



# City Health Information

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## USING MEDICAL RESOURCES WISELY

- **Unnecessary medical testing and intervention increase health care costs without improving patient care.**
- **In April 2012, nine medical specialty boards issued evidence-based lists of tests and interventions that could be performed less often without compromising patient care.**
- **Certain preventive medicine screenings and immunizations are underused and should be a routine part of patient care.**

The United States (US) health care system is the most expensive in the world, with costs of \$7538 per capita in 2008.<sup>1</sup> Physicians make the decisions that account for 80% of health care costs, but they do not always have the most current effectiveness data.<sup>2,3</sup> Unnecessary medical testing accounts for as much as 30% of wasted health care resources in the US.<sup>4</sup>

Unnecessary tests can produce “abnormal” but benign findings, leading to unnecessary treatments that pose risks to patients.<sup>5</sup> Unnecessary tests can also cause misdiagnosis, unnecessary radiation exposure, and increased patient stress.<sup>5</sup>

Under the auspices of Choosing Wisely®, an initiative of the ABIM Foundation, 9 medical specialty boards have each recommended 5 tests or treatments that providers and patients should question, because they may not be necessary for the delivery of high-quality care.<sup>5</sup> The initiative stems from a *New England Journal of Medicine* article that proposed the creation of these recommendations to reduce health care costs without harming patient care.<sup>6</sup> The American Academy of Allergy, Asthma & Immunology (AAAAI), American Academy of Family Physicians (AAFP), American College of

Cardiology (ACC), American College of Physicians (ACP), American College of Radiology (ACR), American Gastroenterological Association (AGA), American Society of Clinical Oncology (ASCO), American Society of Nephrology (ASN), and American Society of Nuclear Cardiology (ASNC) participated in the project.<sup>5</sup>

The Choosing Wisely recommendations that can guide primary care providers in delivering high-quality, cost-effective care are included here. The tests and treatments are categorized mainly according to organ system, with similar recommendations combined. The Choosing Wisely lists, available at <http://choosingwisely.org>, also contain recommendations for specialists.

While many common tests and procedures are unnecessary, there are also simple actions that primary care providers can take to improve the health of their patients. The New York City Health Department has listed a set of quality care recommendations as part of its Take Care New York 2012 agenda aimed at improving the health of New Yorkers. For these recommendations, see page 37.

## MAKING DECISIONS IN PRIMARY CARE

### Tests

These tests may not be necessary and could even be harmful; do not recommend them without considering the risk and likely benefit.<sup>5</sup>

#### Allergy and immunology<sup>7</sup>

Unproven diagnostic tests, such as immunoglobulin G (IgG) testing or an indiscriminate battery of immunoglobulin E (IgE) tests, in the evaluation of allergy.

*Diagnosis and treatment of allergies requires specific IgE testing (either skin or blood tests) based on the patient's clinical history.*

Routine diagnostic testing in patients with chronic urticaria.

*In the vast majority of patients, the etiology of chronic urticaria cannot be determined. Limited laboratory testing may be warranted to exclude underlying causes, and targeted laboratory testing based on clinical suspicion is appropriate. Skin or serum-specific IgE testing for inhalants or foods is not indicated unless there is a clear history implicating an allergen.*

#### Cardiovascular system

Annual electrocardiograms (EKGs) or any other cardiac screening for low-risk patients without symptoms.<sup>8</sup>

*There is little evidence that detection of coronary artery stenosis in asymptomatic patients at low risk for coronary heart disease improves health outcomes.*

Stress cardiac imaging or advanced noninvasive imaging in the initial evaluation of asymptomatic patients without high-risk markers.<sup>9-11</sup>

*Asymptomatic patients at low risk for coronary heart disease (10-year risk <10%) account for up to 45% of unnecessary screening for the disease. Among asymptomatic patients, testing should be performed in those aged ≥40 years who have diabetes, in those with peripheral arterial disease, and when there is a greater than 2% yearly risk for coronary heart disease events (Resources—Cardiac Imaging).*

Echocardiography as routine follow-up for mild, asymptomatic native valve disease in adult patients with no change in signs or symptoms.<sup>9</sup>

*Patients with native valve disease usually have years without symptoms before the onset of deterioration.*

*An annual echocardiogram is not recommended unless there is a change in clinical status.*

Cardiac imaging that results in unnecessary radiation exposure, including higher-dose tests, tests in patients at low risk for coronary heart disease, and routine repeat testing in asymptomatic individuals when benefits are likely to be limited.<sup>11</sup>

*Reduce or eliminate radiation exposure with appropriate selection of tests and procedures, in keeping with national recommendations to reduce patient exposure to radiation while maintaining high-quality test results (Resources—Cardiac Imaging).*

#### Gastrointestinal system

Computed tomography (CT) to evaluate suspected appendicitis in children unless ultrasound results are equivocal.<sup>12</sup>

*In experienced hands, ultrasound is nearly as good as CT for initial evaluation of appendicitis in children, and it reduces radiation exposure. If the results of the ultrasound exam are equivocal, a CT may be done. This approach is cost-effective, reduces potential radiation risks, and has sensitivity and specificity of 94%.*

Follow-up colorectal cancer screening (by any method) in average-risk individuals less than 10 years after a high-quality colonoscopy is negative.<sup>13</sup>

*In average-risk individuals, the risk of cancer is low for 10 years after a high-quality colonoscopy shows no evidence of neoplasia. Screening should begin at age 50 years in these patients.*

Follow-up colonoscopy sooner than 5 years following complete removal of 1 or 2 small (<1 cm) adenomatous polyps without high-grade dysplasia.<sup>13</sup>

*The timing of follow-up colonoscopy should be based on the results of a previous high-quality colonoscopy. Patients with 1 or 2 small tubular adenomas with low-grade dysplasia should have surveillance colonoscopy 5 to 10 years after initial polypectomy. The timing should be based on other clinical factors such as prior colonoscopy findings, family history, and the preferences of the patient and judgment of the physician.*

Follow-up CT scans for a patient with functional abdominal pain syndrome (per ROME III criteria; see [www.romecriteria.org/assets/pdf/19\\_RomeIII\\_apA\\_885-898.pdf](http://www.romecriteria.org/assets/pdf/19_RomeIII_apA_885-898.pdf)) unless there is a change in clinical findings or symptoms.<sup>13</sup>

*There is a small but measurable increase in cancer risk from x-ray exposure. An abdominal CT scan is associated with exposure to higher levels of radiation—equivalent to 3 years of natural background radiation. To minimize this risk and to reduce costs, perform CT scans only when they are likely to provide information that changes patient management.*

### **Hematologic system**

Imaging studies instead of a high-sensitive D-dimer measurement as the initial diagnostic test in patients with low pretest probability of venous thromboembolism (VTE) or pulmonary embolism (PE).<sup>10,12</sup>

*In patients with low pretest probability of VTE as defined by the Wells prediction rules, a negative high-sensitivity D-dimer measurement effectively excludes VTE and the need for further imaging studies. Pulmonary embolism is relatively common clinically, but rare in the absence of elevated blood D-dimer levels and certain specific risk factors. Imaging is helpful to confirm or exclude PE only when these characteristics are present (**Resources—Embolism**).*

### **Musculoskeletal system**

Imaging for low back pain within the first 6 weeks, unless red flags are present.<sup>8,10</sup>

*Imaging of the lower spine with plain radiography, MRI, or CT before 6 weeks does not improve outcomes, but does increase costs. Earlier imaging may be indicated in certain situations, including severe or progressive neurologic deficits or when serious underlying conditions such as cancer, osteomyelitis, or cauda equina syndrome are suspected.*

Dual-energy x-ray absorptiometry (DEXA) screening for osteoporosis in women younger than 65 years or men younger than 70 years with no risk factors.<sup>8</sup>

*DEXA is not cost-effective in younger, low-risk patients, but is cost-effective in older patients. Younger patients should not be screened unless they have at least a 9.3% 10-year risk for any fracture, based on factors such as tobacco and alcohol use, low body mass index, and parental history of fractures<sup>14</sup> (**Resources—Osteoporosis**).*

### **Nervous system**

Imaging for uncomplicated headache.<sup>12</sup>

*Imaging headache patients without specific risk*

*factors for structural disease is not likely to change management or improve outcome. Use validated clinical screens to identify patients with a significant likelihood of structural disease requiring immediate attention (**Resources—Headache**).*

Brain imaging studies (CT or MRI) in the evaluation of simple syncope in a patient with a normal neurologic examination.<sup>10</sup>

*Imaging for patients with witnessed syncope but no suggestion of seizure and no report of other neurologic symptoms or signs does not improve outcomes. In these cases, the likelihood that the central nervous system caused the syncope is extremely low.*

### **Preoperative care**

Preoperative<sup>10-12</sup> or admission<sup>12</sup> chest radiography, preoperative stress cardiac imaging,<sup>9,11</sup> or advanced noninvasive imaging in patients scheduled to undergo low-risk or intermediate-risk noncardiac surgery.<sup>9,11</sup>

*In the absence of cardiopulmonary symptoms, preoperative chest radiography for low- or intermediate-risk noncardiac surgery (eg, cataract removal) rarely provides any meaningful changes in management or improved patient outcomes. Obtain a chest radiograph if acute cardiopulmonary disease is suspected or there is a history of chronic stable cardiopulmonary disease in a patient older than age 70 years who has not had chest radiography within 6 months.*

### **Renal system**

Routine cancer screening for dialysis patients with limited life expectancies without signs or symptoms.<sup>15</sup> Routine cancer screening—including mammography, colonoscopy, prostate-specific antigen (PSA), and Pap smears—does not improve survival in dialysis patients with limited life expectancy, such as those who are not transplant candidates. Screening should be individualized based on patients' cancer risk factors, expected survival, and transplant status.

### **Respiratory system<sup>7</sup>**

Diagnosing or managing asthma without spirometry. Don't rely solely upon symptoms when diagnosing and managing asthma. Symptoms can be misleading and may be due to other causes. Spirometry is essential to confirm the diagnosis in those patients who can perform this procedure and to assess control.

Any sinus imaging in cases of acute, mild, uncomplicated sinusitis.

*In the absence of complicating circumstances, imaging studies rarely add to the diagnostic accuracy or change management strategies.*

### Women's health

Follow-up imaging for clinically inconsequential adnexal cysts.<sup>12</sup>

*Simple cysts and hemorrhagic cysts in women of reproductive age are almost always physiologic. Small, simple cysts in postmenopausal women are common, clinically inconsequential, and do not lead to ovarian cancer. After a high-quality ultrasound, do not recommend follow-up for a classic corpus luteum or simple cyst <5 cm in women of reproductive age or <1 cm in postmenopausal women.*

Surveillance testing (biomarkers) or imaging (PET, CT, and radionuclide bone scans) for asymptomatic individuals who have been treated for breast cancer with curative intent.<sup>16</sup>

*Surveillance testing with serum tumor markers or imaging has been shown to have clinical value for certain cancers (eg, colorectal), but for asymptomatic patients who have been treated for breast cancer with curative intent, there is no benefit from routine imaging or serial measurement of serum tumor markers.*

Pap smears for women younger than 21 years or those who have had a hysterectomy for noncancer disease.<sup>8</sup>

*Most observed cervical cytology abnormalities in adolescents regress spontaneously; therefore, Pap smears for this age group are unnecessary. There is little evidence for improved outcomes using Pap smears in women after hysterectomy for noncancer disease.*

### Treatments

**These treatments may not be necessary and could even be harmful; do not recommend them without considering the risk and likely benefit.<sup>5</sup>**

### Gastrointestinal system

Long-term acid suppression therapy (proton pump inhibitors [PPIs] or histamine-2 receptor antagonists) for treatment of patients with gastroesophageal reflux disease (GERD) that is not titrated to the lowest effective dose for adequate symptom control.<sup>13</sup>

*Use the lowest dose needed for adequate symptom management. High-dose prescription PPIs and use of*

*PPIs for more than 1 year may increase fracture risk, and long-term use of PPIs may cause low serum magnesium levels.<sup>17,18</sup> Aside from recurrence of symptoms, the risk associated with reducing or stopping therapy appears to be minimal. Data suggest that for patients with GERD, rates of progression to erosive esophagitis and Barrett's esophagus are relatively low over a 20-year period.*

### Cancer management—general

Cancer-directed therapy for solid tumor patients with the following characteristics: low performance status (3 or 4), no benefit from prior evidence-based interventions, not eligible for a clinical trial, and no strong evidence supporting the clinical value of further anticancer treatment<sup>16</sup> (**Resources—Cancer**).

*Cancer-directed treatments are likely to be ineffective for solid tumor patients who meet the above criteria. Exceptions include patients with a low performance status due to other conditions or those with disease characteristics (eg, mutations) that suggest they will respond well to therapy. Primary care physicians should counsel patients on the low likelihood of the therapy's effectiveness for them and ensure they have access to palliative and supportive care.*

### Renal system<sup>15</sup>

Chronic dialysis for older adults with a high burden of comorbidity that does not include a shared decision-making process among patients, their families, and their physicians about the patient's goals and prognosis and the expected benefits of treatment.

*Limited observational data suggest that survival may not differ substantially for older adults with a high burden of comorbidity who initiate chronic dialysis versus those managed conservatively. Elicit the patient's goals and preferences, and explain the prognosis and expected benefits and harms of dialysis. Primary care physicians should counsel patients on the low likelihood of the effectiveness of dialysis for them and ensure they have access to palliative and supportive care.*

Peripherally inserted central catheters (PICC) in stage III–V chronic kidney disease (CKD) patients without consultation with nephrology.

*Venous preservation is critical for stage III–V CKD patients. Arteriovenous fistulas (AVF) for hemodialysis access have fewer complications and lower patient mortality than grafts or catheters. Excessive venous*

puncture damages veins, destroying potential AVF sites. Early nephrology consultation increases AVF use at hemodialysis initiation and may avoid unnecessary PICC lines or central/peripheral vein puncture, which can cause VTE and central vein stenosis.

Erythropoiesis-stimulating agents (ESAs) for CKD patients with hemoglobin levels  $\geq 10$  g/dL without symptoms of anemia.

ESAs have been linked to increased risk of cardiovascular events in patients with chronic kidney disease. Discuss the risks with patients, and if prescribing ESAs, set relatively conservative targets for hemoglobin levels (9-11 g/dL).

Nonsteroidal anti-inflammatory drugs (NSAIDs) in individuals with hypertension, heart failure, or CKD of all causes, including diabetes.

The use of NSAIDs, including cyclo-oxygenase type 2 (COX-2) inhibitors, for the pharmacologic treatment of musculoskeletal pain can elevate blood pressure, make antihypertensive drugs less effective, cause fluid retention, and worsen kidney function in these

individuals. Other agents such as acetaminophen, tramadol, or short-term use of narcotic analgesics may be safer than and as effective as NSAIDs.

### Respiratory system

Use of antibiotics in cases of acute, mild, uncomplicated sinusitis.<sup>7,8</sup>

Only 0.5% to 2% of acute viral sinus infections progress to bacterial infections. Most acute rhinosinusitis resolves without treatment in 2 weeks. A decision to treat should be made based on symptoms of discolored nasal secretions and facial or dental tenderness when touched (**Resources—Antibiotics**). Amoxicillin-clavulanate should be first-line antibiotic treatment for most acute rhinosinusitis.

## RECOMMENDATIONS FOR IMPROVING MEDICAL CARE

Since Take Care New York was launched in 2004, more New Yorkers have found a regular doctor, have quit smoking, and have been screened for colon cancer. The following recommendations are part of Take Care New York 2012, selected for both their public health significance and their amenability to evidence-based intervention and improvement (see **Box**).

### BOX. QUALITY CARE PRIORITIES FROM THE NYC HEALTH DEPARTMENT

The following recommendations are part of Take Care New York 2012: a policy for a healthier city. *City Health Information*. 2009;28(suppl 5):1-8. The Health Department is currently preparing Take Care New York 2016, which will include a new set of health-related goals for New York City. See **Resources** for all publications cited below.

#### Behaviors

- Weigh all patients and calculate their body mass index (BMI); monitor patients' BMI as you would any other vital sign (*Take Care New York*).
- Recommend that all patients get regular physical activity and adopt a healthy diet low in sodium, sugars, and saturated and trans fats and high in fruits, vegetables, and whole grains (*Take Care New York*).
- Encourage all women to plan their pregnancies and provide information on contraception (*Quick Guide to Contraception*).
- Encourage exclusive breastfeeding in the first 6 months of life (*City Health Information [CHI]: Breastfeeding*).

#### Screening

- Offer HIV testing as a routine part of medical care to all patients aged 13 to 64 years (*CHI: HIV*).
- Screen patients 18 years and older for hypertension (*CHI: Hypertension*).
- Screen for type 2 diabetes in adults with blood pressure greater than 135/80 (*CHI: Diabetes*).
- Ask every patient about tobacco, alcohol, and drug use and offer evidence-based interventions if needed (*CHI: Tobacco; Alcohol; Drug Users' Health*).

- Take a sexual history of all patients aged 12 years and older. Screen sexually active patients for sexually transmitted infections; encourage infected patients to notify their partners (*CHI: Sexually Transmitted Infections*).
- Routinely screen patients for depression (*CHI: Depression*).
- Screen for colon cancer and cervical cancer (*CHI: Colorectal Cancer; US Preventive Services Task Force: Cervical Cancer*).
- Identify children at risk for developmental disorders during each well-child preventive care visit and make appropriate referrals (*CHI: Early Intervention*).

#### Immunizations

- Make sure patients, especially children, in your practice receive all recommended immunizations on schedule, including an annual flu shot for those 6 months and older (*ACIP: Immunization*).

#### Disease Management

- Discuss barriers to medication adherence openly with patients (*CHI: Adherence*).
- Treat asthma aggressively with controller and rescue medications (*CHI: Asthma*).

## RESOURCES

### For Providers

- ABIM Foundation: [www.abimfoundation.org/default.aspx](http://www.abimfoundation.org/default.aspx)
- New York City Department of Health and Mental Hygiene
  - Take Care New York: [www.nyc.gov/html/doh/html/tcny/index.shtml](http://www.nyc.gov/html/doh/html/tcny/index.shtml)
  - City Health Information Archives: [www.nyc.gov/health/chi](http://www.nyc.gov/health/chi)
    - Brief intervention for excessive drinking*
    - Detecting and treating depression in adults*
    - Encouraging and supporting breastfeeding*
    - HIV prevention and care*
    - Identifying and referring children with developmental delays to early intervention services*
    - Improving medication adherence*
    - Improving palliative care at the end of life*
    - Improving the health of people who use drugs*
    - Intimate partner violence: encouraging disclosure and referral in the primary care setting*
    - Management of hypertension in adults*
    - Managing asthma*
    - Preventing colorectal cancer*
    - Preventing falls in older adults in the community*
    - Preventing sexually transmitted infections*
    - Prevention and control of type 2 diabetes in adults*
    - Take Care New York 2012: a policy for a healthier New York City*
    - Treating tobacco addiction*
  - Quick Guide to Contraception: [www.nyc.gov/html/doh/downloads/pdf/ms/Quick\\_Guide\\_Contra\\_Online.pdf](http://www.nyc.gov/html/doh/downloads/pdf/ms/Quick_Guide_Contra_Online.pdf)

### Antibiotics:

- IDSA Clinical Practice Guideline [published online ahead of print March 20, 2012]. *Clin Infect Dis*. 2012;54(8):e72-e112.

### Cancer:

- ASCO Top Five List for Oncology. *J Clin Oncol*. 2012;30(14):1715-1724: <http://jco.ascopubs.org/content/30/14/1715.full.pdf+html>
- US Preventive Services Task Force. Cervical cancer screening guidelines 2012: [www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm](http://www.uspreventiveservicestaskforce.org/uspstf/uspscerv.htm)

### Cardiac Imaging:

- AHA/ACC scientific statement: Assessment of cardiovascular risk by use of multiple-risk-factor assessment equations: a statement for healthcare professionals. *J Am Coll Cardiol*. 1999;34(4):1348-1359: <http://circ.ahajournals.org/content/100/13/1481.full>
- AHA Science Advisory: ionizing radiation in cardiac imaging. *Circulation*. 2009;119(7):1056-1065: <http://circ.ahajournals.org/content/119/7/1056.full>
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- ACCF/SCCT/ACR/AHA/ASE/ASNC/NASCI/SCAI/SCMR 2010 Appropriate use criteria for cardiac computed tomography. *J Am Coll Cardiol*. 2010;56(23):1864-1894: <http://content.onlinejacc.org/cgi/content/full/56/22/1864>

### Embolism:

- American College of Emergency Physicians ACEP Clinical Practices: [www.acep.org/content.aspx?id=30060](http://www.acep.org/content.aspx?id=30060)

### Headache:

- ACR Appropriateness Criteria—headache (2009): <http://guidelines.gov/content.aspx?id=15744>

### Immunization:

- Advisory Committee on Immunization Practices (ACIP) Adult Immunization Schedule: [www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm](http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm)
- Child & Adolescent Immunization Schedules: [www.cdc.gov/vaccines/recs/schedules/child-schedule.htm](http://www.cdc.gov/vaccines/recs/schedules/child-schedule.htm)

### Osteoporosis:

- WHO Fracture Risk Assessment Tool: [www.shef.ac.uk/FRAX/tool.jsp?country=9](http://www.shef.ac.uk/FRAX/tool.jsp?country=9)

### For Patients

- Choosing Wisely: Educating Consumers About Appropriate Care: <http://consumerhealthchoices.org/campaigns/choosing-wisely/>

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Falls are a serious problem for older adults. Health care providers can help by reviewing and modifying medications, screening patients for falls risks, and talking to patients about falls prevention. For more information and tools, visit [www.nyc.gov](http://www.nyc.gov) and search for "falls prevention."



## CHI Goes Paperless:

The New York City Department of Health and Mental Hygiene is pleased to announce that *City Health Information* is now a paperless publication, reformatted for electronic distribution and available only by subscription or at [www.nyc.gov/health](http://www.nyc.gov/health). Subscribe today at [www.nyc.gov/health/chi](http://www.nyc.gov/health/chi).