A COMPARISON OF PEDIATRIC PREVENTION POLICIES TO PEDIATRIC HEALTH SUPERVISION CODES

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ABSTRACT OF CAPSTONE

Rania Omar Burke

The College of Public Health

University of Kentucky

2019
A COMPARISON OF PEDIATRIC PREVENTION POLICIES TO PEDIATRIC HEALTH SUPERVISION CODES

ABSTRACT OF CAPSTONE

A Capstone project submitted in partial fulfillment of the requirements for the degree of Doctor of Public Health in the College of Public Health at the University of Kentucky

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ABSTRACT OF CAPSTONE

The number of policy statements from the AAP presents pediatricians with an increasing amount of advice related to prevention, yet the definition of prevention and well-child visits has not changed for outpatient office visits. Outpatient office visits are the primary means by which preventive care is administered. The objective of this study is to quantify and characterize the prevention policy recommendations that pediatricians are expected to provide patients/guardians beyond the well-child visit. Secondarily, an analysis was completed to demonstrate which prevention policies make recommendations that can be coded for reimbursement as part of a well-child prevention visit.

METHODS

The author coded 544 AAP policy statements that are contained in the American Academy of Pediatrics’ Clinical Practice Guidelines and Policies, 18th Edition and identified 103 policies related to prevention. These 103 policies were divided into categories based on the type of prevention advice and Current Procedural Terminology (CPT) codes used for well-child and prevention health visits.

RESULTS

Sixty-two (60.2%) of the 103 prevention policies were coded as anticipatory guidance (AIG). One (1%) was coded as all inclusive (ALL), two (1.9%) were coded as dental prevention (DEN), 4 (3.9%) were coded as disease prevention (DIS), 7 (6.8%) were coded as primarily focused on an environmental (ENV) component, 9 (8.7%) were related to immunizations (IMM), 8 (7.8%) were related
to the maternal-fetal component of prevention, 2 (1.9%) were related to pregnancy prevention (PPV), and 8 (7.8%) were focused on substance abuse (SUB). 100% of the ALL and PPV policies were coded yes for the potential to apply additional CPT codes beyond the baseline prevention CPT codes. Results in the other categories varied. 88% of the IMM policies were coded yes, only 17% of the ANG policies were coded as yes.

CONCLUSIONS

It is expected that anticipatory guidance is provided at every well-child visit and all of the other elements of preventive care are delivered as outlined in the Bright Futures/AAP Recommendations for Preventive Pediatric Health Care (Periodicity Schedule). Without additional CPT codes to recognize these efforts, the structure and inclusion of anticipatory guidance and other non-clinical prevention recommendations, is impractical and unrealistic. Additional studies must be conducted to generate evidence for the effective delivery of non-clinical preventive care, like anticipatory guidance, in order for the AAP to effectively advocate for more CPT codes or a new CPT coding structure for pediatric preventive health care.

KEYWORDS: Pediatrics, Policies, Prevention

(Student’s Signature)________________

(Date)__________________________
A COMPARISON OF PEDIATRIC PREVENTION POLICIES TO PEDIATRIC HEALTH SUPERVISION CODES

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A COMPARISON OF PEDIATRIC PREVENTION POLICIES TO
PEDIATRIC HEALTH SUPERVISION CODES

Rania Omar Burke

College of Public Health

University of Kentucky
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To my parents, immigrants with a dream, the dream to do better for their children, thank you will never be enough.
CHAPTER 1
INTRODUCTION

SYNOPSIS

The number of policy statements from the AAP presents pediatricians with an increasing amount of advice related to prevention, yet the definition of prevention and well-child visits has not changed for outpatient office visits. Outpatient office visits are the primary means by which preventive care is administered. The objective of this study is to quantify and characterize the prevention policy recommendations that pediatricians are expected to incorporate to patients/guardians beyond the well-child visit. Secondarily, an analysis was completed to demonstrate which prevention policies make recommendations that can be coded for reimbursement as part of a well-child prevention visit.

METHODS

The author coded 544 AAP policy statements that are contained in the American Academy of Pediatrics' Clinical Practice Guidelines and Policies, 18th Edition and identified 103 policies related to prevention. These 103 policies were divided into subcategories based on the type of prevention advice. The categories were identified as all (one policy that summarizes nearly all prevention related recommendations), dental prevention, disease prevention, environmental, anticipatory guidance, pregnancy prevention, maternal-fetal, immunization, and substance use. These subcategories were compared to Current Procedural Terminology (CPT) codes used for well-child and prevention health visits.

RESULTS

Sixty-two (60.2%) of the 103 prevention policies were coded as anticipatory guidance (AIG). One (1%) was coded as all inclusive (ALL), two (1.9%) were coded as dental prevention (DEN), 4 (3.9%) were coded as disease prevention
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CONCLUSIONS

It is expected that anticipatory guidance is provided at every well-child visit and all of the other elements of preventive care are delivered as outlined in the Bright Futures/AAP Recommendations for Preventive Pediatric Health Care (Periodicity Schedule). Without additional CPT codes to recognize these efforts, the structure and inclusion of anticipatory guidance and other non-clinical prevention recommendations, is impractical and unrealistic. Additional studies must be conducted to generate evidence for the effective delivery of non-clinical preventive care, like anticipatory guidance, in order for the AAP to effectively advocate for more CPT codes or a new CPT coding structure for pediatric preventive health care.
BACKGROUND

AMERICAN ACADEMY OF PEDIATRICS

The American Academy of Pediatrics (AAP) is a national organization of 67,000 pediatricians committed to the optimal physical, mental, and social health and well-being for infants, children, adolescents, and young adults. (AAP, 2019) The AAP was founded in 1931 by thirty-five pediatricians. Today the AAP is a not-for-profit corporation based in Illinois. The AAP is governed by a Board of Directors consisting of 10 members elected by their regional districts who also serve as District Chairs. (AAP, 2019) Members vote each year for a national President-Elect. At the state level, AAP Chapters are individually incorporated, have their own bylaws and further the aims of the national organization as well as their local priorities. (AAP, 2019)

Twenty-seven national committees develop many of the AAP policies and programs. (AAP, 2019) Under the direction of the Board of Directors and with the assistance of a central office they work to achieve the AAP goals and objectives. (AAP, 2019) The Committee Forum Management Committee (CoFMC) oversees the activities of the AAP committees and acts in a consulting capacity to the Board of Directors. (AAP, 2019) The Committee Forum (CoF) is comprised of the chairpersons from all national committees. It serves as a forum for discussion of policy development issues. All national committees are appointed by the AAP National Board of Directors. (AAP, 2019)

There are thirteen Councils in the AAP. Each Council is the primary source of expertise in a given field within the AAP. (AAP, 2019) This membership entity represents the evolution of Committees and Sections working in the same field into a new, integrated structure. (AAP, 2019) An Executive Committee, elected by the Council membership, governs each Council. Although Councils fulfill the functions traditionally held separately by National Committees and Sections, their scope, as a single entity, is expanded to encompass a broader vision and a wider
array of activities. (AAP, 2019) The Council structure is designed to give its members a strong voice in policy development and in other Council activities. Councils generate policy, create educational programming and resources, develop and promote advocacy initiatives, support translation of policy and education into practice, and they integrate and evaluate these efforts to maximize impact. (AAP, 2019)

Sections within the AAP are for members who share a pediatric subspecialty, surgical specialty, special area of interest, or stage of life. Sections cultivate ideas and develop programs within their subspecialty or special interest that improve the care of infants, children, adolescents, and young adults. (AAP, 2019) There are fifty-two sections that represent 36,000 members. A section is guided by an executive committee elected by members of the section. The section forum is comprised of the chairpersons from all sections. The Section Forum Management Committee (SFMC) oversees the activities of the AAP sections and acts in a consulting capacity to the AAP Board of Directors. Section members are also active in developing policy and programs among other activities. The membership in sections constitutes a valuable reservoir of subspecialty expertise to be drawn upon for guidance in the development of Academy policy statements and practice standards and for representing the AAP to other organizations.

In addition to Committees, Councils and Sections there are fifty-nine U.S. AAP chapters and seven Canada AAP chapters. Each district is independently incorporated and organized into and by groups of pediatricians and other health care professionals working to achieve AAP goals in their communities.
The AAP focuses on advocacy and policy recommendations. These advocacy efforts at the individual, community, state and federal level are focused on addressing necessary changes beyond individual patient treatment. (AAP, 2019) The AAP publishes a wide-range of policies in the following subcategories: clinical practice guideline, clinical report, technical report, statement of endorsement, and policy statements. (AAP, 2019) Clinical practice guidelines are developed by multi-disciplinary subcommittees with expert consensus on best practices. (AAP, 2019) Clinical reports provide guidance for the clinician in rendering pediatric care. (AAP, 2019) Technical reports provide background information to support AAP policy. (AAP, 2019) Endorsed policy statements are developed by other organizations but have received the endorsements of the
AAP. (AAP, 2019) Policy statements articulate organizational principles to guide and define the child health care system and/or improve the health of all children. (AAP, 2019)

PARTNERSHIP FOR POLICY IMPLEMENTATION

The Partnership for Policy Implementation (PPI) was established to increase the ability of pediatricians to implement AAP recommendations at the point of care. (American Academy of Pediatrics, 2019) The PPI works with the authors of AAP policy statements and clinical reports to help them develop guidance and recommendations that are clear, decidable, and executable at the point of care. (American Academy of Pediatrics, 2019) The PPI identifies and clearly defines key terms and assures consistent language within the policy and establishes and builds upon a common pediatric language for information-management systems that will allow health information technology (HIT) systems to be integrated and interoperable. (American Academy of Pediatrics, 2019)

BRIGHT FUTURES

Bright Futures (BF) is a national health promotion and prevention initiative led by the AAP and supported, in part, by the US Department of Health and Human Services, Health Resources and Services Administration, and Maternal and Child Health Bureau. (AAP, 2019) The BF Guidelines provide theory-based and evidence-driven guidance for all preventive care screenings and well-child visits. BF content is intended to be incorporated into public health programs such as home visiting, child care, school-based health clinics, and many others. (AAP, 2019)

According to Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, the primary goal of Bright Futures implementation is to support primary care practices in providing well-child and adolescent care. This latest edition identifies 12 health promotion themes updated and reformatted in consideration of the social determinants of health and social media and the
critical role they play in the health and well-being of children, youth, and families. (Hagan, Shaw, & Duncan, 2017) They are listed below:

1. Promoting Lifelong Health for Families and Communities
2. Promoting Family Support
3. Promoting Health for Children and Youth With Special Health Care Needs
4. Promoting Healthy Development
5. Promoting Mental Health
6. Promoting Healthy Weight
7. Promoting Healthy Nutrition
8. Promoting Physical Activity
9. Promoting Oral Health
10. Promoting Healthy Sexual Development and Sexuality
11. Promoting the Healthy and Safe Use of Social Media

Settings for Bright Futures implementation include private practices, hospital-based or hospital-affiliated clinics, resident continuity clinics, school-based health centers, public health clinics, community health centers, Indian Health Service clinics, and other primary care facilities. (AAP, 2019)

Bright Futures views the relationship of parents and pediatric health care professionals as the partnership that creates the “medical home.” (Hagan, Shaw, & Duncan, 2017) Bright Futures provides a comprehensive outline for a health supervision visit using a strength-based approach. The health care professional identifies the family’s strengths in each encounter and uses this information to determine appropriate use of the anticipatory guidance given delivered to the patient and their family for health promotion and disease prevention. This is the primary means by which the primary care provider is expected to use to apply any and all health advice including prevention.
BRIGHT FUTURES/AAP RECOMMENDATIONS for PREVENTIVE PEDIATRIC HEALTH CARE (2019 PERIODICITY SCHEDULE)

BF and AAP preventive care recommendations are summarized on the periodicity schedule below. In 2008, the periodicity table had seven major categories and 20 subcategories. The current table published in March 2019 has the same seven major categories: history, measurements, sensory screening, developmental/behavioral health, physical examination, oral health, and anticipatory guidance. There were only 20 subcategories in the 2008 table and now there are 27 subcategories on the periodicity table (Figure 2). Anticipatory guidance has essentially remained unchanged since 2008 and is still only one of two categories (the other being history) that the schedule indicates should be performed at every one of the 32 age-based visits (prenatal through 21 years of age).

Figure 2. Categories of 2019 Periodicity Schedule. Full Periodicity Table Shown in Appendix 1
PREVENTIVE PEDIATRIC HEALTH CARE

According to the Centers for Disease Control and Prevention, preventive care includes health services like screenings, check-ups, and patient counseling that are used to prevent illnesses, disease, and other health problems, or to detect illness at an early stage when treatment is likely to work best. (Centers for Disease Control and Prevention, 2019) The recommendations for preventive pediatric health care are broken down into four groupings by age including infancy, early childhood, middle childhood, and adolescence. (AAP and BF, 2019) Types of screenings are broken down further by age group to include history, measurements, sensory screening for vision and hearing, developmental/behavioral health, physical examination, procedures, oral health, and anticipatory guidance. These recommendations represent a consensus by the AAP and BF and can be found in the periodicity schedule available online. (AAP and BF, 2019)

Health supervision visits exist to improve the health and well-being of all children by improving a practice's clinical health promotion and disease prevention effort. (Hagan, Shaw, & Duncan, 2017) The content of a health supervision visit is broken down into five main categories: disease detection, disease prevention, health promotion, anticipatory guidance, and a special focus on meeting the needs of children and youth with special health care needs. (Hagan, Shaw, & Duncan, 2017) Health supervision visits are scheduled to last nearly twice as long as a sick visit. (Hagan, Shaw, & Duncan, 2017) Additional reimbursement may not adequately cover the practice cost associated with the additional time spent. Most providers report the tension between time necessary to complete a health supervision visit and the time allotted in many clinical settings for these visits. (Hagan, Shaw, & Duncan, 2017)

The Bright Futures expert panel identified five additional priorities for each health supervision visit: history, surveillance of development, review of systems, observation of parent-child/youth interaction, and physical examination. The
expert panel also provided guidance on how practitioners can determine and address the needs of patients within the time constraints of a visit. These strategies include prescreening patients, using parent questionnaires, completing developmental screenings, and utilizing nurses to provide services. Despite these recommendations, Bright Futures acknowledges that no evidence-based data exist to indicate that a complete physical examination dramatically improves health care outcomes. (Hagan, Shaw, & Duncan, 2017) It is also worth noting that these activities generally increase the need for resources without increasing reimbursement.

Anticipatory guidance is a key component to preventive pediatric health supervision. Anticipatory guidance can be described as pediatric health care professionals assessing emerging issues that a child and family face and providing advice that is developmentally consistent. (Hagan, Shaw, & Duncan, 2017) Three key elements must be considered for effective anticipatory guidance and they include timeliness, appropriateness, and relevance. The most effective guidance is provided between the practitioner and family within the context of the medical home.

MEDICAL HOME

The expectation that a provider is able to identify and deliver all of the prevention and screening services to their patients is unrealistic given the practical constraints of cost, time, and the potential challenges between the patient and family. Further, the focus on applied preventive medicine is limited by the AAPs self-identified focus for preventive care:

“Each child and family is unique; therefore, these recommendations are designed for the care of children who are receiving competent parenting, have no manifestations of any important health problems, and are growing and developing in a satisfactory fashion. Additional visits may become necessary if circumstances suggest variations from normal. Developmental, psychosocial,
and chronic disease issues for children and adolescents may require frequent counseling and treatment visits separate from preventive care visits." (AAP, 2019)

The AAP does not define competent parenting. Parents are not evaluated for competency through screening processes at preventive child care visits. Unless a provider suspects child abuse or neglect they are not required to intervene or act on the child’s behalf. Even parents with the best intentions may be struggling with a number of issues that can have a significant negative effect on their ability to parent. Recent studies demonstrate a clear link between the social determinants of health and parental Adverse Childhood Events (ACEs) and negative outcomes or delays for children. (Folger, et al., 2018) It is possible to screen for and begin to address some of these components that are known to have negative outcomes or delays for children. Even if these negative components can be identified by the health care provider it can be challenging to address the need due to limited availability, time constraints, and financial constraints. Figure 3 below is a summary of health supervision visit outline using a strength-based approach.
THE AMA & CPT CODES

There are more than 10,000 CPT codes used today. (American Medical Association, 2019) Each CPT code is assigned to one of three categories. CPT Category I is the largest body of codes and consists of those commonly used by providers to report services and procedures. (American Medical Association, 2019) CPT Category II consists of supplemental tracking codes used for performance management. (American Medical Association, 2019) CPT Category III consists of temporary codes used to report emerging and experimental services and procedures. (American Medical Association, 2019)
CPT Codes are the primary way that health supervision and preventive care is coded. This section will identify codes and methods for coding preventive care in a pediatric practice. There are primarily two diagnostic classification standards for all clinical and research purposes. The first was launched in 1948 by the World Health Organization (WHO) was created the International Classification of Diseases (ICD). (World Health Organization, 2019) ICD is the foundation for the identification of health trends and statistics globally. (World Health Organization, 2019) ICD defines and categorizes the diagnosis of diseases, disorders, injuries, and other related health conditions. (World Health Organization, 2019) It may be used during a health supervision visit to document clinically relevant conditions.

The American Medical Association (AMA) maintains a medical code set made up of Current Procedural Terminology (CPT) codes. (American Medical Association, 2019) The CPT terminology is the most widely used medical nomenclature in the U.S. to report medical, procedural, and evaluation and management (E/M) services under private and public health insurance programs. (American Medical Association, 2019) The CPT Editorial Panel leads the process of development and management of the CPT code set. (American Medical Association, 2019) The process is intended to ensure clinically valid codes are issued, updated and maintained on a regular basis. (American Medical Association, 2019)

THE CPT CODE APPROVAL PROCESS

The CPT Editorial Panel is responsible for maintaining the CPT code set. (American Medical Association, 2019) The AMA Board of Trustees authorizes this panel to revise, update, or modify CPT codes. (American Medical Association, 2019) The panel is composed of 17 members including physician representation, performance measurement professionals, insurance associations, hospital associations, Centers for Medicare and Medicaid Services (CMS), and health care coding professionals. (American Medical Association, 2019) Five members of the editorial panel serve as the panel's executive committee. (American Medical Association, 2019) The executive committee
includes the editorial panel chairman, co-chairman and 3 panel members-at-large, as elected by the entire panel. (American Medical Association, 2019)

The panel is supported by the CPT Advisory Committee. (American Medical Association, 2019) This is a larger body of advisors primarily made up of physicians nominated by the national medical societies represented in the AMA House of Delegates. (American Medical Association, 2019) The AAP is 1 of 125 national medical specialty societies eligible to be represented on the CPT Advisory Committee. (American Medical Association, 2019) The CPT advisory committee’s primary objectives include suggesting revisions and reviewing requests for revisions, advising on procedure coding and appropriate nomenclature, providing documentation to the panel being considered for changes, assisting in review and further development of relevant coding issues in preparation of technical educational material, and promoting and educating its membership on the use and benefits of the CPT code set. (American Medical Association, 2019) The process for CPT code revisions and approvals as well as implementation is detailed and rigorous.

CPT CODING OF WELL-CHILD VISITS

CPT codes for well-child visits are split by new or established patient visits. (American Academy of Pediatrics, Bright Futures, 2019) The CPT code used for each type of patient is further categorized by age. The details are shown in Figure 4. (American Academy of Pediatrics, Bright Futures, 2019) In addition to the standard list of CPT codes used for preventive coding, there are preventive codes specific to prenatal visits and adolescent medicine. The AAP recommends 32 well-child visits between the prenatal period and 21 years of age.
Figure 4. Pediatric Preventive Medicine CPT Service Codes
CHAPTER 2

LITERATURE REVIEW

The primary goal of preventive care is to improve health outcomes. The long-term impact of infant and child preventive care has not been studied extensively. Studies focused on measuring the impact of preventive care tend to use short-term outcomes such as avoidable emergency room visits or inpatient hospitalization. (Hakim & Ronsaville, Effect of Compliance With Health Supervision Guidelines Among US Infants on Emergency Department Visits, 2002) Hakim and Bye studied this relationship using incidence of avoidable hospitalizations as a measure of long-term impact of health supervision visit compliance. Their study concluded that increasing compliance with periodic preventive care for infants and children would have a positive effect on health outcomes by decreasing avoidable hospitalizations among poor and near-poor children, regardless of race, level of poverty, or health status. Other studies have found little to no relationship/evidence between key recommended components of preventive health visits and outcomes. (Coker, Thomas, & Chung, 2013)

Evidence suggests that attendance of well-child visits does generally predict better outcomes for children. There are income related disparities in well-child visit attendance. (Wolf, et al., 2018) There is also age related variation in well child visit attendance- studies have shown that the 15- and 18-month well-child visits and the 4-year well-child visit were the least frequently attended. (Wolf, et al., 2018) The timing of these visits play an important role in the identification of developmental delays and assessment of school readiness.

Figure 5 represents the Eco-Bio-Developmental model of health and disease, and reflects the complexity inherent in the basic science of pediatrics. Any attempts to effectively impact healthy development and prevent disease must take these other complex factors into account.
Another way to conceptualize human development is to understand how the trajectory of health for children and adults is effected over the course of a lifetime. Most evidence-based research confirms that the most critical developmental points and the most critical opportunities to counter negative exposures are early in life. Figure 6 represents the life course perspective of health development while also considering critical non-medical factors.
Infants and children of low-income families are most likely to miss well-child visits and have parents whose own childhood is more likely to negatively impact theirs. These two factors create more pressure on the pediatric health care provider in the “medical home” partnership to find ways to screen for and provide services to meet the needs of the patient and family unit. This dynamic will also make it more challenging and likely time consuming to efficiently and accurately assess the specific needs of the patient and apply situational guidance. The life course framework provides an alternative framework to understand evidence that some preventive care is more critical than others based on the age, developmental stage and certain non-medical risk-factors. These frameworks view outcomes as part of the life course and not just short-term measures of disease avoidance.

**CHILDREN’S HEALTH**

Children’s health is defined as “The extent to which individual children or groups of children are able or enabled to (a) develop and realize their potential, (b)
satisfy their needs, and (c) develop the capacities that allow them to interact successfully with their biological, physical, and social environments”. (Institute of Medicine, National Research Council, 2004) What determines children’s health is a complex mix of biological, behavioral, and environmental factors and the interaction of these factors. (Institute of Medicine, National Research Council, 2004) These factors are highly intertwined and difficult to isolate. The role and effect of biological, behavioral, and environmental influences change as children grow and develop. Simplified models that isolate and discuss the different influences on children’s health help to organize the understanding of what influences children’s health during childhood and beyond. Less simple, is the way in which pediatric health care providers use their understanding of these influences on children’s health, how influences interact, and which ones are relevant to their specific patients.

In most ways, children’s health is significantly influenced by behavior, their own and the behavior of others including their family and the community they live in. Behavior refers to a child’s emotions, beliefs, cognitions, and attitudes as well as overt behaviors. (Institute of Medicine, National Research Council, 2004) Health-related behaviors may be health promoting or health impairing. (Institute of Medicine, National Research Council, 2004) Health promoting behaviors are those that increase the likelihood of future health including healthy eating and exercise. Health impairing behaviors include activities with a high risk of injury, smoking, drinking, and reckless driving. For children, health behaviors could be that of their family, members of their community or their own behaviors. Often these health behaviors are considered proxies for health and health policies and are focused on changing behaviors. Seat belt safety laws and regular school attendance are examples of policies that attempt to influence behavior through legislation.

Some combination of health promoting behaviors and efforts to reduce health impairing behaviors can be used to broadly define pediatric preventive health
care for infants, children, and adolescents. The AAP annual compendium of evidence-based research for the pediatric practice includes a significant number of policies that are focused in part or entirely on prevention with the primary goal of improving child health. One policy in particular is entitled “2017 Recommendations for Pediatric Preventive Healthcare” and specifically outlines age-appropriate care identifying milestone events as well as timing for screenings and immunizations. As discussed, this schedule plays a central defining role in how pediatric preventive care is delivered and how it is coded for billing purposes in the U.S. The other prevention policies recognize that so much of what influences health outcomes for children is not considered in the structure of a typical outpatient visit and is therefore not considered for coding and ultimately reimbursement. Part of the challenge for health care providers is determining the most efficient and effective use of time during an outpatient visit within this limited coding and reimbursement structure and the limited evidence that discussion of prevention can work.

Determining what can be treated or prevented in a health care setting, even if accurate screening tools exist, is also a challenge. There is very little to no coding and reimbursement for improving care efforts dedicated to tackling those factors that influence health impairing and health promoting behaviors within the context of pediatric preventive health care. The lack of evidence linking prevention efforts in childhood to outcomes in adulthood also limits the opportunity for coding and reimbursement for health care services.

Figure 7 illustrates the multi-faceted ways in which child health can be influenced and improved. It shows how a child health framework that emphasizes important positive influences, such as health prevention or health promotion, can counter negative influences and increase the likelihood that a child can have healthy outcomes. Preventing the illness or injury or exposure is important but given the complicated and unpredictable challenges of this effort early screening, detection, and treatment are equally important and more predictable.
Another primary focus of consistent health supervision is the management of serious acute or chronic medical pediatric problems. More recently, there has been a focus on the origins of common adult chronic diseases in childhood. The major childhood drivers of adult diseases are distinctly nonmedical: poverty, poor educational outcomes, unhealthy social and physical environments, and unhealthy lifestyle choices. (Forrest & Riley, 2004) For children without chronic or serious medical conditions traditional pediatric preventive services may be largely ineffective in addressing these future chronic diseases. (Coker, Thomas, & Chung, 2013)
One of the key challenges to addressing nonmedical concerns during health supervision visits is most pediatricians do not have the training, skill, or capacity to provide intensive services. In addition, the evidence that office-based counseling or guidance during health supervision visits reduces or prevents health-related behaviors is weak. (Coker, Thomas, & Chung, 2013) Despite the lack of training, skill, and evidence that pediatricians can effectively address the causes of chronic diseases in childhood, the expectation and recommendation by the AAP and BF is still that regular health supervision visits are the means to positively impact the lifelong health trajectory. The CPT coding structure does not adequately reflect the expectations of the health supervision visit.
CHAPTER 3

METHODOLOGY

There are 544 AAP policy statements contained in the American Academy of Pediatrics' Clinical Practice Guidelines and Policies, 18th Edition. These policy statements were read and coded primarily to identify those focused on prevention. Clinical and technical reports were excluded from the analysis. If the word prevention was used in the title of the policy it was included in the analysis by default and further evaluated for the type of prevention stated. If the words diagnosis, management, treatment, emergency care, inpatient-related verbiage, or home health were used in the policy title or description then the policy was excluded. Using these inclusion and exclusion criteria, 103 policies were identified as prevention and 451 policies were identified as non-prevention.

The first of these 103 policies is “2017, Recommendations for Preventive Pediatric Health Care.” This policy is so critical to the model for prevention that the AAP regularly updates and publishes a detailed table outlining categories, timelines, and specific ages for these recommendations. This policy is also outlined in detail in the “Bright Futures/AAP Recommendations for Preventive Pediatric Health Care Periodicity Schedule”. This schedule is the framework by which all standardized preventive pediatric health care is administered and is closely aligned with how preventive care is coded for billing purposes. Because of the all-encompassing intent of this policy it was assigned its own category in the analysis (ALL).

The remaining 102 prevention policies were assigned to one of seven categories. The purpose of categorizing the policies by type was to accurately link each activity to one of two CPT prevention code categories: those used for well-child visits (99381/2, 99383/4, 99391/2, 99393/4, 99385/95) and those used for other prevention coding beyond well-child visit codes. Anticipatory guidance is listed to occur at every well-child visit therefore nearly every anticipatory guidance policy
was listed as being included in the well-child visit CPT code category. As stated above the first policy was assigned its own category (ALL), and the remaining 7 categories were identified as the following: dental prevention (DEN), disease prevention (DIS), environmental (ENV), immunization (IMM), injury prevention (INJ), maternal-fetal (MAF), pregnancy prevention (PPV), anticipatory guidance (ANG), and substance use (SUB).
CHAPTER 4

RESULTS

81% of the policies were coded as non-prevention and 19% were coded as prevention. Figure 8 illustrates the breakdown of the 103 prevention policies to one of eight prevention categories. The number of policies assigned to each category were as follows: 1 Health Supervision Visit Prevention Recommendations (ALL), 2 Dental Prevention (DEN), 4 Disease (DIS), 7 Environmental (ENV), 9 Immunization (IMM), 8 Maternal Fetal (MAF), 2 Pregnancy Prevention (PPV), 8 Substance Use (SUB), and 62 Anticipatory Guidance (ANG).

Figure 8. AAP Prevention Policy Analysis By Category

Table 1 provides a breakdown of the 103 policies by percent in category. Anticipatory guidance policies were by far the majority at 60.2%. The remaining breakdown of policies by percent to category were as follows: 1% ALL, 1.9% DEN, 3.9% DIS, 6.8% ENV, 8.7% IMM, 7.8% MAF, 1.9% PPV, and 7.8% SUB.
Table 1. Percent of type of prevention policy by category.

<table>
<thead>
<tr>
<th>Long Description</th>
<th>Type of Prevention Policy</th>
<th>Percent of Type of Prevention Policies</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>ALL</td>
<td>1.0%</td>
</tr>
<tr>
<td>Dental</td>
<td>DEN</td>
<td>1.9%</td>
</tr>
<tr>
<td>Disease</td>
<td>DIS</td>
<td>3.9%</td>
</tr>
<tr>
<td>Environmental</td>
<td>ENV</td>
<td>6.8%</td>
</tr>
<tr>
<td>Immunization</td>
<td>IMM</td>
<td>8.7%</td>
</tr>
<tr>
<td>Maternal-Fetal</td>
<td>MAF</td>
<td>7.8%</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>PPV</td>
<td>1.9%</td>
</tr>
<tr>
<td>Anticipatory Guidance</td>
<td>ANG</td>
<td>60.2%</td>
</tr>
<tr>
<td>Substance Abuse</td>
<td>SUB</td>
<td>7.8%</td>
</tr>
</tbody>
</table>

Table 2 provides a summary of the primary and secondary analyses completed by category. The primary analysis compared the prevention categories with the well-child periodicity schedule. This analysis identifies which of the prevention policies is expected as part of the prevention framework articulated by the AAP and BF in the periodicity schedule. If a prevention policy could be identified in the expectation set forth in periodicity schedule it was included in the count. 81 (79%) of the 103 prevention policies were found to be included in the periodicity table. The primary analysis resulted in the following percent included by category: 100% ALL, 50% DEN, 50% DIS, 57% ENV, 56% IMM, 0% MAF, 0% PPV, 98% ANG, 88% SUB, and 79% SUB.

Table 2. Summary of Analysis: Comparison to WC Periodicity Schedule & Coding

<table>
<thead>
<tr>
<th>Type (N)</th>
<th>Included in WC Periodicity Table</th>
<th>Additional CPT Coding Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Percent</td>
</tr>
<tr>
<td>ALL (1)</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>DEN (2)</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td>DIS (4)</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>ENV (7)</td>
<td>4</td>
<td>57%</td>
</tr>
<tr>
<td>IMM (9)</td>
<td>5</td>
<td>56%</td>
</tr>
<tr>
<td>MAF (8)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>PPV (2)</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>ANG (62)</td>
<td>61</td>
<td>98%</td>
</tr>
</tbody>
</table>
The secondary analysis compared the prevention categories with the availability of additional CPT codes (beyond the well-child prevention CPT codes). 37 (36%) of the 103 prevention policies were found to trigger additional CPT coding. 100% of ALL and PPV policies were found to trigger additional CPT codes. MAF was at 88%, DIS and SUB were at 75%, IMM was at 56%, DEN was at 50%, ENV was at 29%, and ANG had the lowest for additional coding at 17%.

Elements included in the periodicity schedule are included in the coding structure for well-child visits. In some cases, there are additional codes that can be used by pediatric care providers. For example, immunizations generally occur during well-child visits but there are also additional CPT codes for immunizations. In other cases, work recommended by prevention policies is not explicitly represented in either the WC CPT structure or the additional CPT codes that could be used for coding prevention activity. This was found to be true for the majority of recommendations related to ANG policies.

98% (61) of ANGs articulate prevention advice that the provider is solely responsible for evaluating for inclusion during any one of the 32 age-based health supervision visits. 1 ANG (2%) was not included in the expectation because it discusses the importance of prenatal visits for the mother and is not typically delivered or coded by a pediatric health care provider. Only 17% of ANGs can trigger additional WC CPT codes. 83% of the 61 ANG policies have no additional CPT coding potential. The pediatric provider must determine the anticipatory guidance that is needed and relevant for a particular patient during a particular visit, communicate it in an efficient and effective manner, and do so while also meeting all of the required elements of the WC visit in order to code for the WC visit using the appropriate WC CPT code. In many ways, this effectively renders the need to deliver care articulated by ANG policies optional or at the very least, a secondary priority. 83% of the ANG policies may or may not apply but 100% of the elements listed in the ALL policy must be completed during an
age-specified WC visit in order to meet the requirement to code. It creates a difficult scenario for the pediatric provider and no incentive to apply the recommended prevention advice articulated in many of the ANG policies.

IMM policies are not relevant to every WC visit and are therefore only at 56% for WC periodicity table inclusion. For every IMM policy there is an additional CPT code used to account for the immunization activity in addition to a WC visit CPT code. In fact, immunizations can be coded for at any type of visit, health supervision or other. Whenever they are performed they are coded separately and additional reimbursement is triggered by the additional CPT codes.

The analyses for SUB, DEN and DIS policies were most like IMM. If additional care activity was performed by the provider then additional CPT codes could be used. The analyses for PPV and MAF were also similar. Neither of these activities were included in the WC visit expectation but if performed by the health care provider they could be coded for 100% of the time. ENV policies were 57% inclusive in the WC visit but additional coding was only possible for 29% of the ENV policies.
CHAPTER 5

IMPLICATIONS FOR PUBLIC HEALTH

CONCLUSION

An immunization schedule is provided by the AAP and updated regularly. Immunization recommendations are discussed at the appropriate age-based well-child visits. They are all also discussed in the ALL policy. No matter when an immunization is administered an additional CPT code is used to code the event even though immunizations are typically administered at well-child visits. It is possible immunization CPT codes are approved because they adhered to the evidence-based threshold required by the AMA and CPT committees for approval. It is easier to demonstrate the effect of immunizations as compared to other policy recommendations focused on under-defined and under-studied outcomes related to different areas of anticipatory guidance.

The lack of additional CPT codes may be due to the lack of evidence-based research that including anticipatory guidance in well-child visits is effective or that the best ways to deliver this guidance have been developed as a standard of care. Equally challenging is the lack of evidence that providing this guidance even within the context of the medical home model is effective in terms of some defined set of outcomes.

Anticipatory guidance is expected at every well-child visit, while providers are also expected to adhere to all of the other elements of preventive care outlined in the Bright Futures/AAP Recommendations for Preventive Pediatric Health Care (Periodicity Schedule). Without additional CPT codes to recognize these efforts, the structure and inclusion of anticipatory guidance and other non-clinical prevention recommendations, is impractical and unrealistic. If only 17% of ANGs create the additional potential use of CPT codes, 83% of ANG efforts will go unrecognized and undercompensated. Without these additional codes, the need
to deliver ANGs will always compete and lose with the other required elements of WC CPT codes.

Additional studies must be conducted to generate evidence for the effective delivery of non-clinical preventive care, like anticipatory guidance, in order for the AAP to effectively advocate for more CPT codes or a new CPT coding structure for pediatric preventive health care. There need to be more CPT codes, better training for pediatric health care providers on how to identify non-medical high-risk factors, and better more effective tools for these providers to utilize during well-child visits.

IMPLICATIONS FOR PUBLIC HEALTH

Each year in the United States more than 24 million well-child visits occur. (Fried, Makuc, & Rooks, 1998) Evidence that life-long health begins in infancy and in some cases in utero, continues to grow. Life-course research continues to find evidence that critical life periods shape life-long outcomes more than others. As this evidence grows, pediatric health care providers may begin to consider how health prevention is framed for infants, children, and adolescents. This is particularly true when there are elements of well-child visits that are included as optional but not required in the documentation nor eligible for additional CPT codes. There is no way to track compliance or account for time spent delivering these important elements without documentation or coding requirements. As my results show, anticipatory guidance is by default assigned a secondary priority because it is an optional component of the well-child visit and only minimally eligible for additional CPT coding (17%).

The growing volume of recommended health advice has led health care providers to question whether there is adequate time and reimbursement, parents to question whether they are receiving the advice they need or desire, and some to suggest that the well-child visits need to be redesigned entirely. (Belamarich, Gandica, Stein, & Racine, 2006) Others still, remain firm in their
conviction that a clearly defined medical home that engages the competent parent and maintains continuity of care and the provider-patient relationship, can effectively identify and address all of the patient's needs.

Today, the delivery of pediatric health prevention services occurs at well-child visits and is shaped by the recommendations made by the AAP and BF to the health and well-being of children of all ages. Pediatric health prevention services are also shaped by how these services are coded and reimbursed. As my analysis demonstrated, there are no AAP prevention policies that focus on prevention through the life course lens. The AAP still categorizes prevention efforts into siloes without careful consideration of outcomes in adulthood. A better understanding of health outcomes based on the life course concept could strengthen prevention efforts and create a system by which ANG policies could be catalogued and delivered more effectively. I review the life course concept in the next section and discuss why it is important to our understanding of prevention.

THE LIFE COURSE CONCEPT

The life course concept recognizes the opportunity to prevent and control diseases at key stages of life from preconception through pregnancy, infancy, childhood, and adolescence, through to adulthood. (Jacob, Baird, Barker, Cooper, & Hanson, 2019) The need to address the origins of non-communicable diseases (NCDs) including obesity, diabetes and cardiovascular disease, musculoskeletal, mental and neurological disorders has been identified by multiple major international organizations and include a focus on the life course concept. (Jacob, Baird, Barker, Cooper, & Hanson, 2019) This is in stark contrast to the model of healthcare where an individual is healthy until disease occurs and does thereby reset definition of the preventive healthcare.

Figure 9 illustrates a commonly used approach to studying life course processes and shows four possible models. (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power,
They explain ways in which different factors may act to cause chronic diseases across the life course especially during critical periods. These models focus on the timing of an exposure during a specific period that has a lasting or lifelong effect on the structure or physical functioning of organs, tissues, and body systems which are not modified in any way by later experience, and which results in disease later in life. (Ben-Shlomo & Kuh, 2002) The model also illustrates how exposures earlier in life during a different critical period of development may enhance the effect on disease development or diminish them.

Figure 9. Four commonly used approaches to life course processes. (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003)
A life course perspective enables the identification of a high-risk phenotype and markers of risk early in life. (Jacob, Baird, Barker, Cooper, & Hanson, 2019) This shift creates opportunity to revisit how primary prevention is delivered. The focus is on timely primary prevention of NCDs through the life course while highlighting issues in key life stages. Life course research suggests the need for a special focus on adolescents and chronic disease and the need for optimum health in the preconception period to reduce the transgenerational nature of NCD risk. (Jacob, Baird, Barker, Cooper, & Hanson, 2019)

Adolescence is a critical developmental stage second only to fetal and infant life. (Jacob, Baird, Barker, Cooper, & Hanson, 2019) These major transitions and developmental changes create great potential for primary interventions during these stages. (Jacob, Baird, Barker, Cooper, & Hanson, 2019) Addressing needs in adolescence may offer the best opportunities for consolidated gains and a second chance to people who missed out during childhood. (World Health Organization, 2019) Adopting a life course approach to child development, with greater attention to adolescent girls in particular, has been shown to improve the likelihood of breaking the intergenerational transmission of poverty. (World Health Organization, 2019) The majority of the type of “greater attention” needed would fall under the ANG category in my analysis. Without the additional opportunity to code and therefore improve reimbursement there is not a structure to create incentives to increase “greater attention” during this critical period in adolescent girls’ lives. Further, there are no additional codes or modifiers that recognize how much more effort it would take to provide preventive care to individuals with greater risk of NCDs.

Evidence has repeatedly shown that educated girls are less likely to marry early and become pregnant as teenagers, practice safe sex and more successfully avoid sexually transmitted disease, and are more likely to have healthy children when they eventually become mothers. (World Health Organization, 2019) Reducing the emergence of problems during adolescence could have a
substantial effect on reducing the burden of health problems that follow into adulthood. (World Health Organization, 2019) None of the AAP prevention policies discuss a life course approach or NCDs. Also, of equal importance reimbursement models in U.S. health care are not designed to encourage said efforts or reimburse for them.

PROPOSED PREVENTIVE CARE CPT CODING

Pediatric health care providers should consistently administer risk assessment screening for non-medical factors shown to impact the health trajectory of children. Additional CPT codes should be developed and used to track and report the use of these critical screening tools, much like additional immunization CPT codes are used in addition to the baseline well-child CPT codes during regular health supervision visits. If standardized screening tools identify a child at high risk additional CPT codes should be available at the time of the health supervision visit for the pediatric health care provider to articulate what the child is at risk for so the nonmedical prevention needs can be coded and tracked. All anticipatory guidance, much of which is prevention, should not be generically included in the well-child visit expectation. Follow-up care plans should identify the need for additional services to support the healthy development of the child that recognizes nonmedical risk factors.

Pediatric health care providers will need to be trained on new screening techniques and important questions will need to be asked regarding follow-up care for children at high-risk with poor family support. We need to ask ourselves what is the appropriate next step for children and adolescents who are at risk for lifelong illness because due to critical risk factors not incorporated in the definition of pediatric preventive health care because the negative outcomes are not usually recognized until adulthood. This will mean developing a more inclusive definition of high-risk, incorporating it into the model for triage and care, and developing training and implementation plans that are effective for healthcare providers beyond medical care. The medical home may continue to
be the anchor for coordinating these additional elements for health supervision and disease prevention but it must be a model that can flex to recognize NCDs as a regular component of needs assessment and tie back to a CPT code structure that adequately recognizes these efforts.
REFERENCES

References


APPENDIX 1: BRIGHT FUTURES/AAP RECOMMENDATIONS FOR PREVENTIVE PEDIATRIC HEALTH CARE (2019 PERIODICITY SCHEDULE)

APPENDIX 2: CODING FOR PEDIATRIC PREVENTIVE CARE

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