Family Doctor

A Journal of the New York State Academy of Family Physicians

New York State Academy of Family Physicians

Fall 2021
Volume ten, Number two

Focus:

Essential Screenings for Family Medicine

FEATURE ARTICLES:

- Controversies in Screening
- Does My Patient Need Hepatitis C Screening? Probably!
- Lung Cancer Screening Recommendation Updates
- Screening for Substance Use Disorders and Mental Health Disorders
- The 4th Trimester Model: A New Approach to Improving Perinatal Care

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Family Doctor, A Journal of the New York State Academy of Family Physicians, is published quarterly. It is free to members of the New York State Academy and is distributed by mail and email. Non-member subscriptions are available for $40 per year; single issues for $20 each.

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Winter Weekend
Saratoga Springs, Jan 14-16
Schedule

	FRIDAY, 1/14		SATURDAY, 1/15			SUNDAY, 1/16	
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7:15 - 8:00	Pre conference workshop (registration for this session required) - **Prescribing Gender Affirming Hormone Therapy** - Dr. Peter Meacher		Breakfast			Breakfast & Roundtable Discussions*	7:15 - 8:00
8:00 - 8:50			**Outpatient Goals of Care** - Drs. Melissa Arthur & DeAnn Lynn Cummings	**Tools and Tips for Working with Learners in your Office** - Drs. Elizabeth Loomis & Jocelyn Young	Hands-On Workshop (student track)	**Controlled Substance Safety Group Workshop** - Dr. Jocelyn Young & Elizabeth Loomis	8:00 - 8:50
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4:00 - 4:30	**Postpartum Care: Supporting Transitions and Identifying Health Needs** - Drs. Heather Paladine & Chava Cogan	**How I Burned Out (Almost)...Twice... What I Did, and What I Learned** - Dr. Wayne Strouse	**Cocktail Reception & Poster Presentation**				4:00 - 4:30
4:30 - 5:00							4:30 - 5:00

AAFP Rolls Out Free CME on Boosting Vaccine Confidence

September 22, 2021, 8:36 a.m. – While addressing hesitancy and improving confidence are integral components of virtually every public health campaign, they are even more important in campaigns that involve vaccines used to prevent infection from SARS-CoV-2, the virus that causes COVID-19. Recent evidence has shown that while nearly three-quarters of those eligible to get vaccinated against COVID-19 have received at least one dose, millions of Americans either remain hesitant about receiving a vaccine or are choosing not to get vaccinated for a variety of reasons.

To combat vaccine hesitancy and increase public confidence, the Academy – supported by an educational grant from Janssen Therapeutics, a division of Janssen Products, L.P. – is offering a comprehensive educational program for family physicians, care teams, non-physicians and other interested individuals, available to all participants free of charge. The program, "Improving Vaccine Confidence: An Educational Series," available at aafp.org/vaccine-confidence, debuts in October and will combine livestream courses with a half-day conference, on-demand sessions and other resources spread out over several weeks.

The overall goal of the program is to provide attendees with not only the latest information to support their patients and practices, but also practice management strategies pertaining to vaccine delivery, coding and billing. In addition, beginning Oct. 14 participants will have access to an online community of practice that will allow learners to interact with program faculty and discuss topics related to vaccines. Altogether, individuals who complete the program can earn more than 20 CME credits based on their level of participation.

The program will consist of three one-hour livestream sessions held two weeks apart, with the first debuting in October. They are:

- **COVID-19 Vaccines: How They're Made and What They Do (Oct. 13) –** In this session, participants will learn about vaccine development from the trial phase to FDA approval. They'll also learn about the mechanisms by which the different COVID-19 vaccines stimulate the immune system, get an update on the latest safety and efficacy data, and discuss the impact of SAR-CoV-2 variants on vaccine efficacy.
- **Overcoming Vaccine Hesitancy and Promoting Vaccine Confidence in Your Patients and Staff (Oct. 27) –** This session reviews the common myths and misconceptions surrounding vaccines, including those for COVID-19, and provides learners with opportunities to improve vaccine confidence through education and the use of various tools and resources.
- **Improving Access to Vaccines (Nov. 10) –** Individuals who attend this livestream will discuss how social determinants of health impact vaccine delivery and describe how vaccine access (or lack of access) results in disparities in care. The session will also feature an overview of COVID-19 vaccine billing and coding for reimbursement.

Each livestream will air from 7-8 p.m. CT. Each event will be worth 1 AAFP Prescribed CME credit; participants will also have the opportunity to claim additional credits by participating in optional translation to practice activities.

The livestream sessions will be supplemented by a half-day conference, "COVID-19 Vaccines: Building Patient Confidence," scheduled for Nov. 30, using topics from the livestream events as a foundation for additional learnings. Registration for the conference will be open by Oct. 1, and additional details will be posted online as the conference date approaches.

In addition, the Academy will offer a series of on-demand reinforcing sessions and refresher courses beginning in January 2022.

Obtaining Credit and Further Details

Both live and enduring CME credit will be available, with the total amount of credit that can be claimed based on whether learners choose to complete the optional translation to practice modules available for selected sessions. The AAFP is currently in the process of applying for both types of CME credit; more details will be posted soon.

Make sure to bookmark the Improving Vaccine Confidence: An Educational Series webpage now, and check back frequently for additional information as it becomes available.

Credit: *AAFP News* (9/22/21)

From the Executive Vice President

By Vito Grasso, MPA, CAE

I have been preparing documents and records of historical significance for our archive with the Center for the History of Family Medicine. The Center was created by the American Academy of Family Physicians Foundation and is located at AAFP headquarters in Leawood, KS. Our historical records and documents will be professionally preserved and available for anyone who is interested in the history of the Academy, family practice or the NYSAFP. The Center recently upgraded its technology to include a system to digitalize documents, photos and videos and to allow researchers to peruse materials using a key word search function that should make it easier to find specific items or multiple items addressing the same topic.

The experience of preparing our materials for shipment to the archive has been interesting and enlightening. The first shipment of materials included COD handbooks from the 1960's through 1995. I skimmed through some of the reports contained in those handbooks and was not surprised to find that our history as an organization is replete with evidence of foresight and leadership on many key areas which have persisted to this day.

We may think, for example, that our current awareness of the importance of diversity, equity and inclusion is a product of a recent surge of interest provoked by horrific evidence of the ravages of systemic racism upon society. It may be true that we have been pushed to a previously unrealized level of activism by recent events and by the proliferation of actual empathy for people who have been victimized by racism, but my review of our historical records has found that NYSAFP has had a much longer involvement in the effort to address racism.

The secretary's report in the 1962 COD handbook includes an account of NYSAFP's response to an injustice revealed when leaders considered the question of how to increase membership. The report states: "Dr. Burrell pointed out the reason that there weren't more negro (sic) doctors in the American Academy of General Practice is because of the prerequisite that you must be a member of your county medical society and that this was difficult for negroes (sic) to gain membership in some localities. (At future meetings this problem was discussed further.) Dr. Burrell introduced a resolution to eliminate the requirement of membership in a local county medical society chapter."

I have yet to find any subsequent discussion of whether or how this was further discussed or what became of the resolution when it was submitted to the AAGP. It is significant, however, that the matter was presented in a published report and that a NYSAFP leader submitted a resolution to correct the problem.

Another document titled "Significant Historical Dates" acknowledges 1/1/1985 as the date when Dr. G. Alx Galvin planned to retire after 45 years of practice in Ithaca, NY. The notation included the statement that Dr. Galvin "led the fight to desegregate Tompkins County Hospital. "In 1938, blacks (sic) were restricted to one ward of the hospital but after objection, the hospital was soon desegregated." I was curious about Dr. Galvin and discovered that he was a native of Newport News, VA and was the first African American doctor to open a practice in Ithaca. In 1958 he became the first African American to become president of the NYSAFP.

More recently, our 2000 COD adopted a resolution directing NYSAFP to increase physician awareness of "racial and ethnic disparities in health" and to work with NYSDOH to address these disparities.

I am sure I will discover more interesting facts as I continue to peruse documents and other materials for our archive. As I do I will certainly share any particularly interesting discoveries with you.

…was not surprised to find that our history as an organization is replete with evidence of foresight and leadership on many key areas which have persisted to this day.

Albany Report

By Reid, McNally & Savage

Governor Kathy Hochul- First Female Governor of New York State

The big news at the State Capitol during an otherwise quiet period with the Legislature in recess, is our new Governor Kathleen (Kathy) Hochul (pictured here) who was sworn in just after Midnight on Tuesday, August 24. She is the 57th Governor of New York State and the first woman to hold the office. She took the position following Governor Andrew Cuomo's resignation amidst a number of accusations of sexual harassment and a damning Attorney General's report stating that he had violated a number of state and federal laws.

Governor Hochul is a native of Buffalo and the first governor from Upstate NY is one hundred years. Hochul became politically active during her college years at Syracuse University, leading a boycott of the student bookstore over high prices and an unsuccessful effort to name the university stadium after alumnus running back and future NFL player Ernie Davis. She received her bachelor's degree in political science from the Maxwell School in 1980 and a JD from the Catholic University Columbus School of Law in 1984. She started her career working as a congressional staffer for Senator Daniel Patrick Moynihan and continued her work as staff for the New York State Assembly before being elected to the Town of Hamburg Board in 1994. She was elected Erie County Clerk in 2007 and served one term in Congress after a special election in 2011 for the 26th District. In 2013 to 2014, Governor Hochul was Vice President for Government Affairs at M&T Bank.

She was elected Lieutenant Governor in 2014 under Governor Andrew Cuomo and won reelection in 2018 after a decisive victory in the primary contest. Governor Hochul has said that she will seek election to the office in 2022. She is known to be a fierce campaigner earning the moniker of "Hamburg's Energizer Bunny."

On the Issues

Governor Hochul has pledged to make addressing the COVID-19 pandemic her top priority and believes the post-pandemic economic recovery "will depend on helping women re-enter the workforce, accessible child care, and workforce training." Governor Hochul has issued school guidance including mask mandates and prioritized pushing pandemic relief aid out

faster to those who need it, including undocumented workers who have been unable to receive federal benefits. She has also pushed for more aid to businesses hit hard by the pandemic, often highlighting New York's COVID-19 Pandemic Recovery Grant Program and encouraging New Yorkers to support local restaurants and other small businesses to "help them get back on their feet."

Upon being sworn in, Governor Hochul also said that she would be focusing on bringing greater government accountability, addressing the State's serious opioid crisis and most recently rallying for women's reproductive rights.

One of her first official acts as Governor was to successfully negotiate the passage of a law to extend the eviction moratorium in New York, passed as part of a late August extraordinary session that she held of the State Legislature. She has a history of supporting: incentives for investing in manufacturing processes and energy efficiency projects; improvement to and expansion of the H-2A non-immigrant visa program; legislation to help align worker training opportunities with advanced manufacturing firms; employer/education partnerships; small business tax cuts; and increased infrastructure spending.

New Lt. Governor Brian Benjamin

Governor Hochul has chosen Brian A. Benjamin (pictured here), a Democratic state senator from Harlem, to be her lieutenant governor, the second highest-ranking position in New York State. Senator Benjamin was sworn in September 9th after serving as the Senior Assistant Majority Leader in the State Senate, where he has been a vocal proponent of criminal justice reforms. He ran unsuccessfully for city comptroller earlier this year, placing fourth in a crowded Democratic primary. A graduate of Brown University and Harvard University, Senator Benjamin worked at Morgan Stanley and was a managing partner at Genesis Companies, a real estate firm with a focus on affordable housing, before entering politics.

Top Hochul Staff Appointments

As of this writing, Governor Hochul has announced a number of senior staff appointments, listed below.

Karen Persichilli Keogh, Secretary to the Governor
Elizabeth Fine, Counsel to the Governor
Jeff Lewis, Chief of Staff
Linda Sun, Deputy Chief of Staff
Melissa Bochenski, Deputy Chief of Staff
Julissa Gutierrez, Chief Diversity Officer
Shirley Paul, Senior Advisor to the Governor
Sinéad Doherty, Deputy Secretary for Executive Operations
Padma Seemangal, Deputy Secretary for Policy Operations
Hazel Crampton-Hays, Press Secretary
Jelanie DeShong, Assistant Secretary for Intergovernmental Affairs
Devan Cayea, Director of Strategic Planning and Scheduling
Fohat Aird-Bombo, Director of Advance
Adrienne Harris, Superintendent of the Department of Financial Services (Including Insurance)

Regarding other Hochul appointments and staff changes, she has remained largely tight-lipped on whether she plans to keep seated agency heads and others. She has said she will be making major hiring decisions within a 45-day period which would end around October 8, 2021. She has recently announced that Kristin Proud, former State Office of Temporary and Disability Assistance Commissioner who had been assisting Dr. Zucker with the State's COVID-19 response, is the new NYSDOH Acting Executive Deputy Commissioner – the second top slot at the agency.

Office of Cannabis Management – Cannabis Control Board Legislative Appointments

Finally, we have seen recent appointments to the Cannabis Control Board and Office of Cannabis Management per a law passed earlier this year, since Governor Hochul took the reigns. Last week, the Senate and Assembly announced their respective appointments to the Cannabis Control Board which will oversee the newly established Office of Cannabis Management (OCM) and implementation of the Marijuana Regulation and Taxation Act. This follows Governor Hochul's appointments of former Assemblymember Tremaine Wright (pictured here) to the position of Chair of the Cannabis Control Board and Chris Alexander as the OCM Executive Director. Governor Hochul has two remaining appointments to fill out the OCM's 5-member Cannabis Control Board.

Senate Majority Leader Andrea Stewart-Cousins announced the appointment of former State Senator Jen Metzger to serve on the Cannabis Control Board. Metzger is the former New York State Senator from the 42nd District. Metzger was an active member of the Senate›s workgroup on the nation-leading Climate Leadership and Community Protection Act (CLCPA), and led efforts in the State Legislature to create a permanent ban on fracking, passed as part of the budget in 2020. She chaptered nine bills in her two-year tenure, and as Chair of the Agriculture Committee, successfully enacted nation-leading legislation creating a framework for the production, processing, and sale of hemp and CBD products.

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Assembly Speaker Carl Heastie announced the appointment of Adam W. Perry to serve on the Cannabis Control Board. Mr. Perry is a partner at Hodgson Russ LLP where he focuses on employment litigation, and has represented nonprofits, governments and businesses in state and federal courts. Mr. Perry has deep roots in Buffalo, having attended Erie County Community College and the University at Buffalo, and currently serves as a board member and chair of Niagara Frontier Transportation Authority Aviation Committee, as well as chair of the Citizen Planning Council. He graduated from the University of Michigan Law School.

As Heraclitus said, "The Only Constant in Life is Change." This is especially true and maybe even more so in politics. All of us at Reid, McNally & Savage look forward to continuing to work with NYSAFP to develop your legislative strategy and priorities for 2022 and to assist with your outreach and advocacy efforts with the new administration and ongoing work with state legislators. We will continue to keep members updated on new appointments, staff changes and other developments of interest as Governor Hochul completes the transition and readies for the 2022 session commencing in January.

Upcoming Events

2021

Nov 7
Fall Cluster Board Only
Hilton Garden Inn
Albany Med.
(Commissions to meet virtually prior to Nov. 7)

2022

Jan 14-16
Winter Weekend
Saratoga Springs

Feb 27-28
Winter Cluster and Lobby Day
Renaissance Hotel
Albany

May 21-22
Congress of Delegates
Desmond Hotel
Albany

For updates or registration information for these events go to www.nysafp.org

Controversies in Screening

By Rodika Coloka-Kump DO, FAAFP and Zachary Kimball, MD

Preventive Services are invaluable to our healthcare system and are almost exclusively offered in the primary care setting. The U.S Preventive Services Task Force (USPSTF) makes evidence-based recommendations to detect disease at earlier stages when it is more treatable or reduce an individual's risk of developing a disease. The recommendations cover an extensive list of preventive services (more than 80) for asymptomatic individuals across the lifespan. The Task Force assesses the best available evidence to reach a conclusion about the benefits and harms of preventive services. The benefits are defined as" helping people stay healthy, preventing disease or detecting it early when treatment may be more effective, and prolonging life." The harms of preventive services are defined as "inaccurate test results, receiving treatment when it is not necessary, and side effects and complications from the service itself or resulting treatment."[1] The USPSTF does not consider the costs of providing a service in this assessment. See Table 1.

Table 1: USPSTF Recommendation Grades[1]:

A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.
I	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

Based on a review of the evidence, some preventive services have different recommendations for women and men due to differences in prevalence of the disease, benefits and harms of interventions and strength of the evidence.

Screening recommendations are based on biologic sex not on gender identity.

Clinical decision-making involves understanding the evidence and guidelines but equally important individualizing decision making to the specific patient or situation.

Screening Recommendation Differences Based on Sex

Abdominal Aortic Aneurysm Screening

The USPSTF recommends a one-time screening for AAA with ultrasonography in men aged 65-75 who have ever smoked, defined as 100 or more cigarettes and a shared decision-making balancing benefits vs. harms in men aged 65-75 who have never smoked. However, in women who have never smoked and without a family history of AAA, the task force recommends against screening and concludes that there is insufficient evidence to screen women aged 65-75 who have ever smoked or have a family history of AAA.

AAA is defined as aortic enlargement with a diameter of 3.0 cm or larger. Population based studies in men older than 60 years found an AAA prevalence ranging from 1.2%-3.3%, a decline from the previous rates of 1.6%-7.2%. This is due to decreased smoking prevalence. Most AAA are asymptomatic until they rupture with a rupture risk of death of 81%. Risk assessment for AAA is based on risk factors (Table 2) with greater smoking exposure increasing risk for AAA. A family history of AAA in a first-degree relative doubles the risk of developing an AAA. This risk is stronger with a female 1st degree relative than with a male 1st degree relative. Reduced risk is associated with African American race, Hispanic ethnicity, Asian ethnicity and diabetes.[2]

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Table 2: Risk Factors for AAA	
Older age	Cerebrovascular disease
Male sex	Atherosclerosis
Smoking	Hypercholesterolemia
First degree relative with AAA	Hypertension
Other vascular aneurysms	

Risk factors for **AAA rupture** include older age, female sex, smoking and hypertension. In individuals with comorbid conditions, reduced life expectancy and inability to undergo surgical intervention, screening should not be offered.

Screening with ultrasonography has high sensitivity (94-100%) and high specificity (98-100%) for detecting AAA, is simple, noninvasive and radiation free.

Why are Women not Being Screened for AAA?

The estimated prevalence of AAA in women is 1.3% vs. 7.6% in men. AAA related deaths occur in women 80 years and older at 70% vs.< 50% in men. In women small AAA have an increased risk of rupture at an older age than men and 25%-33% of women have an AAA at the time of rupture below the current threshold of 5.5 cm. Potential harm of screening women for AAA also involves higher operative mortality associated with an AAA repair with both endovascular (EVAR) and open repair. Women also experience higher rates of surgical complications and hospital readmissions.[2]

Other organizations' recommendations for AAA screening: The American College of Cardiology and American Heart Association recommend a 1-time screening for AAA with physical exam and ultrasonography in men aged 65-75 years who have ever smoked or in men 60 or older with a 1st degree relative with an AAA. They do not recommend screening non-smoking men or screening women. The Society for Vascular Surgery recommend a 1-time screening with ultrasonography for all men and women aged 65-75 with a history of tobacco use, men 55 or older with a family history of AAA and women 65 or older who have smoked or have a family history of AAA. The American College of Preventive Medicine recommend 1-time screening in men aged 65-75 who have ever smoked, and it does not recommend screening women.

Osteoporosis Screening

Data shows that 12.3 million individuals in the United States older than 50 years are estimated to have osteoporosis. The prevalence of primary osteoporosis increases with age and differs by race and ethnicity. Osteoporotic fractures, especially hip fractures are associated with ambulation limitations, disability, chronic pain, loss of independence and decreased quality of life. Hip fractures also pose a risk of death within one year of the fracture in 21%-30% of patients.[3]

The screening test for osteoporosis is the central dual-energy x-ray absorptiometry (DXA). The DXA of the hip and lumbar spine is accurate for predicting osteoporotic fracture in women and men by providing measurement of bone mineral density (BMD). There is sufficient evidence that for women 65 and older and for menopausal women younger than 65 years at increased risk of osteoporosis, that screening can detect osteoporosis. Treatment of women with osteoporosis can provide at least a moderate benefit in preventing fractures. For men, the evidence is lacking in the benefits and harms of treating osteoporosis found by screening in reducing the risk of fracture.

In postmenopausal women younger than 65 years, risk factors for osteoporotic fractures include parental history of hip fracture, smoking, excessive alcohol consumption and low body weight. For this population of women, who have at least one risk factor, using a clinical risk assessment tool will assist in determining who should be screened for bone mineral density (BMD). See Table 3

TABLE 3: Clinical Risk Assessment Tools	
Simple **C**alculated **O**steoporosis **R**isk **E**stimation	SCORE
Osteoporosis **R**isk **A**ssessment **I**nstrument	ORAI
Osteoporosis Index of Risk	OSIRIS
Osteoporosis **S**elf-Assessment **T**ool	OST
FRAX tool- assesses 10-year risk of fractures	

Available screening tools include central DXA which measures BMD at the hip and lumbar spine by use of radiation. Most treatment guidelines recommend using BMD to define osteoporosis and initiate treatment to prevent fractures. Peripheral DXA uses radiation to measure BMD at peripheral sites, usually the lower forearm and heel and it has a similar accuracy to that of central DXA. The advantage of the peripheral DXA is that it measures BMD with portable devices, which may help increase access to screening in locations where machines that perform central DXA are not available, however guidelines for treatment are not based on the peripheral DXA measurements. Quantitative Ultrasound (QUS) uses sonography to evaluate peripheral bone sites, usually the calcaneus. QUS has similar accuracy to that of central DXA and there is no exposure to radiation. It is measured with portable devices, however there are no treatment studies with QUS, and BMD needs to be measured with DXA before treatment can be initiated.

Why are men not Being Screened for Osteoporosis?

Prevalence of osteoporosis in men is 4.3% vs 15.4 % in women. Men have 29% of osteoporotic fractures in the US with a higher fracture related morbidity and mortality than women. 33% of men with hip fracture will die within one year. Older age in men is an important risk factor for osteoporotic fracture. It is not until age 80 that the prevalence of osteoporosis in white men reaches that of white women at age 65. Risk factors for fracture in men include low body mass index (BMI), excessive alcohol consumption, current smoking, long term corticosteroid use, previous fracture, a history of fall in the past year, hypogonadism, history of cerebrovascular accident and a history of diabetes. Evidence shows that the effectiveness of medication to treat osteoporosis in men is lacking, likely due to the underlying biology of bone due to differences in testosterone and estrogen.[3]

Other organizations recommendations for osteoporosis screening: The National Osteoporosis Foundation recommended BMD testing in all women 65 years and older and all men 70 years and older as well as BMD testing in postmenopausal women younger than 65 years and men aged 50 to 69 years based on their risk factor profile. The American Academy of Family Physicians (*Choosing Wisely*) recommends against DXA screening in women younger than 65 years and men younger than 70 years with no risk factors. The American College of Obstetricians and Gynecologists recommends BMD testing

with DXA beginning at age 65 years in all women and selective screening in postmenopausal women younger than 65 years who have osteoporosis risk factors or an adult fracture. The American Association of Clinical Endocrinologists also recommends evaluating all women 50 years and older for osteoporosis risk and considering BMD testing based on clinical fracture risk profile. The Endocrine Society recommends screening in men older than 70 years and adults aged 50 to 69 years with significant risk factors or fracture after age 50 years.

Chlamydia and Gonorrhea Screening

The USPSTF recommends screening for chlamydia and gonorrhea in sexually active women aged 24 years or younger and in older women who are at increased risk for infection. Current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.

Chlamydia and gonorrhea are the most reported sexually transmitted infections (STIs) in the US. Chlamydial infections are 10 times more prevalent than gonococcal infections (4.7% vs. 0.4%) in women aged 18 to 26 years however most infections are asymptomatic and are therefore never diagnosed. In women, asymptomatic infection may lead to pelvic inflammatory disease (PID) and complications, such as ectopic pregnancy, chronic pelvic pain and infertility. Newborns of women with untreated infection may develop neonatal chlamydial pneumonia or gonococcal or chlamydial ophthalmia. In men, symptomatic gonorrhea and chlamydia can lead to urethritis and epididymitis. Both types of infection may facilitate HIV transmission in both women and men.[4]

Evidence shows that screening can adequately detect chlamydia and gonorrhea and reduce complications from infections in women. There is insufficient evidence that screening for chlamydia and gonorrhea reduces complications of infection and transmission of either disease or HIV in men. See Table 4.

Table 4: Assessment of Risk

Age – highest infection rates in women aged 20 to 24 years, followed by females aged 15 to 19 years. Chlamydial infections are 10 times more prevalent than gonococcal infections in young adult women.

In men, infection rates are highest in those aged 20 to 24 years.

Sexual partner – a new sex partner, more than 1 sex partner, a sex partner with concurrent partners, or a sex partner who has an STI.

Inconsistent condom uses among persons who are not in monogamous relationships.

Previous or coexisting STI

Exchanging sex for money or drugs

Prevalence is also higher among incarcerated populations, military recruits and patients receiving care at public STI clinics.

Black and Hispanic persons had higher rates of infection than white persons.

Nucleic acid amplification tests (NAATs) are used to screen for Chlamydia trachomatis and Neisseria gonorrhoeae infections They are approved for use on urogenital sites, including male and female urine, endocervical, vaginal, and male urethral specimens. Urine testing with NAATs is at least as sensitive as testing with endocervical specimens, vaginal specimens, or urethral specimens. The same specimen can be used to test for chlamydia and gonorrhea.

Why are men not Being Screened for Chlamydia and Gonorrhea?

Asymptomatic infections in women can cause PID and its complications and can result in transmission to sexual partners and newborn babies. In men, chlamydial and gonococcal infections are more likely to be symptomatic and lead to diagnosis and treatment, and serious complications are less common. Evidence that screening in men reduces disease transmission to women is lacking, therefore the benefits of screening in men are unknown.

Other organizations recommendations for screening: The CDC recommends annual screening for chlamydia and gonorrhea in all sexually active females aged 25 years or younger and in older women with specific risk factors. The CDC does not recommend routine screening for chlamydia and gonorrhea in the general population. It recommends consideration for screening for chlamydia in sexually active young men in high-prevalence settings. The CDC recommends annual screening for chlamydia and gonorrhea in men who have sex with men, based on exposure history, with more frequent screening in populations at highest risk. The CDC recommends screening for chlamydia and gonorrhea upon intake in juvenile detention or jail facilities in females aged 35 years or younger. It also recommends screening for gonorrhea in high-risk pregnant women and for chlamydia in all pregnant women at the first prenatal visit. The CDC recommends retesting in the third trimester in pregnant women with continued risk for infection and in those who test positive at their first prenatal visit. Because of the high likelihood of reinfection, the CDC also recommends retesting all patients diagnosed with chlamydial or gonococcal infections 3 months after treatment, regardless of whether they believe their partners have been treated.

The American College of Obstetricians and Gynecologists recommends screening for chlamydia and gonorrhea in sexually active females aged 25 years or younger and in women older than 25 years who have risk factors and for gonorrhea in asymptomatic women who are at high risk for infection.

The American Academy of Pediatrics recommends routine annual screening for chlamydia and gonorrhea in all sexually active females aged 25 years or younger. It recommends routine annual screening for rectal and urethral chlamydia in sexually active adolescent and young adult males who have sex with males if they engage in receptive anal or insertive intercourse, respectively, and routine annual screening for pharyngeal, rectal, and urethral gonorrhea if they engage in receptive oral, anal, or insertive intercourse. It recommends screening every 3 to 6 months for persons in this population if they are at high risk. It also recommends screening adolescents and young adults who have been exposed to chlamydia or gonorrhea in the past 60 days from an infected partner, and consideration for annual screening for chlamydia in sexually active males in settings with high prevalence rates, such as jail or juvenile correction facilities, national job training programs, STD clinics, high school clinics, and adolescent clinics. The American Academy of Family Physicians recommends screening for chlamydia and gonorrhea in sexually active females aged 24 years or younger and in older women who are at increased risk for infection. It concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for chlamydia and gonorrhea in men.

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Controversial Screening Recommendations

Ovarian Cancer Screening

Ovarian cancer is the leading cause of death from gynecologic cancer with 95% of ovarian cancer deaths among women 45 years and older. It is the fifth most common cause of death among women in the United States. Evidence was reviewed on the benefits and harms of screening average risk women for ovarian cancer and outcomes evaluated included: ovarian cancer mortality, quality of life, false positive rates, surgery and surgical complications and psychological effects of screening. The USPSTF recommends against screening (Grade D) for ovarian cancer in asymptomatic women who are not known to have a high-risk hereditary cancer syndrome.[5]

This recommendation was based on the following: the positive predictive value of screening tests for ovarian cancer is low, with false positive results, adequate evidence that screening with transvaginal ultrasound and CA-125 or both does not reduce ovarian cancer mortality, screening for ovarian cancer due to false positives lead to harm by unnecessary surgical interventions.

There is consensus among major medical and public health organizations that screening for ovarian cancer is not recommended, including American College of Obstetricians and Gynecologists, American Cancer Society, American College of Radiology and American Academy of Family Physicians.

Women that are **high risk** for ovarian cancer should be screened with pelvic exam, transvaginal ultrasound and CA-125.[6]

Research is being done to find better ways to detect ovarian cancer at an early stage. Many centers are looking for biomarkers more accurate than CA-125 at indicating precancerous or early-stage conditions. **Proteomics** are single-marker diagnostics which may prove helpful as a screening tool in the future.[7,8]

Patients that are considered high risk for ovarian cancer based on risk assessment (Table 5) are screened using history and pelvic exam, transvaginal ultrasound, CA-125 and hereditary cancer risk assessment with genetic counseling.

Table 5: Risk Factors for Ovarian Cancer

BRCA 1, BRCA 2 genes (associated with 10% of ovarian cancer)
Middle or older age
1st degree relative with ovarian cancer
Lynch Syndrome
Breast, uterine or colorectal cancer
Eastern European or Ashkenazi Jewish descent
Endometriosis
Infertility or nulliparous
Estrogen with progesterone exposure for 10 or more years

Screening for Vitamin D Deficiency in Adults

Vitamin D is a fat-soluble vitamin required in calcium homeostasis and bone metabolism as well as cellular regulatory functions. Vitamin D requirements however, vary. No one vitamin D level defines deficiency and no consensus exists regarding the precise vitamin D (measured as 25(OH)D) cutoff level that represents optimal health.[10] Total 25- hydroxy vitamin is currently the best marker of vitamin D status, however levels are difficult to measure accurately, and results vary by testing methods and between laboratories. There is no direct evidence for the benefits of screening for vitamin D deficiency. Adequate evidence exits that treatment of asymptomatic vitamin D deficiency has no benefit on mortality, risk for fracture, selected solely on low vitamin D levels, or incidence of Type 2 diabetes mellitus.

Assessment of Risk: Conditions associated with lower vitamin D levels include low dietary vitamin D intake, little or no UVB exposure due to winter season, high latitude or sun avoidance, older age and obesity. Obesity is associated with 1.3-2-fold increase in risk of deficiency.

For the population considered, asymptomatic community dwelling, non-pregnant adults, there is insufficient evidence for or against screening for vitamin D deficiency according to the USPSTF. No organization recommends population-based screening for vitamin D deficiency. The AAFP concurs with the Task Force that there is insufficient evidence to recommend screening. The Endocrine Society and American Association of Clinical Endocrinologists recommend screening for vitamin D deficiency in individuals at risk.

Pregnancy and Vitamin D Deficiency Screening

According to ACOG, there is insufficient evidence to support a recommendation for screening all pregnant women for vitamin D deficiency. Vitamin D requirements during pregnancy are met by supplementation in the prenatal vitamins.[9,10]

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TWO VIEWS: Essential Screenings for Women

VIEW ONE

MENARCHE TO MENOPAUSE: PREVENTION AND SCREENING THROUGHOUT THE STAGES OF A WOMAN'S LIFE

By Rodika Coloka-Kump DO, FAAFP

Women's health, screenings and prevention, across the stages of a woman's life provide an opportunity to improve overall health in our female patients. These services may be completed as part of a series of visits over time or as part of a single wellness visit. The role of the family physician is to educate our female patients regarding important screenings and preventative services that are unique to them, differences in screenings between men and women, in age groups and to elucidate various recommendations from different organizations, such as the United States Preventative Services Task Force (USPSTF), Bright Futures and the Women's Preventive Services Initiative (WPSI).

Table 1: *Recommended Screenings for Ages 13-21*[1,2,3]

Alcohol Use Screening & Counseling starting age 11	Substance Use Screening & Counseling starting age 11
Anxiety Screening starting age 13	Tobacco Screening & Counseling starting age 11
Depression Screening starting age 12	Gonorrhea and Chlamydia Screening
Blood Pressure Screening	Hepatitis C Screening after age 18
Contraception Counseling	HIV Risk Assessment & Screening starting age 15
Domestic Violence Screening	STI Prevention Counseling starting age 15
Obesity Screening & Counseling	

GENERAL HEALTH

Hypertension is a major risk factor for cardiovascular events as well as stroke and chronic kidney disease. The USPSTF recommends screening for hypertension in adults aged 18 and older, however The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for high blood pressure in children and adolescents. (I statement). Bright Futures recommends blood pressure screening routinely at well child visits beginning at age 3. WPSI recommendations regarding blood pressure include the following: Age 13-21, annually; 22-39, at least q3-5 years; > age 40 or risk factors, annually.[1]

The Women's Preventative Services Initiative recommends access to the full range of female-controlled contraceptives to prevent unintended pregnancy and improve birth outcomes. Contraceptive care includes counseling, initiation of use and follow-up care. **Contraception counseling** is recommended to start at age 13 and continue with a frequency based on need in women of child-bearing age.

All women who are capable of pregnancy should be advised to take 0.4-0.8 mg of **folic acid** at least 1 month before conception and continue through the first 2-3 months of pregnancy to prevent neural tube defects. This recommendation is supported by the WPSI and the USPSTF.[1,2,21]

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VIEW TWO

SCREENING MAMMOGRAMS: WHAT IS THE EVIDENCE?

By Katherine Holmes, MD

Breast cancer as a clinical illness represents a heterogenous group of cancers. Some breast cancers have an aggressive clinical course resulting in early mortality and others have a more indolent and slow growth rate. Breast cancer screening recommendations in the United States have changed over the last decade, causing confusion for patients and their physicians. In addition, patient anxiety over the clinical disease of breast cancer remains high, and physicians worry about possible delay to diagnosis of breast cancer. Breast cancer mortality rates differ significantly by race in the United States, with Black women having a 41% higher breast cancer mortality than white women; a long standing and persistent health care disparity that has changed little over the past few decades, even with more availability of screening mammography. Mammogram screening recommendations including what age to start screening, how often to perform screening, and when to stop screening have changed frequently, and even today, screening recommendations differ between different physician advisory groups like ACOG, the American Cancer Society, the American College of Radiology, and the USPSTF (Table 1). With all of this conflicting information, what is a busy clinical physician to do? How can we better help our patients understand the benefits but also the potential harms of screening mammography and use the best possible evidence to help our patients make the decision about when to start screening and how frequently to have screening performed?

Table 1: *Mammogram Screening Recommendations: Average Risk*

Agency	Age to Start Screening	Frequency	Age to Stop
USPSTF[1]	50 *Between 40-49: individual decision based on risk	Every 2 years	75
ACOG[2]	40	Every 1-2 years	75, may screen past 75 if desired
American Cancer Society[3]	45 *May start at 40 if desired	Every year 45-54 Every 2 years after 55	Until life expectancy is less than 10 years
American College of Radiology/ Society for Breast Imaging[4]	40 Screen for increased risk at age 30	Every year	Until life expectancy is less than 10 years

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Domestic and Interpersonal Violence is common among women of child-bearing age but it remains often unreported and unrecognized. It can include physical violence, sexual violence, psychological abuse and stalking, reproductive coercion, neglect and the threat of abuse and violence. Prevalence rates vary by age, race/ethnicity and socio-economic status. Reported intimate partner violence is experienced by 36% of US women with 21% of them sustaining severe physical violence. Beside the immediate effects of injury and potential death, the long term health consequences for women who are victims of domestic violence include depression, posttraumatic stress disorder (PTSD), anxiety disorders, substance abuse, suicidal behavior, unintended pregnancy, sexually transmitted infections and chronic pain. Intimate partner violence is more common in younger women, therefore women of reproductive age have a higher prevalence of IPV than older women. Approximately 14.8% of women aged 18 to 24 years have experienced rape, physical violence, or stalking by an intimate partner in the past 12 months, compared with 8.7% of women aged 25 to 34 years, 7.3% of women aged 35 to 44 years, 4.1% of women aged 45 to 54 years, and 1.4% of women 55 years or older.[13]

The USPSTF recommends that clinicians screen for IPV in women of reproductive age and provide or refer women who screen positive to ongoing support services. (B recommendation) The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for abuse and neglect in all older or vulnerable adults. (I statement)

WPSI recommends screening for interpersonal and domestic violence beginning at age 13 and continuing annual screening throughout the lifetime. Although the evidence is limited and more research is needed to support screening for elder abuse, data shows that community-dwelling adults aged 57-85 have experienced verbal abuse (9%), financial mistreatment (3.5%) and physical abuse (0.2%). The perpetrators of elder abuse are known to the victim and include intimate partners (11%), adult children (33%) and other family members (22%). Risk factors for elder abuse include isolation and lack of social support, functional impairment, and poor physical health. For older adults, lower income and living in a shared living environment with a large number of household members (other than a spouse) are associated with an increased risk of financial and physical abuse.[13] Limited evidence suggests that screening is not commonly occurring in practice; 1 study found that more than 60% of clinicians have never asked their older adult patients about abuse. Overall screening for IPV in all age groups is low, ranging between 2-50%.[13]

Several screening instruments can be used to screen women for IPV. The following instruments accurately detected IPV in the past year among adult women: ***Humiliation, Afraid, Rape, Kick (HARK); Hurt, Insult, Threaten, Scream (HITS); Extended-Hurt, Insult, Threaten, Scream (E-HITS); Partner Violence Screen (PVS); and Woman Abuse Screening Tool (WAST)***.

Urinary incontinence has been shown to be experienced by as much as 50% of women in the United States, but 55% of women did not report the symptoms to their healthcare provider. Although the urinary incontinence adversely impacted quality of life, health and function, women failed to report the symptoms because of embarrassment, stigma or acceptance as normal aging. Risk factors for incontinence are older age, obesity, previous vaginal delivery, hysterectomy, cognitive impairment, functional impairment and chronic medical problems. Clinician or self-administered questionnaires, such as the Michigan Incontinence Symptom Index (M-ISI) and the Bristol Female Lower Urinary Tract Symptoms questionnaire (BFLUTS) can identify women with stress, urge or mixed incontinence. WPSI recommends annual screening for urinary incontinence in women of all ages and those postpartum. There is no direct evidence of the benefits and harms of screening, however this recommendation is based on the high prevalence of urinary incontinence in women, indirect evidence of accuracy of screening tests and risks and benefits of treatment. The USPSTF does not recommend screening for urinary incontinence.[18]

The 10 year risk for the first cardiovascular event (nonfatal myocardial infarction, coronary heart disease death, fatal or nonfatal stroke) can be determined by a ASCVD-risk estimator from the American College of Cardiology/American Heart Association.[12] The USPSTF recommends initiating **low dose aspirin** use for the primary prevention of CVD and CRC in adults aged 50 to 59 years who have a 10% or greater 10-year CVD risk, are not at increased risk for bleeding, have a life expectancy of at least 10 years, and are willing to take low-dose aspirin daily for at least 10 years. (B recommendation)

MENTAL HEALTH AND SUBSTANCE ABUSE

In adolescence, screening for **alcohol use** is recommended by Bright Futures and WPSI, however the USPSTF has found insufficient evidence to recommend screening and behavioral counseling interventions in ages 12 to 17.[4] The American Academy of Pediatrics recommends screening all adolescent patients for alcohol use with a formal, validated screening tool (such as the CRAFFT or Adolescent SBIRT)[5,6] at every well visit and appropriate acute care visits, and responding to screening results with the appropriate brief intervention and referral if indicated. Research suggests that although most pediatricians and family physicians report providing some alcohol prevention services to adolescent patients, they do not consistently screen and counsel for alcohol use. Survey results indicate that screening was more likely if adolescents were older (aged 15 to 17 years). However, the quality of screening practices, tools used, and interventions provided vary widely. Reported barriers to screening include time constraints, lack of knowledge about best practices, and lack of services for adolescent patients who screen positive.[6]

Anxiety is the most frequent mental health complaint in the general population of the United States, and it is reported that prevalence rates are higher in women than men. Approximately 40% of women experience anxiety disorders during their lifetime and it is a commonly associated with posttraumatic stress disorder, bullying, stress, assault and sexual harassment. Anxiety is also associated with depression and substance abuse. According to WPSI, screening for anxiety should begin at age 13, however there is no recommendation regarding frequency of screening, and it should be based on clinical judgement. Neither Bright Futures nor the USPSTF recommend screening for anxiety disorder.[7]

Depression is a common complaint in the primary care setting and one of the leading causes of disability. The WPSI recommends

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Current Mammography Screening Guidelines

There is agreement from the agencies listed above that the recommended tool for screening mammography is the 3D mammogram or tomosynthesis, which has shown decreased need for repeat imaging and increased rates of true positives based on screening alone.[14] In lower resource or more rural areas, if 3D imaging is not yet available, traditional or 2D mammogram screening is still indicated. Women at higher-than-average risk should be encouraged to get 3D tomosynthesis mammograms if possible. Women at any age whose life expectancy is less than 5 years should not be recommended to undergo routine mammogram screening.[16] In addition, breast MRI is not recommended as a breast cancer screening tool for women at average risk.[15] Breast MRI may be utilized as a cancer screening strategy for women at high risk of breast cancer or women with genetic mutation making their lifetime risk greater than 20%, but should be ordered as part of a comprehensive breast cancer screening strategy in consultation with a breast health/breast cancer treatment center.[15]

Breast Cancer Biology

As stated above, breast cancer as a clinical illness represents a heterogeneous set of cancers, each with its own biological characteristics. Therefore, not all small breast tumors and not all large breast tumors act the same. For example, inflammatory breast cancer has a much higher mortality rate than ductal carcinoma no matter the size of the tumor at the time of diagnosis. In fact, recent clinical trials have shown that if a breast cancer has molecular features amenable to treatment with currently available therapy, prognosis is improved no matter the size of the tumor at the time of diagnosis.[1] Recent advances in treatments for breast cancers and better understanding of tumor biology has decreased mortality from breast cancer more significantly than screening with mammography, a trend that is likely to continue as therapeutic interventions based on tumor biochemistry continue to be developed. In the decade 2002-2012, improved treatment options accounted for 2/3 of the reduction in mortality from breast cancer. Increased screening only accounted for a 1/3 reduction in mortality.[6]

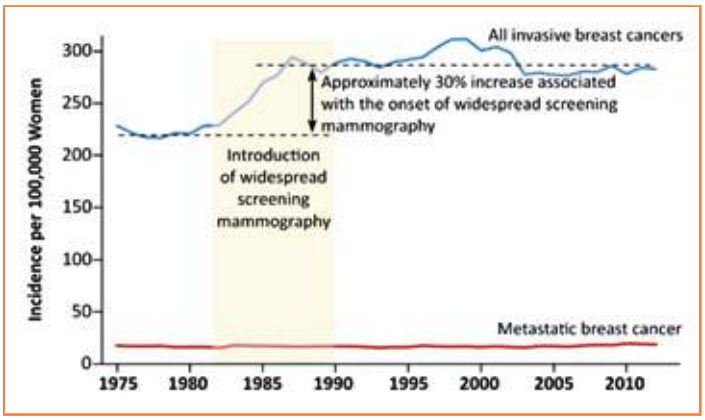
How Effective is Mammogram as a Cancer Screening Tool?

In order to be effective, cancer screening tools must be able to diagnose cancer at an early stage and decrease the frequency of cancer presenting at a later, less treatable stage. More effective treatment at an earlier stage of clinical disease would then cause a decrease in the mortality of the illness. The ideal screening test, like the PAP test, can detect clinical disease before significant harm to the patient, and the treatment of cervical cancer at an early stage can cure the disease, thereby resulting in a remarkable decrease in mortality from cervical cancer in the years following widespread, population-based screening.

A NEJM review of population level data in the United States from onset of widespread mammogram screening, reveals that unlike the PAP test, screening mammography primarily has increased the diagnosis rate of smaller tumors, with a less significant reduction in the diagnosis rate of larger tumors.[5,6] Therefore, women who underwent screening mammography were far more likely to have an overdiagnosis of breast cancer, rather than detection of a tumor that was likely to cause significant morbidity or mortality. Overdiagnosis in this context refers to diagnosis of a breast cancer that was never going to cause clinical disease in the patient. Based on this review of the last three decades since the onset of mammography as a screening tool, over 1/3 of breast cancers detected fall into this overdiagnosis category.[6] (Figure1)

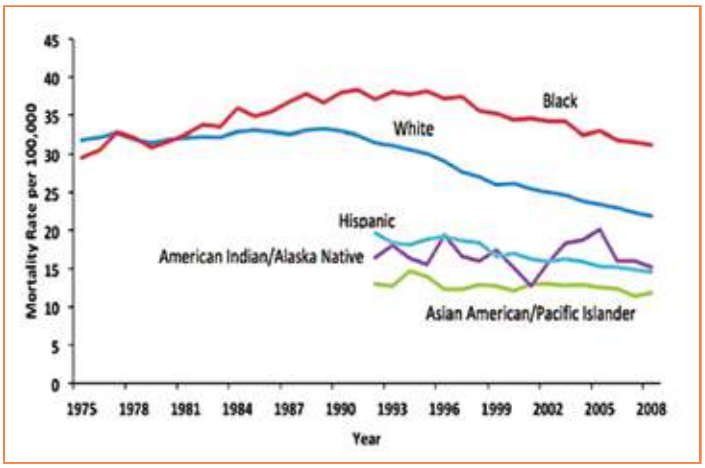
Although reduction in breast cancer mortality has decreased in the same time interval, (Figure 2) the overall reduction in mortality from breast cancer represents a combination of increased screening in addition to impressive advances in the treatment of the disease using chemotherapeutics aimed at specific tumor biology.[5,6]

Figure 1: *Screening Mammography and the Increased Incidence of Invasive Breast Cancers, 1975-2012*



Data Source: SEER (Surveillance, Epidemiology and End Results Program) from 1975 to 2012, NEJM Volume 375, Issue 15, Pages 1438-47, 2016.

Figure 2: *Mortality Rate of Breast Cancer in the United States 1975-2010*



Data source: Surveillance, Epidemiology, and End Results (SEER) Program, 1975-2008, Division of Cancer Control and Population Science, National Cancer Institute, 2012.

The Problem of False Positives and False Negatives

Rates of false positive mammogram results have been recently calculated to be 121.2 per 1000 women. Rates of false negative results for screening mammography are lower at 1.0 to 1.5 per 1000 women.[7] Harms associated with false positive results include more frequent and unnecessary imaging and recommendations for unneeded biopsy. Rates of false positive mammogram screening is increased in women aged 40-49 years and decreased as women got

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screening annually for depression for all females aged 13 and older and all pregnant and postpartum women. The USPSTF recommends screening adolescents 12-18 and all adults, including pregnant and postpartum women for depression using a validated screening tool such as the Patient Health Questionnaire (PHQ) or the Edinburgh Postnatal Depression Scale. Screening for depression should be utilized with systems in place to ensure accurate diagnosis, appropriate referral, effective treatment and follow-up.[10,11]

Table 2: *Immunizations Ages 13-21*[8,9]

HPV (9-valent human papillomavirus)
Meningococcal ACWY
Meningococcal B
Tdap

IMMUNIZATIONS

- **HPV** vaccination routinely recommended at age 11-12 years (can start at age 9 years). 2-or 3-dose series depending on age at initial vaccination:

  Age 9-14 years at initial vaccination: 2-dose series at 0, 6-12 months (minimum interval: 5 months; repeat dose if administered too soon)

  Age 15 years or older at initial vaccination: 3-dose series at 0, 1-2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks/dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)

Interrupted schedules: If vaccination schedule is interrupted, the series does not need to be restarted. No additional dose recommended after completing series with recommended dosing intervals using any HPV vaccine.

The Advisory Committee on Immunization Practices (ACIP) also recommends vaccination for everyone through age 26 years if not adequately vaccinated previously. For women aged 27-45, ACIP recommends shared decision making for HPV vaccination. Vaccine effectiveness is lower in older age groups because of prior infections and lower risk of exposure (among women in long term mutually monogamous sexual relationships).

The ACIP recommends **Shingrix vaccine** for prevention of herpes zoster as routine vaccination beginning at age 50 years or older. The dosing schedule is a 2-dose series RZV (Shingrix) 2-6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon). This recommendation is regardless of previous herpes zoster infection or history of zoster vaccine live (ZVL, Zostavax) vaccination (administer RZV at least 2 months after ZVL). The Shingrix vaccine reduces the risk of developing shingles in those 50 and older by 97.2% compared to the Zostavax which reduced the risk of herpes zoster by 51% in those aged 60 or older.[9] As of November 2020, Zostavax is no longer available for use in the United States.

According to the CDC adult vaccination resources, although vaccines are essential components of routine healthcare for adults and have been shown to provide tremendous benefit against severe illness, disability and death, at least 3 of every 4 adults are missing one or more of the recommended vaccines. The barriers to adult vaccinations include lack of patient and provider knowledge about the need for immunization, lack of priority for preventative services, cost of vaccines, insurance coverage, coordination of care and missed opportunities. Although adult vaccination rates increased from 2010-2018, adult vaccination coverage remains low. Racial and ethnic differences in coverage persist for all vaccinations with lower coverage among non-white compared with non-Hispanic white adults.[9,14]

CDC 2018 data for example, showed that influenza vaccination was 46.1%, pneumococcal vaccine coverage for adults 65 years or older was 69%, herpes zoster in adults aged 50 or older was 24.1% and 60 or older was 34.5%, and HPV vaccination in women 19-26 years was 52.8%.[9,14]

Many healthcare providers are not assessing vaccination status at acute and wellness visits and missing an important responsibility to provide updated vaccination for their patients. A professional recommendation from their healthcare provider is the strongest predictor of whether patients get vaccinated.[14]

Table 3: *Recommended Screenings for Ages 22-39*

Alcohol Use Screening & Counseling	Gonorrhea & Chlamydia Screening <age 24
Anxiety Screening	Hepatitis C Screening
Depression Screening	HIV Risk Assessment & Screening
Blood Pressure Screening	STI Prevention Counseling < age 24
Contraception Counseling	Folic Acid Supplementation
Domestic Violence Screening	Urinary Incontinence Screening
Obesity Screening & Counseling	Cervical Cancer Screening
Substance Use Screening & Counseling	Risk Assessment for BRCA 1 &2 Testing
Tobacco Screening & Counseling	

Table 4: *Recommended Screenings for Ages 40-49*

Alcohol Use Screening & Counseling	Tobacco Screening & Counseling
Anxiety Screening	Hepatitis C Screening
Depression Screening	HIV Risk Assessment & Screening
Blood Pressure Screening	Folic Acid Supplementation
Contraception Counseling	Urinary Incontinence Screening
Domestic Violence Screening	Cervical Cancer Screening
Obesity Screening & Counseling	Risk Assessment for BRCA 1&2 Testing
Substance Use Screening & Counseling	Lipid Screening

INFECTIOUS DISEASES

Hepatitis C Virus (HCV) is the most common chronic blood-borne pathogen in the United States and a leading cause of chronic liver disease. Approximately 4.1 million persons in the U.S. who were tested have a positive anti-HCV antibody indicating past or current infection. Cases of acute HCV infection have increased 3.8 fold in the past decade due to increased injection drug use and improved surveillance. Young adults, aged 20-39, who inject drugs have the most rapid rise in acute HCV incidence. Rates increased in both sexes but more markedly in men and incidence is higher in the American Indian/Alaskan Native and the Non-Hispanic white populations. Common risk factors for HCV infection include persons with HIV, prior recipients of blood transfusions, persons who ever injected drugs and shared needles, and persons who are born to an HCV- infected mother. The USPSTF recommends screening for HCV infection in adults aged 18 to 79 years

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older.[7] Women with risk factors including family history of breast cancer, previous history of benign breast biopsy and high breast density were also at higher risk for false positive results. Based on this data, the USPSTF "found adequate evidence that screening for breast cancer with mammography results in harms for women aged 40-74 years."[1] Harms in this case refer to both unnecessary additional diagnostic imaging and invasive procedures like biopsy as well as overdiagnosis which leads to unnecessary cancer treatment.

Health Care Disparities and Breast Cancer Mortality

It is important to acknowledge that reduction in breast cancer mortality from increased access to screening and better treatment options has not been equally spread across all groups of women in the United States. Black women are 42% more likely to die from breast cancer as compared to white non-Hispanic women in the United States, despite similar incidence rates of cancer.[11] This significant mortality gap has not closed in recent decades despite awareness of the disparity and advances in treatment. Both biological factors and screening factors are likely to be in play in the persistence of the disparity. Black women have a 2 times higher risk of triple negative breast cancer diagnosis, which is a more aggressive cancer and has less effective treatment options. BRACA 1 and BRACA 2 gene mutations are more common in women with African American ancestry, which also increases the likelihood of a breast cancer diagnosis.[8] Black women are less likely to be diagnosed with Stage 1 cancers, increasing the incidence of larger tumors and more widespread disease.[4] Based on these factors, the American College of Radiologists has recommended that African American women be considered high risk for breast cancer and have an individual screening plan developed with recommendations to assess risk as early as the 30s and to start screening at age 40.[4] USPSTF has not made the same recommendation, although the breast cancer screening recommendations are under review currently and likely to be updated soon. Studies have indicated that adherence to the recommended mammogram screening intervals is lower in women who have lower incomes, higher BMI, and who are in the target age range of 50-59.[8,13] These socioeconomic factors in combination with systemic barriers that limit access to screening are likely contributing to lower screening among women of color.

Assessing Risk

Given the previous discussion regarding the use of mammography as a screening tool, it may be more helpful to the busy family physician to start the discussion about screening mammography around the risk that each individual patient has for breast cancer. There are tools available that can help both the provider and the patient assess their own individual level of risk compared with the background rate of breast cancer in all women. The National Cancer Institute has an interactive on-line tool which can be found at https://bcrisktool.cancer.gov/. This tool is not useful if the patient has a BRACA mutation, and does not take into account modifiable risks like weight, diet, alcohol consumption and exercise, but it is a good starting point. Patient preference about willingness to undergo potential next steps including additional imaging and biopsy versus anxiety about delay in diagnosis of breast cancer should also be discussed in this context. Given the cultural focus on and media attention towards breast cancer, many women overestimate their risk of getting a breast cancer diagnosis, and are surprised to find that in fact, their 5 year and lifetime risk of developing breast cancer is lower than they had assumed. The individual breast cancer risk assessment helps both patients and their physicians develop breast cancer screening plans based on clinical evidence rather than anxiety around the disease.

Women with Dense Breast Tissue

Women with dense breast tissue do have a higher risk of developing breast cancer. There is a decreased sensitivity for mammography in women with dense breast tissue to detect breast cancer, and there may also be a risk of overdiagnosis.[5,10] USPTSF review of the evidence has found that there is insufficient evidence to recommend the use of adjuvant imaging with ultrasound and or MRI.[1] ACOG's most recent clinical practice guidelines also recommend the use of screening mammography alone for women who have no symptoms and are otherwise at average risk for breast cancer.[10] Individual risk assessment and a discussion about the balance between benefits and harms of screening would be beneficial in women with dense breast tissue.

Overall Assessment

Mammography as a screening tool for breast cancer represents a mix of risks and benefits to individual patients. According to the USPSTF review of the clinical data in the 2016 and most current recommendations, the greatest reduction in mortality from breast cancer is present for women who undergo biannual mammogram screening from age 60-69.[5] For women at average risk for breast cancer who have biannual screening performed between ages 50-74 the benefits clearly outweigh the risks. Women in the age range of 40-49 have higher rates of false positive results with mammogram screening and often undergo additional unnecessary screening and biopsies. The balance of benefits to harms improves as women get close to age 50.[5] (Table 2) In addition to unnecessary additional testing, it is important to note that screening mammogram does carry the risk of overdiagnosis: the risk that women will be treated for non-invasive breast cancer or breast cancer that would not have become clinically apparent during her lifetime. Therefore, for a woman at average risk of breast cancer, beginning screening early and screening more frequently increases the risk for overdiagnosis and overtreatment.[5]

Table 2: *Summary of the Evidence for Women at Average Risk for Breast Cancer*

- Begin screening at age 50
- Screening interval every 2 years
- Greatest mortality benefit with screening is for women between ages 60-69
- No indication for breast MRI as routine screening
- Stop screening at age 75 or when life expectancy is below 5 years

Women at higher-than-average risk for breast cancer may benefit more from beginning screening in the 40s and may benefit from additional screening. Women with genetic mutations like BRCA 1 and BRCA 2 should have an individual screening plan developed in combination with breast cancer specialists given the very high lifetime

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at least once during the lifetime, with additional testing based on risk assessment (B recommendation). Screening is performed with anti-HCV antibody testing followed by confirmatory polymerase chain reaction testing in positive results to detect chronic HCV infection.[19]

Chlamydia and gonorrhea are the most reported sexually transmitted infections (STIs) in the US. Chlamydial infections are 10 times more prevalent than gonococcal infections (4.7% vs. 0.4%) in women aged 18 to 26 years however most infections are asymptomatic and are therefore never diagnosed. In women, asymptomatic infection may lead to pelvic inflammatory disease (PID) and complications, such as ectopic pregnancy, chronic pelvic pain and infertility. The USPSTF recommends screening for chlamydia and gonorrhea in sexually active women aged 24 years or younger and in older women who are at increased risk for infection.[22]

Table 5: *Recommended Screenings for Ages 50-64*

Alcohol Use Screening & Counseling	Urinary Incontinence Screening
Anxiety Screening	Cervical Cancer Screening
Depression Screening	Breast Cancer Screening
Blood Pressure Screening	Colorectal Cancer Screening
Domestic Violence Screening	Risk Assessment for BRCA 1&2 Testing
Obesity Screening & Counseling	Lipid Screening
Substance Use Screening & Counseling	Lung Cancer Screening age 55-80
Tobacco Screening & Counseling	Aspirin for CVD/CRC Prevention age 50-59
Hepatitis C Screening	
HIV Risk Assessment & Screening	

CANCER

Potentially harmful mutations of the breast cancer susceptibility 1 and 2 genes (BRCA1/2) are associated with increased risk for breast, ovarian, fallopian tube, and peritoneal cancer. Mutations in the BRCA1/2 genes cluster in families, showing an autosomal dominant pattern of inheritance in either the mother's or father's family. When taking medical and family history information from patients, primary care clinicians should ask about specific types of cancer, primary cancer sites, which family members were affected, and whether relatives had multiple types of primary cancer. Clinicians should also inquire about the age at diagnosis, age at death, and sex of affected family members, both immediate (i.e., parents and siblings) as well as more distant (i.e., aunts, uncles, grandparents, and cousins). In the general population, BRCA1/2 mutations occur in an estimated 1 in 300 to 500 women and account for 5% to 10% of breast cancer cases and 15% of ovarian cancer cases. The USPSTF recommends that primary care clinicians assess women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or who have an ancestry associated with BRCA1/2 gene mutations with an appropriate brief familial risk assessment tool. Women with a positive result on the risk assessment tool should receive genetic counseling and, if indicated after counseling, genetic testing. (B recommendation) The USPSTF recommends against routine risk assessment, genetic counseling, or genetic testing for women whose personal or family history or ancestry is not associated with potentially harmful BRCA1/2 gene mutations. (D recommendation) Tools evaluated by the USPSTF that could be used in primary care settings to determine the likelihood of potentially harmful BRCA1/2 mutations include the Ontario Family History Assessment Tool, Manchester Scoring System, Referral Screening Tool, Pedigree Assessment Tool, 7-Question Family History Screening Tool, International Breast Cancer Intervention Study Instrument (Tyrer-Cuzick), and brief versions of BRCAPRO. Each of these tools has been validated and accurately estimates the likelihood of carrying a harmful BRCA1/2 mutation, with a sensitivity between 77%-100%. They can be used to guide primary care referrals to genetic counseling for more definitive risk assessment.[20]

Table 6: *Recommended Screenings for Ages 65-75*

Alcohol Use Screening & Counseling	Cervical Cancer Screening to age 65
Anxiety Screening	Breast Cancer Screening
Depression Screening	Colorectal Cancer Screening
Blood Pressure Screening	Risk Assessment for BRCA 1&2 Testing
Domestic Violence Screening	Lipid Screening
Obesity Screening & Counseling	Lung Cancer Screening age 55-80
Substance Use Screening & Counseling	Fall Prevention
Tobacco Screening & Counseling	Osteoporosis Screening
Hepatitis C Screening	
HIV Risk Assessment & Screening	
Urinary Incontinence Screening	

GERIATRIC CONCERNS

Falls in women aged 65 and older are a common cause of injury. Community dwelling women who are at increased risk for falls based on age, history of falls and impairments in mobility, balance and gait should be identified by an annual fall risk assessment and offered exercise to prevent falls.[15] Fall risk assessment tools include *Timed Up & Go (TUG)* and the *Tinetti Balance Assessment Tool*.[16,17]

Table 7: *Recommended Screenings for Ages >75*

Alcohol Use Screening & Counseling	Hepatitis C Screening < age 80
Anxiety Screening	HIV Risk Assessment & Screening
Depression Screening	Urinary Incontinence Screening
Blood Pressure Screening	Risk Assessment for BRCA 1&2 Testing
Domestic Violence Screening	Lung Cancer Screening age 55-80
Obesity Screening & Counseling	Fall Prevention
Substance Use Screening & Counseling	Osteoporosis Screening
Tobacco Screening & Counseling	

Table 8: *Immunizations for Adults*

COVID 19	Influenza Vaccine
Hepatitis A	Pneumococcal Vaccine
Hepatitis B	Herpes Zoster Vaccine
HPV	Tdap/Td

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risk of developing the disease. It is not yet clear based on current evidence what screening is best for women with dense breast tissue. Having a discussion with your patient with dense breasts may help to clarify risks and benefits and develop a screening plan that meets the individual goals of the patient given the uncertainty surrounding the data about additional imaging or screening outside of mammography.

Given the complex media environment that we live in, women are likely to receive advice and information about screening mammograms from a variety of sources and often have questions about the screening approach that would be best for them. Women are often asked to make screening decisions without all the information needed to weigh their individual risk, with the known information that mammography is a mix of benefits of early cancer detection with the risks of false positive results and possible overdiagnosis. A thoughtful discussion with their family physician that can assess an individual risk with the known data around mammogram screening, and can help both patient and provider reduce anxiety and make better clinical decisions around a breast cancer screening strategy.

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NYSAFP Seeks Members
for Diversity, Equity, Inclusion Commission (DEIC)

The New York State Academy of Family Physicians recently established a permanent commission to address issues of diversity, equity, and inclusion in family medicine. The DEIC hopes to create a network of physicians committed to ongoing work in the DEI arena, including addressing racism and implicit bias in healthcare, and the impact of social determinants of health on patient wellness. The proposed scope of work includes providing recommendations to address structural barriers, as well as ongoing discussions and trainings to address existing biases within the health care system. The DEIC will work in collaboration with NYSAFP's other commissions to ensure equitable representation of Black, Indigenous, and People of Color (BIPOC), and underrepresented groups in medicine.

What is the importance of DEI and how does it apply in healthcare? Diversity is important for a variety of reasons. Physicians should have a comprehensive understanding of their patients' backgrounds in order to provide the best possible care. This includes religion, culture, language, socioeconomic background, and ethnicity, among others. Equity means fairness and impartiality. It recognizes that not everyone is perceived as equal, and some individuals may require additional understanding and patience. This applies in the workplace as well. Inclusion is encouraging and empowering all individuals to share their insights and contribute to success, whether in patient care or within an organization.

Please consider joining the DEI Commission and being a voice for change. For additional information on joining the DEIC contact the NYSAFP at 518-489-8945 or fp@nysafp.org.

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Guidelines for screening and prevention are provided by the USPSTF, WPSI, Bright Futures, AAFP and many other organizations based on review of the evidence and assessment of benefits and harms. However, variations in practice may be needed based on the reasonable, well-informed judgement of the individual provider who must consider the condition of the patient, availability of resources and advances in knowledge and technology.

"When women are healthy, communities thrive"
(WPSI)

Endnotes

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IN THE SPOTLIGHT

NYSAFP Members in the News

Congratulations to **Drs. Tochi Iroku-Malize** and **Sarah Nosal** for their successful campaigns for AAFP president-elect and director, respectively, at the recent special session of the AAFP Congress of Delegates. Dr. Iroku-Malize is completing a 3-year term as a director and will serve as president-elect until the 2022 AAFP Congress when she will become president for the following year. Upon completion of her 1-year term as president she will serve a year as chair of the AAFP Board of Directors. Dr. Nosal was elected to a 3-year term as a director. She has distinguished herself as a member of the NYSAFP delegation to the AAFP COD. (NYSAFP Weekly eNews)

Dr. Rachelle Brilliant was appointed chair of the AAFP Commission on Continuing Professional Development. Dr. Brilliant has served a 3-year term on the Commission and was elected chair of the Commission by the AAFP Board of Directors at their September meeting.

Dr. Linda Prine is the recipient of the 2021 Thomas W. Johnson Award for Career Contributions to Family Medicine Education, which recognizes outstanding contributions to family medicine education in undergraduate, graduate, and continuing education spheres. This award is the highest honor presented by the AAFP.

Dr. Naz Khan has been nominated for the AMA Inspiration Award. The Inspiration Award recognizes physicians who have contributed to the achievements of women in the medical profession, and whose ongoing dedication has significantly enhanced the professional lives of women physicians.

Jessica Meyer, a 4th-year medical student at the University of Rochester School of Medicine & Dentistry, has been selected as one of nine 2021 Pisacano scholars by the Pisacano Leadership Foundation. The scholarships, valued up to $28,000 each, are awarded to students attending U.S. medical schools who demonstrate a strong commitment to the specialty of family medicine and show demonstrable leadership skills, superior academic achievement, strong communication skills, identifiable character and integrity, and a noteworthy level of community service.

Winter Weekend and Scientific Assembly – January 14-16 in Saratoga Springs

The Winter Weekend planning committee team, Drs. Heather Paladine (committee chair), Steve Hoag, Phil Kaplan, Suganya Mahinthan, Myranda Steingraeber, Wayne Strouse, Becky Williams, Romulo Vasquez and Jocelyn Young, invites you to our annual CMA conference.

Join us at Winter Weekend, January 14-16 in Saratoga Springs. The conference will offer approximately 16 Live Credits and will include workshops and interactive sessions on a wide range of topics of interest to family physicians.

See page 5 for schedule and visit www.nysafp.org for up-to-date information and registration.

For additional information on Winter Weekend contact Kelly Madden, Director of Education at 518-489-8945 or kelly@nysafp.org

Interested in advertising your company or exhibiting your product at Winter Weekend? Contact Jill Walls, jill@nysafp.org for the Winter Weekend Prospectus

Does My Patient Need Hepatitis C Screening? Probably!

By Ansa George, MD; Suganya Mahinthan, MD and Jocelyn Young DO, MSc, MSc, FAAFP

Screening guidelines for hepatitis C virus (HCV) were changed and expanded in 2020 to reflect changes in the demographics with high rates of infection, and the availability of new medications that are effective in curing the disease. Hepatitis C infection can be acute or chronic. Acute infection occurs after 6 months of exposure to the virus or can be a short term illness. About half of acute hepatitis C infection can develop as chronic infection and could lead to liver dysfunction and progression of fibrosis. Persistent chronic infection could lead to cirrhosis and hepatocellular carcinoma.[1] Current estimates are that 2.4 million Americans are living with HCV.[1]

Original recommendations from 1998 aimed to target groups of people with higher rates of risk; people who inject drugs, certain medical conditions including those undergoing hemodialysis, and recipients of blood transfusions or organ transplants. Later research from the Chronic Hepatitis Cohort Study looking at data from 2006-2010 showed that 1) less than 25% of those with HCV infection could be identified by the risk based guidelines and 2) 78% of those infected with HCV were born between 1945 and 1965.[2] This study would lead to the 2012 birth cohort screening guideline recommendation.

More recent data analysis about HCV infected patients has revealed new patterns, trends and areas that require improvement. Data showed that the birth cohort guidelines were catching less than 60% of HCV cases and that patients were unlikely to report risk-factors, diminishing the effect of risk-based or birth cohort screening guidelines.[1] The overall prevalence of HCV infections has been rising over the past 5 years (Figure 1) and appears to be driven by people aged 20-39, a group well outside the birth cohort group, who made up 63% of new infections in 2019.[1] Intravenous drug use continues to be the most common means of transmission of the virus and in the wake of the opioid epidemic this appears to be a major factor for the increasing rates in the younger population.

Figure 1: *HCV Infection rates by age*

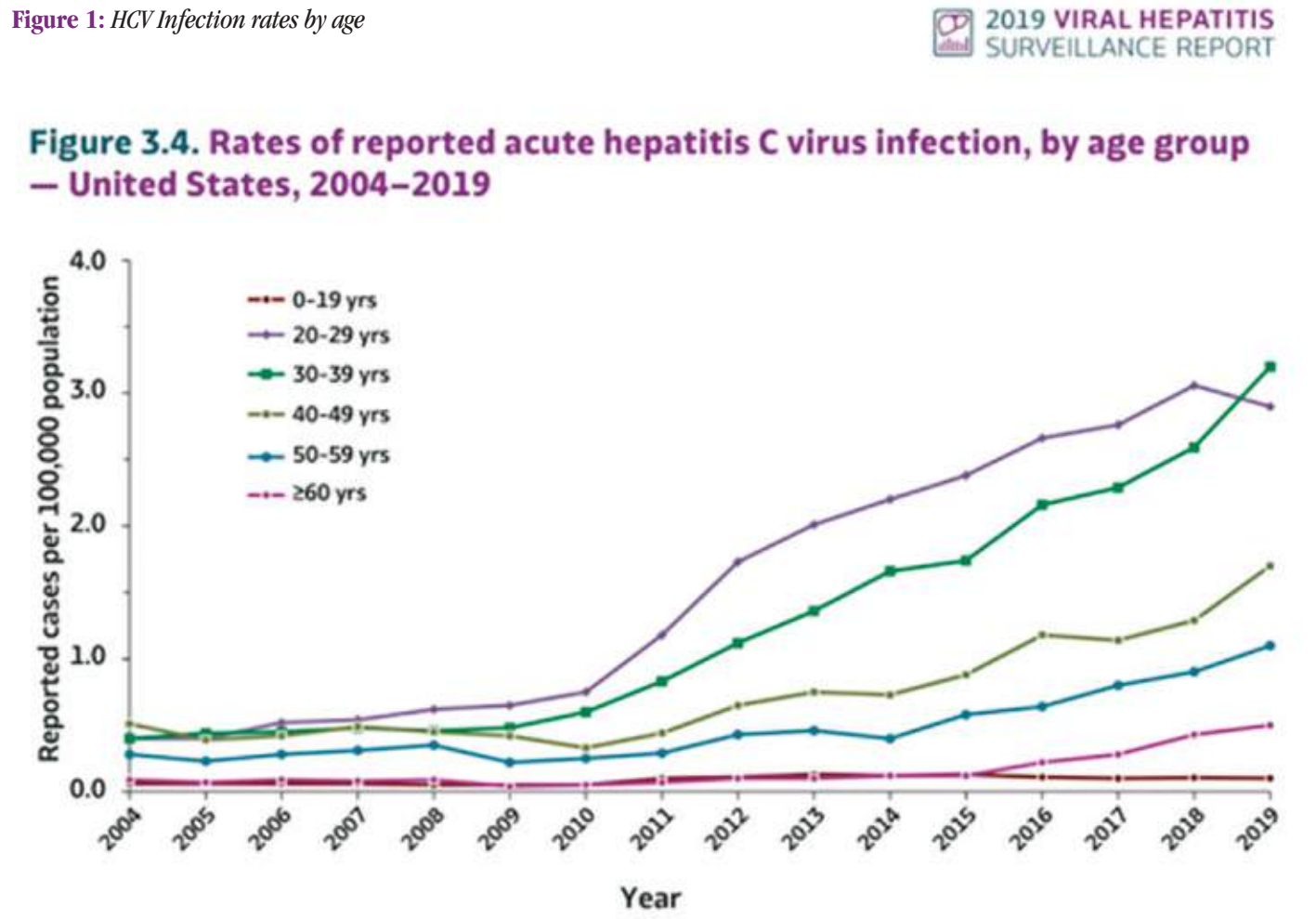


Figure 3.4 of 2019 Viral Hepatitis Surveillance report. Cdc.gov. Published May 27, 2021. Accessed August 04, 2021. https://www.cdc.gov/hepactitis/statistics/2019surveillance/Figure3.4.htm

Who and How to Screen

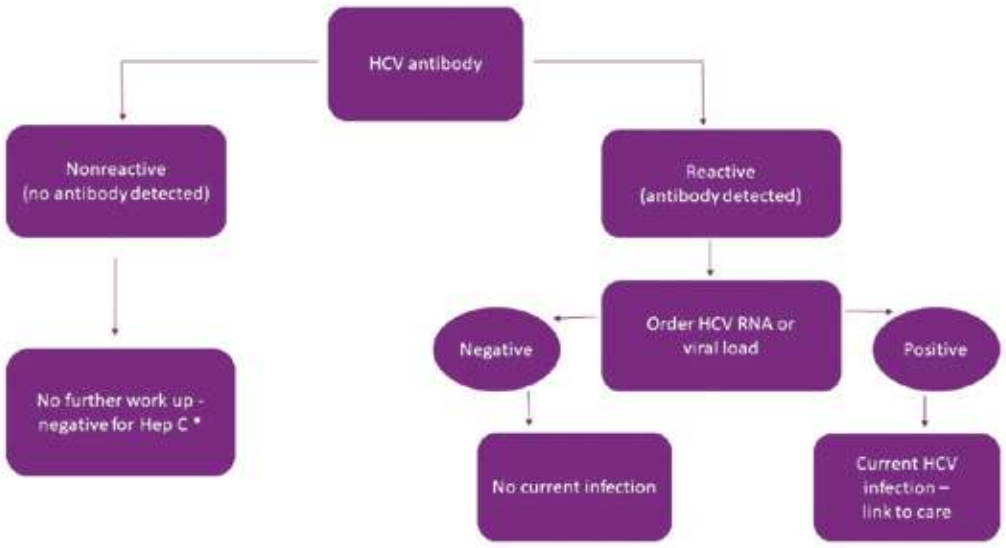
In 2020 both the CDC and the United States Preventive Services Task Force issued new screening guidelines marked by a change to universal screening for all adults aged 18-79 years and for all pregnant patients during every pregnancy. The current screening guidelines are an amalgamation of previous recommendations along with newly discovered low cost screening methods and also incorporate a preventive approach in addressing HCV infections.[2] See figure 2. The Infectious Disease Society of America also recommends one time testing for persons below 18 at risk of acquiring HCV.[3] Additional testing is recommended for patients that are vulnerable or have risk factors as noted in figure 2.

Figure 2: *Screening Guidelines*

Population	USPSTF Recommendation	CDC Recommendation	IDSA Recommendation
All adults age 18 – 79 years	Test once in their lifetime	Test once in their lifetime	Test once in their lifetime
All pregnant patients		Test once in each pregnancy	Test once in each pregnancy, ideally at the first visit
Persons who are injecting drugs	Screen periodically	Test at least once and periodically if ongoing risk factors	Annual HCV testing Test once if a remote history or one-time use
Persons with HIV		Test once and periodically if ongoing risk factors	Annual antibody testing If high risk behaviors, consider HCV RNA testing annually
Men who have sex with men taking pre-exposure prophylaxis for HIV			Test at PrEP initiation and at least annually thereafter
Patients on hemodialysis or history of hemodialysis, persistently abnormal ALT levels, prior recipients of blood transfusions (before 1987) or organ transplants (prior to 1992)		Test at least once and periodically if ongoing risk factors	Test at least once and periodically if ongoing risk factors
Persons who were ever incarcerated			Test at least once
Children born to mothers with HCV		One time testing, ideally antibody testing at 18 months of age. If positive, retest at 3 years of age with HCV RNA to confirm chronic infection	One time testing, ideally antibody testing at 18 months of age. If positive, retest at 3 years of age with HCV RNA to confirm chronic infection

Per the USPSTF, a HCV antibody test is the recommended screening. If reactive, a polymerase chain reaction test for HCV RNA is used as follow up to confirm active infection.[2] A positive antibody with a negative RNA test may be indicative of previous infection that has spontaneously resolved or was treated. If the patient does not have known risk factors and is not in a vulnerable group, then repeat screening is not currently recommended. See figure 3.

Figure 3: *Hepatitis C Testing Algorithm*



*If concern exists that the patient was exposed to HepC in the past 6 months, can consider HCV RNA to evaluate for acute infection

Based from: CDC. Testing for HCV Infection: An update of guidance for clinicians and laboratorians. MMWR 2013;62(18). https://www.cdc.gov/hepatitis/hcv/pdfs/hcv_flow.pdf Accessed 9/20/2021

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HCV Screening in Pregnancy and Children

The CDC and the American College of Obstetricians and Gynecologists recommend HCV screening for all pregnant patients during each pregnancy. From 2011 to 2014, approximately 29,000 HCV infected women gave birth each year. As HCV can be transmitted to the child during pregnancy and childbirth, early detection is key. Prenatal screening has increased the proportion of identified HCV infected infants from 44% to 92%. Currently, there are no treatments for HCV that are approved for use during pregnancy or while breastfeeding. In the postpartum period, HCV infection is not a contraindication to breastfeeding provided the nipples are not cracked or bleeding.[1]

Routine screening for children is not currently recommended, however children born to mothers with HCV are an at-risk population that should be tested as the rate of transmission is 5%. There is debate over the optimal time to test this population of patients. The strongest recommendation is to test with an antibody test at 18 months of age and then re-test at 3 years of age to assess if the infection has become chronic. 3 years of age is the youngest that medication therapy is approved for. If testing is going to be done prior to 18 months of age, then HCV RNA testing is preferred as maternal antibodies may persist until that age. In about 25% to 50% of infants, HCV infection is spontaneously resolved by their fourth year as a result of maternal antibodies. Misunderstandings centered around HCV transmission still exist and parental or caregiver education is recommended assuring them that HCV is not transmitted by casual contact and children with HCV infection do not pose a risk to other children. Children can engage in all regular curricular and academic activities. However, precautions must be followed at school and home for children with HCV infection to avoid blood exposure through sharing of toothbrushes, razors, nail clippers and using gloves when cleaning up blood.[3]

HCV Screening Among People who Inject Drugs

Annual HCV testing irrespective of past negative test results is recommended by the CDC. In addition, situational vulnerabilities for reinfection are high for this group and annual HCV RNA rather than antibody testing is recommended by the IDSA. Individuals who inject drugs are the most vulnerable for HCV infection in the United States and Europe. Intravenous drug use accounts for about 70% of HCV infections and this must be seen in conjunction with the rising tide of heroin use among all age groups and income levels. Regardless of the treatment setting, active or recent drug use or a concern for reinfection are not absolute contraindications for HCV therapy. In the event of reinfection, retreatment of the new infection must be as detailed as the initial treatment.[3]

HCV Screening Among men who have sex with men

Annual HCV testing for sexually active HIV infected MSM adolescents and adults and for patients receiving HIV pre-exposure prophylaxis is recommended. HCV antibody testing is the preferred screening test in most instances, however individuals in this population who had high-exposures can also be screened with alanine aminotransferase levels and HCV RNA for acute HCV infection. Sexual transmission of HCV is very low except in HIV-infected males who have unprotected sex with other males.[3]

HCV Screening Among Those with a History of Incarceration

Regardless of previous testing, a one-time screening with HCV antibody testing is recommended upon release from incarceration. There is a disproportionate presence of HCV infection in correctional settings that includes jails and prisons, with an HCV infection rate of 17.4% to 23.1% among incarcerated individuals when compared to HCV infection rate of 1.0% among the general population. Approximately 30% of HCV infected individuals in the United States can be traced back to spending time in a correctional institution. Finally, about 68% or an alarming 2 out of 3 prisoners are incarcerated again within 3 years of their release, making jails and prisons a hotbed for HCV infection. For those practicing in jails and prisons, consideration of opt-out HCV antibody testing is recommended.[3]

Incorporating Screening within Primary Care

Integrated routine HCV testing can increase linkage to care in the primary care setting. Testing in primary care setting offers many benefits including disclosure of test results by a known and trusted medical provider and integrated support services that help the patient transition into HCV treatment. Physicians can increase screening through customizing their clinic workflow, education, utilizing their EMR, and through offering testing at key patient visits. Most critical is the designation of a person to track patients who test positive to facilitate follow up whether at your office or with a specialist.

Clinic Workflow:

- The creation of a customized workflow map can improve HCV screening. An example that could be adopted into a primary care office could be as follows:
  - Nursing staff can determine eligibility of screening at initial patient intake
  - HCV testing is offered if patient meets criteria
  - If patient consents to testing, an EHR alert can be created and sent to the physician or the order can be pended for the clinician to sign
  - Discharge nurse/staff can send the patient for blood draw
  - If lab tests are not completed, the medical office assistant/ nurse can place a reminder call to the patient or send a message via EMR
  - Results are reviewed via EHR and patients are notified. A subsequent follow up is scheduled to discuss treatment options

Considerations to Increase HCV Testing Using the EMR:

- Create an automated EMR alert to remind physician to perform HCV screening
- Include provider prompts in the note template used in clinic for annual and new patient visits

- Include or update the health maintenance section of the EMR to include HCV screening as part of the health maintenance prompts available in the EMR. This would not depend on the note template the physician chooses to use
- Construct scripted text into the institutional EMR to help guide physicians in counseling patients about the importance of HCV testing and the reason behind the new recommendations. This could also be inserted into patient instructions
- Send electronic alerts to patients who meet criteria for testing via EMR

Education:

- Provide educational sessions for the health care team
- Place patient education posters in waiting rooms, exam rooms, and discharge areas in the clinic. Provide brochures to the patients about HCV testing and possible complications of untreated chronic HCV infection. Materials can be found at: https://www.cdc.gov/hepatitis/hcv/patienteduhcv.htm

Patient Visits:

- Order HCV testing as part of routine wellness blood work
- Offer automatic HCV testing as part of the initial visit for patients starting PrEP
- Offer automatic HCV testing to buprenorphine and methadone patients as part of initial intake process
- Offer automatic HCV testing in the initial prenatal visit

Treatment Considerations

Except those who have a short life expectancy and for whom HCV therapy is not likely to bring a positive prognosis, all patients with acute or chronic HCV infection are recommended for treatment. Uncomplicated HCV can be successfully treated in the primary care office and more complicated cases including those with cirrhosis can be referred to gastroenterology or infectious disease. Treatment should be initiated with the goal of a sustained virological response (SVR) that will reduce adverse consequences and liver-related conditions. SVR is the continued absence of detectable HCV RNA for at least 12 weeks after the conclusion of therapy and has been validated as a mark of virologic durability based on virologic studies. SVR has also been associated with a more than 70% reduction in liver cancer risk and a 90% reduction in liver transplantation and liver-mortality related risks. HCV infection when cured also leads to a reduction in severe extrahepatic manifestations, including cryoglobulinemic vasculitis which affects about 10%-15% of all patients infected with HCV.[3]

Once a diagnosis of active HCV is confirmed, non-invasive diagnostic tests can be performed to assess for the extent of hepatic disease or cirrhosis. This type of testing is preferred to liver biopsy testing. Examples of testing include transient elastography and serologic tests including FibroSure and the Enhanced Liver Fibrosis Test. The presence or absence of cirrhosis dictates the treatment pathway to be followed.

A simplified HCV treatment protocol for treatment-naive adults has been developed for use in a primary care setting and classifies patients among two categories mainly: those with no cirrhosis and those with compensated cirrhosis. There are also specific treatment regimens for those with decompensated cirrhosis which are arguably best managed by a specialist. See figure 4 for a summary of the treatment algorithm. The full pathway is available at hcvguidelines.org. Note that no regimens are currently approved for use during pregnancy or breastfeeding.

Six genotypes of hepatitis C have been identified worldwide, with genotypes 1-3 common in the United States. Historically, genotype specific treatment protocols were needed due to the types of treatments available. With the development of pangenotypic HCV treatment regimens, treatment-naive patients without cirrhosis are no longer required to undergo genotype testing as part of pretreatment procedures. Patients who have cirrhosis or a history of unsuccessful HCV treatment are recommended to undergo genotype testing to direct therapy, as alternate agents are often used.

For patients who are treatment-naive and have no evidence indicative of cirrhosis, pangenotypic treatment regimens can be initiated. The two recommended treatment options are Glecaprevir (300 mg) / Pibrentasvir (120 mg) taken with food for 8 weeks and Sofosbuvir (400 mg) / Velpatasvir (100 mg) for 12 weeks.

For patients with compensated cirrhosis, genotype testing must be done prior to initiating treatment. For genotypes 1-6, Glecaprevir (300 mg) or Pibrentasvir (120 mg) for a duration of 8 weeks and for patients with genotypes except 3, Sofosbuvir (400 mg) or Velpatasvir (100 mg) for a duration of 12 weeks are the recommended regimen. For patients with genotype 3, baseline NSSA resistance-associated substitution (RAS) testing is required and those without Y93H can be treated with Sofosbuvir/Velpatasvir for 12 weeks.

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Figure 4: *Summary of Treatment Algorithm from the Infectious Disease Society of America and American Association for the Study of Liver Diseases*

	Treatment-Naive adults without cirrhosis[3]	Treatment-Naive adults with compensated cirrhosis[3]
Pre- treatment assessment	• Medication reconciliation • Potential drug-drug interaction • Education • Labs: CBC, LFTs, GFR, HIV, Hep B surface antigen, HCV viral load, serum pregnancy test	• Medication reconciliation • Potential drug- drug interaction • Education • Labs: CBC, LFTs, GFR, HIV, Hep B surface antigen, HCV viral load, serum pregnancy test • HCV genotype • Ultrasound of the liver
Recommended Regimens	• Glecaprevir (300 mg)/ Pibrentasvir (120 mg) X 8 weeks OR • Sofosbuvir (400 mg)/ Velpatasvir (100 mg) X 12 weeks	• Glecaprevir (300 mg)/ Pibrentasvir (120 mg) X 8 weeks OR • Sofosbuvir (400 mg)/ Velpatasvir (100 mg) X 12 weeks
Intra-treatment monitoring	• Telehealth appointment as needed • No labs	• LFTs to monitor liver • Telehealth appointment as needed
Post-treatment assessment of cure (SVR)	• HCV RNA viral load and LFT's 12 weeks after medication completion	• HCV RNA viral load and LFT's 12 weeks after medication completion
Follow-up after achieving SVR	• Liver-related follow-up not recommended unless there are ongoing risk factors (ex IVDU, MSM with ongoing unprotected sex)	• Ultrasound surveillance for HCC q6 months • EGD surveillance for esophageal varices • If ongoing risk factors, HCV RNA viral load annually
Follow -up for a patient not achieving SVR	• Specialist referral • LFT, CBC, INR every 6-12 months until seen by specialist	• Specialist referral • LFT, CBC, INR every 6-12 months until seen by specialist • Ultrasound every 6 months

Based from: AASLD-IDSA. Recommendations for testing, managing, and treating hepatitis C. Http://www.hcvguidelines.org. [Accessed August 4, 2021].

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Screening: A Brief History

By Thomas C. Rosenthal, MD

After practically inventing affordable life and health insurance programs for their members, the Odd Fellows and their sisters in the Daughters of Rebekah became the largest social order in the United States by the 1840s. Consistent with their mission to "visit the sick, relieve the distressed, bury the dead, and educate the orphan," the Odd Fellows were the first to ask doctors to evaluate asymptomatic patients, judge intemperate habits, record dangerous employment and render a prediction about future health. Their direct payments to doctors not only confounded the physician/patient relationship, it changed medical practice forever.

Initially the Odd Fellows used English actuarial records to calculate premiums, but losses soon forced them to concede that life expectancy in the United States was shorter than England's. The marvelously rugged American was a myth.

As commercial insurers entered the market, the Atlantic Mutual Life Insurance Company offered lower premiums to patients who consulted doctors using cheap dilute homeopathic remedies. The Odd Fellows chose to team with the American Medical Association to promote public health, sanitation, population registration systems, and stricter physician licensing. In 1880 the Mutual Life Insurance Company of New York bragged that they had amassed more life and death data than anyone in America. By 1900, the medical departments of life insurance companies in New York reported that of 71,729 urine glucose tests performed, 2.8% of revealed glycosuria.[1,2]

During the nineteenth century declining costs of paper and printing inspired a market for magazines, newspapers and medical journals. Austin Flint's 1879 textbook: *Clinical Medicine: A Systematic Treatise on the Diagnosis and Treatment of Diseases*, sold tens of thousands of copies worldwide, surpassed by William Osler's 1892 textbook: *The Principles and Practice of Medicine; Designed for the Use of Practitioners and Students of Medicine*. Neither author mentions screening asymptomatic patients.

Perhaps the first formal screening program was the 1917 United States Army mental health test of new recruits designed to eliminate men whose 'defective intelligence' would make them prone to 'shell shock.' Subjects testing positive underwent a detailed psychological examination and, of those screened, 0.5% were discharged. The WWI Army was also the first to widely employ the Wassermann test for syphilis using antigen extracted from the liver of newborns who died of congenital syphilis. Then, in 1943 the Papanicolaou ("Pap") smear was marketed to screen for cervical cancer, the most frequent malignancy in women at that time.[3]

Still, in 1975 no scientific framework for periodic health screening existed. Two Hunterton family medicine residents, Paul Frame and Stephen Carlson pioneered six basic criteria for screening asymptomatic adults in a landmark literature review that organized primary care's obligation to recognize risk and prevent

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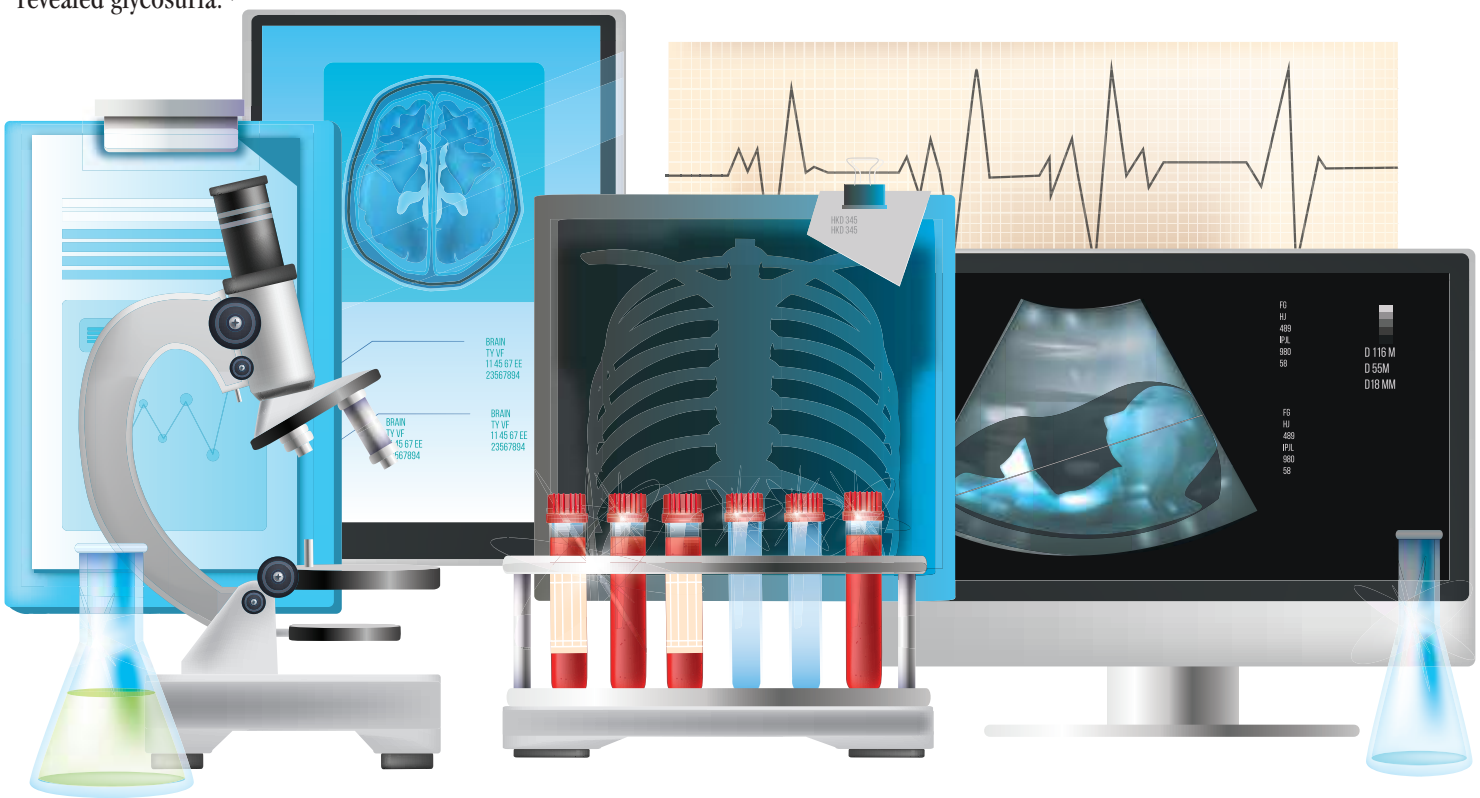

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illness. Their criteria: 1. The disease must have a significant effect on quality or quantity of life; 2. Acceptable methods of treatment must be available; 3. The disease must have an asymptomatic period during which detection and treatment significantly reduces morbidity and mortality; 4. Treatment in the asymptomatic phase must yield a therapeutic result superior to that obtained by delaying treatment until symptoms appear; 5. Tests must be available at reasonable cost to detect the condition in the asymptomatic period; and 6. The incidence of the disease must be sufficient to justify the cost of screening. Their original series examined 36 diseases and recommended screening for smoking, hypertension, rheumatic heart disease, tuberculosis, hypercholesterolemia, obesity, colon cancer, syphilis, cervical cancer, breast cancer, glaucoma, and alcoholism.[4-7]

Since the 1840s, *Popular Science Monthly* and *Scientific American* published medical reports written in collaboration with scientists. Even literary magazines like the *Atlantic Monthly, Harper's Magazine, The Nation*, and the *North American Review* dedicated print space to evolving medical theories and Darwin's 1859 *Origin of the Species* was better reviewed in lay magazines than in medical journals.

It was this lay literature that broke ground on issues of staying well. Serialized in several magazines and published in book form, Mrs. Beeton's *Book of Household Management* was available between 1860 and 1907. Mrs. Beeton's book reveals how much was understood 150 years ago. Modern tomes would applaud her recommendations for avoiding sun exposure with a large brimmed hat. Proponents of physical fitness would embrace her prescription that women walk 3-4 miles a day and men up to 8 miles, and we still agree about the importance of 6-8 hours of sleep. Beeton included recipes that called for preventing scurvy and rickets in a varied diet with adequate vegetable intake.

It is humbling to realize how notions of health and wellness have changed little in the last 200 years. What we can say is that science has given today's physician greater confidence when recommending screening for some diseases based on treatments that did not exist when Frame and Carlson were publishing their research. Recent reviews of Osler's textbook find his clinical and pathological descriptions about the natural history of disease to be little changed. It is our understanding of etiology and remedies that have changed the most.

We stand on the shoulders of giants. This issue of Family Doctor takes another step beyond simply chasing disease to selectively screening for risk and encouraging lifestyles that support health and longevity.

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Lung Cancer Screening
Recommendation Updates

By Jiana Menendez, MD, MPH

Lung cancer has the highest mortality of any cancer in the United States, and is responsible for more deaths annually than colon, breast, and cervical cancers combined. The United States Preventative Services Task Force (USPSTF) recommended routine screening for lung cancer with low-dose computed tomography (LDCT) in 2013, but many other medical organizations including the American Academy of Family Physicians (AAFP) found insufficient evidence at that time. Updated research over the last decade has led the USPSTF to expand lung cancer screening eligibility criteria in their 2021 update. Additionally, the AAFP has updated their guidelines to support the USPSTF annual lung cancer screening recommendation for the first time. This article reviews lung cancer screening evidence and updated practice guidelines, as well as providing tips for practice integration.

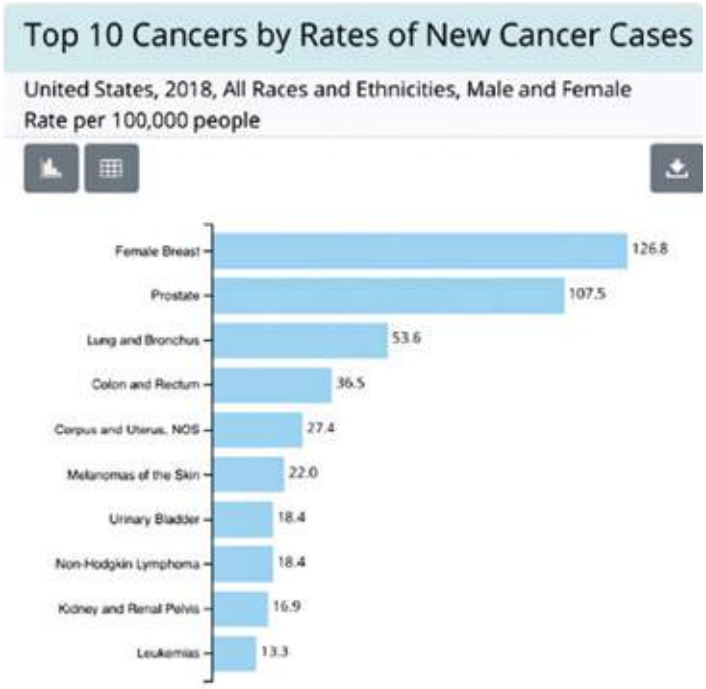
Tobacco Use and Lung Cancer Background

In 2019, 14.0% of US adults were current cigarette smokers. Although smoking is on the decline in both men and women, it is still a leading cause of morbidity and mortality in the United States. Each year, smoking causes more than 480,000 deaths in the US.[1] Smokers are at increased risk of developing a wide variety of diseases, including heart disease, stroke, and many types of cancer, particularly lung cancer.

Tobacco use is significantly higher in men than women. Other risk factors for tobacco use, include those in lower socioeconomic groups, people with lower education levels, those living below the poverty level, uninsured and Medicaid patients, people belonging to racial or ethnic minority groups, and those who identify as LGBTQ.[1] Like many environmental risks, tobacco use is a health-disparities issue. Studies show that tobacco uptake is both higher in lower socioeconomic groups and quit rates less successful.[2]

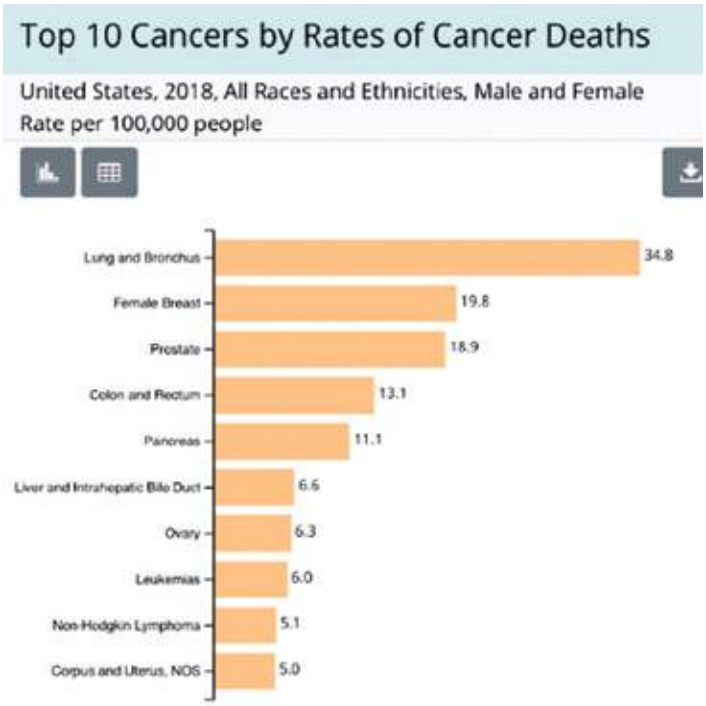
Tobacco use is the most significant risk factor for the development of lung cancer, and accounts for approximately 90% of all lung cancer deaths.[1] Lung cancer is the leading cause of cancer death worldwide, accounting for 18.4% of all cancer deaths globally.[4] In the United States, lung cancer is the third most common cancer by incidence (Graph 1),[5] but it has the highest cancer mortality rate at 34.8 per 100,000 people annually (Graph 2).[5] This means that more people die from lung cancer than breast, colon, and cervical cancers combined – all cancers that have robust population-based screening programs.[4]

Graph 1. *US cancer incidence*



Centers for Disease Control, United States Cancer Statistics, 2018.

Graph 2. *US cancer mortality*



Centers for Disease Control, United States Cancer Statistics, 2018.

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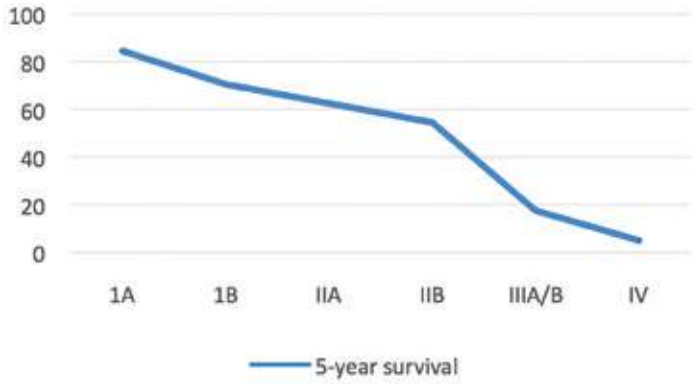
Disparities in tobacco use directly translate into disparities in lung cancer. This is particularly significant in marginalized communities. For example, Black men have a lung cancer incidence of 85.4 per 100,000, compared to 74.3 per 100,000 white men. Black men also have a higher 5-year mortality than their white counterparts.[2] The reasons for this are complex. Lung cancer incidence is higher in menthol cigarette smokers, for example, which are disproportionately advertised to Black communities and Black youth by tobacco companies.[3] When looking at disparities by socioeconomic class broadly, poorer US counties have a 28% high overall lung cancer mortality rate when compared to affluent counties.[2]

The 5-year survival rate for lung cancer is low. Small cell lung cancer (SCLC) has a 5-year survival of only 6% and non-small cell lung cancer (NSCLC) somewhat higher at 23%. NSCLC accounts for a little more than 80% of all lung cancers.[2] The major factor in the poor prognosis for NSCLC is the stage at diagnosis. People diagnosed with NSCLC at stage 1 have a 68-92% 5-year survival (Graph 3). Most people are diagnosed with lung cancer after they have developed symptoms, which means they are at stage 3 or beyond where the survival rate drops to less than 15%.[6] Lung cancer screening programs have the potential to improve lung cancer mortality by catching lung cancers in earlier, more treatable stages.

Graph 3. *NSCLC 5-year survival by stage at diagnosis*



Lung cancer: current therapies and new targeted treatments, *Lancet*, 2017.

Lung Cancer Screening Background and Evidence

Currently, lung cancer screening with low-dose computed tomography (LDCT) is recommended yearly for adults aged 50 to 80 years who have a 20 pack-year history and currently smoke or have quit within the past 15 years. This is based on the National Lung Screening Trial (NLST), as well as numerous subsequent studies over the past decade that confirmed and expanded on these findings.[7] This section will review the original recommendation and the evidence for the 2021 screening guideline update.

In 2011 the NLST published their initial findings showing that annual screening for lung cancer with LDCT compared to chest x-ray (CXR) reduced the mortality from lung cancer by 20%. This randomized-controlled trial had over 50,000 participants across 33 US medical centers.[7] Unfortunately, LDCT did not detect SCLC and all reduction in mortality was from detection of NSCLC. Despite only being a single study, the USPSTF determined in 2013 their findings were robust enough to recommend annual lung cancer screening with LDCT for all current or former smokers, aged 55-74 years old with a 30-pack year history and, where applicable, had quit in the last 15 years.[8] Many other medical organizations in the US and overseas were slower to recommend lung cancer screening due to numerous concerns regarding the NLST study, including the AAFP, which found insufficient evidence to recommend LDCT at that time.[9]

A major concern with the initial study was the high rate of false-positive imaging results. Approximately a quarter of all images collected over the course of the 3-year study period were considered positive. In total 96.4% of participants in the LDCT group had a positive image at some point that resulted in additional imaging or a procedural intervention, such as biopsy.[8] During the initial study, there was no standardized way to interpret the LDCT images, and follow-up recommendations for imaging findings were left to the discretion of the individual radiologists. Since that time, however, new standardized guidelines similar to the Bi-Rads system for interpretation of mammography, have been developed. The Lung-Rads system classifies LDCT images from 0 to 4x, with defined follow-up (Table 1).[10, 11]

Table 1. *Lung-Rads classification and recommended follow-up*

0	Incompleted, LDCT needs to be repeated
1	Normal, continue routine annual screening as indicated
2	Benign findings, continue routine annual screening as indicated
3	6mo follow-up LDCT, if unchanged or smaller return to normal screening
4a	3mo follow-up LDCT, if unchanged or smaller 6-9mo follow-up LDCT; if unchanged or smaller return to normal screening OR combination PET/CT
4b	Combination PET/CT and/or tissue sampling
4x	Specific follow-up recommendations depending on findings

The 10 Pillar of Lung Cancer Screening: Rationale and Logistics of a Lung Cancer Screening Program, *RadioGraphics*, 2015.

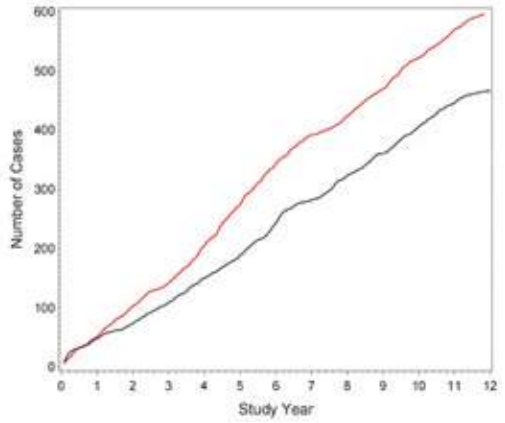
Applying Lung-Rads criteria to the original NLST data reduced the false-positive images from 26.6% to 12.8%, with most findings only requiring a closer LDCT interval.[6] Subsequent studies using LDCT for lung cancer screening have shown significantly lower false positive rates. For example, the Nederlands-Leuven Longkanker Screenings ONderzoek (NELSON) trial is a randomized-controlled trial in community settings in the Netherlands with over 15,000 participants aged 50 to 74 years old with a 15 pack-year history who currently smoked or quit within the last 10 years. Using Lung-Rads, only 2.1% of images had findings that required invasive follow-up. Of those biopsies, 43.5% were diagnosed with lung cancer, therefore only 1.2% of participants in the study had a false-positive that led to an intervention. This study showed a 24% reduced mortality from lung cancer, an improvement over the NLST findings.[4]

Another concern with the initial NLST was the ability to replicate the mortality benefit in other settings. Numerous studies since that time have found similar results.[2,4,12,13,14] The Multicenter Italian Lung Detection Intervention (MILD) trial included over 10,000 participants 49 to 75 years old with 20 pack-year history who were current smokers or quit

within the last 10 years, and showed a 39% reduced mortality from lung cancer at 10 years.[13] The German Lung Cancer Screening Intervention (LUSI) trial included over 4000 participants ages 50 to 69 years old with at least a 15 pack-year history who currently smoked or had quit within the past 10 years. LUSI found a 26% reduction in mortality.[14] These studies are also notable for varied inclusion criteria compared to the initial NLST, including a wider age range and shorter required smoking history. They were also conducted in varied settings compared to the NLST.[12]

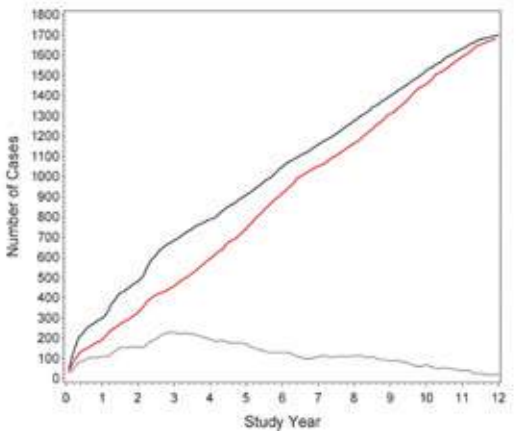
Initial critiques to the NLST also voiced a concern for over-diagnosis of lung cancers in the LDCT group that would not have become clinically relevant due to a much higher rate of lung cancer diagnoses in the LDCT group compared to the CXR group. The NLST continued their study through 2015 and they found sustained mortality benefit (Graph 4) and a "catch-up" in lung cancer diagnoses in the CXR group. After 12 years the incidence of lung cancer in the two groups was nearly identical (Graph 5). The statistical analysis determined the number needed to screen to prevent 1 death from lung cancer is 303.[15] This is significantly lower than breast and colon cancers, with number needed to screen of 781 and 1250 respectively.[16]

Graph 4. *Lung cancer mortality by year in LDCT (black) compared to CXR (red) in NLST*



National Lung Screening Trial, 2018.

Graph 5. *Lung cancer incidence by year in LDCT (black compared to CXR (red) in NLST*



National Lung Screening Trial, 2018.

Lung Cancer Screening Guideline Updates

The USPSTF re-evaluated the evidence for lung cancer screening and issued a new recommendation in March of 2021 with expanded inclusion criteria based on current research. The B level recommendation now endorses annual LDCT for lung cancer screening in adults aged 50 to 80 years old, who have a 20 pack-year smoking history, who currently smoke or have quit in the last 15 years.[8] The AAFP has also updated their recommendation on lung cancer screening in support of the USPSTF recommendation for annual LDCT as of April 2021 (Table 2).[9]

Table 2. *USPSTF Lung Cancer Screening, Final Recommendation Statement*

Population	Recommendation	Grade
Adults aged 50 to 80 years who have a 20 pack-year smoking history and currently smoke or have quit within the past 15 years	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 50 to 80 years who have a 20 pack-year history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	B

United States Preventative Task Force, Lung Cancer Screening, 2021.

Decreasing tobacco use uptake and increasing tobacco cessation remain the most important methods for prevention of lung cancer in our patients and communities. This does not diminish the importance of robust lung cancer screening programs for early detection of lung cancer in people at already elevated risk. Tobacco cessation counseling is the cornerstone of counseling when discussing LDCT with current smokers.

It is particularly important that family medicine physicians incorporate lung cancer screening into their practice because of the wide variety of patients and communities we care for throughout New York and the United States. Lung cancer screening can benefit so many of our patients and as family physicians we are in a position to reach those who could benefit from screening and early treatment as warranted. Family medicine physicians are also in a position to use evidence-based medicine to reduce health disparities, like those that exist for lung cancer mortality.

Practice Implementation Considerations

LDCT for lung cancer screening is required to be covered by all insurance companies under the Affordable Care Act, which requires coverage of all evidence-based services with a level "A" or "B" recommendation from the USPSTF.[17] It is important that the correct diagnosis codes are utilized while ordering (Table 3).

Table 3. *Lung cancer screening ICD-10 diagnosis codes*

Z12.2	Encounter for screening for malignant neoplasm of respiratory organs
F17.210	Nicotine dependence, cigarettes, uncomplicated
Z87.891	Personal history of nicotine dependence

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In order for LDCT to be covered for patients with Medicaid, Medicare, and certain private insurances, documentation of shared decision making is required. It is important that we perform shared decision making whenever making medical decisions with our patients, but this documentation requirement can be overlooked and lead to delays or denials in insurance coverage for LDCT (Table 4). A 25 modifier can be added to a visit evaluation and management (E&M) billing code to capture the time spent on counseling for shared decision making during a visit.

Additionally, documentation of tobacco cessation counseling is required by many insurance companies when ordering LDCT for current tobacco smokers (Table 4). A 25 modifier can also be added to the E&M billing code for tobacco cessation counseling.

Table 4. *Lung cancer screening CPT order codes*

99406	Smoking and tobacco cessation counseling visit; intermediate, greater than 3 minutes up to 10 minutes
99407	Smoking and tobacco cessation counseling visit; intensive, greater than 10 minutes
G0296	Counseling visit to discuss need for lung cancer screening (LDCT) using low dose CT scan (service is for eligibility determination and shared decision making)
G0297	Low dose CT scan (LDCT) for lung cancer screening

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Screening for Substance Use Disorders and Mental Health Disorders

By Jonathan Brach, DO and Elizabeth Loomis, MD

Introduction

Substance use disorders (SUD) and mental health disorders continue to be major health concerns in the United States. In 2019, among people age 12 or older, 60% reported using a potentially addictive substance in the past month and over 20.4 million people met criteria for substance use disorder.[1] Additionally, the percentage of adults age 18 and over in 2019 with regular feelings related to anxiety and depression were 11.2% and 4.7% respectively.[2] Full understanding of the effects of the COVID 19 pandemic on mental health and SUD is still to come, though initial trends show higher than typical rates of worse mental health outcomes, increased substance use and elevated suicidal ideation.[3] We also know that SUD and mental health disorders are intricately tied to social determinants of health. Social factors such as un- or underemployment, lack of higher education, and incarceration have fueled the opioid overdose epidemic.[4,5] Among adverse childhood experiences (ACEs) known to influence lifelong health and wellbeing, experiences related to SUD and mental health disorders feature prominently.[6] Given this extensive data around high prevalence and negative impact, multiple guidelines emphasize the importance of identification of these health disorders by the primary care clinician.

Substance Use Disorder Screening

Screening, Brief Intervention and Referral to Treatment (SBIRT) forms the backbone to most approaches of assessing for a SUD. Using this approach in primary care is effective and should guide implementation policies in the family doctor's office.[7] With SBIRT, screening starts the process by using a standardized tool to assess for possible SUD. If a SUD is suspected, then a brief intervention would be done to provide feedback, motivation and advice to the patient regarding substance use, followed by a referral to treatment when appropriate and the patient is willing.

The United States Preventive Services Task Force (USPSTF) recommends routine SBIRT to reduce alcohol misuse by adults including pregnant women in primary care settings as well as tobacco cessation interventions for all tobacco users.[8] The National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA) also recommend routine SBIRT for alcohol, tobacco and drug use in adults and adolescents in primary care and mental health settings. Furthermore, Medicare reimburses for SBIRT services done in the primary care setting using time-based coding.

Various tools exist for SUD screening, which can be easily used in the outpatient setting. Among the screens, the NIDA Quick Screen is available online and starts with a single question about any use of alcohol, tobacco, prescription drugs for non-medical reasons and illegal drugs in the past year.[9] Any positive response will trigger further questions on lifetime use, quantification of use and negative consequences of use. The Opioid Risk Tool was designed to be used prior to the initiation of opioid therapy for pain or for patients on chronic opioids to detect future risk of opioid use disorder.[10] The Drug Abuse Screen Test (DAST) and shorter 10 item DAST-10 can be used in both adolescents and adults to assess for risk of SUD outside of alcohol and tobacco use.[11] The DAST-10 specifically is designed to take less than 5 minutes to administer. The CAGE screening tool includes four questions to assess for alcohol use disorder while the CAGE-AID (Adapted to Include Drug Use) includes four questions for both alcohol and substance use.[12]

For alcohol use disorder specifically, the World Health Organization developed the Alcohol Use Disorders Identification Test (AUDIT).[13] The AUDIT-C is a shortened version comprised of three questions: How often do you have a drink containing alcohol?; How many standard drinks do you have on a typical day when you are drinking?; How often do you have six or more standard drinks on one occasion?. AUDIT screens have been tested extensively in various cultural and socioeconomic contexts and continue to retain high sensitivity.[14,15]

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Mental Health Disorder Screening

Similar to substance use disorder screening, several recommendations and screening tools are at the family doctor's disposal when it comes to mental health disorder screening. The USPSTF also recommends that all adolescents aged 12-18 and all adults be screened for depression with appropriate follow-up by a primary care physician or another appropriate provider.[8] Since 2010, the American Academy of Pediatrics (AAP) has also been advocating for clinicians to screen for postpartum depression at well-child visits.[16] This advocacy has led to a majority of US states allowing for Medicaid reimbursement for maternal depression screening at well-child visits.[17] No specialty is better suited to take on this role than family medicine.

Various tools exist for mental health disorder screening to be easily utilized in the outpatient setting. Among the most commonly recognized mental health screening tools are the Patient Health Questionnaires (PHQ). A group of university researchers developed the PHQs in the mid-1990s for use in adults.[18] More recent studies also support the use of the questionnaires in adolescent patients.[19] The PHQ include the PHQ-9 which assesses for depression, the PHQ-15 which screens for somatoform disorders, and the GAD-7 which evaluates for anxiety disorders. A positive screen on any of these questionnaires alerts clinicians to further inquire about the relevant mental health disorder and implement appropriate pharmacological and/or non-pharmacological management, if applicable. In addition, it is possible to bundle screenings into an ultra-short tool. The PHQ-4 incorporates elements of both the PHQ-9 and GAD-7 and has been found to have both excellent reliability and validity.[20] For family doctors with a busy clinical practice, the PHQ-4 can be an effective tool to screen for anxiety and depression in their patients.

Incorporating it all into a Practice

Primary care clinicians are on the frontlines of caring for all patients, including those with substance use and mental health disorders during the ongoing global pandemic. Anecdotally, clinicians struggle at times to determine which intervention is appropriate when a patient screens positive for a disorder. That combined with the fact that patients are often at the office for an unrelated reason can make treating these disorders challenging. We encourage you not to feel overwhelmed, but to choose what works for you, taking into consideration the population your practice serves.[21] Clinicians should also utilize their full medical teams when screening for and treating these disorders.[22,23] Examples of this include utilizing rooming staff to administer screens and developing referral protocols with social work. In the context of social determinants of health, as family physicians we should utilize a whole-person approach whenever we care for patients. By encouraging patients to be open about substance use, mental health, and the other challenges they are facing in their lives, we can do a better job of caring for our communities.

Links for SUD and Mental Health Disorder Screening Tools

NIDA quick screen	https://archives.drugabuse.gov/nmassist/ https://www.drugabuse.gov/sites/default/files/pdf/nmassist.pdf	Electronic form PDF
Opioid Risk Tool	https://www.mdcalc.com/opioid-risk-tool-ort-narcotic-abuse https://www.drugabuse.gov/sites/default/files/opioidrisktool.pdf	Electronic form PDF
DAST	http://www.sbirtoregon.org/wp-content/uploads/DAST-English-pdf.pdf	PDF
DAST 10	https://cde.drugabuse.gov/sites/nida_cde/files/DrugAbuseScreeningTest_2014Mar24.pdf	PDF
CAGE	https://www.mdcalc.com/cage-questions-alcohol-use	Electronic form
CAGE and CAGE AID	https://www.hopkinsmedicine.org/johns_hopkins_healthcare/downloads/all_plans/CAGE%20Substance%20Screening%20Tool.pdf	PDF
AUDIT	https://auditscreen.org/check-your-drinking/ https://auditscreen.org/translations/	Electronic form PDF and official translations
AUDIT C	https://www.mdcalc.com/audit-c-alcohol-use https://cde.drugabuse.gov/sites/nida_cde/files/Audit-C_2014Mar24.pdf	Electronic form PDF
PHQ-2	https://reference.medscape.com/calculator/458/patient-health-questionnaire-2-phq-2	Electronic form
PHQ-4	https://reference.medscape.com/calculator/476/patient-health-questionnaire-4-phq-4 https://www.oregonpainguidance.org/app/content/uploads/2016/05/PHQ-4.pdf	Electronic form PDF
PHQ-9	https://www.mdcalc.com/phq-9-patient-health-questionnaire-9 https://www.apa.org/depression-guideline/patient-health-questionnaire.pdf	Electronic form PDF
PHQ-15	https://reference.medscape.com/calculator/460/patient-health-questionnaire-15-phq-15 https://www.psychiatry.org/File%20Library/Psychiatrists/Practice/DSM/APA_DSM5_Level-2-Somatic-Symptom-Adult.pdf	Electronic form PDF
GAD-7	https://www.mdcalc.com/gad-7-general-anxiety-disorder-7 https://adaa.org/sites/default/files/GAD-7_Anxiety-updated_0.pdf	Electronic form PDF

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The 4th Trimester Model:
A New Approach to Improving Perinatal Care

By Amundam Mancho, MPH; Sara Peterson, BS; Lauren Cowen, MD; Alexandria Snow, MD; Rachel Bian, MD; Elizabeth Brown, MD; Dawn Pruett, MD and Scott Hartman, MD

Background and Significance

Many efforts aimed at improving maternal and child health in the United States have thus far targeted the prenatal period. Unfortunately, 754 women die each year because of pregnancy-related problems and 24,000 infants do not live to their first birthday.[1,2] This statistic is further exacerbated by racial inequities as pregnancy-related deaths per 100,000 live births for Black and American Indian or Alaska Native birthing persons older than 30, occur four to five times more frequently compared to white individuals.[3] Gaps in health care coverage and preventive care, lack of coordinated health care, and social services are systemic factors that contribute to pregnancy-related deaths. Most birthing persons in the United States do not have health care appointments scheduled for themselves until 6 weeks postpartum; even then, the visits are poorly attended and do not adequately address maternal concerns. The lack of timely and patient-focused postpartum medical care is problematic, especially for those with limited resources or social support. Screening and appropriate intervention for postpartum depressive symptoms at the 2-week postpartum interval has shown some success at targeting health disparities among Black and Latinx birthing persons.[7]

To promote better outcomes, it is apparent that birthing persons should begin preparing for pregnancy before conception,[8] given approximately 45% of pregnancies in the United States are unplanned.[9] Therefore, many do not get the chance to obtain this preconception care which could have facilitated behavior change early enough to significantly impact birth outcomes and improve overall maternal and child health.[8,10,11] It is apparent that a better model of care is needed to reach more patients and improve perinatal outcomes.

Interconception care (ICC) is care that is provided during the time-period between births.[12] This type of care has been recommended by the CDC Work Group and Select Panel on Preconception Care in 2006 and involves assessing patients' health status and modifying risk behaviors to optimize subsequent pregnancies.[13,14,15] The ICC model as implemented within the IMPLICIT Network (Interventions to Minimize Preterm and Low birth weight Infants using Continuing quality Improvement Techniques) specifically focuses on postpartum depression screening and treatment, contraception care, smoking and folic acid. This model is being actively implemented at 29 sites spanning several states in the IMPLICIT Network. Many of the sites are implementing this model within family medicine practices, but several sites have expanded the model to pediatricians.

The IMPLICIT Network has now developed the ***4th Trimester Project*** to further address perinatal outcomes and gaps in care. When looking at the Rochester data, 88% of white patients establish early prenatal care, compared to 69% of Black or and 71% of Latinx patients, according to the New York State Department of Health.[16] Innovative delivery of care models in the preconception, pregnancy, and postpartum periods can be utilized in their ability to potentially reduce disparities. Both the WHO and ACOG recommend that clinicians evaluate newly delivered patients earlier than the traditional 6-week postpartum visit.[4,5] While the 6-week postpartum visit seeks to address such domains such as postpartum depression, breastfeeding, and postpartum birth planning and contraception, new parents typically encounter these issues within the first 3-weeks after delivery.[6]

Methodology

The Model:

Our pilot of ***4th Trimester Care*** began in July 2020 and ran through July 2021, for patients at select University of Rochester family medicine practices. We initially started at Highland Family Medicine, an outpatient residency site that serves over 25,000 patients from over 7,000 families, coming from diverse neighborhoods throughout Rochester representing a spectrum of age, races, and socioeconomic backgrounds, including refugees. We then expanded to Brown Square Health Center, a residency site serving patients from some of the poorest neighborhoods in Rochester which has a specific subdivision of providers and staff that work with refugees, known as the "refugee team." We expanded this model to North Ponds Family Medicine in early 2021, a practice in a nearby suburb. Physicians at all three practices offer perinatal care. Overall, 70% of the maternity care patient population of these practices identifies as Black, 10% as Asian American/Pacific Islander and 20% as Latinx.

At the time of discharge, care coordinators schedule all postpartum patients for the standard six-week postpartum visit, as well as the new "4th Trimester Early New Parent" visit for the birther-infant dyad approximately two weeks from delivery. At this visit, providers address commonly identified areas in maternal postpartum care with suboptimal outcomes (Figure 1); using a specific two-week postpartum template in the electronic medical record to standardize visits.

Figure 1: *Key Assessment Areas for the 4th Trimester Visit*

4th Trimester Visit	
Contraception	**Tier 1:** IUD, Nexplanon **Tier 2:** Permanent Sterilization **Tier 3:** Depo, pills, patch, ring, diaphragm **Tier 4:** Barrier, Withdrawal, Sponge, Fertility Awareness **N/A:** Visit not done
Feeding Method	Breast, Formula, or Both
Depression Screening	Positive/Negative Screen (PHQ2/9) Recommended/Receiving Treatment?
Touchpoint for patients with healthcare providers Compare attendance vs 6wk postpartum visit	

The 4th Trimester visit allows providers to evaluate patients earlier, with intentions to screen, identify and intervene on potential medical and psychosocial complications. For example, the routine office visit could reveal medical complications such as gestational hypertension, postpartum pre-eclampsia, or thromboembolism based on clinical signs such as elevated blood pressures or tachycardia. Other complications such as incision concerns following cesarean delivery, or mastitis, may be addressed as well. These visits serve as extra touchpoints for areas of suboptimal postpartum outcomes. For example, for a patient undecided on or not using postpartum contraception methods, this visit provides an additional chance for contraceptive counseling and potential implementation. If patients remain undecided, the scheduled six-week postpartum visit offers an additional opportunity. Regarding feeding, this new visit allows birthers who had intended to breastfeed, but may be struggling, to connect with additional services such as lactation consultation. Finally, we routinely perform depression screening at our two-week postpartum visits via PHQ-2/9, a standardized questionnaire sensitive to detecting postpartum depression. Those screening positive on the PHQ2 are further assessed via PHQ-9. Birthing persons with positive screening can be further assessed, ensuring there are no acute safety concerns for the patient and their family, and potentially be started on medications and/or referred for therapy.

The Study:

We performed chart reviews within the medical record of 178 patients at their prenatal, hospital, 4th Trimester, and six-week postpartum visits to collect data for each of our primary outcomes. Using this model, we stratified contraceptive options by "tiers." Tier 1 includes long-acting reversible contraceptive (LARC) options such as intrauterine devices and implants; Tier 2 represents permanent sterilization; Tier 3 includes injections, oral contraceptive pills, patches, rings, and diaphragms; and Tier 4 includes options such as barrier, withdrawal, sponges and fertility awareness. Patients with same sex partners are coded outside of the tier system as non-applicable. Collecting this data allows us to compare intended and actual contraceptive methods of each birther.

We also collected data on infant feeding method, specifically assessing whether the birther was breastfeeding, bottle feeding with formula, or using both feeding routes. Any amount of breastfeeding was considered breastfeeding in our data analysis. Lastly we addressed postpartum depression. We collected rates of positive PHQ-2/9 screenings at the two-week and six-week visits. We documented whether those with positive depression screenings were referred to treatment at their 4th Trimester visit, as well as those receiving treatment at the six-week postpartum visit.

Our team performed manual chart reviews and a second verification review of all data; then pooled all data from our three clinics to maximize statistical power. We performed standard statistical data analysis using Microsoft Excel, specifically using descriptive statistics, and prepared visual representations in Excel.

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Results:

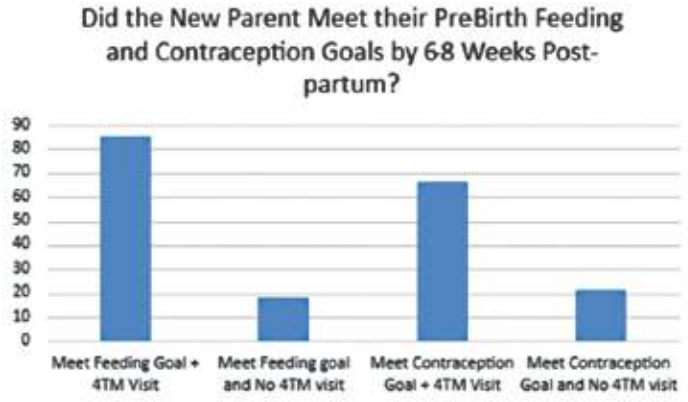
Data was collected from a total of 178 new parents across all three sites from November 2020 through June 2021. 81 new parents, or 49.39% attended 4th Trimester visits only. 62 new parents, or 37.80% attended six-week postpartum visits only. 74 new parents, or 45.12% attended both. 4 new parents, or 0.02% attended neither visit *(Figure 2)*.

Figure 2: *Percent of patients attending 4th trimester visits, 6-8 week visits, both or neither*

Depression screenings resulted in 12 positive screens via PHQ-9 at the 4th trimester visit, 5 positive screens at the 6-week visit, and a total of 11 patients were in treatment with either mental health or medication therapy by the six-week visit.

Feeding and contraception rates were compared to the new parent's pre-birth goals at the six-week follow up visit to determine how many new parents were meeting their stated goals. 103 had met their feeding goals, and 66 met their contraception goals. Of those meeting their feeding goal at six-weeks, 85 (51.83%) had attended a 4th trimester visit, while only 18 (10.98%) had not attended the 4th trimester visit. Of those meeting their contraception goals, 66 (40.24%) had attended a 4th trimester visit, while only 21 (12.80%) had not attended the 4th trimester visit *(Table 1)*.

Table 1



Discussion

One measure of level of success in implementation of the pilot study is determining how many patients completed a 4th trimester visit, which encompasses both whether the visit was properly scheduled and if patients followed through with attendance. 76 patients (43%) of the study population did attend a 4th trimester visit. A total of 152 patients (85%) attended at least 1 visit after delivery (including 4th trimester, acute visits and 6 week visit). Despite efforts to schedule an additional touchpoint, 26 patients (15%) did not attend any visits after delivery. Future efforts should be made to provide additional postpartum outreach for those lost to follow up. There is also potential for improvement in scheduling and correctly carrying out the metrics in the 4th trimester visit template (many visits were completed in the first 3 weeks as acute visits or incision checks only, rather than 4th trimester visits).

Initial data from the 4th trimester program pilot demonstrates good opportunity to promote achievement of breastfeeding and contraception intention as well as improve depression screening and interventions.

Depression screening was positive in 17% percent of our study population, compared to 20% in Rochester, NY[17] and 10-15% in the United States.[2,5,7,8] 58% of patients with positive depression screens were identified at the 4th trimester visit. This supports the idea that postpartum depression may be present within the first few weeks and indicates the 4th trimester visit could allow for earlier detection and intervention.

Feeding intention goals were met in 88% of our study population at 6 weeks postpartum. Breastfeeding was documented as feeding method in 65% of the patients at the 6-week postpartum visit, compared to Rochester, NY rate of 66% still breastfeeding at 4 months.[17] Of note, this includes those breastfeeding exclusively as well as though breastfeeding with supplemental formula.

Our pilot data indicates that 66% of patients who attended an "early new parent visit," or "4th trimester visit," met their contraception intent at 6 weeks, while only 20% of patients who did not attend an early visit met this goal. This indicates a potentially significant role for these early visits in promoting postpartum contraception. We compared this with rates of contraception in Rochester at 4 months postpartum from a prior unpublished 2018 study: 20% LARC, 5% Tier 2, about 25% Tier 3.[17]

Limitations and Special Considerations:

This pilot study comprised an early evaluation of the implementation and impact of the 4th Trimester Model. Small sample size limits the ability to perform sub-analysis of clinic site differences as well as ethnic, racial and socioeconomic differences. Prior research supports early perinatal interventions can help address racial disparities in maternal child outcomes and we hope to expand data to determine whether or not this theoretical benefit can be truly demonstrated.[6,7]

Of note, the 4th Trimester Program launch took place during the prolonged aftermath of the COVID-19 pandemic that had unique challenges including hesitancy for patients to leave their homes to attend medical visits, significant staff shortages that likely limited patient outreach, decreased in-person social support networks and higher burden of mental health illness. This in turn could confound the results when comparing to pre-pandemic outcomes.

Interpretation of aggregate data from three clinic sites is limited by differences in work flow, two different EMR systems as well as differences in documentation of prenatal intention and postpartum visit (4TM template was universally applied).

Future Directions:

We look forward to collaborating with IMPLICIT Network to trouble shoot best practices of implementation. Ten other Network sites in New York, Pennsylvania and North Carolina are also engaging in pilots of the model.

We hope to build collaborations with interprofessional groups, including doulas, mental health providers and social work to better address depression and racial disparities, lactation counselors to help promote longer duration of exclusive breastfeeding, and primary care providers to develop more comfort in perinatal support and ability to address contraception needs related to family planning. We specifically have been building relationships with the Rochester Healthy Baby Network and the Rochester Coalition to End Black Maternal Mortality. Through these networks we are obtaining patient and community feedback regarding further implementation and evaluation of this model.

In the future, we would like to incorporate patient centered data including patient perceived benefits and qualitative data on patient experience to help direct quality improvement in the provision of early postpartum care.

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45 Is the New 50:
New Guidelines and Screening Options for Preventing Colorectal Cancer

By Zachary Kimball, MD and Rodika Coloka-Kump, DO, FAAFP

Over the last two decades, colorectal cancer (CRC) screening has become one of the most significant advances of preventative medicine. The overall basis for screening relies upon the known biology of CRC, and our demonstrated ability to detect either precancerous or early stage cancerous lesions. If removed promptly, lesions that would have caused symptoms at a later cancer stage can be addressed years before becoming symptomatic, preventing the mortality associated with late stage lesions. Since the initial 1995 USPSTF recommendation to begin screening at age 50, CRC incidence and mortality rates in this targeted group have decreased substantially.[1,2] Despite these successes, recent data have shown an alarming trend of increasing incidence of CRC in the 40-50-year-old age group.[3]

Arrival of New USPSTF Recommendations in May 2021

The 2021 guidelines recommend starting CRC screening at 45 years of age.[4] In weighing the risks and benefits of this change, researchers depended primarily on computer-based modeling, as any change in screening age would require years of follow-up to evaluate its effectiveness. One of the major limitations to this analysis is that it assumes perfect adherence to screening intervals and follow-up for all simulated patients, which could overestimate the benefits of screening. In the model reviewed, lowering the screening age would result in a 4% increase in lives saved compared to prior.[5]

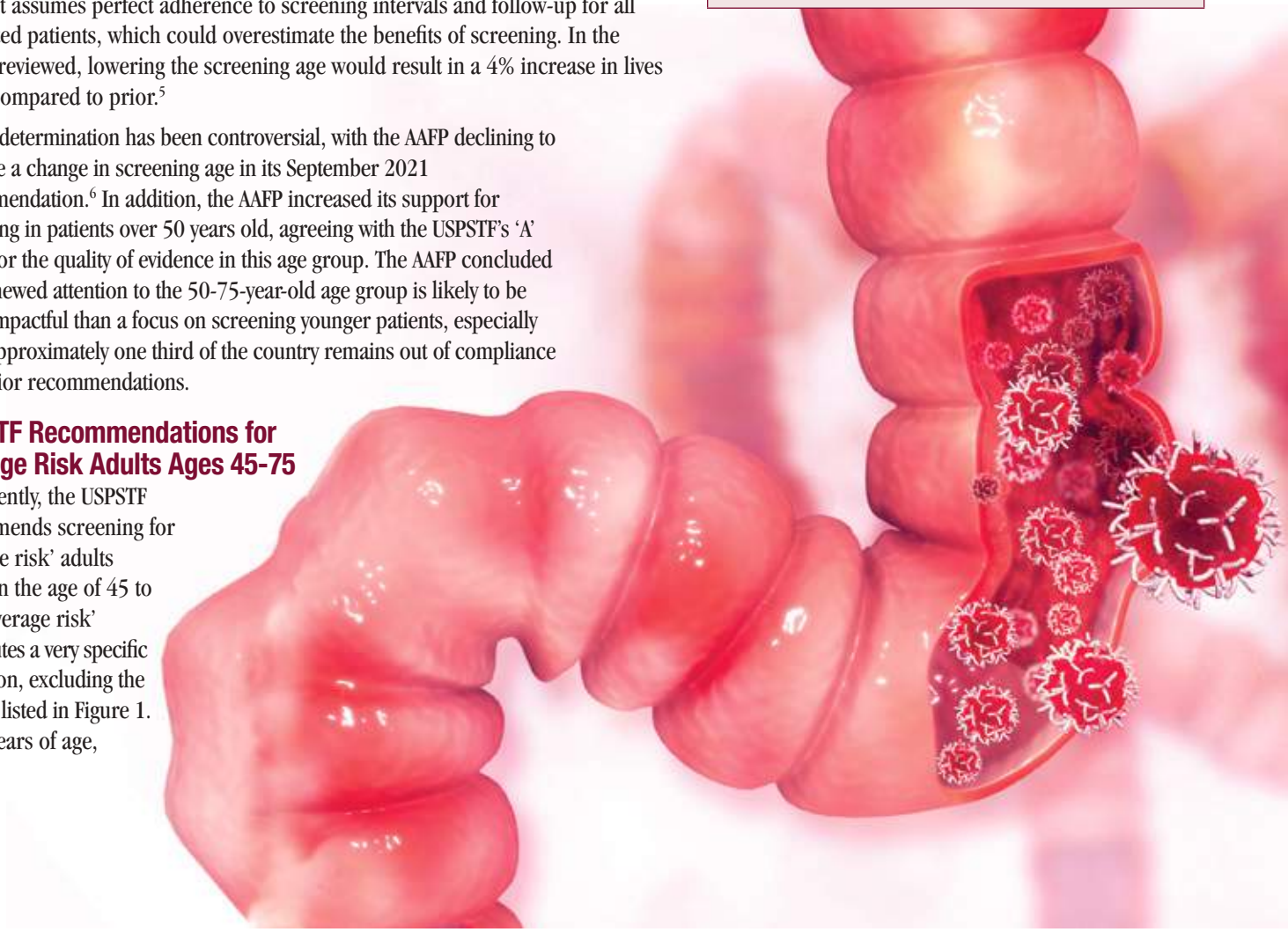
This determination has been controversial, with the AAFP declining to endorse a change in screening age in its September 2021 recommendation.[6] In addition, the AAFP increased its support for screening in patients over 50 years old, agreeing with the USPSTF's 'A' rating for the quality of evidence in this age group. The AAFP concluded that renewed attention to the 50-75-year-old age group is likely to be more impactful than a focus on screening younger patients, especially since approximately one third of the country remains out of compliance with prior recommendations.

USPSTF Recommendations for Average Risk Adults Ages 45-75

Currently, the USPSTF recommends screening for 'average risk' adults between the age of 45 to 75.[4] 'Average risk' constitutes a very specific definition, excluding the groups listed in Figure 1. At 75 years of age, further testing becomes a shared decision between the patient and their primary care provider. Beyond 85 years old, the USPSTF guidelines recommend against continued screening.

Figure 1

Groups at higher risk for CRC – Do not apply to USPSTF guidelines
>1 first degree relative with CRC
Any relative with CRC diagnosis at < 50 years of age
Family history of known genetic predisposition to CRC
History of inflammatory bowel disease
Personal history of polyps on colonoscopy (see Table 3)
Personal history of CRC diagnosis in the past



Screening modalities recommended by the USPSTF are reviewed in Figure 2. Approaches to CRC screening can be categorized in one of two ways. The first is a one-step screening colonoscopy approach, and the second is a two-step strategy that uses a diagnostic colonoscopy to confirm an abnormal initial screening test. It is notable that approximately 95% of nationwide CRC screening takes place through either colonoscopy or stool testing.[1] In evaluating an appropriate screening strategy for either a population or an individual, both the characteristics of the test recommended and the implications of an abnormal result should be fully understood by both the patient and the provider.

Colonoscopy: the Only One-step Screening Strategy

Due to the ability to directly visualize and treat lesions, a screening colonoscopy becomes a *diagnostic* procedure if any abnormal lesions or polyps are found during the screening exam, and any number of abnormal lesions can be addressed during one procedure. A minority of lesions may lead to additional imaging or require surgical excision. Because of the high sensitivity for both cancerous and precancerous lesions, a normal screening colonoscopy negates the need for any additional screening for the next 10 years.

Figure 2: *CRC Screening Modalities: A Comparison*

Test Modality	Frequency	2-step	Complication rate	Sensitivity CRC	Sensitivity polyps	Specificity	Downsides to patients	Upsides to patients
Colonoscopy	10 years	No	~0.1%	95%	75-95%	86%	Sedation, transportation assistance, bowel prep, risk of complications	Most infrequent testing, lowest amount of tasks, possibility of direct referral
FOBT testing	1 year	Yes	0	70%	7-24%	92%	Requires change to diet and meds prior to test, requires 3 stool samples, more frequent testing than Cologuard	Done at home
FIT testing	1 year	Yes	0	74%	7-24%	96%	More frequent testing than Cologuard	Done at home, no change to diet or meds prior to test, requires only 1 stool sample
Multitarget DNA-FIT (Cologuard)	3 years	Yes	0	92%	17-42%	90%	Higher false positive rate than other stool tests, requires collection of whole stool	Better testing interval than other stool tests, phone navigation available
CT Colonography	5 years	Yes	0	84%	0-84%	88%	Requires bowel prep, finding incidentalomas, risk of radiation damage long-term	Non-invasive, better testing interval than stool tests, does not require manipulating stool by patient
Flex-Sig	5 years	Yes	~0.05%	Depends on location	Depends on location	87%	Poor availability in most areas, need to undergo two endoscopy procedures if positive result	Does not require sedation or transportation, less extensive bowel prep than colonoscopy or CTC
Flex-Sig + FIT	10 years, in addition to every 1 year	Yes	~0.05%	Depends on location	Depends on location	87%	Add risk of complications from flex-sig, poor availability, could just do colonoscopy and avoid all FIT testing	Suggested to be more sensitive than flex-sig alone, decreased interval of endoscopy, may avoid colonoscopy if all tests are negative

Numbers for sensitivity and specificity of screening modalities taken from Zauber, et al[10]

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Difficulties completing bowel prep constitute the main barrier to successfully completing a colonoscopy procedure. In addition, the need for sedation means a friend/family member must accompany the patient to provide transportation home after the procedure. Both of these concerns can be addressed with thorough education at the time of referral, or with patient engagement by the procedural team's staff. In the past, the need for a pre-procedural evaluation by the gastroenterologist provided another opportunity for patients to become lost to follow-up. In the past decade, fast-track arrangements at a system-wide level have allowed low-risk patients to skip this appointment, further easing the process of completing the procedure. Because of the limited number of steps to treatment involved with screening colonoscopy, and minimal risk of becoming lost to follow-up mid-process, many providers have decisively concluded that advocating for a colonoscopy-first approach is key in improving screening compliance. This is reflected in its overall predominance (80% of all testing) as a screening modality nationwide.[1]

Options for Two-step Screening Strategies

In contrast to screening colonoscopy, stool-based tests, flexible sigmoidoscopy, and CT colonography comprise two-step screening strategies. The positives and negatives of each test are summarized in Figure 2. Among two-step screening strategies, stool testing is the most commonly used modality. There are three main types of stool testing, and they are primarily differentiated by the frequency of testing. FOBT is the oldest form of testing, has some interaction with food and medications, and requires three different stool samples to be considered complete. In contrast, FIT testing requires only one stool sample, and does not have the interactions that accompany FOBT testing. A newer form of stool testing called 'multitarget stool DNA testing' (Cologuard) is notable in that it is performed once every three years. This is often more acceptable to the patient compared to FIT and FOBT testing, which are both repeated annually. However, the limitation of Cologuard is its higher false positive rate than that of FIT or FOBT. Stool testing in general has been hypothesized as a more cost-effective alternative to colonoscopy, and has been adopted with high compliance rates by many large health systems.[7]

Some rural areas have traditionally favored flexible sigmoidoscopy, performed by either a gastroenterologist or a family doctor. This does not require procedural sedation, and it can be performed every 5 years, as opposed to annual stool testing. The main limitation of this procedure is that it only examines the distal-most portion of the colonic mucosa, leaving it unable to detect right sided colonic lesions. An alternative option combines the ease of sigmoidoscopy with the sensitivity of annual FIT testing. This allows screening for CRC in all parts of the colon through FIT testing, while requiring only one sigmoidoscopy every 10 years. Although sigmoidoscopy was one of the original forms of CRC screening recommended by the USPSTF, this procedure has fallen in popularity significantly over the last decade, now comprising only 1% of all screening nationwide.[1]

CT colonography is a relatively newer screening option that is performed every 5 years. The benefit is that it is a noninvasive procedure and it does not involve stool testing. It requires a full bowel prep and is offered to patients who cannot tolerate colonoscopy due to colonic anatomy or to age. The main limitations are the risk of finding incidentalomas on repeated CT imaging of the abdomen, the cumulative risk of radiation to the body, and the need for prior authorization with most insurers.

Follow-up of Abnormal Results for Two-step Screening Strategies

If the first test of a two-step screening strategy is concerning for malignancy, the patient should promptly undergo a *diagnostic* colonoscopy. During the subsequent procedure, direct visualization either confirms the presence of a clinically significant lesion, or declares the prior result a false positive. In the scenario of a flexible sigmoidoscopy, a diagnostic colonoscopy would extend the examination to include the remaining colonic mucosa through a second procedure. There is no official guidance regarding how promptly the diagnostic colonoscopy should be completed after an abnormal screening test. Data suggests that any follow-up within 9 months of abnormal FIT test would not be associated with a significant difference in CRC incidence.[8]

Follow-up for Precancerous Lesions

If a precancerous polyp is removed during either a screening, or diagnostic colonoscopy, then a 'surveillance colonoscopy' is indicated. These are recommended at a prespecified interval based on the type of lesion found. 2020 updates to standard guidelines outline the frequency of follow-up, ranging from 1-7 years, and are described in Figure 3.[9]

Figure 3: *US MSTF Recommendations for surveillance colonoscopy follow-up interval after polypectomy*

Baseline colonoscopy finding	Recommended interval for surveillance colonoscopy
Normal	10 years
1 to 2 tubular adenomas <10 mm	7 to 10 years
3 to 4 tubular adenomas <10 mm	3 to 5 years
5 to 10 tubular adenomas <10 mm	3 years
Adenoma >10mm	3 years
Adenoma with tubulovillous or villous histology	3 years
Adenoma with high-grade dysplasia	3 years
>10 adenomas on single examination	1 year
Piecemeal resection of adenoma >20mm	6 months

Gupta, et al[9]

Complications of CRC Screening

It is important to note that nearly all of the minimal risk associated with CRC screening arises from complications of invasive procedures—mainly colonoscopy, and to a lesser extent flexible sigmoidoscopy. Incidence of serious adverse complications with colonoscopy averages around 0.12%, and in most cases involves a colonic bleed.[10] Colonic perforation can also occur, requiring urgent surgical repair, but only in a rare minority of cases (0.04%). The overall rate of complications increases with age, by a scale of about 2 times from the 6th decade to the 8th decade of life.

When simulated over a 30-year duration of screening, a primarily stool-testing strategy results in about a 50% decrease in lifetime colonoscopy procedures compared to a colonoscopy-only strategy.[5] For providers who want to minimize absolute risk to their patients, stool testing represents a simple way to attempt to avoid extra procedures without sacrificing any cumulative sensitivity to detect treatable early stage cancerous lesions.

CRC Prevention in Groups Excluded from USPSTF Recommendations

In attempting to address the increasing incidence of CRC in patients younger than 50 years old, it is important to note that several groups require a very different approach from these guidelines. Family history is a major risk factor for CRC, and this group of patients would not be defined as 'average risk'. Up to one quarter of patients presenting with CRC in the 40-50 year-old age group met criteria for a positive family history of colorectal cancer.[3] Additionally, it is estimated that 10% of the entire US population has a first degree relative who developed CRC.[11] Patients who have at least one first degree relative with a prior diagnosis of CRC, or any relative with a diagnosis of CRC prior to the age of 50, should consider undergoing earlier screening starting at age 40, five years earlier than patients at average risk. Because of the implications for screening age, this family history should be obtained prior to age 40, and reassessed at least once per decade of life. Other groups of patients who would require adjusted screening intervals, and do not fall under USPSTF guidelines, are detailed in Figure 1.

USPSTF focus on ethnic disparities in mortality

Ethnic disparities in screening remain a point of emphasis in the updated USPSTF guidelines.[4] Black patients maintain a CRC mortality rate 40% greater than their non-Hispanic white counterparts, even as CRC incidence and mortality have decreased in all ethnic groups.[1] Similar disparities exist in American Indian and Alaskan Native populations. Prior studies have suggested that a considerable proportion of disparities in mortality rate are attributable to differences in CRC screening rates or follow-up for treatment, and not an inherent biological difference.[12] The direct implication of this finding is that providing more equitable preventative care at a population-wide level would directly improve inequities in CRC mortality. Prior efforts in Delaware have demonstrated the feasibility and validity of this hypothesis.[13]

Conclusion

Family physicians play an essential role in keeping CRC screening at the forefront of a patient's mind, and ensuring that patients complete the screening process. Based on the experience of more than 20 years of effort in raising public awareness for the value of CRC prevention, we now know that high rates of screening exceeding 80% are possible.[7] When providers are successful in steering patients through screening processes in an equitable manner, it can result in significant impact on not only cancer mortality overall, but disparities in historical disease burden between ethnic groups.

Endnotes

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Implementation of the Cancer Services Program at a Family Medicine Residency Program

By Lisa Shapiro, DO and George Alvarez, MD

The Cancer Services Program (CSP) is a New York State cancer screening program that provides breast, cervical, and colon cancer screenings for patients who live in New York State and do not have health insurance or have health insurance that is inadequate for getting appropriate screening tests performed. Patients must meet the 2018 United States Preventative Task Force (USPSTF) guidelines for mammograms, pap smear, and/or fecal immunochemical tests (FIT) in order to qualify. At the Glen Cove Family Medicine Residency Program, many of our patients in the resident run clinic meet these requirements.

The enrollment process for patients in the CSP program starts with a resident chart review prior to their clinic session. Residents screen the electronic medical record for a patient's regular screenings (as mentioned above) regardless of the visit purpose (physical, follow up, or acute visit). When a patient qualifies for one or more of the screenings, a form is completed by our clerical staff that verifies compliance with the New York State Cancer Screening Program guidelines. Our CSP Coordinator prepares most of this paperwork prior to the patient's arrival and the resident physician adds any pertinent medical information. For example, if a patient has a first-degree family member with a colon cancer diagnosis at age 50, the USPSTF Guidelines state that a screening colonoscopy should be performed 10 years younger than the age of diagnosis of their family member, which in this case, is 40. The resident physician would include this information to justify qualification for the CSP program.

CSP eligible patients are offered FIT testing and colonoscopy for colon cancer screening. FIT testing is only offered to individuals age 50 or older who do not have any additional risk factors for colon cancer. Those patients with family history are referred to gastroenterology for colonoscopy. Our nursing staff and CSP Coordinator work together to instruct patients on how to complete the FIT kits. If a FIT returns with a positive result, the New York State Cancer Screening Program will cover the costs of the diagnostic colonoscopy. If a CSP patient is subsequently found to have colon cancer, CSP will enroll the patient into the New York State Medicaid Cancer Treatment Program (MCTP) which will provide full Medicaid coverage for the entire time the patient is treated.

Family medicine residents perform PAP smears routinely for cervical cancer screening. If a PAP smear results in an abnormality requiring a colposcopy, the procedure is performed at a return visit at our clinic, under the supervision of our OB-GYN faculty member. If the patient is diagnosed with cervical cancer, the MCTP will provide coverage for treatment at the appropriate location.

CSP eligible patients are provided referrals to a Northwell Health imaging center for breast cancer screening. Resident physicians notify patients of their recommended follow up window, as well as the need for further testing in the form of ultrasound or biopsy, which are also covered as part of the CSP. The MCTP will provide coverage for treatment, if breast cancer is diagnosed.

The numbers of patients involved in the CSP vary for each screening test, as mammograms and FIT kits are recommended yearly, but PAP smears are recommended every three to five years. In 2020, due to the COVID-19 pandemic, our family practice CSP registrations decreased during the months of April and May. The following data is for 2020. Note that these numbers are only for the patients that qualify for CSP.

Number of Patients Participating in CSP in 2020 by Screening Modality

Mammogram	PAP Smear	FIT Test
114	23	145

Through interdepartmental partnerships and the assistance of our clinic staff, our resident run clinic has successfully provided screening and diagnostic services to underserved patients who may not have had the opportunity to do so without the assistance of this program. We encourage our readers to consider instituting this program at their clinical sites as well. More information regarding the CSP program can be found on the following website https://www.health.ny.gov/diseases/cancer/services/.

George Alvarez, MD *is currently a PGY2 and Assistant Chief Resident of Glen Cove Family Medicine Residency Program. He attended Johns Hopkins University, where he established the Johns Hopkins Underrepresented in Medicine Program (JUMP), and became a high school chemistry teacher in Newark, New Jersey while he applied for medical school. He was a Turner Fellow at Stony Brook University School of Medicine and was a past student and resident board member of the NYSAFP.*

Lisa Shapiro, DO *joined the faculty at the Glen Cove Family Medicine Program in December 2020, where she has been able to combine her love of teaching with her commitment to providing high quality primary care to her patients. Dr. Shapiro completed her residency at the Mount Sinai Downtown Family Medicine Program where she served as chief resident in her third year. She attended Cornell University for her undergraduate work and NYIT College of Osteopathic Medicine in Old Westbury for her medical degree. She is a member of the NYSAFP and a member of the Public Health Commission.*

We would like to extend our thanks and congratulations to ***Natalie Worthy, MA****, our CSP coordinator for all of the work she has put into this program. We recently learned that our program is the top site in Nassau County for colon cancer screenings and it is due to her dedication that our residency program is as successful as it is.*

New York State Newborn Screening

By Lovedhi Aggarwal, MD; Jeanine Morelli, MD and Surabhi Aggarwal, MD

Introduction

Screening newborns for serious congenital conditions provides early detection for disease and saves lives.[1] Some conditions are rare and uncommon and the family physician might not have had experience addressing abnormal screenings. Family physicians should know how to prepare a repeat specimen, to convey information to parents or guardians, to evaluate abnormal results and when to refer to specialists. This summary addresses common problems and provides resources for the family doctor.

Newborn screening was introduced in the 1960s, and has been an extremely successful public health program saving lives and reducing intellectual disability. These programs screen nearly 4 million babies each year in all 50 states[5] and more than 12,500 newborns are diagnosed with a condition.[6] There are six pillars for a successful newborn screening program which include: education, testing, follow-up, diagnosis, intervention and/or management, and evaluation.[7]

Information for the New York State (NYS) program is available at the Wadsworth Center. In addition to critical congenital heart disease (CCHD) and hearing screen, fifty conditions are screened in New York State.[2] These include infectious, endocrine, metabolic and genetic diseases and are screened with a blood sample obtained via heel stick within the first 48 hours of life. In NYS, the most prevalent conditions detected are sickle cell disease, HIV disease, congenital hypothyroidism, cystic fibrosis, severe combined immunodeficiency and congenital adrenal hyperplasia.[3] Spinal muscular atrophy (SMA) has just been added to New York State newborn screening.[4] Early diagnosis and early treatment with gene therapy for SMA has a great effect on outcome.

The American Academy of Pediatrics recommends that the infant is at least 24 hours old when the specimen is obtained. A first specimen obtained after 120 hours of life can have serious implications for a newborn with one of these conditions. It is recommended that the first well visit for newborns takes place at 3-5 days to verify that the newborn screening was done. Test results should be confirmed when available which can take 1-2 weeks.[1] The ACT (action) sheet provided by the American College of Medical Genetics (ACMG) is a great resource for family physicians in providing recommendations for confirmation and counseling. https://www.acmg.net/ACMG/Medical-Genetics-Practice-Resources/ACT_Sheets_and_Algorithms.aspx

Pulse Oximetry Screening for CCHD in Neonates

CCHD occurs in 1 to 2/1000 live births, and fewer than 50% of these conditions are diagnosed prenatally.[5] Many newborns with CCHD remain asymptomatic in the first few days after birth. Physician exams fail to identify 30-50% of CCHD before discharge, and delay in identification can lead to severe mortality and morbidity.[8] To screen, a pulse oximeter is placed on the right upper extremity and any lower extremity after 24 hours of life and oxygen saturations are assessed with a pass or fail assigned. The test is repeated one hour later if the initial test does not pass. If the test fails initially and twice on repeat, the newborn needs to be evaluated clinically with an echocardiogram and a referral to pediatric cardiology. Pulse oximetry is a highly specific and moderately sensitive test for detection of CCHD with very low false-positive rates. In a meta-analysis of 13 eligible studies with data for 229,421 newborn babies, it demonstrated sensitivity of 76.5% (95% CI 67.7 – 83.5); specificity of 99.9% (95% CI 99.7 – 99.9) and false-positive rate of 0.14% (95% CI 0.06 – 0.33).[7] Refer to Table 1 for conditions detected via screening for CCHD.[9]

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Table 1

Conditions Detected Via Screening for CCHD With the Use of Pulse Oximetry

Core conditions (CCHD)	Secondary conditions (non-CCHD)
Coarctation of the aorta	Hemoglobinopathy
Double-outlet right ventricle	Hypothermia
Ebstein 's anomaly	Infection, including sepsis
Hypoplastic left heart syndrome	Lung disease (congenital or acquired)
Interrupted aortic arch	Noncritical congenital heart defect
Pulmonary atresia	Persistent pulmonary hypertension
Single ventricle (not otherwise specified)	Other hypoxemic condition not otherwise specified
Tetralogy of Fallot	
Total anomalous pulmonary venous return	
D-transposition of the great arteries	
Tricuspid atresia	
Truncus arteriosus	
Other critical cyanotic lesions not otherwise specified	

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Hearing Screening

About 2 to 3 out of every 1,000 children in the United States are born with a detectable level of hearing loss in one or both ears.[10] The National Center for Hearing Assessment and Management (NCHAM) concurs that three of every 1,000 newborns in the United States have a permanent hearing loss, making hearing loss the most frequently occurring birth defect.[11] Consequences of late identification of hearing loss include delayed speech and language development, and associated effects on social and emotional growth and academic achievement.[12] Advances in technology have made it possible to detect the presence of hearing loss in the neonatal period. There are two methods that are used for detection of hearing loss - evoked otoacoustic emissions (OAE) and the auditory brainstem response (AABR). Both techniques provide objective information about auditory system function. To obtain OAEs, a small probe is placed in the baby's ear, sounds are introduced, and the response from the baby's ear is recorded. If AABR is used, electrodes are attached to the baby, who also wears earphones. Sounds are introduced through the earphones and the response from the baby's auditory system is recorded.

Newborns who do not pass their initial hearing screening may be re-screened prior to discharge when feasible. This helps to minimize the likelihood of false positive results and the need for a follow-up outpatient screening. It has been found that most infants (80-90%) that fail the first screening will pass when they are re-screened. If re-screening prior to discharge is not possible, or passing results are not obtained, the baby should be referred for re-screening to take place after discharge. Parents of babies who do not pass following the inpatient screening are given a prescription for an outpatient hearing screening, either at the birth hospital or from a provider qualified to perform the screening in their community.[13] Results of the follow-up hearing screening should be returned to the birth facility.

Table 2: *RUSP Core Conditions*

Recommended Uniform Screening Panel Core Conditions (As of July 2018)

Core Condition	Metabolic Disorder			Endocrine Disorder	Hemoglobin Disorder	Other Disorder
	Organic acid condition	Fatty acid oxidation disorder	Amino acid disorder			
Propionic Acidemia	X					
Methylmalonic Acidemia (methylmalonyl-CoA mutase)	X					
Methylmalonic Acidemia (Cobalamin disorders)	X					
Isovaleric Acidemia	X					
3-Methylcrotonyl-CoA Carboxylase Deficiency	X					
3-Hydroxy-3-Methylglutaric Aciduria	X					
Holocarboxylase Synthase Deficiency	X					
β-Ketothiolase Deficiency	X					
Glutaric Acidemia Type I	X					
Carnitine Uptake Defect/Carnitine Transport Defect		X				
Medium-chain Acyl-CoA Dehydrogenase Deficiency		X				
Very Long-chain Acyl-CoA Dehydrogenase Deficiency		X				
Long-chain L-3 Hydroxyacyl-CoA Dehydrogenase Deficiency		X				
Trifunctional Protein Deficiency		X				
Argininosuccinic Aciduria			X			
Citrullinemia, Type I			X			
Maple Syrup Urine Disease			X			
Homocystinuria			X			
Classic Phenylketonuria			X			
Tyrosinemia, Type I			X			
Primary Congenital Hypothyroidism				X		
Congenital adrenal hyperplasia				X		
S,S Disease (Sickle Cell Anemia)					X	
S, β+-Thalassemia					X	
S,C Disease					X	
Biotinidase Deficiency						X
Critical Congenital Heart Disease						X
Cystic Fibrosis						X
Classic Galactosemia						X
Glycogen Storage Disease Type II (Pompe)						X
Hearing Loss						X
Severe Combined Immunodeficiencies						X
Mucopolysaccharidosis Type 1						X
X-linked Adrenoleukodystrophy						X
Spinal Muscular Atrophy due to homozygous deletion of exon 7 in SMN1						X

Blood Spot Screening

Shortly after a child is born a few drops of blood are taken from the newborn's heel to detect certain genetic, metabolic and endocrine disorders. The Advisory Committee on Heritable Disorders in Newborns and Children's (ACHDNC) issues a Recommended Universal Screening Panel (RUSP) that identifies a number of core conditions—those for which screening is highly recommended—and secondary conditions, for which screening is optional. The RUSP includes 35 core conditions and 26 secondary conditions (See Tables 2 and 3).[2,5] If a screen produces a positive result, then, depending on the protocol for the disease, a confirmatory test or a repeat screen is conducted as soon as possible. Successful newborn screening for these conditions and follow-up treatment means that babies who might have died or needed long-term care, can now grow into healthy adults.

Table 3: *RUSP Secondary Conditions*

Recommended Uniform Screening Panel[1]
SECONDARY[2] CONDITIONS [3]
(As of July 2018)

Secondary Condition	Metabolic Disorder			Hemoglobin Disorder	Other Disorder
	Organic acid condition	Fatty acid oxidation disorders	Amino acid disorders		
Methylmalonic acidemia with homocystinuria	X				
Malonic acidemia	X				
Isobutyrylglycinuria	X				
2-Methylbutyrylglycinuria	X				
3-Methylglutaconic aciduria	X				
2-Methyl-3-hydroxybutyric aciduria	X				
Short-chain acyl-CoA dehydrogenase deficiency		X			
Medium/short-chain L-3-hydroxyacyl-CoA dehydrogenase deficiency		X			
Glutaric acidemia type II		X			
Medium-chain ketoacyl-CoA thiolase deficiency		X			
2,4 Dienoyl-CoA reductase deficiency		X			
Carnitine palmitoyltransferase type I deficiency		X			
Carnitine palmitoyltransferase type II deficiency		X			
Carnitine acylcarnitine translocase deficiency		X			
Argininemia			X		
Citrullinemia, type II			X		
Hypermethioninemia			X		
Benign hyperphenylalaninemia			X		
Biopterin defect in cofactor biosynthesis			X		
Biopterin defect in cofactor regeneration			X		
Tyrosinemia, type II			X		
Tyrosinemia, type III			X		
Various other hemoglobinopathies				X	
Galactoepimerase deficiency					X
Galactokinase deficiency					X
T-cell related lymphocyte deficiencies					X

1. Selection of conditions based upon "Newborn Screening: Towards a Uniform Screening Panel and System." *Genetic Med.* 2006; 8(5) Suppl: S12-S252" as authored by the American College of Medical Genetics (ACMG) and commissioned by the Health Resources and Services Administration (HRSA).
2. Disorders that can be detected in the differential diagnosis of a core disorder.
Nomenclature for Conditions based upon "Naming and Counting Disorders (Conditions) Included in Newborn Screening Panels." *Pediatrics.* 2006; 117 (5) Suppl: S308-S314.

Of Interest to Family Physicians

Sickle Cell Trait

New York State has screened all newborns for sickle cell trait since 1975. This is a common inherited condition that includes 8% of the Black population. It is a benign condition but in recent years has been attributed to sudden death of military recruits and college athletes under extreme exercise conditions. The National Collegiate Athletic Association requires testing for this condition of all their athletes or the student athletes have to sign a waiver. It is possible for healthcare providers to obtain these results from the NYS newborn screening program but it may take several weeks to obtain results.[2]

COVID 19 and Newborn Screening

For mothers with COVID 19, newborn specimens are placed in a bag and labelled. If the newborn is discharged in less than 24 hours, a specimen must be collected and sent home with the mother with a collection slip for another to be collected by a primary care physician after 24 hours.[2]

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What's New

In October 2018, New York State added three additional tests to the newborn screen which include the diseases of spinal muscular atrophy (SMA), guanidinoacetate methyltransferase (GAMT) deficiency, and mucopolysaccharidosis type I. SMA is a genetic condition resulting in progressive loss of spinal motor neurons due to various levels of deficiency of the SMN1 gene. Newborn screening allows for early diagnosis and immediate gene therapy infusion, thus minimizing the critical loss of spinal motor neurons. Delays in this treatment may result in permanent loss of such neurons and subsequent permanent morbidity and mortality. Prompt gene therapy allows for infants to better meet their motor milestones, remain ventilator independent, and prolong their lifespan. Family physicians should be aware of the closest center that is certified to offer gene therapy for SMA.

Conclusion

Newborn screening remains one of the nation's most successful public health programs and has saved countless lives. Through simple cost-effective blood samples, pulse oximetry and hearing screens, early identification of multiple genetic, metabolic, endocrine, hematological, cardiac and hearing disorders can be made in otherwise asymptomatic newborns. Family physicians play a crucial role in follow up on patients with abnormal screens and many times may be the provider of first contact for newborns who screen positive. A basic understanding of the screening process, initial management, including referrals and subsequent diagnostic testing of such infants is important for family physicians. Premature infants and those requiring stays in the NICU have special considerations and providers should consult their local NICU and genetics team for additional information.

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