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Tools for Improving Clinical Preventive Services Receipt Among Women with Disabilities of Childbearing Ages and Beyond

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Abstract

Efforts to improve clinical preventive services (CPS) receipt among women with disabilities are poorly understood and not widely disseminated. The reported results represent a 2-year, Centers for Disease Control and Prevention and Association of Maternal and Child Health Programs partnership to develop a central resource for existing tools that are of potential use to maternal and child health practitioners who work with women with disabilities. Steps included contacting experts in the fields of disability and women's health, searching the Internet to locate examples of existing tools that may facilitate CPS receipt, convening key stakeholders from state and community-based programs to determine their potential use of the tools, and developing an online Toolbox. Nine examples of existing tools were located. The tools focused on facilitating use of the CPS guidelines, monitoring CPS receipt among women with disabilities, improving the

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accessibility of communities and local transportation, and training clinicians and women with disabilities. Stakeholders affirmed the relevance of these tools to their work and encouraged developing a Toolbox. The Toolbox, launched in May 2013, provides information and links to existing tools and accepts feedback and proposals for additional tools. This Toolbox offers central access to existing tools. Maternal and child health stakeholders and other service providers can better locate, adopt and implement existing tools to facilitate CPS receipt among adolescent girls with disabilities who are transitioning into adult care as well as women with disabilities of child-bearing ages and beyond.

Keywords

Clinical preventive services; Healthcare tools; Women's health; Women with disabilities

Introduction

The U.S. Department of Health and Human Services, through various offices, works to address health disparities through a network of partners including maternal and child health programs [1]. At the same time, the maternal and child health field is expanding its focus on health disparities to include women with disabilities of childbearing ages [2–4]. According to the U.S. Census, women with disabilities represent 23.2 % (28.8 million) of women aged 15 years or older and 11.2 % (6.5 million) of women who are of childbearing years, aged 15–44 [5]. Women with disabilities represent an underserved vulnerable population [6] who experience significant health disparities such as cardiovascular disease, diabetes, partner violence, mental distress, and certain types of cancer [7, 8]. An important pathway to reducing health disparities is improving the receipt of clinical preventive services (CPS). CPS are defined as health care services delivered in clinical settings to prevent the onset or progression of a health condition or illness [9]. Recommendations for CPS are derived from the U.S. Preventive Services Task Force (USPSTF) [10] as well as other authoritative organizations and professional committees [11–15].

National data highlight disparities in CPS receipt (see "Appendix" section). Compared to women without disabilities, a lower percentage of women with disabilities receive routine physical examinations, teeth cleanings, hepatitis B vaccinations, cervical and breast cancer screenings, and family planning services [16–18]. Unfortunately, some CPS measurements are unavailable due to the lack of indicators within national data sources [19] as well as the lack of analysis of existing indicators (see "Appendix" section). Findings of health service disparities among women with disabilities have prompted research on the complexity of programmatic, physical and person-level factors and barriers that influence CPS receipt as well as suggested strategies for improvements.

Programmatic barriers, also called access-to-care barriers, relate to health care costs and delivery systems. The proportion of women with disabilities who have health insurance and a primary care physician as their usual source of care is similar to women without disabilities [16–18, 20]. However, having health insurance, a primary care physician as a usual source of care, or recently seeing a physician or specialist does not ensure the receipt

of recommended CPS [21] especially among women with disabilities [22, 23]. Not surprisingly, scheduling CPS appointments is a key determinant of services receipt [24]. To help ensure the receipt of recommended CPS, researchers suggest implementing (1) educational workshops to enable women with disabilities to manage CPS appointments [25], (2) integrated or mobile checklists, and prompts and reminder systems for clinicians [26–28], (3) consensus practice guidelines within health plans and their provider base to ensure coverage [29], and (4) surveillance to monitor CPS receipt, evaluate health system performance and health impact, and ensure accountability at various levels [30].

Commonly cited physical barriers in and around health care facilities include the need for accessible parking spaces and bathrooms, lighter doors with lever handles, handrails on both sides of ramps, signage directing people to accessible entrances, as well as audible and visible elevator indicators [31]. Depending on the type of disability, transportation barriers can include the lack of a wheelchair lift as well as tactile, audible or large and high-contrast transit information. Strategies for “getting there and getting in” utilize community engagement, an evolutionary process of creating partnerships and infrastructure to facilitate positive community changes [32–34].

Person-level barriers refer to ineffective knowledge, attitudes, and behaviors among patients and their clinicians. Women with disabilities may delay or forgo CPS if they do not understand service purposes or procedures, have competing demands associated with a disability, or have negative attitudes stemming from previous poor interactions with clinicians [35–37]. Clinicians may not communicate appropriately, feel comfortable with providing services, carefully examine patients, or offer a full range of CPS if they are unfamiliar with the needs of women with disabilities [23, 38, 39]. While clinicians affirm their need for more disability training and education [40–42], women with disabilities seek clinicians who have disability training [43]. To improve interactions between women with disabilities and their clinicians, researchers suggest assuring disability-competencies among practitioners [23, 44, 45] and empowering women with disabilities to participate in their primary care [46].

While researchers suggest practical strategies to address barriers to CPS receipt, there is little recognition of existing tools to facilitate those strategies. This manuscript reports the results of a 2-year partnership between Centers for Disease Control and Prevention (CDC) and Association of Maternal and Child Health Programs (AMCHP) to develop a central resource for existing tools that are of potential use to maternal and child health practitioners who work with women with disabilities. To our knowledge, this project is the first of its kind.

Description

This project involved three steps: (1) locating examples of existing tools that may be used by maternal and child health programs to facilitate CPS receipt among women with disabilities, (2) hosting a 1-day meeting to present selected tools and solicit input from key stakeholders, and (3) building an online Toolbox. A tool was defined as an instrument that is used to carry

out a particular function. Information-only resources such as, brochures, fact sheets, bibliographies and organizational listings were not considered tools.

To locate examples of existing tools, experts in the field (see Acknowledgments) were contacted. In addition, Google™, Google Scholar™, and PubMed™ were searched using the following phrases: “clinical preventive service tools,” “preventive health care and disabilities,” “disability data,” “community action and disability,” “barrier removal checklist,” “medical care disability training,” and “women’s health curriculum and disability.” To be included in the Toolbox, tools had to meet the following criteria: readily available upon request, designed to facilitate the receipt or provision of CPS, interactive or hands-on, user-friendly or require minimal training, and useful to clinicians, communities and public health service programs, and educators who interact with practitioners and women with disabilities.

Nine examples of existing tools that met the inclusion criteria were located—the Electronic Preventive Services Selector [47], *Purchaser’s Guide to Clinical Preventive Services* [48], *Making Preventive Health Care Work for You* workbook [49], Disability and Health Data System (DHDS) [16], Community Action Guide (CAG) [50], *Americans with Disabilities (ADA) Checklist for Readily Achievable Barrier Removal* [51], Project ACTION hotline 1-800-659-6428 [52], *Access to Medical Care* video [53], and *Women Be Healthy* curriculum [54]. The identified tools covered a broad range of CPS. The tools also targeted a wide-range of intended-users or audiences including providers, employers, health insurers, community-based organizations, medical directors, builders, architects, health educators and women with disabilities. Two tools specifically targeted women with physical or intellectual disabilities. Six of the tools had an evidence-base derived from parallel or similar experiences, theory or program logic, or observation as reflected in the non-hierarchical classification of evidence proposed by Swinburn et al. [55]. However, two of the tools had a published evidence-base—*ADA Checklist for Readily Achievable Barrier Removal* [56], and *Women Be Healthy* [57]. One study showed that the *Purchaser’s Guide to Clinical Preventive Services* needed further evaluation to determine if the guide has influenced negotiations for health benefits contracts [58]. (see Table 1 for additional information on these tools).

In spring 2012, CDC and AMCHP hosted a one-day meeting for maternal and child health stakeholders to view some of the identified tools and to gather input on developing an online Toolbox. Thirty-two participants were invited including the developers of existing tools, experts in disability and women’s health, and potential end users of the toolbox such as state and local staff representing maternal and child health agencies whose work has the potential to include promoting the health of women with disabilities. Five of the tools were presented and discussed: Disability and Health Data System (DHDS), Community Action Guide (CAG), Project ACTION hotline, *Access to Medical Care* DVD, and *Women Be Healthy* curriculum.

Many of the stakeholders, who may have had few interactions with women with disabilities of childbearing ages, saw these tools for the first time. Stakeholders expressed interest in the presented tools as well as incorporating them into maternal and child health state and local

public health programs. Stakeholders specifically suggested including in the Toolbox (1) tools for an audience of state and local program planners for maternal and child health and chronic disease programs, researchers, health educators, clinicians, social workers, and women with disabilities, (2) evidence-base information, (3) contact information for each tool, (4) a way to accept proposals for additional tools that meet the inclusion criteria, (5) a way to collect user feedback and website statistics, and (6) routine updates. They also suggested partnering with other women's health and service-oriented organizations to reach a wide audience using various communication channels. These suggestions were operationalized.

Assessment

CDC and AMCHP drafted and presented a poster on the Toolbox at the 2013 annual AMCHP conference and co-developed the Toolbox within the main AMCHP website using Microsoft® Sharepoint®. After Beta-testing it among voluntary participants from the stakeholder meeting, AMCHP launched the Toolbox in May 2013 during National Women's Health Week. CDC and AMCHP promoted the launch through newsletters, social media and partner agency websites.

The Toolbox, http://www.amchp.org/programsandtopics/womens-health/Focus%20Areas/WomensHealthDisability/Pages/default.aspx, features four introductory pages—Introduction, Background, Tool Submission and Inclusion Criteria. In addition, as derived from the literature, there are four pages representing strategies for increasing CPS receipt among women with disabilities. Those pages are entitled (1) *Increase knowledge and use of recommended services*, (2) *Identify service gaps and monitor progress*, (3) *Create or map accessible facilities and transportation in communities*, and (4) *Empower clinicians and women with disabilities to interact effectively*. At least one tool is provided for each strategy. From May 2013–May 2014, there were 629 page views from all visits.

Conclusion

The Toolbox offers central access to existing public health tools to facilitate CPS receipt among women with disabilities for use by maternal and child health programs, clinicians (nurses, physicians, physician assistants, and therapists), public health practitioners and academics who work with women with disabilities. This approach is consistent with other Toolboxes that serve as a medium for translating knowledge into public health practice [59]. Guided by the barriers and strategies identified in the literature, the Toolbox framework is consistent with established public health frameworks [60–62] and critical components of primary care [63]. The Toolbox website may enhance access to, use and evaluation of existing tools, which in turn may help strengthen their evidence of functionality.

The tools identified are stand-alone products that might be useful in multi-component interventions. The identified tools do not represent an exhaustive search and do not address all factors that may influence CPS receipt. The Toolbox provides a link to each tool's main Website. However, it does not provide additional references or instructions such as how to

use or tailor tools to different audiences, how women with disabilities might apply the guidelines in their health care pursuits, or where to find alternate or condensed tool formats.

Much of the value in building this Toolbox derives from the shared perspectives of disability and maternal and child health stakeholders and their roles in improving CPS receipt among women with disabilities. Both disability and maternal and child health programs value health care services across the lifespan that are inclusive of race, ethnicity, economic and disability status. As such, opportunities to use this Toolbox may arise when working with adolescent girls with disabilities who are transitioning into adult care, women who are seeking reproductive and family planning services, as well as those seeking maternal support services. Immediate plans are to encourage use of and feedback on the Toolbox. Future plans are to foster the working relationships established at the stakeholder meeting and reach out to new partners to collaborate on promoting the development and knowledge of and access to tools designed to enhance CPS for women with disabilities of childbearing ages and beyond. CDC and AMCHP will continue to monitor use and growth of the Toolbox.

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Appendix

See Table 2.

Table 1

Promising public health tools to facilitate clinical preventive services

Tool name	Intended user/audience	Description/format	Type of evidence-base	Implementation information
Increase knowledge, use and coverage of recommended clinical preventive services				
1. Electronic preventive services selector (ePSS)	Clinicians (physicians and nursing staff)	This tool is a PDA mobile-device application and a web-based tool designed to help identify preventive services that are appropriate for patients. The ePSS helps clinicians search the current USPSTF recommendations by patient characteristics including age, sex, and selected behavioral risk factors	Parallel evidence—similar public health approaches	Available from the Agency for Health Care Research and Quality at http://epss.ahrq.gov/PDA/index.jsp
2. A purchaser's guide to clinical preventive services: moving science into coverage	Health insurers	This tool is a portable, electronic, searchable compilation of recommended clinical preventive services that insurers, their network of providers, and beneficiaries can refer to when selecting or implementing coverages for services that are highly effective	Theory evidence—rational and diffusion of innovation models which propose increasing knowledge to prompt better informed decision-making behaviors	Available from the National Business Group on Health at http://www.businessgrouphealth.org/benefitstopics/topics/purchasers/fullguide.pdf
3. Making preventive health care work for you—a resource guide for people with physical disabilities	People with disabilities and their providers	This tool is a portable electronic, searchable interactive document that contains checklists for assessing chronic disease risk factors and recommended clinical preventive services as well as a section for planning and recording services received	Theory evidence—health belief and activated health education models which propose engaging individuals to assess their health and plan positive actions. (User-feedback is solicited with this tool)	Available from the Center for Disability Issues and the Health Professions at http://www.cdihp.org/pdf/PreventiveHealthCare.pdf
Identify service gaps and monitoring progress				
4. Disability and health data system (DHDS)	State or community health professionals, clinicians and the general public	This tool is a portable, electronic, searchable interactive database that allows the user to select variables of interest from the Behavioral Risk Factor Surveillance System (BRFSS). The DHDS provides recent state-level estimates for the receipt of eight clinical preventive services among women with disabilities	Parallel evidence—similar public health approaches, i.e., using data to inform public health actions	Available from the Centers for Disease Control and Prevention at http://dhds.cdc.gov
Create accessible communities				
5. Community action guide (CAG)	Community-based organizations	This tool is a portable, electronic, searchable interactive document that outlines interactive steps organizations can take	Theory evidence—ecological models of community engagement to create partnerships with advocates and community	Available from the Oregon Institute on Development and Disability at http://www.ohsu.edu/xd/research/centers-institutes/institute-on-development-and-disability/

Tool name	Intended user/audience	Description/format	Type of evidence-base	Implementation information
		to assemble community members, collect data, identify barriers, map local resources, and develop a plan of action and solutions at the individual, environmental and organizational levels	representatives to promote positive community change	public-health-programs/upload/Community-Action-Guide.pdf
6. ADA checklist for readily achievable barrier removal	Administrators and building planners, community-based organizations	This tool is a portable, electronic, searchable, interactive document that helps identify barriers and low-cost actions needed to remove them	Observational evidence—This checklist has been implemented in the field [56]	Available from the Institute for Human Centered Design and ADA National Network at http://www.adachecklist.org/doc/fullchecklist/ada-checklist.pdf
7. Project ACTION national hotline 1-800-659-6428	Transportation providers. People with disabilities may also call	This tool is a live interactive telephone resource that provides technical assistance, training information, publications, and related sources to help community organizations with developing local accessible transportation. In addition, the hotline offers people with disabilities a printed ride-finding resource entitled, *How to Find a Ride*, available in Braille and audio	Observational evidence -This hotline has been operational for many years and provides support across the United States	Available from Easter Seals toll free at 1-800-659-6428
Empower clinicians and women with disabilities to interact effectively				
8. Access to medical care	Community health organizations and health care centers that offer continuing education and training to student and professional clinicians, advanced practice registered nurses (APRNs) and other public health practitioners	The Access to Medical Care, 2-part videos series with accompanying materials, teaches student and professional clinicians key concepts that are important to understand before interacting with people with physical and developmental disabilities related to barriers to care, accommodations, and effective communication and examination techniques	Parallel evidence—similar public health strategies to improve knowledge and behavior	Available from the World Institute on Disability at http://wid.org/news/new-training-video-and-curriculum-for-medical-providers-access-to-medical-care-adults-with-physical-disabilities/?searchterm=DVD
9. Women be healthy	Health educators during workshops or trainings with women with disabilities	This tool is an 8-week, 5-module training curriculum workbook. The curriculum enables women with intellectual disabilities to proactively become familiar with medical settings and participate in their own clinical preventive services, particularly breast and	Observational evidence—Curriculum participants gained significant improvements in health knowledge, behaviors, beliefs and coping strategies [57]	Available from the North Carolina Office on Disability and Health at http://projects.fpg.unc.edu/~ncodh/WomensHealth/week2.cfm

Tool name	Intended user/audience	Description/format	Type of evidence-base	Implementation information
		cervical cancer screenings		

Table 2

Clinical preventive services receipt among women, by disability status

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
Well visits					
Physical examination	The Institute of Medicine recommends at least one well-women preventive care visit annually for adult women to obtain the recommended preventive services [11]	Behavioral Risk Factor Surveillance System (BRFSS), 2006–2010	Women aged 18 years or older who received a routine checkup during the past year	71.6 %, (0.4) [16]	72.4 %, (0.2) [16]
Vision examination	The American Optometric Association (AOA) recommends regular vision examinations for adults aged 18–60 years with no risk factors every 2 years; and adults at aged 60 years or older annually [12]	None identified	None identified		
Hearing examination	The American Speech–Language–Hearing Association (ASHA) recommends hearing screening for adults as needed, requested, or when they have conditions that place them at risk for hearing disability (e.g., family history, concern of family member); and for adults at least every decade through age 50 years and at 3-year intervals thereafter [13]	National Health and Nutrition Examination Survey (NHANES) Questionnaire, Sample Person (SP)—Audiometry, 2011–2012	Women who had their hearing tested within the following time frames: <1 year, 1–4 years, 5–9 years, or 10+ years	Data exist but are not analyzed and published for women with disabilities	
Preventive services					
Teeth cleaning	The American Dental Association (ADA) recommends visiting your dentist regularly for professional cleanings and oral examinations [14]	BRFSS, 2010	Women aged 18 years or older who received a teeth cleaning during the past year	59.4 %, (1.0) [18]	73.5 %, (0.2) [18]
Influenza vaccination	The Advisory Committee on Immunization Practices (ACIP) recommends annual influenza vaccination for persons aged six months or older [15]. Note: In 1945, the Influenza trivalent vaccine became commercially	BRFSS, 2006–2010	Women aged 18 years or older who received a seasonal flu shot during the past 12 months or the seasonal flu vaccine sprayed in the nose (FluMist™).	39.1 %, (0.6) [16]	35.1 %, (0.3) [16]

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
	available in the United States. In 2010, it included H1N1				
	available in the United States. In 2010, it included H1N1				
Hepatitis A vaccination	The ACIP recommends a 2-dose HepA series for persons aged 12 months or older and those previously unvaccinated for whom immunity is desired [15]. Note: In 1995, the HepA vaccine became commercially available in the United States	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women who have ever received a HepA vaccine series—completed after the second shot is received	Data exist but are not analyzed and published for women with disabilities	
Hepatitis B vaccination	The ACIP recommends a 3-dose HepB series for persons aged 6 months or older and those previously unvaccinated for whom immunity is desired [15]. Note: In 1982, the HepB vaccine became commercially available in the United States	BRFSS, 2007	Women aged 18 years or older who have ever received a HepB vaccine series - completed after the third shot is received.	36.7 %, (1.1) [18]	39.4 %, (0.5) [18]
Tetanus, diphtheria, pertussis vaccination	The ACIP recommends a single Tdap dose for adults aged 19–64 years [15]. Note: In 2005, the Tdap booster vaccine for adults became commercially available in the United States	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women who have ever received a pertussis or whooping cough vaccine (TdaP, ADACEL™ or BOOSTRIX™)	Data exist but are not analyzed and published for women with disabilities	
Human papilloma virus (HPV) vaccination	The ACIP recommends routine vaccination of Women aged 11 or 12 years with 3 doses of either HPV2 or HPV4. The vaccination series can be started beginning at age 9 years. Vaccination is recommended for Women aged 13–26 years who have not been vaccinated previously or who have not completed the 3-dose series. If a female reaches age 26 years before the vaccination series is complete, remaining doses can be administered after age 26 years [15]. Note: In 2006, the HPV vaccine became commercially available in the United States	**#1** NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2013 **#2** NHANES, Questionnaire, Sample Person (SP)—Immunization, 2011–2012	**#1** Have you ever received an HPV shot or vaccine (CERVARIX™ or GARDASIL ™)? **#2** Have you ever received one or more doses of the HPV vaccine (CERVARIX™ or GARDASIL ™)?	Data exist but are not analyzed and published for women with disabilities	
Zoster vaccination	ACIP recommends that zoster vaccination begin at age 60 years. The Zoster vaccine is Food and Drug Administration approved for administration as early as age 50 years [15].	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women who have ever received a Zoster or Shingles vaccine (Zostavax®)	Data exist but are not analyzed and published for women with disabilities.	

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
	Note: In 2006, Zoster vaccine became commercially available in the United States Note: In 2006, Zoster vaccine became commercially available in the United States Note: In 2006, Zoster vaccine became commercially available in the United States				
Pneumococcal vaccination	The ACIP recommends pneumococcal vaccination of all persons aged 65 years and older; and 1–2 doses of pneumococcal vaccination before age 65 years if some other risk factor is present (e.g., on the basis of medical occupational, lifestyle, or other indications) [15]. Note: In 2000, the 7-valent Pneumococcal vaccine became commercially available in the United States. In 2010, the FDA licensed the 13-valent pneumococcal conjugate vaccine	BRFSS, 2006–2010	Women aged 65 years or older who have ever received a pneumonia vaccine	74.1 %, (0.4) [16]	63.8 %, (0.4) [16]
Aspirin therapy	The U.S. Preventive Services Task Force (USPSTF) recommends the use of aspirin for women aged 55–79 years when the potential benefit of a reduction in ischemic stroke outweighs the potential harm of an increase in gastrointestinal hemorrhage [10]	**#1** BRFSS Cardiovascular Health (even years only) **#2** NHIS Sample Adult—Adult Conditions, 2011 **#3** National Health and Nutrition Evaluation Survey (NHANES) Questionnaire, Sample Person (SP)—Dietary supplements and prescription medication, 2011–2012	**#1** Women who take aspirin daily or every other day **#2** Women who are now taking a low-dose aspirin each day to prevent or control heart disease **#3** Women who take aspirin every day or regularly	Data exist but are not analyzed and published for women with disabilities	
Screeening services					
Cervical cancer screening	The USPSTF recommends Papanicolaou (Pap) screening every 3 years for women aged 21–65 years, every 5 years for women aged 30–65 years when screened with a combination of Pap and HPV testing [10]	BRFSS, 2010	Women aged 18 years or older who received a Pap test during the past 3 years	78.3 %, (0.8) [16]	82.3 %, (0.4) [16]

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
Lipid screening	The USPSTF recommends routine lipid disorder screening for women, aged 20–45 years if they have risk factors for coronary heart disease, and all women aged 45 years or older. The National Heart Lung and Blood Institute (NHLBI) recommends routine lipid screening for all adults aged 20 and older every 5 years [10]	BRFSS, 2009	Women aged 20 years or older who received a blood test for cholesterol within the past 5 years	82.1 %, (0.9) [18]	79.3 %, (0.4) [18]
Blood pressure screening	The USPSTF recommends routine blood pressure screening in all adults and treatment with anti-hypertensive medication to prevent incidence of cardiovascular disease [10]	**#1** NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011 **#2** Medical Expenditure Panel Survey (MEPS)—HC, Preventive Care (AP) Section, 2011	**#1** Women who, during the past 12 months, received a blood pressure test by a doctor, nurse, or other health professional **#2** Women who, during the past 12 months, received a blood pressure test by a doctor, nurse or other health professional	Data exist but are not analyzed and published for women with disabilities	
Breast cancer screening	The USPSTF recommends mammography screening, with or without clinical breast examination, for women aged 40 years or older every 1–2 years [10]	BRFSS, 2010	Women aged 40 years or older who received a mammogram during the past 2 years.	70.7 %, (0.7) [16]	76.6 %, (0.4) [16]
Diabetes type 2	The USPSTF recommends type 2 diabetes screening in asymptomatic adults with sustained blood pressure (either treated or untreated) greater than 135/80 mm Hg. The American Diabetes Association recommends type 2 diabetes screening for adults aged 45 years or older, especially those with a BMI ≥25 kg/m2 every 3 years with a fasting plasma glucose (FPG) measurement. The American Association of Clinical Endocrinologists recommends screening beginning at age 30 years for people at high risk for diabetes [10]	NHANES Questionnaire, Sample Person (SP)—Diabetes, 2011–2012	Women who received a blood test for glucose or diabetes within the past 3 years	Data exist but are not analyzed and published for women with disabilities	

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
Colon cancer screening	The USPSTF recommends colorectal cancer screening using fecal occult blood testing (FOBT), sigmoidoscopy, or colonoscopy for adults beginning at age 50 years and continuing until age 75 years. The risks and benefits of these screening methods vary [10]	BRFSS, 2010	Women aged 50 years or older who received sigmoidoscopy or colonoscopy during the past 10 years or a fecal occult blood test (FOBT) during the past year, or both	68 %, (0.6) [18]	66.3 %, (0.5) [18]
Osteoporosis screening	The USPSTF recommends routine Bone Mineral Density (BMD) screening beginning at age 60 years for women at increased risk for osteoporotic fractures; and routine screening for women aged 65 years or older [10]. The USPSTF does not mention screening periodicity	None identified	None identified		
Mental health screening	The USPSTF recommends screening adults for depression when supports are in place to assure accurate diagnosis, effective treatment and follow up [10]	None identified	None identified		
Screening & Counseling Services					
Pregnancy planning screening and counseling	The IOM recommends educating and counseling all women with reproductive capacity about available FDA-approved methods of contraception and sterilization [11]	National Survey of Family Growth (NSFG), 2008	Women aged 15–19 years who received formal education on birth control methods	67 %, (CI not provided) [17]	70 %, (CI not provided) [17]
Tobacco screening and counseling	The USPSTF recommends screening all adults for tobacco use and providing tobacco cessation interventions for those who use tobacco products [10]	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women who received a routine physical examination within the last 3 years and whose provider asked about tobacco use	Data exist but are not analyzed and published for women with disabilities	
Alcohol misuse screening and counseling	The USPSTF recommends screening and behavioral counseling interventions to reduce alcohol misuse by adults, including pregnant women, in primary care settings [10]	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women who received a routine physical examination within the last 3 years and whose provider asked about alcohol use	Data exist but are not analyzed and published for women with disabilities	

Topic areas	Recommended clinical preventive services	Data sources	Service indicators	Prevalence of service receipt (%, standard error)	
				Women with disabilities	Women without disabilities
Weight control screening and counseling	The USPSTF recommends screening for obesity among all adults and offering intensive counseling and behavioral interventions to promote sustained weight loss for obese adults [10]. The USPSTF also recommends intensive behavioral dietary counseling for adult patients with hyperlipidemia and other known risk factors for cardiovascular and diet-related chronic disease. Intensive counseling can be delivered by primary care clinicians or by referral to other specialists such as nutritionists or dietitians [10]	MEPS—HC, Preventive Care (AP) section, 2011	Women who have ever received advice from their doctor or other health professional to eat fewer high fat or high cholesterol foods or exercise more	Data exist but are not analyzed and published for women with disabilities	
Human Immunodeficiency (HIV) Screening	The USPSTF recommends HIV screening for all adolescents and adults at increased risk for HIV infection [10]	BRFSS, 2006–2010	Women aged 18–64 years who have ever received a test for HIV, including tests of fluid from the mouth, not including tests received as part of a blood donation	51.1 %, (0.6) [16]	42.5 %, (0.2) [16]
Sexually transmitted infections (STI) and human immunodeficiency virus (HIV) counseling	The IOM recommends annual counseling on STIs and HIV for all sexually active women [11]	None identified	None identified		
Violence screening & counseling	The IOM recommends screening and counseling women and youth for interpersonal and domestic violence [11]	None identified	None identified		
Estrogen replacement therapy (ERT) counseling	The USPSTF recommends ERT benefit and risk counseling by a healthcare provider among all women aged 40 or older. This is also recommended for all peri-and postmenopausal women, or all postmenopausal women by the American College of Obstetrics, American College of Physicians, American Academy of Family Physicians, and American Geriatric Society [10]	NHIS, Sample Adult—Adult Access to Healthcare and Utilization, 2011	Women with symptoms of menopause who have talked with a provider about estrogen replacement to prevent bone loss	Data exist but are not analyzed and published for women with disabilities	