Article:

Moss, S. M. et al. 2006 Effect of mammographic screening from age 40 years on breast cancer mortality at 10 years’ follow-up: a randomized controlled trial. *Lancet* 368: 2053–60

1. The Problem:
   I had a 40 year old female patient at the VA and wanted to ensure I was providing her with all recommended health maintenance care. I found there was debate about starting breast cancer screening at age 40 compared to starting at age 50.

2. How I found the Article:
   I searched Dynamed by looking up breast cancer screening. One of the most recent articles cited in the area related to age of initiation of screening was a meta-analysis performed by USPSTF in 2009 which supported their guidelines. The next most recent related source in the Dynamed discussion was this article cited in the USPSTF Meta-analysis. I copied the PubMED ID into PubMED and searched for it.

3A. Describe the Study
   Randomized controlled trial in which 160,921 women aged 39–41 years were randomly assigned between 1991 and 1997 to either an intervention group of annual mammography to age 48 years or to a control group of usual medical care. It took place in 23 NHS breast-screening units in England, Wales, and Scotland. The primary analysis was based on the intention-to-treat principle and compared mortality rates in the two groups at 10 years’ follow-up.

3B. Describe the Research Question
   Does initiation of breast cancer screening at age 39-41 with mammography improve mortality rates in women at 10 years follow-up compared to usual medical care?

4. State the Importance/Relevance/Context of the Question
   Screening women from age 50 years by mammography has been shown in randomized controlled trials to reduce mortality from breast cancer by around 25% in those offered screening. Although efficacy of mammography in women younger than 50 years is less certain, evidence from long-term follow-up of some randomized controlled trials has increasingly suggested a benefit of screening in this age-group. Most previous trials have not been designed specifically to study the effect of screening in younger women, and where women younger than 50 years at study entry have been included, to what extent any benefit in these women was due to screening after they reached age 50 years is unclear. The Age trial was designed specifically to overcome these issues by studying the effect of annual invitation to mammography starting at age 40 years, compared with an uninvited control group.

5. Methods (PICO)
   P: Women age 39–41 who have been seeing their National health service general practitioners in England, Wales and Scotland
   I: Annual screening by mammography up to and including the calendar year of their 48th birthday
   C: Usual medical care
   O: 10 Year mortality

6. Validity
   -Patients were randomized using computer software and likely had a similar prognosis from the beginning.
   -Randomization was concealed to all except those at the screening center because this was not possible due to the nature of the intervention
   -Intent to treat analysis performed
   -Treatment groups were likely similar but no data was presented
   -Follow-up was quite complete (Assigned to each group versus assessed in each group relatively similar for intervention and control groups)
7. Summary of Primary Results
At a mean follow-up of 10.7 years there was a reduction in breast-cancer mortality in the intervention group, in relative and absolute terms, which did not reach statistical significance (relative risk 0.83 [95% CI 0.66–1.04], p=0.11; absolute risk reduction 0.40 per 1000 women invited to screening [95% CI –0.07 to 0.87]). Mortality reduction adjusted for non-compliance in women actually screened was estimated as 24% (RR 0.76, 95% CI 0.51–1.01).

8. Application
Likely applies to my patient population, although demographics of patients were not well disclosed.

9. Conclusion
Although the reduction in breast-cancer mortality observed in this trial is not significant, it is consistent with results of other trials of mammography alone in this age group. Future decisions on screening policy should be informed by further follow-up from this trial and should take account of possible costs and harms as well as benefits.