

# PRACTICAL POINTERS

## FOR PRIMARY CARE

ABSTRACTED MONTHLY FROM THE JOURNALS

### MARCH 2006

APPROPRIATE PRESCRIBING FOR PATIENTS LATE IN LIFE—THE “ART” OF MEDICINE

INCREASING PHYSICAL FITNESS AND LOWERING BMI REDUCE CARDIOVASCULAR RISK  
MARKERS. IF YOU CAN’T LOSE WEIGHT, AT LEAST GET MORE PHYSICALLY FIT

OPPORTUNISTIC SCREENING FOR ALCOHOL USE DISORDERS

CENTOR SCORE + RAPID STREP ANTIGEN TEST TO MANAGE ACUTE PHARYNGITIS.

SHOULD PSA SCREENING BE EXPANDED OR CURTAILED?

PEOPLE WHO BUY WINE HAVE HEALTHIER DIETS THAN THOSE WHO PURCHASE BEER

SUBCLINICAL HYPERTHYROIDISM ASSOCIATED WITH RISK OF ATRIAL FIBRILLATION

EXERCISE TO LOWER RISK OF GESTATIONAL DIABETES

PRIMARY CARE MORE IMPORTANT THAN SPECIALTY CARE IN PROVIDING SERVICES TO  
THOSE MOST IN NEED

JAMA, NEJM, BMJ, LANCET

ARCHIVES INTERNAL MEDICINE

ANNALS INTERNAL MEDICINE

[www.practicalpointers.org](http://www.practicalpointers.org)

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This document is divided into two parts

- 1) The **HIGHLIGHTS AND EDITORIAL COMMENTS**

**HIGHLIGHTS** condenses the contents of studies, and allows a quick review of pertinent  
points of each article.

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*EDITORIAL COMMENTS are the editor's assessments of the clinical practicality of articles based on his long-term review of the current literature and his 20-year publication of Practical Pointers.*

2) The main **ABSTRACTS** section is designed as a reference. It presents structured summaries of the contents of articles in much more detail.

I hope you will find *Practical Pointers* interesting and helpful. The complete content of all issues for the past 5 years can be accessed at [www.practicalpointers.org](http://www.practicalpointers.org)

Richard T. James Jr, M.D.  
Editor/Publisher.

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## **HIGHLIGHTS AND EDITORIAL COMMENTS MARCH 2006**

*Do Frail Elderly Patients Take Too Many Medications ?*

### **3-1 RECONSIDERING MEDICATION APPROPRIATENESS FOR PATIENTS LATE IN LIFE**

This article asks: For frail elderly patients, when might it be best to *discontinue* (or not prescribe) medications that are otherwise considered appropriate on the basis of guidelines? The authors propose a 4-component model to guide appropriate prescribing for patients late in life:

1) *The goals of care of the patient:* “Regardless of standards of care, practice guidelines, and other clinical pathways, shared decision making among physicians, patients, and families about goals of care is important when deciding whether to stop, start, or continue therapy with a medicine for a patient late in life.”

2) *Remaining life expectancy:* Very old patients with multiple comorbidities are not likely to live longer than another few years. It might not be reasonable to apply long-term preventive care to these patients.

3) *Time until benefit:* Some medications for primary or secondary prevention take a long time to result in any benefit. Treatment with these drugs might not be started or might be discontinued in patients with limited life expectancy. The notion of *time until benefit* may be more useful in individual elderly patients than the *number needed to treat*.

4) *Treatment targets:* After goals of care have been established, the targets of the treatment must be consistent with the goals.

Ideally, each of the 4 components should be consistent with the others. This will yield a general idea of appropriate medications, and reasonable limitations. Efforts should be made to discontinue use of medications identified according to these components as inappropriate for patients late in life.

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*This is an important and, neglected aspect of caring for old, frail patients. It concerns the “art “ of medicine much more than the “science”. Indeed, there is no science to guide us in care of these patients.*

*Guidelines are based on “evidence”. For very old patients there are no randomized, controlled trials on which to base decisions. Old, frail subjects are not included in trials. Extrapolating the results of trials of younger persons to care of the elderly may be misleading and harmful.*

*I believe that many elderly patients take too many drugs in too high a dosage.*

*The first step must be to ascertain the patient’s wishes. It is essential that primary care clinicians fully understand the patient’s (and surrogates’) wishes. This requires an unhurried consultation at which physicians explain prognosis and treatment options, seek patient goals, and, if asked, express their own opinion.*

*If it is too controversial to discontinue a drug, I believe it would be prudent to cut the dose in half. Frail older patients whose renal and hepatic functions are impaired will experience more adverse effects at usual doses. You may even be surprised when an “indicated” drug is withdrawn—the patient may actually feel better.*

*If a patient with a short life expectancy expresses a desire to have aggressive care, this goal will supercede all others, and the physician will be bound to follow an aggressive plan of treatment consistent with guidelines and ethical principles.*

*What about use of antibiotics if the patient develops pneumonia? I believe it is ethical and kind to withhold under some circumstances provided the patients receives adequate comfort care. What about anti-hypertension drugs; statins; low-dose aspirin; anticoagulants; hormone replacement; anticholinergics; antidepressants; bisphosphonates; Alzheimer drugs?*

*Like the seasoned poker player, seasoned primary care clinicians should know when “to hold” and when “to fold”? And to guide family and patient accordingly.*

***If You Can’t Lose Weight, at Least Get in Better Physical Shape.***

### **3-2 ASSOCIATION OF PHYSICAL ACTIVITY AND BODY MASS INDEX WITH NOVEL AND TRADITIONAL CARDIOVASCULAR BIOMARKERS IN WOMEN**

More than half the US population does not meet recommended levels of physical activity, and 65% are overweight. The problem is more common in women than in men.

This study asks: Are a high BMI and low physical activity associated with adverse biomarkers for cardiovascular disease? Which of the two is most strongly associated?

Women’s Health Study entered over 27 000 apparently healthy women (mean age 55 at baseline) in 1992-95. Mean BMI = 26. Median leisure physical activity = 601 kcal/wk.

Main outcome measure = association of BMI and physical activity with levels of C-reactive protein, HDL-cholesterol, LDL-cholesterol, total cholesterol, fibrinogen, and apolipoprotein A1.

Higher levels of BMI and lower levels of physical activity were independently associated with adverse levels of almost all lipid and inflammatory biomarkers.

There were stronger associations with BMI than with physical activity. Adipose tissue, particularly visceral adipose tissue, is metabolically active, promoting a thrombotic and inflammatory state as well as a atherogenic lipoprotein state.

Within each BMI category being physically active was associated with more favorable cardiovascular biomarker levels. A modest level of physical activity (about 2.5 hours weekly) was significantly associated with more favorable biomarkers, even in overweight and obese individuals.

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*The main message for primary care might be—If you can't lose weight, at least get in better shape physically. It would be better, however, if you lose weight and get in better shape.*

*It is very unlikely that an overweight or obese person will lose weight and maintain the loss with diet alone. A combination of calorie restriction and increased physical activity is required.*

### ***Consider Routine Screening of All Attendees in Primary Care***

#### **3-3 OPPORTUNISTIC SCREENING FOR ALCOHOL USE DISORDERS IN PRIMARY CARE**

Primary care is the most promising location to offer brief interventions aimed at reducing excessive alcohol consumption. To offer such interventions, clinicians need access to screening instruments with high sensitivity and specificity, which are quick and easy to apply, and are cost effective.

This study evaluated the efficacy of different screening methods for identification of alcohol abuse, including the Alcohol Use Disorders Identification Test (AUDIT).

In six general practices, 194 male patients responded to the AUDIT questionnaire which was embedded within a general lifestyle questionnaire.

Alcohol dependence was determined using the DSM IV.

For comparison, measured 4 biochemical blood levels which have been indicators of alcohol abuse: gamma-glutamyltransferase; aspartate aminotransferase; percent carbohydrate deficient transferrin; and erythrocyte mean cell volume.

AUDIT was much more highly correlated with alcohol problems; hazardous consumption; monthly binge drinking; weekly binge drinking; and alcohol dependence than any of the biochemical markers. AUDIT had areas under the curve of 0.94 to 0.96 for all classifications of alcohol use disorder.

For identification of hazardous alcohol consumption, AUDIT score of > 8 had moderate sensitivity (69% [69% true positives vs 31% false negatives]; and high specificity (98% [98% true negatives vs 2% false positives].)

If the test was positive, it predicted an alcohol problem 97% of the times; if the test was negative, it predicted no alcohol problem 75% of the times.<sup>1</sup> This was much more indicative of problems than the biochemical markers.

“A positive questionnaire score is a good indication of hazardous alcohol consumption, and a negative score is a good indication of no alcohol dependence.”

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*The study embedded the AUDIT questionnaire in a longer health-related instrument which primary care patients completed. As such, it appears to be less intrusive.*

*Practical Pointers* has abstracted a number of articles addressing alcohol-screening tests over the years. And has reported that identification of problem drinkers and confronting them with the possible problem is effective in reducing consumption. If screening were not somewhat effective, there would be no reason to screen.

**1** The predictive values of positive tests = true positive tests (69%) divided by sum of true positive tests (69%) plus false positive tests (2%) =  $69/71 = 97$ .

The predictive value of negative tests = true negative tests (98%) divided by the sum of true negative tests (98%) plus false negative tests (31%) =  $98/129 = 75$

Go to GOOGLE “Alcohol Use Disorders Identification Test” to download a copy.

### **Centor Score + Rapid Streptococcal Antigen Test**

#### **3-4 MANAGEMENT OF ACUTE PHARYNGITIS IN ADULTS**

Viruses are the main cause of acute pharyngitis in adults. “Only about 10% of incidences are bacterial, mainly caused by group A beta-hemolytic streptococci, which is the only indication for antimicrobial therapy.”

Acute group A streptococcal pharyngitis (**GASP**) is a self-limited disease with low complication rates. Antibiotic therapy should be prescribed for few patients with acute pharyngitis. Physicians prescribe antibiotics for the great majority of patients.

Penicillin V effectively reduces symptom duration by a few days, spread of the disease, and incidence of suppurative complications and rheumatic fever. (The latter is now rare in developed countries.)

The Centor score<sup>1</sup>, based on 4 clinical findings, enables clinicians to estimate probability of GASP in adults. Recently introduced rapid streptococcal antigen tests (**RSAT**—Abbott Laboratories) using optical immunoassays give immediate results with 10% to 20% false negatives and 5% false positives.)

This prospective cohort study included 372 adult patients (mean age 30) with acute pharyngitis who presented to a primary care clinic. Most patients had moderate illness with clinical scores of 2 or 3. Patients with 0 or 1 of the clinical features were excluded. (Most experts agree that this group does not require further testing and antibiotic therapy.)

All were tested by RSAT and throat culture.

Systematic RSAT (compared with culture as the gold standard) achieved high sensitivity—91% (91% true positives; 9% false negatives), and specificity—95% (95% true negatives; 5% false positives).

The predictive value of a positive RSAT was  $91/91 + 5 = 91/96 = 95\%$ . This resulted in-nearly optimal antibiotic treatment (37%). Antibiotic overuse and underuse were minimal (3% and 3%).

RSAT can be a valid diagnostic test particularly when combined with the Centor clinical score. The best clinical approach for diagnosis and treatment is systematic RSAT in patients with at least 2 clinical findings.

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*Many patients who feel acutely ill may not be happy about waiting 2 or more days for results of a throat culture before starting treatment. Communication delays might also be a problem. A single culture has less than 100% sensitivity. Culture may not be a reasonable choice for primary care.*

**1** *The Centor Score*

- 1) Temperature 38<sup>0</sup> C (100.4 F) or higher.
- 2) Tonsillar exudates
- 3) Tender cervical adenopathy
- 4) No cough or rhinitis.

### ***Should PSA Screening Be Expanded Or Curtailed?***

#### **3-5 PROSTATE CANCER SCREENING**

Prostate cancer (**PC**) screening with prostate specific antigen (**PSA**) is controversial.. Major professional associations offer different screening guidelines.

The American Urological Association and the American Cancer Society endorse PSA screening (and digital rectal examination). Screening is recommended to begin at age 50 for average risk men who have at least 10 years of remaining life expectancy. The PSA threshold for biopsy referral is 4.0 ng/mL.

The US Preventive Task Force recently concluded that there was insufficient evidence to recommend for or against routine screening. They encourage physicians to discuss the risks and benefits of screening with their patients to guide them to an informed screening decision.

This debate addressed 3 key issues about screening on the basis of evidence published 2000-2005.

Should screening begin before age 50?

Should screening extend beyond age 70?

Should a PSA level below 4.0 ng/ml trigger biopsy

One of the debaters (Dr. Hoffman) argues that the data support maintaining a conservative PSA screening approach. The second debater (Dr. Catalona) argues for extending the usually recommended limits of screening.

Both commentators refer to the 2005 National Comprehensive Cancer Network which recommended baseline screening at age 40 for all men of average risk who choose screening. Men with a PSA above or equal to 0.6 should then be screened annually. Those at a lower level should be retested at age 45. This algorithm is based on retrospective data from the Baltimore Longitudinal Aging Study which found that men age 40-49 with PSA above the age-range median (0.6 ng/mL) were 4 times as likely to develop PC as men with lower levels.

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*Prostate cancer screening has been a favored subject in the primary care literature. Practical Pointers has abstracted relevant articles in July and May 2005; May, June, July and November 2004; and April and May 2003.*

*The benefit/harm-cost ratio of PSA screening:*

*Benefit—Screening will undoubtedly spare some men development of metastatic disease and death.*

*(This is the bait.)*

*Harm—Potentially unnecessary interventions; perioperative morbidity and death; surgical complications (importance and incontinence); and especially the overhanging cloud of anxiety and obsession related to long term fear of “cancer”*

*Cost—even with the present criteria for screening, costs to society are high. Widening the age limits for screening, and lowering the PSA level criteria for biopsy will greatly increase costs.*

*The benefit/harm-cost ratio of PSA screening is very low. The bloom is coming off PSA screening.*

*I believe primary care clinicians should never order a PSA without first informing the patient about possible harms and benefits. Including a PSA in the routine diagnostic biochemical profile as a matter of course is a serious mistake. Men who choose and insist on screening should be pre-informed.*

*Digital rectal examination remains a valid screen.*

### ***Do Wine Drinkers Have A More Healthy Diet?***

#### **3-6 FOOD BUYING HABITS OF PEOPLE WHO BUY WINE OR BEER**

This study investigated whether people who drink wine buy healthier foods than people who drink beer.

Obtained data from 3.5 million transactions in Danish supermarkets; 5.8% of customers bought wine but no beer; 6.6% bought beer, but no wine; 1.2% bought both.

Compared 40 categories of food bought by wine purchasers vs beer purchasers.

Wine buyers bought more olives, fruit, vegetables, poultry, cooking oil, and low fat cheese.

Beer buyers bought more ready cooked dishes, sugar, cold cuts, chips, pork, butter, margarine, sausages, lamb, and (especially) soft drinks.

Wine buyers were more likely to buy “Mediterranean” diet food items; beer buyers more likely to buy “traditional” food items.

Wine tends to be drunk with meals, in modest amounts. This may have metabolic advantages.

The reported influence of type of alcoholic drink on mortality could be due to insufficient adjustment for lifestyle factors.

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*The “French paradox” indicates that the high consumption of wine in France (and its protective effect) more than overcomes the harmful effects of fatty foods (which the French people presumably eat in high quantities).*

*Epidemiological studies indicate a strong protective effect of modest daily alcohol consumption on risk of coronary heart disease. Whether wine (specifically red wine) is responsible has been debated. Some studies report that the type of alcohol is not relevant.*

*Epidemiological studies contain many confounders. In regard to the protective effect of wine, the accompanying type of diet must be a major confounder.*

*A recent meta-analysis (comment on by BMJ April 8, 2006; 332: 811) suggests that the epidemiological findings of the putative protective effect of alcohol maybe in error because the control groups (abstainers) were misclassified. Many “abstainers” were really persons who had stopped drinking because of ageing or ill health. This resulted in an increase in death among “abstainers” which was misinterpreted to be due to a lowering of death in the drinkers.*

*Modest intake of wine is an essential component of the healthy Mediterranean diet.*

***Subclinical Hyper-Thyroidism was Associated with an Increased Incidence of Atrial Fibrillation***

***Subclinical Hypo-Thyroidism was not Associated with Adverse Cardiovascular Events.***

#### **3-7 THYROID STATUS, CARDIOVASCULAR RISK, AND MORTALITY IN OLDER ADULTS**

Reportedly, even mildly altered thyroid status affects cholesterol levels, heart rhythm and rate, ventricular function, risk of coronary artery disease, and cardiovascular mortality. The relationship is not well defined.

The Cardiovascular Health Study determined the relationship between baseline thyroid status and incident atrial fibrillation (AF), incident cardiovascular disease, and mortality in older men and women followed for 13 years.

Enrolled over 3223 community-dwelling adults (all over age 65; mean = 72) in 1989-90.

Divided subjects into 5 groups:

- A. Overt hyper-t—thyrotoxicosis (elevated FT4; low TSH [less than 0.10]. Only 4 subjects of 3200 fit this category. They were eliminated from the study.)
- B. Subclinical hyper-t. (Normal FT4; low TSH)
- C. Euthyroidism (Normal FT4; normal TSH)
- D. Overt hypo-t. (Low FT4; elevated TSH)
- E. Subclinical hypo-t (Normal FT4; TSH elevated.)

	Number (of 3223 subjects)	%
Overt hyper-t	4	
Subclinical hyper-t	47	1.5
Euthyroid	2639	82
Subclinical hypo-t	496	15
Overt hypo-t	51	1.6

Subjects with subclinical hyper-t: A greater incidence of AF compared with euthyroid subjects ( 67 events vs 31 per 1000 person-years). No statistical differences in incidence of cardiovascular outcomes and death.

Subjects with subclinical hypo-t and overt hypo-t: No statistical difference in outcomes.

“Our results clearly show a relationship between low TSH levels and atrial fibrillation incidences in older individuals with endogenous subclinical hyperthyroidism, including those with TSH levels between 0.1 mU/L and 0.44 mU/L.”

There was no relationship between subclinical hypo-t or overt hypo-t and incident atherosclerotic disease, cardiovascular mortality, or all-cause mortality.

“Our findings suggest that, if endogenous subclinical hyperthyroidism is detected, older individuals may benefit from treatment to prevent atrial fibrillation.”<sup>1</sup>

Conclusion: There was an association between subclinical hyperthyroidism and development of AF. There was no association between subclinical hypo-t, or overt hypo-t, or subclinical hyper-t and other cardiovascular disease and mortality.

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1 *What treatment? I am curious, how do thyroidologists approach this problem? Would the investigators suggest radioactive iodine in these patients?*

*I suspect that iatrogenic subclinical hyper-t is more common than endogenous.*

*I abstracted this study in detail to point out:*

*1) The high prevalence of subclinical hypo-thyroidism in an unselected group (15%).*

*2) To ask—What should be done with individuals with abnormalities?*

*Patients with subclinical hypo-t should be followed closely. They often develop overt clinical hypothyroidism.*

### **Regular Physical Activity Before Pregnancy Is Associated With Lower Risk Of GDM**

#### **3-8 A PROSPECTIVE STUDY OF PREGRAVID PHYSICAL ACTIVITY AND SEDENTARY BEHAVIORS IN RELATION TO THE RISK OF GESTATIONAL DIABETES MELLITUS**

Gestational diabetes mellitus (**GDM**) is among the most common complications of pregnancy. It affects about 4% to 7% of pregnancies. Recently, there has been a substantial rise in incidence, in parallel with the rise in incidence of obesity and type 2 diabetes (**DM-2**). This study assessed whether pregravid physical activity is associated with risk of GDM.

This study included over 21 500 women who reported at least one singleton pregnancy between 1990 and 1998. Periodic validated questionnaires asked participants to report the amount, type, and intensity of *pre-gravid* physical activity; and sedentary behavior.

After controlling for BMI, dietary factors, and other covariates, there was a statistically significant inverse relationship between physical activity and risk of GDM.

Relative risks (**RR**) of GDM according to quintiles (lowest vs highest) of pre-pregnancy activity scores:

	1 <sup>st</sup> quintile	5 <sup>th</sup> quintile
Total activity		
Women , No	4377	4344
MET-hours per wk	0.2	>40
Cases, No.	312	251
RR	1.00	0.81 <sup>1</sup>

“In this large prospective cohort study of women, prepregnancy physical activity, in particular increasing vigorous physical activity, was associated with significantly lower risk of GDM.” Brisk or striding walking, and increased stair climbing were associated with substantially reduced risk, independent of total physical activity levels and prepregnancy BMI.

Physical activity during the year before pregnancy and during adolescence are strong predictors of physical activity during pregnancy. “It is plausible that much of the benefit we observed for pregravid physical activity also reflects continued activity during pregnancy.

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**1** *Reporting results in terms of relative risks, and relative risk reductions can be clinically misleading as well as clinically meaningless. The article could just as well have reported that “Exercise reduces risk of GDM by 19%.”*

*Relative risks may indicate a statistical benefit (ie, the probability that the results of the trial are due to chance may be very small), but are not helpful clinically.*

*Absolute risk reductions are much more meaningful from a clinical viewpoint. The absolute benefit of the highest quintile vs the lowest quintile of total physical activity (by my calculations based on their tables) = 1.3%. (Ie, there was between 1% and 2% benefit from exercise in reducing development of GDM. I believe this is a clinical benefit. The benefit/harm-cost ratio may be very high, because, although the absolute benefit is small, the denominator of the ratio (harm-cost of physical fitness) is nil.*

*Women should be encouraged to maintain physical fitness before and during pregnancy.*

***“Much More Important Than Specialty Care In Providing Services To Those Most In Need”***

### **3-9 STRENGTHENING PRIMARY CARE TO BOLSTER THE HEALTH CARE SAFETY NET**

Medical graduates’ interest in family medicine is on the decline.

“There is no evidence that more specialty care improves population health. Nations with a strong primary care infrastructure have far better health outcomes than those such as the United States that emphasize specialty medicine.”

One reason for this phenomenon may be that primary care is much more important than specialty care in providing services to those most in need (ie, vulnerable populations). Primary care serves to narrow health disparities associated with ethnic group, socioeconomic, and geographic residence status. Physicians in the USA are not equitably distributed. This causes pockets of medically underserved communities, while others have an excess supply. Market forces in the US health care sector have failed to supply physicians where they are needed.

Large numbers of uninsured Americans lack access to care. Much greater attention must be given to achieving a strong and expanded primary care workforce. “Bolstering this safety net is one of the best strategies for improving the health of the nation.” The cornerstone of a national strategy for strengthening the safety net begins with ensuring a well-trained cadre of primary care professionals.

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*I believe primary care is one of the most gratifying of medical specialties. And one of the most difficult to perform well. Young practitioners entering primary care may not expect to be rewarded financially as much as high-tech specialists, but they will have enough income to adequately care for their family, to have a comfortable and safe home, to educate their children, to enjoy an occasional relaxing vacation, and to save for retirement. All this while experiencing great self-satisfaction, and of course, working very hard.*

*We should not forget the exceptional contributions of Nurse Practitioners who work closely with primary care physicians. They add immeasurably to the quality and accessibility of care.*

*Primary care clinicians must develop an intimate connection to other health-care providers in the community and at referral centers. Timely availability of specialist consultants is essential in order to provide adequate care to primary care patients.*

## ABSTRACTS MARCH 2006

### *Do Frail Elderly Patients take Too Many Medications ?*

#### 3-1 RECONSIDERING MEDICATION APPROPRIATENESS FOR PATIENTS LATE IN LIFE

“Providing guideline-adherent care for many medical conditions increasingly means the addition of more medications to reach disease-specific targets.”

This article asks: For frail elderly patients, when might it be best to *discontinue* (or not prescribe) medications that are otherwise considered appropriate on the basis of guidelines?

Evaluation of large population databases shows that inappropriate prescribing for patients in late life is common.<sup>1</sup>

In patients late in life and in patients with limited life expectancy, there is little information to guide prescribing or discontinuing otherwise indicated medications

The authors propose a 4-component model to guide appropriate prescribing for patients late in life:

- 1) *The goals of care of the patient:* Determining this may be challenging. It may be the component of prescribing over which the physician has the most influence. “Regardless of standards of care, practice guidelines, and other clinical pathways, shared decision making among physicians, patients, and families about goals of care is important when deciding whether to stop, start, or continue therapy with a medicine for a patient late in life.” As disease progresses, and it is clear that that cure is not realistic, an individualized approach to a patient’s treatment may become increasingly palliative.
- 2) *Remaining life expectancy:* By using life tables,<sup>2</sup> life expectancy can be stratified into quartiles. The healthiest 25% of men age 85 live, on average, an additional 8 years; the 25% with multiple comorbidities, functional impairment, or disease-specific markers of poor prognosis live, on average, an additional 2 years. (It might not be reasonable to apply long-term preventive care to the latter group.)
- 3) *Time until benefit:* 3) *Time until benefit:* Some medications for primary or secondary prevention take a long time to result in any benefit. Treatment with these drugs might not be started or might be discontinued in patients with limited life expectancy. The notion of *time until benefit* may be more useful in individual elderly patients than the *number needed to treat*. Medications for symptom relief have a short time until benefit. They should be considered for all patients, including (especially) those near death.
- 4) *Treatment targets:* After goals of care have been established, the targets of the treatment must be consistent with the goals. If a patient establishes a goal of palliation, the only medications prescribed would be those addressing particular symptoms. If life prolongation and prevention of morbidity and mortality are the targets, attempts to maintain the current state or function may be indicated.

Ideally, each of the 4 components should be consistent with the others. This will yield a general idea of appropriate medications, and reasonable limitations. Efforts should be made to discontinue use of medications identified according to these components as inappropriate for patients late in life.

## DISCUSSION

1. This framework may help guide discontinuing, or withholding, otherwise appropriate and recommended (according to present guidelines) medications. Discontinuing or withholding medications which have been proved safe and effective can be challenging. “Stopping the use of medications runs contrary to the directions that patients have received from their physicians to adhere to treatment.”
2. Physicians may experience “clinical inertia” in deciding to withdraw an otherwise indicated medication. (The easiest path may be to continue.)
3. Trials rarely include very elderly patients. Evidence is lacking regarding the effect of withdrawing medications. “It is reassuring that in one study of drug discontinuation in elderly persons, most drugs were stopped without an adverse drug withdrawal event.”

Archives Intern Med March 27, 2006; 166: 605-09 “Commentary”, editorial, first author Holly H Holmes, University of Chicago, IL

- 1 The Beers Criteria, Archives Intern Med 1991; 151: 1825-32, presents a list of medications, dosages, and durations of therapy that should be avoided in persons age 65 and older.
- 2 Page 606 presents the US life expectancy tables for men and women from age 70 to age 95. It is worth filing for reference.

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### *If You Can't Lose Weight, at Least Get in Better Physical Shape.*

#### **3-2 ASSOCIATION OF PHYSICAL ACTIVITY AND BODY MASS INDEX WITH NOVEL AND TRADITIONAL CARDIOVASCULAR BIOMARKERS IN WOMEN**

Physical inactivity and overweight/obesity are major public health problems. More than half the US population does not meet recommended levels of physical activity, and 65% are overweight. The problem is more common in women than in men.

Both increased body mass index (**BMI**) and low levels of physical activity are powerful predictors of cardiovascular disease, diabetes, and all-cause mortality.

This study asks: Are a high BMI and low physical activity associated with an increase in biomarkers for cardiovascular disease? Which is the stronger factor?

Conclusion: Elevated BMI is the stronger, but greater physical activity within each BMI level was associated with lower levels of the biomarkers.

## STUDY

1. Women's Health Study entered over 27 000 apparently healthy women (mean age 55 at baseline) in 1992-95. Mean BMI = 26. Median leisure physical activity = 601 kcal/wk.
2. Categorized physical activity into quintiles: 1<sup>st</sup> quintile (highest) = > 1574 Kcal/wk;

5<sup>th</sup> quintile (lowest) < 144 kcal/wk. Guidelines call for over 1000 kcal/wk as a minimum expenditure of energy (30 minutes per day of leisure activity on most days of the week).

3. Categorized BMI into quintiles: 1<sup>st</sup> quintile (lowest) = < 22; 5<sup>th</sup> quintile (highest) = > 29.
4. Main outcome measure = association of BMI and physical activity with levels of C-reactive protein, HDL-cholesterol, LDL-cholesterol, total cholesterol, fibrinogen, and apolipoprotein A1.

## RESULTS

1. Higher levels of BMI and lower levels of physical activity were independently associated with adverse levels of almost all lipid and inflammatory biomarkers. Higher BMI was associated with stronger associations than physical inactivity.

2. Adjusted odds ratio	C-RP > 3.0	HDL-c < 50
Normal weight; active	1.00	1.00
Normal weight; inactive;	1.26	1.20
Overweight; active	2.68	2.25
Overweight; inactive	3.11	2.62
Obese; active	8.25	4.21
Obese; inactive.	9.86	5.27

  

3. Physical activity by quintile	Highest (> 1574 kcal/wk)	Lowest (< 145 kcal/wk)
C-RP (mg/dL)	1.78	2.54
HDL-c	54	49

  

4. BMI by quintile	Lowest (< 22)	Highest (> 29)
C-RP (mg/dL)	0.87	4.49
HDL-c	59	42

Quintiles 2 to 4 varied linearly between 1 and 5.

5. Fibrinogen, apolipoprotein A1, total cholesterol, LDL-cholesterol showed similar associations.

## DISCUSSION

1. In this large cohort of healthy women, low levels of physical activity, and high BMI were both independently associated with increasingly adverse levels of nearly all inflammatory and lipid biomarkers.
2. There were stronger associations with BMI than with physical activity. Adipose tissue, particularly visceral adipose tissue, is metabolically active, promoting a thrombotic and inflammatory state as well as an atherogenic lipoprotein state.
3. There was no threshold effect. A linear relationship was evident between physical activity and BMI and the biomarkers.
4. Within each BMI category, being physically active was associated with more favorable cardiovascular biomarker levels.

## CONCLUSION

Both lower levels of physical activity, and higher BMI were strongly and independently associated with adverse cardiovascular biomarkers. While BMI showed greater magnitude of association with biomarkers, a modest level of physical activity (about 2.5 hours weekly) was significantly associated with more favorable biomarkers, even in overweight and obese individuals.

JAMA March 2/29, 2006; 295: 1412-19 Original investigation by the Women's Health Study,. First author Samia Mora, Brigham and Women's Hospital, Harvard Medical School, Boston, Mass.

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### *Consider Routine Screening of All Attendees in Primary Care.*

### **3-3 OPPORTUNISTIC SCREENING FOR ALCOHOL USE DISORDERS IN PRIMARY CARE**

Alcohol abuse is common in the general population. Primary care clinicians frequently fail to identify alcohol use disorders in their patients. Primary care is the most promising location to offer brief interventions aimed at reducing excessive alcohol consumption. To offer such interventions, clinicians need access to screening instruments with high sensitivity and specificity, which are quick and easy to apply, and are cost effective.

The Alcohol Use Disorders Identification Test (AUDIT)<sup>1</sup> is a short screening test for identification of harmful, hazardous, and dependent alcohol use.

Other screening methods, chiefly biochemical markers, have also been used.

This study evaluated the efficacy of different screening methods for identification of alcohol abuse.

Conclusion: AUDIT was superior to all.

### STUDY

1. In six general practices, 194 male patients responded to the AUDIT questionnaire which was embedded within a general lifestyle questionnaire.
2. Alcohol dependence was determined using the DSM IV.
3. Considered four different alcohol use disorders: hazardous consumption; monthly binge drinking; weekly binge drinking; and alcohol dependence.
4. For comparison, measured several biochemical blood levels which have been indicators of alcohol abuse: gamma-glutamyltransferase; aspartate aminotransferase; percent carbohydrate deficient transferrin; and erythrocyte mean cell volume.
5. The investigators considered this a pragmatic evaluation using real patients in a real practice setting.

### RESULTS

1. In this general practice population, the estimated prevalence of hazardous alcohol consumptions = 34%; monthly binge consumption = 35%; weekly binge consumption = 24%; alcohol dependence = 12%.
2. AUDIT was much more highly correlated with alcohol consumption for all classes than any of the biochemical markers. AUDIT had areas under the curve of 0.94 to 0.96 for all classifications of alcohol use disorder.

*(See the areas under the curves on page 512.)*

3. For identification of hazardous alcohol consumption, AUDIT score of  $> 8$  had moderate sensitivity (69% true positive tests vs 31% false negative tests) and high specificity (98% true negative tests vs 2% false positive tests). And a positive predictive value of 97%; much more indicative of problems than the biochemical markers.
5. “A positive questionnaire score is a good indication of hazardous alcohol consumption, and a negative score is a good indication of no alcohol dependence.”
6. The questionnaire is inexpensive, cost effective, and quick.

## DISCUSSION

1. AUDIT is a simple screening instrument. It is effective and cost efficient. In the primary care setting, it identifies hazardous and harmful drinkers who could benefit from brief interventions.
2. A substantial evidence base exists for the efficacy of brief interventions in the primary care setting. A recent systematic review concluded that brief interventions are effective in reducing alcohol consumption at 12 months.
3. “Successfully implementing brief interventions in part depends on identifying those patients who are most likely to benefit.”
4. “Routine screening of all attendees in primary care should be considered.”

BMJ March 4, 2006; 332: 511-14 Original investigation, first author Simon Coulton, University of York, UK

- 1 AUDIT is available on GOOGLE. Type in “Alcohol Use Disorders Identification Test”. It asks about alcohol use in the preceding 180 days. The test is a 10 item self-completed questionnaire that addresses frequency of consumption, alcohol related problems, and dependence symptoms. GOOGLE presents the scoring system. A score of 8 or over 8 indicates hazardous consumption. It establishes the number of weeks the patients exceeded the “safe level” of alcohol consumption ( $> 21$  standard units [each containing 8 g of alcohol] in any one week; and  $>8$  units in anyone day.)

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### ***Centor Score + Rapid Streptococcal Antigen Test***

#### **3-4 MANAGEMENT OF ACUTE PHARYNGITIS IN ADULTS**

Viruses are the main cause of acute pharyngitis in adults. “Only about 10% of incidences are bacterial, mainly caused by group A beta-hemolytic streptococci, which is the only indication for antimicrobial therapy.”

Penicillin V effectively reduces symptom duration by a few days, spread of the disease, and incidence of suppurative complications and rheumatic fever. (The latter is now rare in developed countries.)

Acute group A streptococcal pharyngitis (**GASP**) is a self-limited disease with low complication rates. Antibiotic therapy should be prescribed for few patients with acute pharyngitis. Physicians prescribe antibiotics for the great majority of patients.

Physician (clinical) diagnosis of GAS P has low sensitivity and specificity. No single element in the history or clinical examination is accurate enough.

Clinical scores (eg, Centor <sup>1</sup>), based on 4 clinical findings, enable clinicians to estimate probability of GAS P in adults. Recent rapid streptococcal antigen tests (**RSAT**—Abbott Laboratories) using optical immunoassays give immediate results with 10% to 20% false negatives and 5% false positives.)

Throat culture remains the gold standard for diagnosis of GAS P “despite its suboptimal performance and delayed results in clinical practice”. (A *single* throat culture is not an optimal gold standard because its sensitivity is 90% to 95%.)

This observational study of acute pharyngitis in adults had 2 goals: 1) to measure the performance of RSAT across different clinical scores, and 2) to compare antibiotic prescriptions and costs for various recommended strategies using the clinical score, RSAT results, and culture.

Conclusion: RSAT combined with the Centor score efficiently reduced the inappropriate use of antibiotics.

## STUDY

1. Prospective cohort study included 372 adult patients (mean age 30) with acute pharyngitis who presented to a primary care clinic.
2. All patients had 2, 3, or 4 of the clinical symptoms and signs <sup>1</sup>. Most had moderate illness with clinical scores of 2 or 3. Patients with 0 or 1 of the clinical features were excluded. (Most experts agree that this group does not require further testing and antibiotic therapy.)
3. All were tested by RSAT and throat culture.
4. Determined sensitivity and specificity of RSAT with culture as the gold standard.
5. Determined appropriate antibiotic use and costs of 5 strategies.

## RESULTS

1. Overall prevalence of GAS P as determined by culture was 38%. Prevalence increased steadily with score: 2—24%; 3—41%; 4—60%.
2. Systematic culture resulted in diagnosis of GAS P in 38%, and the highest antibiotic use. Culture was the most expensive clinical approach.
3. Systematic RSAT (compared with culture as the gold standard) achieved high sensitivity—91% (91% true positives; 9% false negatives], and specificity—95% (95% true negatives; 5% false positives). The predictive value of a positive RSAT was  $91 / 91 + 5 = 91 / 96 = 95\%$ . This resulted in-nearly optimal antibiotic treatment (37%). Antibiotic overuse and underuse were minimal (3% and 3%).
4. Empirical treatment in patients with 3 or 4 clinical markers resulted in antibiotic overuse and higher costs. Fewer than 60% were appropriately treated.
5. Symptomatic treatment without testing resulted in only 62% of patients appropriately treated.

## DISCUSSION

1. RSAT can be a valid diagnostic test particularly when combined with the Centor clinical score. The best clinical approach for diagnosis and treatment is systematic RSAT in patients with at least 2 clinical findings.
2. “Our study shows that the RSAT test can be a valid diagnostic test for the diagnosis of GASP in adults with pharyngitis, particularly when combined with the Centor clinical score and used in patients with a high probability of GASP”.
3. Because physicians usually prescribe non-recommended broad spectrum antibiotics for most patients with pharyngitis, systematic RSAT may limit development of antibiotic resistance.

## CONCLUSION

Combining clinical findings with RSAT efficiently reduces inappropriate antibiotic prescription in adults with acute pharyngitis.

Arch Intern Med March 27, 2006; 166: 640-44 Original investigation, first author Jean-Paul Humair, University Hospital, Geneva, Switzerland

1 Med Decis Making 1981; 1 239-46 “The Diagnosis of Strep Throat in Adults in the Emergency Room”

- 1) Temperature  $38^{\circ}$  C (100.4 F) or higher.
- 2) Tonsillar exudates
- 3) Tender cervical adenopathy
- 4) No cough or rhinitis.

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### *Should PSA Screening Be Expanded Or Curtailed?*

#### **3-5 PROSTATE CANCER SCREENING**

Prostate cancer (**PC**) screening with prostate specific antigen (**PSA**) is controversial.. Major professional associations offer different screening guidelines.

The American Urological Association and the American Cancer Society endorse PSA screening and digital rectal examination. Screening is recommended to begin at age 50 for average risk men who have at least 10 years of remaining life expectancy. The PSA threshold for biopsy referral is 4.0 ng/mL.

The US Preventive Task Force recently concluded that there was insufficient evidence to recommend for or against routine screening. They encourage physicians to discuss the risks and benefits of screening with their patients to guide them to an informed screening decision.

This debate addressed 3 key issues about screening. One of the debaters (Dr. Hoffman) argues, on the basis of evidence published 2000-2005, the data supports maintaining a conservative PSA screening approach. The second debater (Dr. Catalona) argues extending the usually recommended limits of screening.

Both commentators refer to the 2005 National Comprehensive Cancer Network which recommended baseline screening at age 40 for all men of average risk who choose screening. Men with a PSA above or equal to 0.6

should then be screened annually. Those at a lower level should be retested at age 45. This algorithm is based on retrospective data from the Baltimore Longitudinal Aging Study which found that men age 40-49 with PSA above the age-range median (0.6 ng/mL) were 4 times as likely to develop PC as men with lower levels.

#### SHOULD SCREENING BEGIN BEFORE AGE 50?

Dr. Hoffman:

The efficacy of PSA screening of men age 40-50 remains unproven.

The Baltimore Longitudinal Aging Study (noted above) detected only 29 cancers in the cohort. Limited data were provided on the stage of the cancer. No data provided on survival. This leaves the clinical benefit of earlier testing uncertain.

“Without convincing data to support the efficacy of PSA screening, efforts to begin screening average-risk men at an earlier age are inappropriate.”

Dr. Catalona:

“We recommend that prostate cancer screening begin at age 40 years to establish a baseline PSA measurement and assess risk for prostate cancer. “

Measuring a baseline PSA before age 50 provides information about risk for PC and its potential aggressiveness.

In the author’s study, baseline PSAs from 0.7 to 2.5 ng/mL were associated with a 10-fold increase in relative risk<sup>1</sup> for PC, and levels from 2.5 to 4.0 ng./mL were associated with a 104-fold relative risk, compared with a reference group of men with PSA < 0.7.

The value of annual PSA testing for men in their 40s is that serial changes in the level over time (PSA velocity) can be used to guide recommendations for biopsy.

#### SHOULD SCREENING FOR PC STOP AT AGE 70 OR 75?

Dr. Hoffman:

“The current practice of screening elderly men seems imprudent.” The available evidence suggests that treating men age 75 and older is unlikely to substantially increase survival but could increase risk for serious complications. ”

Screening older men is problematic because PC is often indolent, and elderly men may not live long enough to benefit from treatment. “No major professional associations have suggested screening elderly men.”

“Providers are already overscreening men older than age 75 years with potentially harmful consequences. “

Finding conclusive evidence to support screening elderly men is difficult because these men have been excluded from randomized trials. A recent National Health Survey indicated that more than 1/3 of men age 80 and over were screened by PSA in the previous year. About 1/3 of these men reported poor or fair health, or 4 or more chronic illnesses.

“Only men 70 years of age or younger who are in excellent health are likely to benefit from early detection.”

Dr. Catalona:

“Because of the increasing life expectancy of men in the United States, we support the extension of PSA screening to selected men older than age 70 who have few comorbid conditions and who may still benefit from treatment.”

The American Cancer Society currently recommends PC screening be offered only to men with a life expectancy of 10 years or more. The US Life tables state that the average life expectancy of a 70 year old man is 13 years; and for a 75 year old man is 10 years. “Thus, screening is appropriate for some men older than age 70.”

#### SHOULD A PSA LEVEL BELOW 4.0 NG/ML TRIGGER PROSTATE BIOPSY?

Dr. Hoffman:

Without convincing data to support the efficacy of PSA screening, efforts to lower the PSA threshold for biopsy are inappropriate.

Lowering would potentially increase the diagnosis of irrelevant cancers and subject men to harms and costs of biopsy and to treatment.

In the Prostate Cancer Prevention Trial, 44 men required biopsy to find one case of high-grade cancer. Lowering the threshold to 2.5 would increase the number of men age 70 or older with abnormal results to 1.2 million. Referring these men for biopsy would require substantial resources to find only a limited number of cancers. Many of these cancers would not be clinically important.

Overdiagnosis of PC subjects to psychological burdens and the unnecessary costs and complications.

“The risk of overdiagnosis with the current PSA threshold is already considerable.”

Dr. Catalona:

“For men of all ages, we advocate the use of PSA threshold of 2.5 ng/ml. This threshold has been shown to increase the rate of cancer at a stage when cure is possible without materially increasing the proportion of “harmless” prostate cancer detected.”

“We found that prostate cancer detected at a PSA level of 2.6 to 4.0 ng/ml is statistically significantly <sup>1</sup> more likely to be organ-confined.”

Archives Intern Med March 21, 2006; 144: 438-40 “Viewpoint” debate. Should PC screening be limited or expanded?

Richard M Hoffman, University of New Mexico School of Medicine. Albuquerque

William J Catalona, (first author) Northwestern Feinberg School of Medicine, Chicago IL.

<sup>1</sup> Editors and commentators persist in quoting relative risks and statistical significance. For clinical use they are meaningless. Absolute values are required to be meaningful.

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*Do Wine Drinkers Have A More Healthy Diet?*

**3-6 FOOD BUYING HABITS OF PEOPLE WHO BUY WINE OR BEER**

“The differential effects of beer and wine on morbidity and mortality indicate that components other than ethanol may be important.” Some studies have indicated that wine drinkers have a healthier diet than people who drink beer or spirits. “This may explain why wine has additional beneficial effects on health.”

This study investigated whether people who drink wine buy healthier foods than people who drink beer.

Conclusion: They do.

## STUDY

1. Obtained data from 3.5 million transactions in Danish supermarkets; 5.8% of customers bought wine but no beer; 6.6% bought beer, but no wine; 1.2% bought both.
2. Compared 40 categories of food bought by wine purchasers vs beer purchasers.

## RESULTS

1. Wine buyers bought more olives, fruit, vegetables, poultry, cooking oil, and low fat cheese.
2. Beer buyers bought more ready cooked dishes, sugar, cold cuts, chips, pork, butter, margarine, sausages, lamb, and (especially) soft drinks.
3. Customers who bought both wine and beer also bought more food items and spent more money than others.

## DISCUSSION

1. “People who buy (and presumably drink) wine purchase a greater number of healthy food items than those who buy beer.”
2. Wine buyers were more likely to buy “Mediterranean” diet food items; beer buyers more likely to buy “traditional” food items.
3. Other studies (eg, from France) have also reported that wine drinkers tend to eat more fish, fruit, vegetables; and to use more cooking oil, and less saturated fats than those who prefer other alcoholic drinks.
4. The additional beneficial effect of drinking wine, rather than other alcoholic drinks, on mortality and morbidity from coronary heart disease may be due to specific substances in wine, or to different characteristics of people who drink other types of alcohol.
5. Wine tends to be drunk with meals, in modest amounts. This may have metabolic advantages.
6. In Denmark, wine drinkers have a higher level of education, higher income, better psychological functioning, and better subjective health than people who do not drink wine.
7. In California, people who prefer wine tend to be educated, healthy, lean, young or middle aged women with a moderated alcohol intake. Those who prefer beer tend to be less educated, healthy young men with higher alcohol intake.
8. The reported influence of type of alcoholic drink on mortality could be due to insufficient adjustment for lifestyle factors.

## CONCLUSION

Wine buyers made more purchases of healthy food items than people who bought beer.

***Subclinical Hyper-Thyroidism was Associated with an Increased Incidence of Atrial Fibrillation***

***Subclinical Hypo-Thyroidism was not Associated with Adverse Cardiovascular Events.***

**3-7 THYROID STATUS, CARDIOVASCULAR RISK, AND MORTALITY IN OLDER ADULTS**

Are *subclinical* abnormalities in thyroid stimulating hormone (**TSH**) levels associated with cardiovascular events and mortality?

Thyroid hormone excess and deficiency are common. They are readily diagnosed and treated. Reportedly, even mildly altered thyroid status affects cholesterol levels, heart rhythm and rate, ventricular function, risk of coronary artery disease, and cardiovascular mortality. The relationship is not well defined.

This study determined the relationship between baseline thyroid status and incident atrial fibrillation (**AF**), incident cardiovascular disease, and mortality in older men and women followed for 13 years.

Conclusion: Subclinical hyperthyroidism (**hyper-t**) was associated with development of AF. Subclinical hyper-t and subclinical hypothyroidism (**hypo-t**) were *not* associated with cardiovascular disorders or mortality.

**STUDY**

1. Enrolled over 3200 community-dwelling adults (all over age 65; mean = 72) in 1989-90.

2. At baseline, determined TSH and free thyroxine (**FT4**) levels. Defined as normal:

FT4 as between 0.7 and 1.7 ng/dL

TSH as between 0.45 and 4.50 mU/L

3. Divided subjects into 5 groups:

A. Overt hyper-t—thyrotoxicosis (elevated FT4; low TSH [less than 0.10]. Only 4 subjects of 3200 fit this category. They were eliminated from the study.)

B. Subclinical hyper-t. (Normal FT4; low TSH)

C. Euthyroidism (Normal FT4; normal TSH)

D. Overt hypo-t . (Low FT4; elevated TSH)

E. Subclinical hypo-t (Normal FT4; TSH elevated.)

4.	Number (of 3223)	%
Overt hyper-t	4	
Subclinical hyper-t	47	1.5
Euthyroid	2639	82
Subclinical hypo-t	496	15
Overt hypo-t	51	1.6

*(Note the high number of subjects in the general population with overt as well as subclinical hypo-t.)*

5. Follow-up = 13 years.

## RESULTS

### 1. Subjects with subclinical hyper-t:

A greater incidence of AF compared with euthyroid subjects ( 67 events vs 31 per 1000 person-years).

No statistical differences in incidence of cardiovascular outcomes and death.

### 2. Subjects with subclinical hypo-t and overt hypo-t:

No statistical difference in outcomes.

## DISCUSSION

1. There was an independent association between subclinical hyper-t and incident AF, but not with other clinical cardiovascular conditions or mortality. “Our results clearly show a relationship between low TSH levels and atrial fibrillation incidences in older individuals with endogenous subclinical hyperthyroidism, including those with TSH levels between 0.1 mU/L and 0.44 mU/L.”

2. There was no relationship between subclinical hypo-t or overt hypo-t and incident atherosclerotic disease, cardiovascular mortality, or all-cause mortality.

3. The study suggested a dose-response effect between TSH and serum total cholesterol levels. The lowest levels were present in subjects with subclinical hyper-t; highest in those with overt hypo-t. In the study cohort, individuals with overt hypo-t took lipid-lowering medications at 3 times the rate of euthyroid subjects. “This finding highlights the need to investigate secondary causes of hypercholesterolemia before initiation of lipid lowering medication. However, in the subjects with subclinical hypo-t, total cholesterol levels were similar to levels in euthyroid subjects.

### 4. Clinical implications:

Tests of thyroid function are commonly abnormal in older persons without known thyroid dysfunction.

There is a difference of opinion between various expert panels for recommendations of thyroid function screening.

“Our analyses do *not* support screening older individuals solely to prevent atrial fibrillation.” (The number needed to screen to find one case of AF associated with subclinical hypothyroidism = 2500.)

The study does *not* support screening older individuals for thyroid disease, or treatment of subclinical hypothyroidism to prevent cardiovascular disease.

“Our findings suggest that, if endogenous subclinical hyperthyroidism is detected, older individuals may benefit from treatment to prevent atrial fibrillation.”<sup>1</sup>

## CONCLUSION

There was an association between subclinical hyperthyroidism and development of AF. There was no association between subclinical hypo-t, or overt hypo-t, or subclinical hyper-t and other cardiovascular disease and mortality.

***Regular Physical Activity Before Pregnancy Is Associated With Lower Risk Of GDM***

**3-8 A PROSPECTIVE STUDY OF PREGRAVID PHYSICAL ACTIVITY AND SEDENTARY BEHAVIORS IN RELATION TO THE RISK OF GESTATIONAL DIABETES MELLITUS**

Gestational diabetes mellitus (**GDM**) is among the most common complications of pregnancy. It affects about 4% to 7% of pregnancies. Recently, there has been a substantial rise in incidence, in parallel with the rise in incidence of obesity and type 2 diabetes (**DM-2**). Obesity is the major modifiable risk factor for GDM.

Women with GDM have an increased risk for later development of impaired glucose tolerance and DM-2.

Offspring of women with GDM are more likely to become obese and develop impaired glucose tolerance in early adulthood.

This study assessed whether pregravid physical activity is associated with risk of GDM.

Conclusion: Regular physical activity before pregnancy was associated with lower risk of GDM.

**STUDY**

1. The Nurses' Health Study II, established in 1989, is a large prospective cohort study of female nurses in the US.
2. The study included over 21 500 women who reported at least one singleton pregnancy between 1990 and 1998.
3. Periodic validated questionnaires asked participants to report the amount, type, and intensity of *pre*-gravid physical activity, and sedentary behavior.
4. Ascertained diagnosis of GDM by self-report.

**RESULTS**

1. Documented 1428 cases of GDM. (6.5%).
2. After controlling for BMI, dietary factors, and other covariates, there was a statistically significant inverse relationship between pregravid physical activity and risk of GDM.
3. Relative risks (**RR**) of GDM according to quintiles (lowest vs highest) of pre-pregnancy activity scores:

	1 <sup>st</sup> quintile	5 <sup>th</sup> quintile
Total activity		
Women , No	4377	4344
MET-hours per wk	0.2	>40
Cases, No.	312	251
RR	1.00	0.81
Vigorous activity		
MET-hours per wk	0	>22

Cases, No.	397	224
RR	1.00	0.77
Casual walking vs brisk	1.00	0.66
Casual walking < 4 h /wk vs brisk walking > 4 h/wk	1.00	0.56
20+ hours /wk of TV vs < 2 h TV	1.00	2.30
Stair climbing < 2 flights/d vs >15	1.00	0.50

## DISCUSSION

1. Pregnancy unmasks a predisposition to glucose metabolic disorders in some women. During the 3<sup>rd</sup> trimester, profound metabolic stresses occur on lipid and glucose homeostasis, including marked insulin resistance, and hyperinsulinemia. (Glucose tolerance however, stays within normal range in most pregnant women.)
2. Factors that affect insulin resistance (or relative insulin deficiency) before pregnancy affect the risk of GDM. The protective effects of pre-gravid physical activity on GDM are biologically plausible.
3. “In this large prospective cohort study of women, prepregnancy physical activity, in particular increasing vigorous physical activity, was associated with significantly lower risk of GDM.”
4. Brisk walking, and increased stair climbing were associated with substantially reduced risk, independent of total physical activity levels and prepregnancy BMI.
5. Physical activity during the year before pregnancy and during adolescence are strong predictors of physical activity during pregnancy. “It is plausible that much of the benefit we observed for pregravid physical activity also reflects continued activity during pregnancy.”
6. In non-pregnant individuals:
 

A large body of literature documents the benefits of physical activity in prevention of DM-2 and insulin resistance.

Physical activity has independent effects on glucose disposal by increasing both insulin-mediated and non-insulin mediated glucose disposal.

Previous data have suggested that, in patients with established DM-2, moderate physical activity results in benefits comparable to those associated with vigorous activity. Moderate activity such as daily walking, combined with dietary therapy, reduced body weight and improved insulin sensitivity among patients with DM-2.

Emerging evidence shows a positive association between prolonged TV viewing and DM-2..
7. The investigators comment that, due to the observational nature of the study, residual confounding by unmeasured factors cannot be ruled out.

## CONCLUSION

This prospective study provides strong evidence that regular physical activity before pregnancy is associated with lower risk of GDM

Archives Intern Med March 13, 2006; 166: 543-48 Original investigation By the Nurses' health Study, first author Cuilin Zhang, Harvard School of Public Health, Boston, Mass.

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***“Much More Important Than Specialty Care In Providing Services To Those Most In Need”***

### **3-9 STRENGTHENING PRIMARY CARE TO BOLSTER THE HEALTH CARE SAFETY NET**

“The future of primary care is in jeopardy.” Nowhere is this more evident than in the current debate on the physician workforce.

In the early 1990s, a specialty physician surplus was associated with an increase in the number of medical graduates choosing a primary care specialty (family medicine, internal medicine, or pediatrics). Now recent claims of a specialist shortage are having the opposite effect. Medical graduates' interest in family medicine is on the decline.

“There is no evidence that more specialty care improves population health. Nations with a strong primary care infrastructure have far better health outcomes than those such as the United States that emphasize specialty medicine.”

One reason for this phenomenon may be that primary care is much more important than specialty care in providing services to those most in need (ie, vulnerable populations). Primary care serves to narrow health disparities associated with ethnic group, socioeconomic, and geographic residence status. Physicians in the USA are not equitably distributed. This causes pockets of medically underserved communities, while others have an excess supply. Market forces in the US health care sector have failed to supply physicians where they are needed. Large numbers of uninsured Americans lack access to care.

A study reported in this issue of JAMA<sup>1</sup> provides sobering evidence that recent physician workforce trends may be adversely affecting access to primary care for the nation's most vulnerable populations. The largest number of vacancies was for family physicians—42% of rural centers reported that recruiting family physicians was “very difficult”.

To reach the goals of *Healthy People 2012*, much greater attention must be given to achieving a strong and expanded primary care workforce. “Bolstering this safety net is one of the best strategies for improving the health of the nation.” The cornerstone of a national strategy for strengthening the safety net begins with ensuring a well-trained cadre of primary care professionals.

“Overcoming the fragmentation that characterizes primary care in the United States must become a priority.” One of the most effective strategies for physician recruitment may be to provide better compensation and retainment packages.

JAMA March 1, 2006; 295: 1062-64 Editorial by Christopher B Forrest, Johns Hopkins Bloomberg School of Public Health, Baltimore MD

1 "Shortages of Medical Personnel at Community Health Centers" (pp 1042-49). First author Roger A Rosenblatt, University of Washington, Seattle.