pain may have received invasive procedures less often and have a higher in-hospital compared to their counterparts with pain.

   Little is known on the characteristics of MI patients who have atypical symptoms. Some studies have pointed to differences in gender diabetes and hypertension. Less is known on the relationship of these characteristics and the risk of dying before 28 days after the onset.

   Because of expected widely different admission and diagnostic practices, comparison between the two countries may help refine our understanding of the nature of atypical MI.

5. Main Hypothesis:  
   The proportion of MIs with atypical symptoms in Poland and US increased from 1987 to 1993.

   Patient characteristics (age, gender, history of MI, hypertension, q-wave, medication before the onset, complications) for MI patients with typical symptoms are different compared to MI patients with atypical symptoms. Patients with atypical symptoms received in-hospital procedures and medication less often compared to MI patients with typical symptoms.

   Risk of death within the 28 days after the onset of the disease is greater in patients with atypical symptoms as compared to MI patients with typical symptoms.
6. Data (variables, time window, source, inclusions/exclusions):
POI-MONICA --
MI registry 1986-93, hospitalized events
ARIC -- surveillance data 1987-1993 (whites age 35-64), presence of chest pain, age, gender, history of MI, ECG data, medications used, procedures used, 28 days case fatality

Suggested exclusions
1) iatrogenic MIs
2) inadequately described symptoms
3) insufficient data on symptoms
4) patients with non-cardiac cause as primary admitting reason

Definitions used
MI is defined as:
1) ECG=define OR
2) ECG=probable and ENZ=abnormal OR
3) sympt=typical and ENZ=abnormal and ECG=probable or ischemic OR
4) sympt=typical and ENZ=abnormal OR
5) sympt=typical and ENZ=equivocal and ECG=probable or ischemic OR
6) ENZ=abnormal and ECG=ischemic

Typical Symptoms
ARIC --
HRA25a=yes (acute episode of pain in the chest, left arm or shoulder...) and HRA25c=yes (did pain specifically involve the chest)

MONICA --
((SYMPT=1 or 2) and (pain in the chest) or (pain not explained by non-cardiac cause))

Atypical of no symptoms
ARIC --
HRA25a=yes and ((HRA25c=No or Unk) or HRA25d=yes)) or HRA25a=no or UNK

MONICA --
((SYMPT=1 or 2) and (pain not in the chest)) or (pain explained by non-cardiac cause) or (SYMPT=3 or 4)

Analysis
Cross tabulations of age adjusted means and proportions by symptoms, by center and by sex.

Cox proportional hazards model.

Potential tables
Age standardized proportions of MIs with atypical symptoms by year, by site and by sex;
Age standardized proportions of previous MI, diagnosis of hypertension, diabetes, shock, hypotension, LVF, by MI type (typical or atypical symptoms);
Prior medication (Polish sites) by MI type (typical or atypical symptoms);
Proportion of medication during hospitalization by MI type (typical or atypical symptoms);
Relative risk adjusted to age, sex, shock, LVH (Polish site only), diagnosis of diabetes and diagnosis of hypertension.