Journal Club
Short-term effects of daily aspirin on cancer incidence, mortality, and non-vascular death: analysis of the time course of risks and benefits in 51 randomized controlled trials, Rothwell et al., Lancet 2012.

I Background
- There has been growing interest in examining potential anti-cancer effects of aspirin based on earlier work showing a long-term (20 yr) aspirin benefit for hereditary colon cancer. Short-term effects, and inclusion of studies with large numbers of females, has not yet been examined.

II Hypothesis of the study and why important
- Aspirin will lead to a reduction in cancer deaths in the short-term (3-5 years)
- The benefits of aspirin will outweigh the risks of extracranial bleed in terms of overall mortality

III Methods review
- Meta-analysis of 51 randomized controlled trials of aspirin, most for treatment of vascular conditions. Reviewed individual patient data as well as pooled data.
- Intervention: Daily aspirin. Sub-analysis in patient on low-dose aspirin
- Comparison or control: Placebo
- Outcomes chosen
  - All trials: Death due to cancer, all non-vascular death, vascular death, and all deaths
  - When available: Incident cancer, major vascular events, and major extracranial bleeds.
  - Stratification by age, sex, and smoking status

IV Results
- Reduced cancer deaths: 0.85 (0.76-0.96), 34 trials
- Overall reduction in non-vascular deaths: 0.88 (0.78-0.96), 51 trials
- The reduction in non-vascular events accounted for 91% of the mortality benefit of aspirin, even in trials of primary prevention of vascular events.
- Only six trials of low-dose ASA included (35,535 participants): >3 year benefit, OR 0.76 (0.66-0.88).
- Increased short-term risk of major bleeding, but effect diminished over time.
- Low-dose ASA reduced risk of composite outcome of major vascular events, cancer or extracranial bleeds (0.92, 0.86-0.98).
- Paradoxically, case-fatality from major extracranial bleeds lower in ASA (OR 0.32 (0.12-0.83)).
- Absolute reduction of cancer of 3.13 cases per 1000 patients per year after at least 3 years of use.

V Reviewers Critique
- Several minor omissions that are surprising: lack of a Quorum flow chart, unjustified emphasis on low-dose ASA primary vascular prevention trials.
- Trials they included were vascular trials, and did not focus on cancer, thus cancer events may have been under-reported.
- Overall findings, however, are suggestive of a possible benefit of ASA.

VI Summary for practice implications
- Authors recommend long-term use of asa for cancer prevention starting in middle age
- Further information needed regarding risks/benefits in older adults.