**Framingham hip fracture study detailed analysis plan**

**2-14-17**

**Step 1:** Determine if the incidence of fracture is declining over time

If we see a decline, as expected then move one to

**Step 2:** measure changes in risk factor prevelance to see why.

**Step 1:**

1. Divide the cohorts into “epochs” or successive waves.
2. Just use the same epochs as described by Satizabal.
   1. Page 13 of supplementary material
   2. Dataset framcohort.sex.age should be enough
3. For each epoch, calculate how many patients were are included ( the n), and then exclude the pts who didn’t attend those visits or had had both right and left hip fractures.
4. Check fracture datasets to see if any of the PIDs had fractures with that epoch.
5. Repeat for 4 epochs and calculate rate of hip fractures in each epoch. Note that if a patient went through an epoch without a hip fracture or just 1 hip fracture, he is eligble to be part of the next epoch. If he has 2 hip fractures in any epoch, he is no longer eligible

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Epoch 1 | Epoch 2 | Epoch 3 | Epoch 4 |
| Number of pts at risk |  |  |  |  |
| Number of hip fractures within epoch |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

P value for trend?

**Step 2:**

1. Will go back and measure the presence of known risk factors for hip fracture
   1. Increase in physical activity
   2. smoking
   3. dietary calcium
   4. BMI
   5. Prevalence of diabetes
   6. serum Vit D levels
   7. medications
      1. bisphosphonates
      2. use of supplements (calcium/ Vitamin D)
      3. estrogen
2. Assess relative contribution of these measureable factors vrs “other”