**Online Supporting Material**

**Supplemental Table 1. Crude Risk of Incident/ Recurrent Asthma according to Beverages Consumption, The Framingham Offspring Cohort**

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| **Cox Proportional Hazards Cox Proportional Hazards**  \_\_\_\_\_\_\_\_\_\_\_\_  ***Incident* Ratio95% CI p-value *Recurrent* Ratio95% CI p-value**  ***Asthma1* *Asthma2*** |
| **ttlEFF 3 HR –** unadjusted **ttlEFF 3** **HR –** unadjusted  **(ndSoda, FD, AJ)** n=3373, # of obs=10307 **(ndSoda, FD, AJ)** n=3595, # of obs=11533  **< 3 times /mo** Reference ------- Reference -------  **2-4 times /wk`** 1.16 0.85 – 1.57 0.349 1.12 0.92 – 1.37 0.269  **~ once /wk** 1.50 1.11 – 2.02 0.008\* 1.28 1.05 – 1.57 0.015\*  **~ once /day** 1.89 1.43 – 2.50 0.000\* 1.58 1.31 – 1.91 0.000\*  **> once /day** 1.59 1.18 – 2.14 0.002\*1.49 1.22 – 1.80 0.000\* |
| **HR –** adjusted for fruit drinks, apple juice4 **HR –** adjusted for fruit drinks, apple juice4  **Non-diet soda** n=3362, # of obs=10105 **Non-diet soda** n=3585, # of obs=11307  **≤ once /wk** Reference ------- Reference -------  **2-4 times /wk** 1.04 0.80 – 1.35 0.7671.09 0.91 – 1.30 0.355  **5-7 times /wk** 1.54 1.18 – 2.01 0.001\* 1.54 1.27 – 1.85 0.000\*  **> once a day** 1.18 0.88 – 1.59 0.263 1.28 1.05 – 1.55 0.013\* |
| **HR –** unadjusted **HR –** unadjusted  **Fruit Drinks** n=3365, # of obs=10232 **Fruit Drinks** n=3589, # of obs=11451  **≤ once /wk** Reference ------- Reference -------  **2-4 times /wk** 1.72 1.29 – 2.30 0.000\* 1.26 1.01– 1.57 0.040\*  **≥ 5 times /wk** 1.11 0.74 – 1.67 0.601 1.04 0.78 – 1.38 0.796  **HR –** unadjusted **HR –** unadjusted  **Apple Juice** n=3368, # of obs=10183 **Apple Juice** n=3589, # of obs=11392  **≤ once /wk** Reference ------- Reference -------  **2-4 times /wk** 1.69 1.24 – 2.29 0.001**\*** 1.39 1.10 – 1.75 0.006\*  **≥ 5 times /wk** 0.93 0.53 – 1.66 0.819 1.16 1.27 – 1.85 0.412  **HR –** unadjusted **HR –** unadjusted  **Diet soda Diet Soda** n=3368, # of obs=10287 **Diet soda** n=3590, # of obs=11582  **≤ once /wk** Reference ------- Reference -------  **2-4 times /wk** 0.93 0.69 – 1.25 0.628 0.91 0.75 – 1.12 0.377  **5-7 times /wk** 0.90 0.66 – 1.24 0.5390.93 0.75 – 1.16 0.542  **> once a day** 1.01 0.81 – 1.26 0.9350.99 0.85 – 1.15 0.905 |
| **HR –** unadjusted **HR –** unadjusted  **Orange juice** n=3368, # of obs=10210 **Orange juice** n=3592, # of obs=11427  **≤ once /wk** Reference ------- Reference -------  **2-4 times /wk** 1.02 0.79 – 1.31 0.8910.84 0.70 – 1.01 0.068  **5-7 times /wk** 0.91 0.74 – 1.13 0.410 0.79 0.68 – 0.91 0.001**\***  **> once a day > once a day** 0.80 0.48 – 1.32 0.385 0.89 0.64 – 1.22 0.459 |

Unadjusted (crude) Hazard Ratios, their 95% confidence intervals and p values are shown. Asterisks denote significance. **1)** Asthma refers to interim (recent) asthma/ wheeze, after the onset of risk (1984).2) Recurrent asthma includes the first reported case and all subsequent cases of asthma after the onset of risk. 3) ttlEFF refers to intake frequency of any combination of HFCS sweetened soft drinks, fruit drinks (FD), and apple juice (AJ). During the study period (1984-2008) – a period when high fructose corn syrup was the main sweetener in US soft drinks.[45] The fructose to glucose ratio in apple juice is 2:1.[27] In HFCS sweetened soft drinks the ratio has been measured as 1.5:1 for HFCS with 60% fructose[29] and 1.9:1 for HFCS with 65% fructose[28] - levels that are higher than the 1.2:1 fructose to glucose ratio that is generally recognized as safe[22-23]. 4) Analysis of non-diet soda includes adjustments for fruit drinks and apple juice, as we were interested in assessing asthma risk independent of these other high excess free fructose beverages.

**Supplemental Figure 1. Flow Chart showing Exclusions and Sample Sizes.**

**Initial sample:** 5013 men and women

**Exclusions:**

Death occurring before the return of questionnaire three = 509

No baseline data (missing date 3) = 719

History of asthma/ wheezing (short or long duration or with infections) = 445

Had only a single record/ Single exam = 447

Missing potential confounders - BMI (46), ever smoked, interim smoking (2), total energy intake (2), education (1) = 55

Missing any combination of non-diet soda, fruit drinks & apple juice intake = 232

or

Missing non-diet soda = 236

or

Missing orange juice intake = 234

or

Missing diet soda intake = 233

**Sample for Asthma analysis**:

2696 (non-diet soda and any combination of fruit drinks and apple juice) men and women with 17 years of complete follow-up and 363 incident cases of asthma;

2696 men and women for analyses with HFCS sweetened soda

2694 men and women for analyses with orange juice

2695 men and women for analyses with diet soda