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# Calcium Supplementation

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# Calcium Supplements

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Family Medicine Clerkship December 2015-January 2016

Thomas Chittenden Health Center

Mentor: Dr. Dan Donnelly MD

# The Problem

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- Osteoporosis is a costly and prevalent condition in the U.S.
- Calcium supplements have been recommended to prevent bone density loss.
- However several studies have come to conflicting conclusions regarding calcium supplementation:
  - There is an association of calcium supplement consumption with increased heart attacks. Relative Risk 30% (Bolland et.al. 2010)
  - Dietary calcium does not affect the risk of cardiovascular disease. Calcium supplements are associated with more heart attacks, but not stroke or overall cardiovascular death. (Li et.al., 2012)
  - There is insufficient evidence to determine benefit of calcium and vitamin D supplements. (Moyer et.al, 2013)

# Public Health Cost

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- A daily dose of calcium and vitamin D ranges from \$0.06 to \$0.32. Median cost is \$0.16 per day. Thus, annual cost of supplementation is \$43.22, a total more than \$356 million per year.
- 29% of women over age 55 in the U.S. are regular users of calcium and dietary supplements (Ipsos Public Affairs, 2012).
- 8.2 million U.S. women over the age of 55 are diagnosed with osteoporosis.
- More than 1.2 million fractures due to osteoporosis occurred in 2012 at an average cost of \$11,020.
- \$14 billion in annual direct health care costs to treat fractures, excluding the costs of lost productivity, mobility, and quality of life.

# Community Perspective and Project Support

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- “Currently I am not recommending calcium supplementation because of the new information about coronary plaques and kidney stones. I still try to encourage people to eat a well-balanced diet and I am not clear if they still need to get to the 1200-1500 mg mark through diet. If patients can’t have dairy and are osteoporotic, then I might be more inclined to recommend the supplement.” - Adriane Trout MD
- “In Vermont, some people might need calcium supplements because we are without sunlight for so long, and most people in Vermont have a minimally low vitamin D level at the end of winter. I don’t think most people need extra calcium. I tell people what my grandma told me. Eat your fruits and vegetables, drink your milk, and go outside. Patients might know how much calcium is in their supplements, but may not know how much calcium is in their food.” Joseph Haddock MD
- “I usually recommend 1000 mg a day if women are not getting enough in their diet. I do a better job talking about it with my female patients than my male patients. I think it’s a good idea to tease out their diet first because if they are getting 3-4 calcium rich foods a day, then they probably don’t need it.” Sarah Dudley FNP
- “I used to take them religiously until I heard about side effects like this. Then I stopped and I don’t feel any different. I do eat a lot of cheese, although that’s not good for weight, and I eat broccoli and kale. Aren’t they good sources for calcium? I think I will just keep doing what I am doing.” Unnamed patient, TCHC.

# Intervention and Methodology

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- As calcium supplementation is currently under review, several health care providers at TCHC felt that they would benefit from an easy-to-read handout of the most current recommendations for calcium supplementation.
- Several patients wanted to learn more about calcium in their diet and had questions about whether they should start taking calcium supplements. They were interested in having a handout with more information.
- Method: Literature research and review on dietary calcium, calcium supplements, and current recommendations to produce a concise handout that is accessible to both health care providers and patients.

# Results

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- Handout with current recommendations and a chart with calcium-rich foods was distributed among health care providers at Thomas Chittenden Health Center. Extra copies were given to providers to give to patients who are interested.
- Copies were also made available in the waiting rooms for patients and family members.
- Electronic copy available to staff for future use.

# Evaluation of Effectiveness and Limitations

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- Many patients at TCHC are well-read and invested in their health care. A handout with information available in the waiting room might be helpful to them.
- Effectiveness of the handout can be evaluated by completing a survey of health care providers after several weeks to assess whether they found the handout helpful and what they were now recommending to their patients regarding calcium supplements.
- Limitations: patients may not be interested in changing dietary habits, difficulty in evaluating patients of different groups (men, premenopausal women, postmenopausal women)



# Recommendations for Future Projects

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- Evaluate current treatment plans for male and female patients with osteoporosis and their dietary calcium intake and calcium supplementation.
- Dietary recommendations for combined calcium and vitamin D supplements
- Survey cardiologists practice and protocol regarding patients with coronary artery disease who are taking calcium supplements.
- Survey dieticians and their current practice and recommendations regarding calcium and vitamin D supplementation.

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