



## 2021 Bernard J. Tyson National Award for Excellence in Pursuit of Healthcare Equity Awardee Application: Prioritizing Child Health: Promoting Adherence to Well-Child Visits

### Organization(s) Name(s) (organizations involved in initiative)

UMass Memorial Health

### Organization(s) City and State

Worcester, Massachusetts

### Web site addresses for organization or initiative

<https://www.ummhealth.org/>

### Name/Title of Initiative

If selected as an award winner, this will be used in press material; Do not include name of the organization submitting award within title. (limit 250 characters, including spaces)

Prioritizing Child Health: Promoting Adherence to Well-Child Visits in an Urban, Safety-Net Setting, During the Height of the COVID-19 Pandemic

### Executive Summary of Initiative

(2,500 character limit, including spaces; approximately 1 single-spaced page)

Provide a short summary of the initiative's/project's equity-related achievements and the importance of these achievements, including their specific impact to reduce healthcare disparities, improve health equity, and improve health care outcomes. Please note – if your submission is selected, this excerpt might be used in publications. **This section should be written similar to a journal abstract** with a few sentences addressing key concepts related to the project such as:

Describe the problem identified;

Explain the improvement need/performance gap identified;

Describe the intervention/solution implementation;

Quantify the improvement, and

Describe how the improvement was sustained.

If the intervention/solution was replicated after the initial project (e.g., in other locations, for other performance gaps identified), please explain.

Racial/ethnic health inequities are increasing in the US despite medical advancements. These inequities are rooted in structural racism. Structural racism and discrimination are embedded in societal structures that limit opportunities and resources for racialized groups. This manifests as social determinants of health (SDOH)—the social circumstances in which people are born, live, and age—and as health disparities. SDOH are drivers of health which account for up 80% of health outcomes.

UMass Memorial Medical Center, a nonprofit healthcare system, provides all levels of healthcare to patients in Central Massachusetts. The city of Worcester is a culturally and linguistically diverse city;

>40% of residents identify as a person of color (POC) and 35% endorse a primary language other than English. UMass has been steadily working to address SDOH and reduce racial/ethnic disparities in healthcare access and outcomes for the past several years. In 2020, Eric Dickson, MD, UMass Memorial's President and CEO, charged medical center leadership with identifying opportunities to promote equity in healthcare access and outcomes across the system. Leveraging health record data, a multidisciplinary team of leaders discovered persistent racial and ethnic disparities in adherence to well-child visits.

The American Academy of Pediatrics has identified poverty and racism as two prevalent and pervasive SDOH which need to be addressed through clinical innovation. Children are the poorest segment of the US population with 2 in 5 children living in impoverished conditions; and for the first time in history, the majority of children in the US are POC. Low-income POC children face the catastrophic consequences of poverty and structural and interpersonal racism throughout their lives. From a public and population health perspective, poverty and racism negatively impact health from early childhood, leading to worse health in adulthood and thereby reducing the productivity of society's workforce resulting in avoidable healthcare utilization and costs. Recognizing these existential threats to children and society at large, UMass set a goal for improving adherence to well-child visits among pediatric patients of color. The team dramatically improved adherence among patients who identify as Black (59% to 75%) and patients who identify as Latinx (64% to 76%). This successful project has laid the groundwork for system-wide interventions to improve racial and ethnic health equity.

**Describe the healthcare disparity that was the target for the improvement project/initiative and the importance of this target for the population your organization serves.**

Articulate the health equity problem/opportunity addressed and its importance.  
(2,500 character limit, including spaces; approximately 1 single spaced page)

Socioeconomic and racial/ethnic health disparities begin in childhood and persist throughout adulthood. Social determinants of health (SDOH), the social circumstances in which people are born, live, and age, are key drivers of health-especially for children, who are particularly vulnerable to difficult social conditions such as poor neighborhood conditions, housing instability, and food insecurity. Low-income children and children of color have higher rates of premature death across the life course than their white and affluent peers, due in large part to adverse social determinants (i.e. social risks).

Given the near universal access to healthcare services for children (>90% nationally), pediatric healthcare provides a unique opportunity for preventative healthcare services (e.g., childhood vaccinations) as well as for identifying and addressing SDOH. Over the past 5 years, the American Academy of Pediatrics, and payers including Medicaid have recommended SDOH screening and management during pediatric well-child visits. Accordingly, pediatric practices are increasingly incorporating SDOH screening and referral models to address identified social risks during healthcare visits. In 2019, the National Academies of Sciences, Engineering, and Medicine published a seminal report emphasizing the role of the health sector in addressing SDOH to improve the treatment of diseases. Given racial/ethnic disparities in childhood diseases (e.g., asthma) and the pervasive impact of SDOH on children of color, promoting adherence to the AAP's recommended schedule for well-child visits among pediatric patients of color is the first step in advancing child health equity, particularly for children who have been most disadvantaged by poverty and systemic racism.

As a safety-net health system, UMass Memorial serves a large percentage of low-income families and families of color. While the system has long dedicated itself to a relentless pursuit of excellence

in healthcare delivery, there is still work to be done to promote racial/ethnic health equity among patients. Given the importance of well-child visits in promoting health not only in childhood, but also across the life course, and existing racial/ethnic disparities in adherence to visit schedules, improving adherence to these visits among patients of color represents a unique opportunity to improve the health of children, address SDOH, reduce racial/ethnic disparities in healthcare access, and promote population health.

**Describe how the healthcare disparity was identified at your organization and your baseline measurement of the disparity.**

(1,250 character limit, including spaces; approximately 1/2 single spaced page)

UMass Memorial regularly reviews quality metrics to ensure it is providing exceptional care to all. The Population Health analytics team developed a Health Equity Ambulatory Quality Dashboard (Exhibit 1) to report on performance rates of the Ambulatory Quality Measures (HEDIS®) from its payer contracts by race, ethnicity, and language. The data source for this dashboard is the electronic health record system, Epic, which is used across the organization.

In a review of the dashboard in 2020, well-child visit adherence was identified as an area where racial and ethnic disparities were persistent; 71% of patients who identify as white were up to date with their well-child visits compared to 64% for those who identify as Latinx/Hispanic and 59% of those who identify as Black/African American. The analytics team employed the Between-Group Variance (BGV) measurement (a measurement of degree of variations between groups) for further quantification and validation and found high disparity in well-child visit adherence in a review of baseline data from 10/1/19-9/30/20 (Exhibit 2).

**Explain what factors you identified as the causes of the disparity and possible targets for your intervention to reduce the disparity.**

(2,500 character limit, including spaces; approximately 1 single spaced page)

Specifically, describe the root causes of the gap that you identified through literature review or, optimally, through an analysis at your healthcare organization or the community you serve (e.g., social determinants of health).

The COVID-19 pandemic brought to light societal inequities demonstrating how economic factors are intrinsically linked to one's health and well-being. Simultaneously, the tragic death of George Floyd catalyzed a long overdue racial reckoning which has exposed the persistent, systemic, and insidious effects of racism on people of color, particularly those who identify as Black or African American. Overall, the pandemic has exacerbated both socioeconomic and racial/ethnic inequities in healthcare access and health outcomes. As a result, leaders from across the UMass Memorial system were quick to embrace the need for change. There was and continues to be an acknowledgement that racial/ethnic inequities persist and drive health disparities across the life course.

To address the existing racial/ethnic disparities in adherence to well-child visits, a multidisciplinary team, led by Arvin Garg, MD, MPH, a national expert in SDOH research, who joined UMass Memorial as Vice Chair of Health Equity for the Department of Pediatrics, worked to identify barriers to adherence among families of color. Information was gathered via stakeholder interviews with ambulatory practice managers, pediatricians, and other health system leadership. Overwhelmingly, transportation, language, and scheduling emerged as major barriers to adherence. Additionally, we commissioned an external group to conduct interviews with 30 Black and Hispanic patients to better understand their perspectives around barriers to well child visits. With the goal of improving adherence to well-child visits for patients who identify as Hispanic/Latinx by 5% (from 64% to 69%)

and patients who identify as Black/African American (from 59% to 64%), the team set out to mitigate barriers to adherence.

**Describe team and stakeholder engagement throughout the initiative.**

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Arvin Garg, MD, MPH, a general pediatrician, and health disparities researcher whose work focuses on the implementation and evaluation of SDOH screening and referral interventions in pediatric care, led a multidisciplinary team of experts on this project. The team included clinical and administrative leaders from Pediatrics, Family Medicine, Population Health, Quality Informatics, and Registration. From the outset, the team engaged with a variety of internal and external stakeholders to understand potential barriers and facilitators to well-child visit adherence. Informal interviews were conducted with patient-facing staff, providers, and administrative leaders to elucidate challenges to well-child visit adherence.

Additionally, the team leveraged the expertise of a robust analytics team and data scientist who examined practice-level data by race and ethnicity to identify areas for improvement. To ensure the success of the project, the team met on a regular basis to review progress towards its goals and engaged executive leadership from the health system to support the implementation of strategies to improve adherence to well-child visits and promote health equity overall.

**Describe the intervention/solution and its implementation.**

(2,500 character limit, including spaces; approximately 1 single-spaced page)

Specifically, describe details of the interventions/solutions implemented (e.g., improvement methodology and tools used, strategy adjustments, evidence-based best practices employed, change management strategy). The project was first implemented during the second wave of the COVID-19 pandemic in New England. While it was a time of great trial for the health system, pediatric and health systems stakeholders remained cognizant of the long-term impacts of lack of adherence to well-child visits. Fearing the reemergence of previously dormant childhood diseases that have all been eradicated by childhood immunizations (e.g., pertussis), the project team and stakeholders committed to implementing strategies for improving adherence to well-child visits among patients of color. Given the constraints on the health system at the time, improvement was slow. To increase momentum, the team ramped up education, outreach, and deployment of robust visual analytics which helped illustrate the need for improvement. By March of 2021, as COVID-19 vaccinations became more readily available there was a large uptick in well-child visits (Exhibit 3).

After 9 months into the project, adherence to well-child visits improved tremendously. For patients who identify as Hispanic/Latinx adherence rose from 64% at baseline to 76% and for patients who identify as Black/African American adherence rose from 59% at baseline to 75%, furthermore the disparity in adherence between patients who identify as white and patients who identify as Hispanic/Latinx was reduced as was the disparity in adherence between patients who identify as white and patients who identify as Black/African American. This was significantly better than our goal improvement.

A system-level key performance indicator was established by our CEO and Chief Quality Officer to drive improvement. The metric was included in our “True North” metrics reported to senior leadership and to our Board monthly.

The overall health equity goal was communicated to primary care and quality leaders in each pediatric practice. In communications, leaders were encouraged to think creatively about ways to

improve adherence to well-child visit. One strategy for improvement identified and shared with leaders was to conduct well-child visits during acute care appointments to help patients avoid making multiple trips to the health system.

The analytics team created individual dashboards for each pediatric practice. Dashboards allow practice leaders to review performance by race, ethnicity, and preferred language in real-time. The team created tools and resources (Exhibit 4 and 5) to help practices address the most common barriers to adherence.

**Describe measurable improvement(s) in the targeted disparity.**

(2,500 character limit, including spaces; approximately 1 single spaced page)

At the outset of the project, the health system set a goal of improving adherence to well-child visits by 5% for pediatric patients who identify as Latinx/Hispanic and those who identify as Black/African American. While this goal was seen as ambitious in light of the pandemic, the team was committed to not only improving adherence to well-child visits for patients of color but also reducing disparities in adherence across races.

The team was able to substantially improve adherence to well-child visits across all racial/ethnic demographics while closing gaps in disparities between white patients and patients of color. Nine months into the project year, adherence among Latinx/Hispanic patients increased by 12% and the disparity (difference of adherence) between patients who identify as white and patients who identify as Latinx/Hispanic decreased by 3%. Similarly, success occurred among patients who identify as Black/African American, with adherence improving by 16% and the disparity between patients who identify as white and patients who identify as Black/African American decreasing by 7% (Exhibit 3).

As the health system saw improvements across all racial and ethnic categories, the analytics team set out to assess the intervention's effect on racial/ethnic disparities. A Between-Group Variance was calculated to confirm that disparities had lessened because of the project. With this project, we were able to adherence to well-child visits, which we believe will improve the social circumstance and health for individuals of color resulting from structural racism and discrimination.

**Describe whether the improvements seen were sustained and any processes put in place to monitor and ensure that the improvement will be sustained in the future.**

(2,500 character limit, including spaces; approximately 1 single spaced page)

Project implementation was guided by PRISM (Practical, Robust, Implementation and Sustainability Model). This model allowed the team to implement the project in a manner that considered design, external environment, implementation, and sustainability infrastructure. Data dashboards that were created for practices remain in place and will continue to provide practices with real-time data. Additionally, resource and tip sheets created to help providers reduce barriers to adherence to well-child visits will continue to be updated.

Additionally, to build on the momentum created by the project and continue to close racial/ethnic disparities, the team conducted a root-cause analysis to more deeply explore barriers to healthcare access among patients. The health system collaborated with Massachusetts Health Quality Partners (MHQP) and conducted qualitative interviews with a linguistically and culturally diverse group of patient families to identify common barriers to well-child visits. Nearly all participants cited SDOH as the primary barrier to adherence. While the project team was unsurprised by these findings, it confirmed the team's hypothesis that there is still work to be done to remove all barriers to care for patients (Exhibit 6).

As such, Dr. Garg is leading an effort to refine the health system's SDOH screening and referral system by applying an antiracism lens to: (1) identify how structural racism and discrimination act as barriers for addressing social needs for patients of color and use this information to (2) identify optimal strategies that ensure equitable implementation of SDOH interventions into healthcare delivery settings. This work has the potential to exert a significant, sustained, and powerful influence on the field of SDOH interventional research by acknowledging and actively working to address racism and discrimination barriers to SDOH screening and exploring its impact on improving health outcomes for patients of color across the lifespan.

**If applicable, describe how the interventions/solutions were replicated (disseminated) to other parts of the organization or other care sites.**

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UMass Memorial aims to serve all patients and their families, physicians, staff, and communities with dignity and respect; and serve the ever-changing needs of our urban and suburban populations while honoring their ethnic, religious, and cultural differences. In an effort to create more open access to quality healthcare for its diverse patient-base, the health system is exploring expansion of this project to other areas where disparities between racial and ethnic groups persist. Specifically, the health system is looking to improve adherence to colon cancer screenings among patients of color. Given the disparities in adherence among patients who identify as Black/African American and patients who identify as Latinx/Hispanic as well as the stark disparities in cancer screening and outcomes among patients of color nationally, expansion to colon cancer screening is the next logical step in the health system's journey towards promoting health equity.

**Describe innovative aspects of the work, including principles that are applicable to other disparities and/or any lessons learned that may be beneficial to other organizations.**

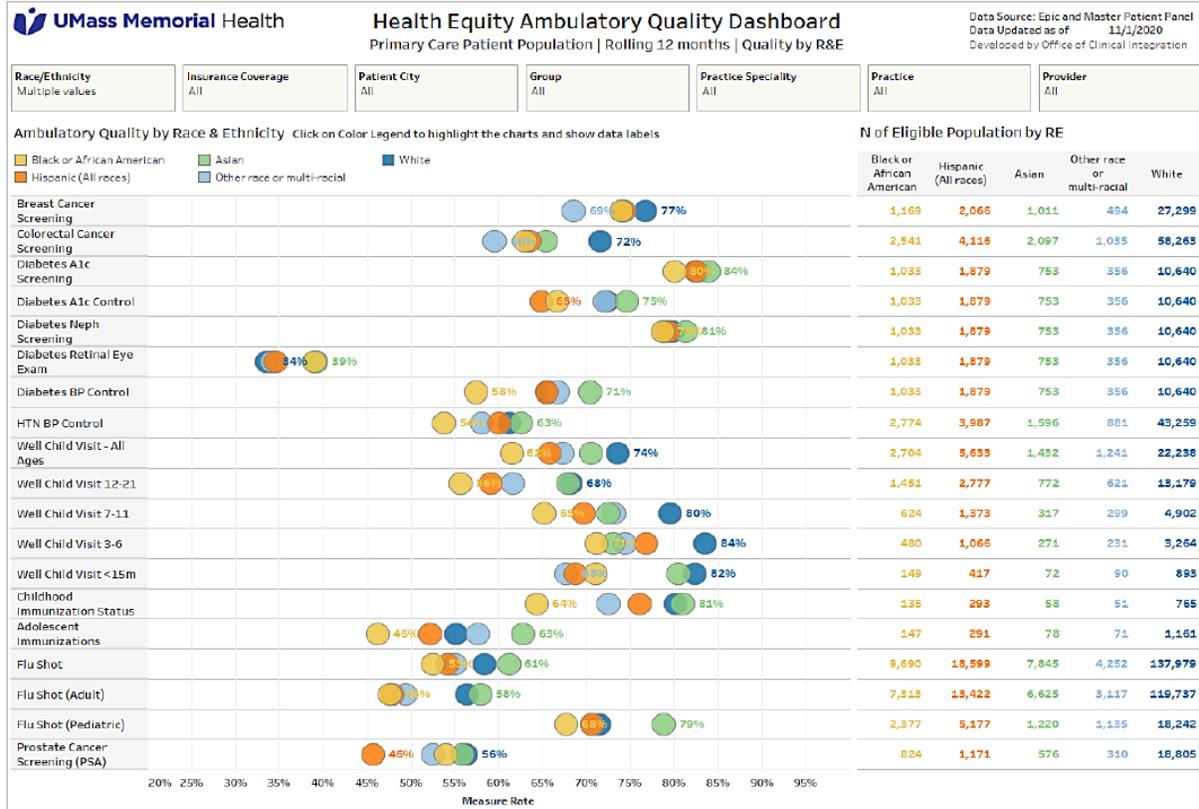
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This project is innovative in many ways and seeks to shift current clinical paradigms. While reviewing quality data by race and ethnicity itself is not novel, seeking to specifically address the disparities between patients who identify as white and patients who identify as patients of color is innovative. Furthermore, leveraging visual analytics and real-time dashboards to help illustrate not only the existing disparities but the need for change is a new concept for healthcare overall. While technology has advanced rapidly over the past several years, healthcare data analytics has typically lagged somewhat behind. Most often quality and performance data is several months old by the time it gets to end users. In this case, the system's analytics team was able to create robust data dashboards with real-time practice-level data to help clinicians and staff track their progress (Exhibit 7). Given the great success of this project and the overwhelming support for data dashboards by clinicians and staff, the system has invested in providing practice-level, real-time analytics to all departments, with a particular focus on health equity. These dashboards empower practice leaders to identify areas of disparity and work to address them.

## **Supplemental Documentation**

**Upload Supplemental Document, exclusively containing Figures and/or Tables that illustrate baseline, improvement, and sustained results.** Limit seven (7) pages total; content in excess of 7 pages will not be considered in evaluation. Combine all supplemental documentation within 1 PDF document.

# Exhibit 1 – Health Equity Ambulatory Quality Dashboard



# Exhibit 2 – Between Group Variance (BGV)

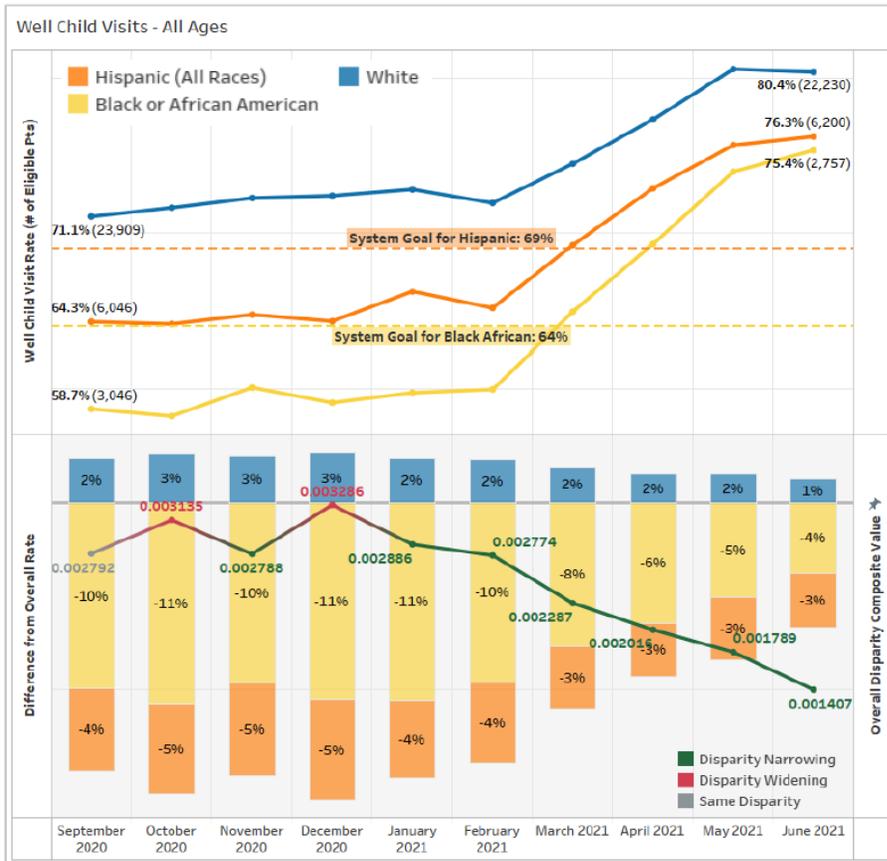
- High BGV value indicates high disparity.

September 2020

Low Disparity High Disparity

Measure	Ri-Rf (Compared to Total Rate)					BGV (Between-Group Variance)					Disparity Composite Value (Final BGV)
	Black or African American	Hispanic (All races)	Asian	Other	White	Black or African American	Hispanic (All races)	Asian	Other	White	
Breast Cancer Screening	-4%	-3%	-3%	-9%	1%	0.000052	0.000055	0.000029	0.000116	0.000036	0.000288
Colorectal Cancer Screening	-8%	-8%	-5%	-12%	1%	0.000268	0.000346	0.000069	0.000221	0.000140	0.001044
Diabetes A1c Screening	-4%	0%	0%	-2%	0%	0.000123	0.000001	0.000000	0.000012	0.000015	0.000151
Diabetes A1c Control	-7%	-7%	3%	-1%	2%	0.000341	0.000553	0.000053	0.000004	0.000199	0.001151
Diabetes Neph Screening	-2%	-1%	0%	-3%	0%	0.000037	0.000008	0.000001	0.000018	0.000017	0.000080
Diabetes Retinal Eye Exam	2%	0%	2%	-1%	0%	0.000043	0.000001	0.000025	0.000002	0.000012	0.000082
HTN BP Control	-8%	0%	1%	-3%	1%	0.000352	0.000000	0.000003	0.000012	0.000025	0.000392
Well Child Visit 12-21	-10%	-5%	0%	-5%	2%	0.000827	0.000365	0.000000	0.000095	0.000413	0.001700
Well Child Visit 7-11	-12%	-7%	-5%	-3%	4%	0.001267	0.000898	0.000109	0.000034	0.001098	0.003405
Well Child Visit 3-6	-12%	-2%	-11%	-4%	4%	0.001270	0.000092	0.000628	0.000059	0.000845	0.002894
Well Child Visit <15m	-4%	-8%	2%	-6%	5%	0.000146	0.001596	0.000015	0.000218	0.001312	0.003287
All Well Child <15m and 3-21	-10%	-4%	-3%	-3%	3%	0.000811	0.000287	0.000032	0.000046	0.000475	0.001651
Childhood Immunization Status	-9%	-1%	5%	-6%	2%	0.000933	0.000026	0.000091	0.000150	0.000300	0.001500
Flu Shot	-6%	-4%	1%	-4%	1%	0.000195	0.000183	0.000002	0.000032	0.000086	0.000498
Flu Shot (Adult)	-7%	-7%	-1%	-7%	1%	0.000276	0.000405	0.000002	0.000095	0.000160	0.000939
Flu Shot (Pediatric)	-5%	-2%	8%	0%	1%	0.000246	0.000102	0.000253	0.000000	0.000049	0.000649
Prostate Cancer Screening (PSA)	-5%	-9%	-1%	-3%	1%	0.000105	0.000466	0.000002	0.000017	0.000068	0.000658

### Exhibit 3 – Adherence to Well-Child Visits



### Exhibit 4 – Tip Sheets for Well-Child Visits

## Population Health 101

UMMHC Office of Clinical Integration

January 26, 2021

## Well-Child Visit (WCV) Well-Child Care (WCC)



### Well-Child Visits/Checks – Why are they important?

Regular and routine checkups are an important way to keep track of child's health and physical, emotional, and social development. Well-child care (WCC) for children under age 3 and well-child visits (WCV) for children 3 and older are important for all children, including children and youth with special health care needs who may also be under the care of specialists. During well-child visits, healthcare professionals and families have an opportunity to form an important partnership based on respect, trust, honest communication, and a good understanding of family culture and traditions. *Note: a well-child visit may be conducted via telehealth with an in-person visit scheduled as needed for immunizations.*

Well-child visits are essential for many reasons including:

- Tracking growth and development including milestones, social behaviors, and learning
- Assessing behavioral health needs via age-appropriate screening & addressing identified needs via a follow-up plan
- Discussing any concerns about a child's health and other age-appropriate topics
- Providing timely vaccinations to prevent illnesses like measles, whooping cough (pertussis), other serious diseases

### The Metrics:

- > **WCC <15 months:** The percentage of members who turned 15 months old during the measurement year and who had six or more well-child visits with a PCP during their first 15 months of life
- > **WCC 15-30 months:** The percentage of members 15-30 months who had at least two (2) visits with a PCP between 15 – 30 months
- > **Well-Child Visits 3–11 years:** The percentage of members 3–11 years of age who had at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year
- > **Well-Child Visits 12–17 years:** The percentage of members 12–17 years of age who had at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year
- > **Well-Adolescent Visits 18-21:** The percentage of members 18-21 years of age who had at least one comprehensive well-care visit with a PCP or an OB/GYN practitioner during the measurement year

## Exhibit 5 – Tip Sheets for Well-Child Visits (Cont.)

### Recommendations for improving access and family participation in well-child visits:

- > **Schedule the next Well-Visit at the time of current visit**
- > **Develop and distribute an information sheet** that highlights the importance of preventive care visits
  - o Give to patients and their parents at acute care appointments
  - o Post in the exam rooms
  - o Post in myChart on the UMass Memorial website
- > Implement a reminder system & call process to ensure patients/parents follow through on recommended care
- > Use an appointment reminder system - consider warm calls in addition to automated options
- > **Provide well-child visits to patients when they are seen for an acute problem if they are lagging in WCV follow-up or don't have a future visit scheduled**
- > Use a well-child visit-specific template for hassle-free reminders and to visit documentation
- > Implement a missed-appointment letter system that highlights the importance of preventive care visits
- > Consider expanding or extending office hours, i.e., 7AM to 7PM to increase access to appointments at a time consistent with family needs; consider staggered shifts to accommodate expanded office hours

### Resources for families:

- > [healthychildren.org](http://healthychildren.org)
  - o General information related to child health and/or more specific guidance on parenting issues
  - o Information on AAP policies, guidelines, publications, and other child health resources
  - o Tips & tools
- > [Brightfutures.aap.org](http://Brightfutures.aap.org)
  - o Patient/Parent handouts in the Bright Futures Tool & Resource Kit
  - o Family Resources Web page
  - o Virginia Department of Health
- > [Healthy Child Care America](http://HealthyChildCareAmerica.org)
  - o Promotes cognitive, social and emotional development

**[The PT-1: how a practice can make this transportation tool work for their Medicaid patients]**  
Transportation is a key factor contributing to your patients' ability to access healthcare services and a leading component of the social determinants of health (SDoH). The PT-1 form is the authorization form used to