1 health care provider visit between October and December 2008, with or without accounting for patients’ willingness to be vaccinated. Uptake and missed opportunity rates were weighted to be nationally representative using the Current Population Survey. Estimated numbers of vaccinated and unvaccinated adults were obtained by scaling up estimated vaccination and missed opportunity rates as well as disease prevalence based on the size of the total adult population as of November 1, 2008. All calculations were performed using STATA SE version 10.1 software (StatCorp, College Station, Texas).

**Results.** The Table presents estimates of influenza vaccine uptake, missed opportunities derived from vaccination and fall visit data alone, and an adjusted measure of missed opportunities that is limited to the subgroup of unvaccinated adults who were amenable to being vaccinated based on a health care provider’s recommendation. Calculating missed opportunities based on vaccination and care use data alone reveals that there are more than 53 million US adults who had at least 1 health care provider contact between October and December 2008 and nonetheless remained unvaccinated. Vaccinating all of these patients would increase overall vaccination uptake by 23.1 percentage points and result in an overall uptake rate of approximately 62%. Eliminating missed opportunities among those with specific vaccine indications would increase uptake by 19.7 percentage points (diabetes) to 27.4 percentage points (asthma).

Eliminating missed opportunities only among those willing to be vaccinated would result in a 14.4–percentage point increase in vaccine uptake among the general adult population, leading to an overall vaccination rate of approximately 53%. Corresponding subpopulation increases in immunization rates range from 9.6 (diabetes) to 17.5 (asthma) percentage points.

**Comment.** We showed that reducing missed opportunities among the subgroup of adults amenable to health care provider recommendation could yield substantially higher influenza vaccine uptake rates. Our results also suggest that there is a sizable subgroup of patients who see health care providers during the vaccination season, but may be unwilling to get vaccinated in the absence of outreach efforts aimed at overcoming their resistance. Thus, strategies aimed at fully eliminating missed vaccination opportunities need to consider the preferences and beliefs of this group.

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**Dilated Inferior Vena Cava in Young Adults With Vasovagal Syncope**

Vasovagal syncope is common in young adults, affecting up to 40% of subjects in this age group, with a female predominance. Its pathogenesis is not clear, but the main theory suggests a central role of the orthostatic venous pooling below the thorax, which leads to paradoxical activation of the cardio-neural inhibitory reflexes by the underfilled ventricles. We have occasionally seen dilated inferior vena cava (IVC) on echocardiograms of young patients with vasovagal syncope referred for cardiac evaluation. Since this observation could have pathophysiologic significance, we decided to design a study to measure the IVC diameter in a group of young adults with a history of vasovagal syncope.

**Methods.** On the basis of the results of the questionnaires distributed among medical students, we identified 53 subjects with typical vasovagal syncope or near-syncope in their medical history (mean number of episodes, 5; range, 1-23). The control group comprised 50 age- and sex-matched subjects from the same population, without any syncope or orthostatic symptoms in the past. Athletes and persons with cardiovascular disease or medications were not included in the study. The IVC diameter was assessed through echocardiography (IE33; Philips, Andover, Massachusetts). Studies were performed with subjects in the supine position by a physician unaware of subject’s diagnosis. The IVC was measured in longitudinal plane from the substernal view. Maximal end-expiratory diameter (during normal breathing) from the
distal 5 cm of IVC near the cavo-atrial junction was measured. Statistical analysis was performed using Statistica 6 software (StatSoft Inc, Tulsa, Oklahoma). The unpaired t test was used for comparison of continuous variables and Fisher exact test for comparison of categorical variables. Repeated measurements of IVC size were performed in 20 subjects after 1 month, and the coefficient of repeatability was calculated as 2 standard deviations of the differences. The study was accepted by the local ethics committee, and the subjects gave informed consent.

Results. Characteristics of the studied groups is presented in the Table. There were no significant cardiac abnormalities on echocardiography in any of the subjects. The mean IVC diameter and IVC diameter indexed for body surface area were significantly larger in subjects with vasovagal syncope than in the controls (24.6 vs 21.3 mm and 14.4 vs 12.6 mm/m2, respectively [P < .001]). The sensitivity of IVC diameter equal or above 24 mm for predicting the history of vasovagal syncope was 72% and the specificity, 82%. Intersession coefficient of repeatability for IVC size was 2.64 mm.

Comment. Our results suggest that IVC may play a role in the pathogenesis of vasovagal syncope. We propose that in healthy subjects (without volume overload, pericardial disease, and right heart abnormalities), dilated IVC may be a marker of decreased abdominal venous tone and/or increased compliance. This may lead to exaggerated abdominal venous pooling during standing and subsequently orthostatic symptoms. Our hypothesis is in accordance with the results of the study, which showed a relative increase in splanchnic (but not pelvic and leg) blood volume during tilt test in patients with syncope compared with controls. In another study, compression of the abdomen was more effective in preventing orthostatic symptoms than compression of the legs in patients with orthostatic intolerance, which may suggest a main role of the abdominal venous pool in orthostatic hypotension.

Our second observation shows that IVC diameter in young, healthy adults, without cardiac pathologic conditions, is frequently above 20 mm—commonly regarded as an upper limit of normal and a noninvasive indication of increased right atrial pressure in patients with cardiac or renal disease. Thus, it seems that dilated IVC should not be used as an indicator of increased right atrial pressure in healthy young adults.