

Benchmarking Preventive Care Utilization



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The provisions of the Patient Protection and Affordable Care Act of 2010 (PPACA) require plans to offer preventive care services with no cost sharing.

In broad terms, health plans other than those that choose to remain grandfathered—eventually all health plans will be affected—are required to provide preventive services to their members without imposing cost-sharing obligations. This requirement went into effect as of September 23, 2010.

Under the new system,¹ health plans must be prepared to provide benefits for:

- Preventive services rated A or B by the U.S. Preventive Services Task Force (USPSTF)
- Immunization practices and recommendations according to the Advisory Committee on Immunization Practices of the U.S. Centers for Disease Control and Prevention (CDC)
- Preventive care and screening regimens recommended by the federal Health Resources Services Administration (HRSA) for babies, children, and adolescents under Bright Futures and the Secretary's Advisory Committee for Heritable Disorders in Newborn and Children (SACHDNC)
- Preventive care and screening recommendations for women that are scheduled to be published in August 2011

As a result, there is some expectation that higher utilization of preventive care services may be seen in the coming years. In order to understand the degree of changes in utilization that may occur, however, it is important to start with a sense of where we are at the moment with these services.

This paper looks at some of the issues involved for actuaries and other analysts in measuring and evaluating the legislation. Then it uses three examples of the preventive services—flu shots, hepatitis B screenings, and osteoporosis screenings—to examine these issues in concrete, real-world terms. We believe the results presented in this paper will provide a useful starting point as the necessity to evaluate the effect of reform changes gets underway.

PREVENTION: WHAT DOES IT LOOK LIKE?

Preventive measures in healthcare, of course, have long been discussed as a means of avoiding disease or providing early detection to minimize healthcare expenditures. Moreover, discussions of these measures have as often focused on identifying what actually qualifies as a preventive service as on the details of their implementation and an accounting of their results.

At this point, no formal definition of preventive services has yet been widely agreed on. The PPACA points to recommendations from its three primary resources, the USPSTF, the CDC vaccination schedule, and HRSA, but these guidelines themselves are fluid and will continue to change as more is learned about prevention. The USPSTF, for example, has preventive regimens classified by ranks and types in terms of effectiveness, e.g., Type A, Type B, etc. These evaluations are reviewed and revised on an annual basis.

There are thus numerous problems that actuaries and other analysts may expect to encounter as they attempt to set baselines and benchmarks for preventive services. These are just a few of the obvious ones:

- Not all data for preventive measures is easily captured. For example, seasonal flu shots, low-dose aspirin for moderate heart disease prevention, and iron supplements for pregnant women are

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¹ U.S. Departments of the Treasury, Labor, and Health and Human Services (2010). Preventive Regulations. Implementation Center, HealthCare.gov. Retrieved January 18, 2011, from <http://www.healthcare.gov/center/regulations/prevention/regs.html>.

easily and affordably acquired in non-medical settings and may never be submitted for insurance claims.

- Claim coding issues come into play. Some preventive services, even if they occur—and even if they occur in a physician's office and the visit is subsequently claimed for insurance—aren't necessarily coded specifically as preventive, and so are effectively not captured in the data. A *well newborn visit* is generally considered preventive care, but the legislation cites the specific services carried out during the visit, and not the visit itself. In contrast, claim data typically captures the well newborn visit but does not include detail on the specific procedures performed during the visit. Very likely the visit involves procedures such as measurements for certain growth and development indicators, which are essentially preventive in nature. Certain presumptions need to be made about some procedures that aren't specifically supported by the codes in the claim data but are assumed to occur.
- Shifting demographics and the necessity for *catch up*, e.g., some adults still require vaccinations that are unnecessary if administered as children. This may be a result, for whatever reasons, of some people not getting the vaccinations when they were younger. Or it may be the result of new vaccinations for children becoming available. In the latter cases, it may be optimal to administer the new vaccinations to children, but they are still useful and recommended for those who were adults when they became available.
- A number of the recommendations for preventive care involve patients considered *at risk*. There are problems both with clearly defining the term *at risk* as well as with identifying people who may fall in the category, and it can become difficult to accurately set the percentage of the population that may be labeled this way. The osteoporosis guidelines from the USPSTF offer a good example of the complexity and nuances involved, which we will look at more closely in the section below.
- It's likely that some overuse of preventive services is occurring. Some of that may be accounted for by limiting utilization counts to recommended levels per year. However, this won't necessarily work in cases where someone is receiving preventive care services more frequently over the years than is recommended in the guidelines.
- For plans that don't cover preventive services, providers may bill *non-preventive* codes to get them paid. With the legislative change to cover preventive care, providers may code these services differently in the future.
- Tests designated as screening should be reliable (e.g., screening mammography, screening colonoscopy); however, other tests may start as screening but change to diagnostic during the procedure, e.g., a screening colonoscopy that identifies a polyp is billed as a diagnostic colonoscopy with removal of the polyp. Services that

changed from screening to diagnostic will be difficult to identify and/or quantify.

- Many procedure codes do not differentiate diagnostic from screening services. For example, a urinalysis is recommended for pregnant women as a preventive screening for bacteriuria. However, the same healthcare common procedure coding system (HCPCS) code is used for pregnant and non-pregnant people with symptoms of a urinary tract infection—which is then diagnostic. In most situations, adding limitations on age, diagnosis, and/or frequency will narrow the scope of services considerably.

Even in situations where there are codes that indicate a specific service, those services, particularly laboratory services, may be provided with any number of laboratory testing options and billed using several of a broad list of codes. We are certain there is a wide range of opinion on how broad those lists should be. We have attempted to stay consistent in the *breadth* of codes we included, while taking into consideration the lists we used as references.

The metrics that rely on preventive/counseling codes cannot be accurately captured separately in the data now (e.g., blood pressure screening, reduction in alcohol misuse, use of aspirin to prevent cardiovascular disease). These metrics rely on screening diagnoses and/or no reimbursable (report only) procedure codes that are not consistently reported because there has been no reimbursement impact. However, the *report only* procedure codes and screening diagnosis codes are helpful in defining how providers should bill in the future for reimbursement and measurement of quality performance.

For the purposes of this paper we are focusing only on the problems of capturing data in order to measure utilization of preventive services. But it may be worth mentioning briefly that beyond these questions of benchmarks and baselines there is an even larger question to examine about preventive services, and that is whether indeed they are capable of systemically lowering healthcare costs and producing better health outcomes in the long run.

A Milliman study published late in 2008,² for example, offered preliminary analysis of the increasingly popular employee wellness program. These programs include many features that may fairly be considered preventive, such as strategies for weight control and in general healthier lifestyles, following guidelines offered by the CDC and other federal agencies.

The study, noting that many employers have been adopting the programs specifically to lower their healthcare costs, cautions on the importance of setting realistic and manageable expectations and of understanding the evidence base for the efficacy of these preventive-oriented regimens. "We believe the wellness movement reflects both wisdom and naiveté," the report states flatly. The same could be said for at least some preventive services, as evidenced by the debate over testing for prostate cancer.

² Fitch, K. & Pyenson, B. (2008). "Taking stock of wellness." Benefits Quarterly. Retrieved January 11, 2011, from <http://www.crnstone.com/newsletters/taking%20stock%20of%20wellness-milliman%20dec08.pdf>.

GETTING DOWN TO CASES

To better examine some of the ins and outs of determining baselines and benchmarks for preventive services utilization, it may be most useful to look briefly at concrete cases. This enables us to illustrate some of the issues involved, helping to better show how we have determined patterns of use.

Flu shots

The first example we have chosen is the influenza vaccination, more commonly known as the flu shot. This vaccination appears on the CDC list of vaccinations, where until recently it was recommended annually for everyone over 50 and for those under 50 *at high risk*. In February 2010 that was amended to include everyone, especially those *at high risk*.³

This leads first to an area of notable nuance, namely defining *high risk*, or *at risk*. In the case of the flu shot the CDC is fairly specific: *high risk* applies to pregnant women, children under the age of 5 (especially those under 2), people over 50, anyone with certain chronic medical conditions, people living in nursing homes or long-term care facilities, and people likely to be frequently in contact with the flu, such as healthcare workers and those living in the same household as others on this list. Note that for other preventive services, for example where behavioral habits such as drug use are used to define the *at-risk* population, definitions of *at risk* may not always be as clear.

It's also worth considering briefly the recent shift in recommendations taken by the CDC, from a more optional stance regarding flu shots for those under 50 to a position more or less recommending them. This illustrates an ongoing problem of determining utilization in terms of compliance to ever-shifting guidelines. Before 2010, a 35-year-old skipping flu shots would not be particularly noteworthy; now that person could be considered *out of compliance with the recommendation*, which would affect analysis of overall rates of utilization.

An obvious problem in measuring utilization of flu shots, and one that makes it a particularly good example of some of the problems of data gathering and analysis here, is that many people are simply taking advantage of the easy availability and affordability of flu shots at their workplaces or other convenient locations such as supermarkets. Because this expense is often not submitted to insurance companies, it becomes more difficult to accurately measure utilization of this particular preventive service. There have been many attempts by researchers to estimate the national vaccination rates. A CDC study found that 32.3% of the population in the United States received an influenza vaccination in 2006.⁴

Hepatitis B screenings

A second example of a preventive service that we looked at closely is the hepatitis B screening, which appears on the USPSTF guidelines and is recommended as a one-time test for pregnant women. While this screening is useful in general, and certainly necessary for anyone exhibiting specific symptoms of hepatitis B infection, it's recommended as a preventive measure for pregnant women because newborns may be particularly vulnerable to the virus. According to the American Association for Clinical Chemistry, up to 90% of pregnant women infected with hepatitis B will ultimately produce children who become carriers.⁵

Additionally, this is another preventive service where the recommendations are based in part on identification of an *at-risk* population, in this case defined as those with histories of unprotected sexual contact and/or intravenous drug use. While this definition of *at risk* is more narrowly construed than some others, it falls into an area where people are often reluctant to acknowledge the behavior that puts them into the category and, even if admitted, it is rarely detected using claim data. This can make gathering accurate data more difficult.

With this screening, even as it is only recommended for a narrowly defined population—and one that is often by definition already under the care of a physician—we also see low utilization relative to the recommended levels, 37% overall. In looking at some of the breakouts by age, the numbers improve somewhat, but never get much higher than 59%. Figure 1 on page 4 compares the actual utilization of this procedure by age to the recommended levels.

Osteoporosis Screenings

In terms of some of the complexities related to working with *at-risk* labels, osteoporosis provides several good examples of problems that may be encountered. The USPSTF recommends that women 65 years of age and older be screened routinely for osteoporosis and that routine screening begin at age 60 for women *at risk* for osteoporotic fractures, with the critical risk factors for the 60-64 age group described as follows:

Modeling analysis suggests that the absolute benefits of screening for osteoporosis among women aged 60-64 who are at increased risk for osteoporosis and fracture are comparable to those of routine screening in older women. The exact risk factors that should trigger screening in this age group are difficult to specify based on evidence. Lower body weight (weight < 70 kg) is the single best predictor of low bone mineral density. Low weight and no current use of estrogen therapy are incorporated with age into the 3-item Osteoporosis Risk Assessment Instrument (ORAI). There is less evidence to support the use of other individual risk factors.⁶

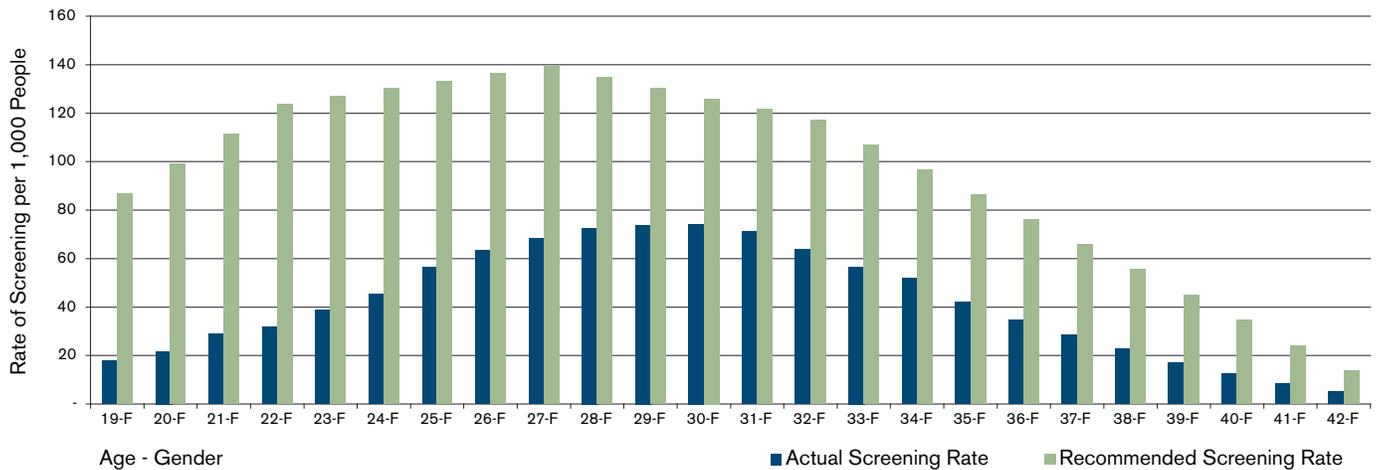
³ Centers for Disease Control and Prevention (October 25, 2010). Key facts about seasonal flu vaccine. Seasonal Influenza (Flu). Retrieved Jan. 11, 2011, from <http://www.cdc.gov/flu/protect/keyfacts.htm>.

⁴ Centers for Disease Control and Prevention (July 2006). Estimates of influenza vaccination target population sizes. Retrieved January 26, 2011, from <http://www.cdc.gov/flu/professionals/vaccination/pdf/targetpopchart.pdf>.

⁵ American Association for Clinical Chemistry (June 17, 2008). Pregnancy & prenatal testing: Pre-conception: Hepatitis B testing. Lab Tests Online. Retrieved January 11, 2011, from http://www.labtestsonline.org/understanding/wellness/pre_hepb.html.

⁶ U.S. Preventive Services Task Force (July 2010). Screening for osteoporosis: Recommendations and rationale. Retrieved January 14, 2011, from <http://www.uspreventiveservicestaskforce.org/3rduspstf/osteoporosis/osteorr.htm>.

FIGURE 1: ACTUAL VS. RECOMMENDED HEPATITIS B SCREENING UTILIZATIONS BY AGE



Sources:

Actual – Hepatitis B screening rates from MedStat utilization data

Recommendation – USPSTF (<http://www.uspreventiveservicestaskforce.org/uspstf/uspshpbpg.htm>) and CDC (http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_15.pdf)

According to the osteoporosis risk assessment instrument (ORAI) test cited by the USPSTF⁷, there are two ways that women of ages 60-64 could satisfy criteria to be recommended for screening. The first is if they weigh less than 60 kg. (132 lbs.). The second is if they weigh 60-69 kg. (132-152 lbs.) and are not using estrogen therapy.

About 25% of women of ages 60-64 weigh less than 60 kg, and an additional 25% weigh 60-69 kg.⁸ In a CDC study published in 2003, 22% of postmenopausal women reported currently using hormone replacement therapy (HRT).⁹ Assuming independence between weight and HRT use, the percentage of women ages 60-64 *at risk* for osteoporosis is $25\% + 25\% \times 78\% = 44.5\%$. The fact that only 14% of women reported HRT use primarily for the prevention of osteoporosis¹⁰ supports the theory of independence between weight and HRT use (because osteoporosis and weight are correlated). The vast majority of women in this survey used HRT to prevent hot flashes.

RESULTS

The accompanying Attachments display the findings of our research on actual utilization rates of preventive services, and compare them to our calculation of the recommended utilization rates. Attachments compare the actual and recommended utilization rates for the CDC Adult Immunization Schedule, the CDC Child Immunization Schedule, the HRSA Bright Futures Schedule, and the USPSTF preventive services given A and B ratings. Each attachment shows the average

number of annual services recommended per person by age group and uses those rates to determine the recommended utilization rate per 1,000 for an assumed population with standardized demographics for a commercially insurable under-65 population. The *At Risk* column indicates whether each service is subject to additional recommended utilization based upon person-specific risk factors. The *Actual Util per 1000* is what we observed in the commercial data, adjusted to reflect the same standardized demographics. The *Actual/Recommended Ratio* column gives the percentage of recommended utilization levels taking place for each procedure.

In order to provide meaningful estimates of actual utilization rates for certain services we made a number of assumptions as outlined below:

- Many of the HRSA procedures are performed during physical exams and not typically coded separately. For those procedures that are almost always performed, we have assumed that such procedures were being performed during each physical exam within the age range where the procedure is recommended. This was done for the entire measurements category, vision and hearing screening, developmental screening, autism screening, developmental surveillance, psychosocial/behavioral assessment, and dental referrals.
- Newborn metabolic screening is performed routinely in hospitals by drawing blood for a set of tests from newborn babies’ feet. We

⁷ Centre for Evidence Based Physiotherapy. The osteoporosis risk assessment instrument (ORAI). Retrieved February 3, 2011, from https://www.cebp.nl/vault_public/filesystem/?ID=144.

⁸ Halls.md (May 2008). Average height and weight charts: Showing percentiles and variance for men and women. Health Calculators and Charts. Retrieved February 3, 2011, from <http://www.halls.md/chart/height-weight.htm>.

⁹ National Health and Nutrition Examination Survey (January 2003). Use of hormone replacement therapy among postmenopausal women in the United States, 1988-94. CDC. Retrieved February 3, 2011, from <http://www.cdc.gov/nchs/data/nhanes/databriefs/hrtinwomen.pdf>.

¹⁰ Ballard, K. (October 2002). Women’s use of hormone replacement therapy for disease prevention; results of a community survey. British Journal of General Practice 52: 835-837. Retrieved February 3, 2011, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1316089/pdf/12392126.pdf>.

found that it was only being coded for a small percentage of births. Based on clinical input, we assumed this screening was performed for all births identified in the experience data. PKU screening, sickle cell disease screening, and congenital hypothyroidism screening are all included as part of a newborn metabolic screening panel.

- Blood pressure screening counts were based on physical exam counts rather than our list of specific HCPCS codes. It appeared that blood pressure screening HCPCS were rarely recorded even though such screenings are routinely performed at physical exams.

We left several of the actual utilization rates out of the attachments as follows:

- Supplements are not coded properly as many are available over the counter (OTC). We have left the recommended utilization level in our exhibits, but have not included actual utilization levels.
- Preventive counseling visits are not well identified in the data, in most cases. General counseling codes are routinely used and the only way to connect them to one of the recommended counseling procedures is to use an ICD-9 diagnosis code. Our analysis led us to believe that this method was unreliable and we have therefore left the actual utilization out of our exhibits.
- Although we were able to identify claims for visual acuity screening from the data, we do not believe we were able to reasonably capture the full utilization because of the low utilization rates observed and the fact that it is only occasionally coded apart from a general physical exam.
- We did not include alcohol and drug use assessment in the analysis because it is not well coded and the actual observed utilization rates did not seem representative of the screening frequency. We also felt it was unreasonable to use physical exams as a proxy for this service because there is evidence from external studies that alcohol and drug use assessment is not being performed as often as is recommended.

CONCLUSION

In general, we have found that current utilization of preventive services is roughly 60% to 70% of what is clinically recommended in PPACA for many services. However, there is fairly significant variation by service, which is due to either variation in actual utilization rates or to measurement difficulties related to some of the factors identified previously in this report. We did see higher utilization for childhood-related services than for adult, likely for the obvious reasons: parents taking better care of their children than they do of themselves. Children are also often required to have certain vaccinations and procedures in order to attend schools. Additionally, it's routine for newborns to be administered a certain regimen of preventive services. In general, it seems to be easier for adults to put off the preventive services recommended for them.

There's little in the pre-PPACA data to indicate where the preventive-care trends are going to go next—except, very generally, up. The focus on preventive care in the reform measures, and the publicity surrounding them alone, will presumably push utilization in that direction. There are also certain health plans that don't presently cover some of the procedures, but will be required to now. That, coupled with the fact that many of the procedures must be offered with no copays, would also tend to suggest greater utilization moving forward. While it's unlikely that utilization of preventive services will ever reach 100%, it is certainly possible we will see it go up from the current levels.

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CDC ADULT VACCINATION RECOMMENDATIONS

Service Category		Actual Util per 1000	Recommended Util per 1000	Ratio	Age
					19-26 Years
					Recommended Frequency
Immunizations					
Hepatitis B	Actual utilization	4.46			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated		48.26		3 doses lifetime if at risk, or if immunity is desired
Diphtheria/Tetanus/ Acellular Pertussis (Tdap)	Actual utilization	22.32			
	Recommended/ previously vaccinated		74.00		Administer Td booster every 10 years
	Not previously vaccinated		105.34		3 doses at first administration (assuming age 19 is first admin)
Pneumococcal	Actual utilization	4.84			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated		9.46		1 or 2 doses lifetime if at risk
Influenza (1)		53.42	740.01	7%	Annually if at high risk
Measles/ Mumps/Rubella	Actual utilization	0.64			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated		36.60		1 or 2 doses between ages 19-49
Varicella	Actual utilization	0.40			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated (or no prior history of disease)		32.17		2 doses lifetime
Hepatitis A	Actual utilization	3.64			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated (or no prior history of disease)		32.17		2 doses lifetime if at risk, or if immunity is desired
Meningococcal	Actual utilization	0.81			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated		12.19		1-2 lifetime if at risk
Human Papillomavirus (HPV)	Actual utilization	7.03			
	Recommended/ previously vaccinated		0.00		
	Not previously vaccinated		21.37		3 doses recommended for females ages 19-26
Zoster		0.90	11.03	8%	

Note:
 (1) Influenza vaccines are often administered in settings such as flu clinics and not claimed on health insurance. A CDC study found that 32.3% of the population in the United States received an influenza vaccination in 2006.
 Source: Centers for Disease Control and Prevention (July 2006). Estimates of Influenza Vaccination Target Population Sizes Online.
 Retrieved January 26, 2011 from <http://www.cdc.gov/flu/professionals/vaccination/pdf/targetpopchart.pdf>

CDC ADULT VACCINATION RECOMMENDATIONS (CONTINUED)

Service Category		Age		
		27-49 Years	50-59 Years	60-64 Years
		Recommended Frequency	Recommended Frequency	Recommended Frequency
Immunizations				
Hepatitis B	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated	3 doses lifetime if at risk, or if immunity is desired	3 doses lifetime if at risk, or if immunity is desired	3 doses lifetime if at risk, or if immunity is desired
Diphtheria/Tetanus/ Acellular Pertussis (Tdap)	Actual utilization			
	Recommended/ previously vaccinated	Administer Td booster every 10 years	Administer Td booster every 10 years	Administer Td booster every 10 years
	Not previously vaccinated	Administer Td booster every 10 years	Administer Td booster every 10 years	Administer Td booster every 10 years
Pneumococcal	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated	1 or 2 doses lifetime if at risk	1 or 2 doses lifetime if at risk	1 or 2 doses lifetime if at risk
Influenza (1)		Annually if at high risk	Annually	Annually
Measles/ Mumps/Rubella	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated	1 or 2 doses between ages 19-49	1 dose if at risk and still unvaccinated	1 dose if at risk and still unvaccinated
Varicella	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated (or no prior history of disease)	2 doses lifetime	2 doses lifetime	2 doses lifetime
Hepatitis A	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated (or no prior history of disease)	2 doses lifetime if at risk, or if immunity is desired	2 doses lifetime if at risk, or if immunity is desired	2 doses lifetime if at risk, or if immunity is desired
Meningococcal	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated	1-2 lifetime if at risk	1-2 lifetime if at risk	1-2 lifetime if at risk
Human Papillomavirus (HPV)	Actual utilization			
	Recommended/ previously vaccinated			
	Not previously vaccinated			
Zoster				1 dose lifetime if age 60+

Note:
 (1) Influenza vaccines are often administered in settings such as flu clinics and not claimed on health insurance. A CDC study found that 32.3% of the population in the United States received an influenza vaccination in 2006. Source: Centers for Disease Control and Prevention (July 2006). Estimates of Influenza Vaccination Target Population Sizes Online. Retrieved January 26, 2011 from <http://www.cdc.gov/flu/professionals/vaccination/pdf/targetpopchart.pdf>

CDC CHILD VACCINATION RECOMMENDATIONS

Service Category	Actual Util. per 1000	Well Man. Util. per 1000	Ratio	Birth	1 Month	2 Months	4 Months
				Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Immunizations							
Hepatitis B	23.14	36.70	63%	All newborns once, with additional immunoglobulin if mother is hep B positive	At either 1 or 2 months	At either 1 or 2 months	
Rotavirus	16.89	24.42	69%				First dose at age 6-14 weeks; no vaccination for infants 15 weeks and older
Diphtheria/Tetanus/Acellular Pertussis	60.29	83.15	73%			First dose no earlier than 6 weeks	Second dose
Haemophilus Influenza B	29.27	36.63	80%			First dose no earlier than 6 weeks	Second dose at 4 or 6 months
Pneumococcal	36.11	49.49	73%			First dose	Second dose
Inactivated Polio Vaccine	37.33	56.01	67%			First dose no earlier than 6 weeks	Second dose
Influenza (1)	54.87	274.39	20%				
Measles/Mumps/Rubella	19.21	25.13	76%				
Varicella (1)	33.44	25.13	133%				
Hepatitis A (1)	33.90	24.42	139%				
Meningococcal	14.12	14.94	95%				
Human Papillomavirus	16.95	44.82	38%				

Note:
 (1) The actual utilization identified for the Varicella and Hepatitis A vaccines was above recommended levels and the Meningococcal vaccine utilization was close to recommended. Some external research indicates that current vaccination rates are significantly lower than this. We performed a variety of checking to verify our findings.

CDC CHILD VACCINATION RECOMMENDATIONS (CONTINUED)

Service Category	6 Months	12 Months	15 Months	18 Months	19-23 Months
	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Immunizations					
Hepatitis B	Third dose no earlier than 24 weeks				
Rotavirus	Dose on sheet is not indicated if doses at 2, 4 months are given				
Diphtheria/Tetanus/ Acellular Pertussis	Third dose	Fourth dose, if at least 6 months since third dose	Alternate fourth dose	Alternate fourth dose	
Haemophilus Influenza B	Dose on sheet is not indicated if doses at 2, 4 months are given	Final dose; administer between 12 and 15 months. Footnotes mention final dose as late as 4 years of age.			
Pneumococcal	Third dose	Fourth dose between 12 & 15 months			
Inactivated Polio Vaccine	Third dose administer 6-18 months				
Influenza	Two shots given to children 6-12 months during vaccination season, so 1 shot on avg for each child age 0	Two shots given to the 50% of children receiving first shot, 1 shot to other 50% of children			
Measles/Mumps/Rubella		First dose; minimum age 12 months. Second dose may be administered provide it is at least 28 days after the first.	Second dose may be administered, provided it is at least 28 days after the first	Second dose may be administered, provided it is at least 28 days after the first	Second dose may be administered, provided it is at least 28 days after the first
Varicella (1)		First dose; minimum age 12 months	Second dose may be administered, provided it is at least 3 months after first	Second dose may be administered, provided it is at least 3 months after first	Second dose may be administered, provided it is at least 3 months after first
Hepatitis A (1)		First dose; no earlier than age 12 months		Second dose; minimum six months after first	
Meningococcal					
Human Papillomavirus					

CDC CHILD VACCINATION RECOMMENDATIONS (CONTINUED)

Service Category	2-3 Years Recommended Frequency	4-6 Years Recommended Frequency	7-10 Years Recommended Frequency	11-12 Years Recommended Frequency	13-18 Years Recommended Frequency
Immunizations					
Hepatitis B			Administer 3-dose series to those not previously vaccinated	Administer 3-dose series to those not previously vaccinated	Administer 3-dose series to those not previously vaccinated
Rotavirus					
Diphtheria/Tetanus/Acellular Pertussis		Final dose		Booster dose	If not already immunized
Haemophilus Influenza B					
Pneumococcal	Administer PPSV at least 2 months after, but not earlier than age 2, last dose of PCV to children with certain medical conditions		Revaccinate children with certain medical conditions 5 years after last immunization, using PPSV		
Inactivated Polio Vaccine		Final dose at age 4 and at least 6 months after previous dose. If four doses administered prior to age 4, a fifth should be given at age 4-6 years.			
Influenza	Annual dose	Annual dose	Annual dose	Annual dose	Annual dose
Measles/Mumps/Rubella	Second dose may be administered, provided it is at least 28 days after the first	Second dose	If not previously vaccinated, administer 2 doses, or the second dose for those who have already received the first, at least 28 days apart	If not previously vaccinated, administer 2 doses, or the second dose for those who have already received the first, at least 28 days apart	If not previously vaccinated, administer 2 doses, or the second dose for those who have already received the first, at least 28 days apart
Varicella (1)	Second dose may be administered, provided it is at least 3 months after first	Second dose	Administer 2 doses, or the second dose if first was administered, to persons aged 7-18 without evidence of immunity	Administer 2 doses (at least 3 months apart), or the second dose if first was administered, to persons aged 7-18 without evidence of immunity	Administer 2 doses (at least 28 days apart), or the second dose if first was administered, to persons aged 7-18 without evidence of immunity
Hepatitis A (1)	2-dose series (doses at least 6 months apart) recommended for certain populations, if no prior vaccination	2-dose series (doses at least 6 months apart) recommended for certain populations, if no prior vaccination	2-dose series (doses at least 6 months apart) recommended for certain populations, if no prior vaccination	2-dose series (doses at least 6 months apart) recommended for certain populations, if no prior vaccination	2-dose series (doses at least 6 months apart) recommended for certain populations, if no prior vaccination
Meningococcal	Administer no earlier than 2 years of age to children with risk factors	Administer 3 years after first vaccination, to children previously vaccinated between the ages of 2 & 6	Administer 3 years after first vaccination, to children previously vaccinated between the ages of 2 & 6	Vaccination age for those not at risk	Dose if not previously vaccinated
Human Papillomavirus			Males between the ages of 9 and 18 may have a 3-dose series	First dose. Second dose 1-2 months after first; third dose at least 24 weeks after the first.	Administer if not already vaccinated

Note:
 (1) The actual utilization identified for the Varicella and Hepatitis A vaccines was above recommended levels and the Meningococcal vaccine utilization was close to recommended. Some external research indicates that current vaccination rates are significantly lower than this. We performed a variety of checking to verify our findings.

HRSA RECOMMENDATIONS

Service Category	Actual Util per 1000	Recommended Util per 1000	Actual / Recommended Ratio	Infancy						
				Newborn	3-5 days	1 month	2 month	4 month	6 month	9 month
History				Recommended Frequency						
Initial/Interval (1)	256.11	393.56	65%	Once	Once	Once	Once	Once	Once	Once
Measurements										
Length/Height and Weight (1)	256.11	393.56	65%	Once	Once	Once	Once	Once	Once	Once
Head Circumference (1)	94.87	135.01	70%	Once	Once	Once	Once	Once	Once	Once
Weight For Length (1)	83.39	122.09	68%	Once	Once	Once	Once	Once	Once	Once
Body Mass Index (1)	256.11	393.56	65%	Once	Once	Once	Once	Once	Once	Once
Blood Pressure (1)	161.24	245.63	66%	If at risk	If at risk	If at risk	If at risk	If at risk	If at risk	If at risk
Sensory Screening										
Vision (1)	83.89	126.37	66%		If at risk	If at risk	If at risk	If at risk	If at risk	If at risk
Hearing	58.82	80.84	73%		Once	If at risk	If at risk	If at risk	If at risk	If at risk
Developmental/Behavioral Assessment										
Developmental Screening (1)	49.04	37.34	131%		All visits	All visits	All visits	All visits	All visits	All visits
Autism Screening (1)	14.66	25.13	58%							Once
Developmental Surveillance (1)	256.11	356.23	72%	Once	Once	Once	Once	Once	Once	
Psychosocial/Behavioral Assessment (1)	256.11	393.56	65%	Once	Once	Once	Once	Once	Once	Once
Alcohol and Drug Use Assessment (2)		22.07								
Procedures										
Newborn Metabolic Screening (3)	12.21	12.21	100%	Done betw. Birth and 2 months						
Hematocrit or Hemoglobin	45.13	34.01	133%					If at risk		
Cervical Dysplasia Screening	6.99	7.43	94%							
Lead Screening	5.73	5.12	112%						If at risk	If at risk
Dyslipidemia Screening	2.58	13.85	19%							
STI Screening	0.10	70.10	0%							
Tuberculin Test	6.96	6.96	100%			If TB symptoms present			If TB symptoms present	
Oral Health										
Dental Referral (1)	18.88	25.84	73%						If at risk	If at risk
Anticipatory Guidance (1)	256.11	393.56	65%	Once	Once	Once	Once	Once	Once	Once

- Notes:**
- (1) This procedure is almost always performed during a physical exam and not typically coded separately. Actual utilization represents the number of physical exams performed at ages where this procedure is recommended.
 - (2) Alcohol and drug use assessment was left off the analysis because it is not well coded and the actual utilization numbers that we found did not seem representative of the screening frequency. We also felt it was unreasonable to use physical exams as a proxy because there is evidence from external studies that alcohol and drug use assessment is not being performed as often as is recommended.
 - (3) Newborn metabolic screening is performed routinely in hospitals, but we found it was only being coded in less than 10% of births. Based on clinical input, we assumed this was performed for all births.

HRSA RECOMMENDATIONS (CONTINUED)

Service Category	Early Childhood						
	12 month Recommended Frequency	15 month Recommended Frequency	18 months Recommended Frequency	24 month Recommended Frequency	30 Month Recommended Frequency	3 year Recommended Frequency	4 year Recommended Frequency
History							
Initial/Interval (1)	Once	Once	Once	Once	Once	Once	Once
Measurements							
Length/Height and Weight (1)	Once	Once	Once	Once	Once	Once	Once
Head Circumference (1)	Once	Once	Once	Once			
Weight For Length (1)	Once	Once	Once				
Body Mass Index (1)	Once	Once	Once	Once	Once	Once	Once
Blood Pressure (1)	If at risk	If at risk	If at risk	If at risk	If at risk	Once	Once
Sensory Screening							
Vision (1)	If at risk	If at risk	If at risk	If at risk	If at risk	Once	Once
Hearing	If at risk	If at risk	If at risk	If at risk	If at risk	If at risk	Once
Developmental/ Behavioral Assessment							
Developmental Screening (1)	All visits	All visits	All visits	All visits	All visits	All visits	All visits
Autism Screening (1)			Once	Once	Once		
Developmental Surveillance (1)	Once	Once		Once		Once	Once
Psychosocial/Behavioral Assessment (1)	Once	Once	Once	Once	Once	Once	Once
Alcohol and Drug Use Assessment (2)							
Procedures							
Newborn Metabolic Screening (3)							
Hematocrit or Hemoglobin	Once		If at risk	If at risk		If at risk	If at risk
Cervical Dysplasia Screening							
Lead Screening	If at risk		If at risk	If at risk		If at risk	If at risk
Dyslipidemia Screening				If at risk			If at risk
STI Screening							
Tuberculin Test	If TB symptoms present		If TB symptoms present	If TB symptoms present		If TB symptoms present	If TB symptoms present
Oral Health							
Dental Referral (1)	If at risk		If at risk	If at risk	If at risk	Once	
Anticipatory Guidance (1)	Once	Once	Once	Once	Once	Once	Once

- Notes:**
- (1) This procedure is almost always performed during a physical exam and not typically coded separately. Actual utilization represents the number of physical exams performed at ages where this procedure is recommended.
 - (2) Alcohol and drug use assessment was left off the analysis because it is not well coded and the actual utilization numbers that we found did not seem representative of the screening frequency. We also felt it was unreasonable to use physical exams as a proxy because there is evidence from external studies that alcohol and drug use assessment is not being performed as often as is recommended.
 - (3) Newborn metabolic screening is performed routinely in hospitals, but we found it was only being coded in less than 10% of births. Based on clinical input, we assumed this was performed for all births.

HRSA RECOMMENDATIONS (CONTINUED)

Service Category	Middle Childhood					
	5 year Recommended Frequency	6 year Recommended Frequency	7 year Recommended Frequency	8 year Recommended Frequency	9 Year Recommended Frequency	10 year Recommended Frequency
History						
Initial/Interval (1)	Once	Once	Once	Once	Once	Once
Measurements						
Length/Height and Weight (1)	Once	Once	Once	Once	Once	Once
Head Circumference (1)						
Weight For Length (1)						
Body Mass Index (1)	Once	Once	Once	Once	Once	Once
Blood Pressure (1)	Once	Once	Once	Once	Once	Once
Sensory Screening						
Vision (1)	Once	Once	If at risk	Once	If at risk	Once
Hearing	Once	Once	If at risk	Once	If at risk	Once
Developmental/ Behavioral Assessment	All visits					
Developmental Screening (1)						
Autism Screening (1)						
Developmental Surveillance (1)	Once	Once	Once	Once	Once	Once
Psychosocial/Behavioral Assessment (1)	Once	Once	Once	Once	Once	Once
Alcohol and Drug Use Assessment (2)						
Procedures						
Newborn Metabolic Screening (3)						
Hematocrit or Hemoglobin	If at risk					
Cervical Dysplasia Screening						
Lead Screening	If at risk	If at risk				
Dyslipidemia Screening		If at risk		If at risk		If at risk
STI Screening						
Tuberculin Test	If TB symptoms present					
Oral Health						
Dental Referral (1)		Once				
Anticipatory Guidance (1)	Once	Once	Once	Once	Once	Once

- Notes:**
- (1) This procedure is almost always performed during a physical exam and not typically coded separately. Actual utilization represents the number of physical exams performed at ages where this procedure is recommended.
 - (2) Alcohol and drug use assessment was left off the analysis because it is not well coded and the actual utilization numbers that we found did not seem representative of the screening frequency. We also felt it was unreasonable to use physical exams as a proxy because there is evidence from external studies that alcohol and drug use assessment is not being performed as often as is recommended.
 - (3) Newborn metabolic screening is performed routinely in hospitals, but we found it was only being coded in less than 10% of births. Based on clinical input, we assumed this was performed for all births.

HRSA RECOMMENDATIONS (CONTINUED)

Service Category	Adolescence				
	11-17 years	18 year	19 year	20 year	21 year
	Recommended Frequency				
History					
Initial/Interval (1)	Once per year	Once	Once	Once	Once
Measurements					
Length/Height and Weight (1)	Once per year	Once	Once	Once	Once
Head Circumference (1)					
Weight For Length (1)					
Body Mass Index (1)	Once per year	Once	Once	Once	Once
Blood Pressure (1)	Once per year	Once	Once	Once	Once
Sensory Screening					
Vision (1)	If at risk	Once	If at risk	If at risk	If at risk
Hearing	If at risk				
Developmental/ Behavioral Assessment					
Developmental Screening (1)	All visits	All visits	All visits		
Autism Screening (1)					
Developmental Surveillance (1)	Once per year	Once	Once	Once	Once
Psychosocial/Behavioral Assessment (1)	Once per year	Once	Once	Once	Once
Alcohol and Drug Use Assessment (2)	If at risk				
Procedures					
Newborn Metabolic Screening (3)					
Hematocrit or Hemoglobin	If at risk				
Cervical Dysplasia Screening		Females w/in 3 years of sexual activity			
Lead Screening					
Dyslipidemia Screening	If at risk	Once between 18-21	Once between 18-21	Once between 18-21	Once between 18-21
STI Screening	If sexually active, once every three years				
Tuberculin Test	If TB symptoms present				
Oral Health					
Dental Referral (1)					
Anticipatory Guidance (1)	Once per year	Once	Once	Once	Once

- Notes:**
- (1) This procedure is almost always performed during a physical exam and not typically coded separately. Actual utilization represents the number of physical exams performed at ages where this procedure is recommended.
 - (2) Alcohol and drug use assessment was left off the analysis because it is not well coded and the actual utilization numbers that we found did not seem representative of the screening frequency. We also felt it was unreasonable to use physical exams as a proxy because there is evidence from external studies that alcohol and drug use assessment is not being performed as often as is recommended.
 - (3) Newborn metabolic screening is performed routinely in hospitals, but we found it was only being coded in less than 10% of births. Based on clinical input, we assumed this was performed for all births.

USPSTF RECOMMENDATIONS								
Service Category	Actual Util per 1000	Recommended Util per 1000	Ratio	Child <1	Child 1-1	Child 2-4	Child 5-11	Child 12-17
				Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Screening Procedures								
Abdominal Aortic Aneurysm		0.00						
Anemia	7.00	20.31	34%					During pregnancy, once
Bacteriuria	7.47	20.31	37%					During pregnancy, once
Blood Pressure (1)	675.41	559.99	121%					
Breast Cancer - Mammography	97.59	165.68	59%					
Cervical Cancer	107.41	127.56	84%					
Chlamydia	11.19	150.82	7%					Annually for sexually active females
Cholesterol-Dyslipidemia	129.76	114.61	113%					
Colorectal Cancer	28.79	41.43	69%					
Depression	0.03	55.20	0%					At discretion of clinician
Diabetes	40.27	224.00	18%					
Gonorrhea	8.37	150.82	6%					Annually for sexually active females
Hearing, newborns (refer to the more comprehensive HRSA hearing recommendation)								
Hepatitis B Screening	7.54	20.31	37%					During pregnancy, once
HIV	1.78	184.31	1%					If at risk
Hypothyroidism, Congenital (2)	0.93	12.21	8%	once				
Osteoporosis	0.63	6.83	9%					
Phenylketonuria (PKU) (2)	12.21	12.21	100%	once				
Rh Incompatibility	9.87	23.18	43%					1-2x during pregnancy, depending upon whether father is RH negative
Sickle Cell Disease (2)	12.21	12.21	100%	once				
Syphilis	10.27	30.24	34%					1 test/pregnancy or once every three years with risk factor
Visual Acuity (3)	4.51	12.63	36%	Screening frequency not explicit	Screening frequency not explicit	Screening frequency not explicit		

Notes:

- (1) Blood pressure screening HCPCS were rarely used, although they are routinely performed, so we included all physical exams to capture utilization.
- (2) These are a subset of HRSA's Newborn Metabolic Screening, so we used our previous assumption that this was performed at every birth.
- (3) Although we were able to identify claims for visual acuity screening from the data, we do not believe we were able to reasonably capture the full utilization.

USPSTF RECOMMENDATIONS (CONTINUED)				
	Male: 18-39	Male: 40-49	Male: 50-59	Male: 60-64
Service Category	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Screening Procedures				
Abdominal Aortic Aneurysm				
Anemia				
Bacteriuria				
Blood Pressure (1)	Every 1 - 2 years	Every 1 - 2 years	Every 1 - 2 years	Every 1 - 2 years
Breast Cancer - Mammography				
Cervical Cancer				
Chlamydia				
Cholesterol-Dyslipidemia	1 test every 5 years, if 20< Age < 35 and risk factors present, or 35+	1 test every 5 years	1 test every 5 years	1 test every 5 years
Colorectal Cancer			Every 1-10 years	Every 1-10 years
Depression	At discretion of clinician	At discretion of clinician	At discretion of clinician	At discretion of clinician
Diabetes	For those with sustained high BP	For those with sustained high BP	For those with sustained high BP	For those with sustained high BP
Gonorrhea				
Hearing, newborns (refer to the more comprehensive HRSA hearing recommendation)				
Hepatitis B Screening				
HIV	If at risk	If at risk	If at risk	If at risk
Hypothyroidism, Congenital (2)				
Osteoporosis				
Phenylketonuria (PKU) (2)				
Rh Incompatibility				
Sickle Cell Disease (2)				
Syphilis	1 test every 3 years with risk factor	1 test every 3 years with risk factor	1 test every 3 years with risk factor	1 test every 3 years with risk factor
Visual Acuity (3)				

Notes:

- (1) Blood pressure screening HCPCS were rarely used, although they are routinely performed, so we included all physical exams to capture utilization.
- (2) These are a subset of HRSA's Newborn Metabolic Screening, so we used our previous assumption that this was performed at every birth.
- (3) Although we were able to identify claims for visual acuity screening from the data, we do not believe we were able to reasonably capture the full utilization.

USPSTF RECOMMENDATIONS (CONTINUED)				
	Female: 18-39	Female: 40-49	Female: 50-59	Female: 60-64
Service Category	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Screening Procedures				
Abdominal Aortic Aneurysm				
Anemia	During pregnancy, once	During pregnancy, once		
Bacteriuria	During pregnancy, once	During pregnancy, once		
Blood Pressure (1)	Every 1 - 2 years			
Breast Cancer - Mammography		Every 1-2 years	Every 1-2 years	Every 1-2 years
Cervical Cancer	Once every 3 years			
Chlamydia	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk
Cholesterol-Dyslipidemia	1x every 5 years if risk factors present	1x every 5 years for 45+, or 40-44 and risk factors	1 test every 5 years	1 test every 5 years
Colorectal Cancer			Every 1-10 years	Every 1-10 years
Depression	At discretion of clinician			
Diabetes	For those with sustained high BP			
Gonorrhea	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk	Annually if age 18-24 and sexually active, or 25+ and at increased risk
Hearing, newborns (refer to the more comprehensive HRSA hearing recommendation)				
Hepatitis B Screening	During pregnancy, once	During pregnancy, once		
HIV	If at risk	If at risk	If at risk	If at risk
Hypothyroidism, Congenital (2)				
Osteoporosis				If high-risk, 1 test every 2 years
Phenylketonuria (PKU) (2)				
Rh Incompatibility	1-2x during pregnancy, depending upon whether father is RH negative	1-2x during pregnancy, depending upon whether father is RH negative		
Sickle Cell Disease (2)				
Syphilis	1 test/pregnancy or once every three years with risk factor	1 test/pregnancy or once every three years with risk factor	1 test/pregnancy or once every three years with risk factor	1 test every 3 years with risk factor
Visual Acuity (3)				

Notes:

- (1) Blood pressure screening HCPCS were rarely used, although they are routinely performed, so we included all physical exams to capture utilization.
- (2) These are a subset of HRSA's Newborn Metabolic Screening, so we used our previous assumption that this was performed at every birth.
- (3) Although we were able to identify claims for visual acuity screening from the data, we do not believe we were able to reasonably capture the full utilization.

USPSTF RECOMMENDATIONS (CONTINUED)								
Service Category	Actual Util per 1000	Recommended Util per 1000	Ratio	Child <1	Child 1-1	Child 2-4	Child 5-11	Child 12-17
				Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Preventive Counseling								
Alcohol, Behavioral Counseling (4)		19.41						Included in HRSA alcohol/drug screening
Breast Cancer - BRCA Screening (4)		0.16						
Breast Cancer - Chemoprevention Discussion (4)		1.06						
Breast Feeding Promotion (4)		20.31						During pregnancy, once
Dietary, for at-risk populations (4)		56.73						
Obesity (4)		46.33					Every five years for obese children age 6+	Every five years for obese children age 6+
STI Counseling (4)		85.02						Every 3 years if sexually active
Tobacco Use (4)		34.35						
Supplements								
Aspirin for CVD (5)		217.57						
Folic Acid supplementation (5)		171.66						
Gonorrhea, prophylactic eye (newborn) (5)		12.21		For All Newborns				
Dental Caries prevention (5)		28.57		Fluoride dietary supplement if water supply is deficient age 6 months-5 years	Fluoride dietary supplement if water supply is deficient age 6 months-5 years	Fluoride dietary supplement if water supply is deficient age 6 months-5 years	Fluoride dietary supplement if water supply is deficient age 6 months-5 years	
Iron supplementation (5)		0.85		6-12 months if at risk for low iron				

- Notes:**
- (4) Preventive counseling visits are not well identified in the data, in most cases. General counseling codes are routinely used and the only way to connect them to one of the recommended counseling procedures is to use an ICD-9 diagnosis code. Our analysis led us to believe that this method was unreliable and we have therefore left the actual utilization out of our exhibits.
 - (5) Supplements are not coded properly, as many are available over the counter (OTC). We have left the recommended utilization on our exhibits, but have not included actual utilization levels.

USPSTF RECOMMENDATIONS (CONTINUED)				
	Male: 18-39	Male: 40-49	Male: 50-59	Male: 60-64
Service Category	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Preventive Counseling				
Alcohol, Behavioral Counseling (4)	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems
Breast Cancer - BRCA Screening (4)				
Breast Cancer - Chemoprevention Discussion (4)				
Breast Feeding Promotion (4)				
Dietary, for at-risk populations (4)	Every 5 years for obese, hyperlipidemia			
Obesity (4)	Every five years for obese adults			
STI Counseling (4)	Every 3 years if at risk			
Tobacco Use (4)	Every 5 years for smokers			
Supplements				
Aspirin for CVD (5)		45+ where benefits outweigh harm	Where benefits outweigh harm	Where benefits outweigh harm
Folic Acid supplementation (5)				
Gonorrhea, prophylactic eye (newborn) (5)				
Dental Caries prevention (5)				
Iron supplementation (5)				

- Notes:**
- (4) Preventive counseling visits are not well identified in the data, in most cases. General counseling codes are routinely used and the only way to connect them to one of the recommended counseling procedures is to use an ICD-9 diagnosis code. Our analysis led us to believe that this method was unreliable and we have therefore left the actual utilization out of our exhibits.
 - (5) Supplements are not coded properly, as many are available over the counter (OTC). We have left the recommended utilization on our exhibits, but have not included actual utilization levels.

USPSTF RECOMMENDATIONS (CONTINUED)				
	Female: 18-39	Female: 40-49	Female: 50-59	Female: 60-64
Service Category	Recommended Frequency	Recommended Frequency	Recommended Frequency	Recommended Frequency
Preventive Counseling				
Alcohol, Behavioral Counseling (4)	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems	Once every 5 years for adults with alcohol problems
Breast Cancer - BRCA Screening (4)	At-risk women	At-risk women	At-risk women	At-risk women
Breast Cancer - Chemoprevention Discussion (4)		1x lifetime, at-risk populations	1x lifetime, at-risk populations	1x lifetime, at-risk populations
Breast Feeding Promotion (4)	During pregnancy, once	During pregnancy, once		
Dietary, for at-risk populations (4)	Every 5 years for obese, hyperlipidemia			
Obesity (4)	Every five years for obese adults			
STI Counseling (4)	Every 3 years if at risk			
Tobacco Use (4)	Every 5 years for smokers			
Supplements				
Aspirin for CVD (5)			55+ where benefits outweigh harm	Where benefits outweigh harm
Folic Acid supplementation (5)	Planning or capable of pregnancy	Planning or capable of pregnancy		
Gonorrhea, prophylactic eye (newborn) (5)				
Dental Caries prevention (5)				
Iron supplementation (5)				

- Notes:**
- (4) Preventive counseling visits are not well identified in the data, in most cases. General counseling codes are routinely used and the only way to connect them to one of the recommended counseling procedures is to use an ICD-9 diagnosis code. Our analysis led us to believe that this method was unreliable and we have therefore left the actual utilization out of our exhibits.
 - (5) Supplements are not coded properly, as many are available over the counter (OTC). We have left the recommended utilization on our exhibits, but have not included actual utilization levels.