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**1. Population Health of Children with Medical Complexity: A Systematic Review**

Barnert ES, MD, MPH\(^1\); Coller RJ, MD, MPH\(^1\); Nelson B, MD, MSHS\(^2\); Thompson LR, MPH, MS\(^3\); Chan V\(^1\); Tran J\(^1\); Padilla C\(^4\); Klitzner T, MD\(^5\); Szilagyi M, MD, PhD\(^6\); Chung PJ, MD, MS\(^7\)

**Background:** Children with medical complexity (CMC) generate 40% of child Medicaid expenditures but comprise roughly 3% of the pediatric population. Despite being a costly and vulnerable population, there is no consensus about what outcomes matter.

**Objective:** To conduct a systematic literature review that identifies health outcomes currently being measured for CMC.

**Methods:** We searched Medline and PsychINFO by linking combinations of key words from 3 groups of concepts: 1) pediatric, 2) medical complexity, and 3) chronicity or severity. Data on health outcomes examined by investigators were systematically extracted, and outcome domains and sub-domains were allowed to emerge.

**Results:** Our search yielded 3,853 articles resulting in 492 articles for data extraction after exclusion criteria were applied. Outcome measures fell into four domains: healthcare use and cost (65% of articles included measures in this domain); family well-being (41.3%); child health and well-being (25.2%); and functional limitations (17.5%) [see Table]. The most prevalent sub-domains were access to/use of medical goods and services (41.3%), progression/complications of disease (22.6%), and family quality of life (20.1%). Notably lacking were articles examining child development, child mental health, and health promotion and wellness.

**Conclusions:** Whether these domains and sub-domains represent consensus regarding key outcomes for CMC is unclear. Research gaps for some important outcomes should be urgently addressed as health systems and policymakers begin to codify health outcomes for CMC and other populations.

**TABLE: Outcome Domains for Children with Medical Complexity**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Sub-Domains</th>
<th>% Articles with Outcome Included</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Well-being</td>
<td>Quality of life</td>
<td>20.1%</td>
</tr>
<tr>
<td></td>
<td>Service needs</td>
<td>8.7%</td>
</tr>
<tr>
<td></td>
<td>Satisfaction with care</td>
<td>15.4%</td>
</tr>
<tr>
<td></td>
<td>Family engagement</td>
<td>4.5%</td>
</tr>
<tr>
<td>Child Health and Well-being</td>
<td>Quality of life</td>
<td>17.5%</td>
</tr>
<tr>
<td></td>
<td>Progression/Complications of disease</td>
<td>22.6%</td>
</tr>
<tr>
<td></td>
<td>Mortality</td>
<td>7.5%</td>
</tr>
<tr>
<td>Functional Limitations</td>
<td>Ability to perform tasks/ Self care</td>
<td>9.8%</td>
</tr>
<tr>
<td></td>
<td>Technology dependence</td>
<td>7.1%</td>
</tr>
<tr>
<td></td>
<td>Work/School attendance</td>
<td>6.5%</td>
</tr>
<tr>
<td></td>
<td>Social engagement</td>
<td>7.3%</td>
</tr>
<tr>
<td>Healthcare Use</td>
<td>Access to and use of medical goods and services</td>
<td>41.3%</td>
</tr>
<tr>
<td></td>
<td>Costs of medical goods and services</td>
<td>19.1%</td>
</tr>
<tr>
<td></td>
<td>Care coordination</td>
<td>15.2%</td>
</tr>
<tr>
<td></td>
<td>Quality of care</td>
<td>12.6%</td>
</tr>
</tbody>
</table>

**2. How Do We Measure Population Health for Children with Medical Complexity? A Qualitative Study to Ask the Experts**

Elizabeth S. Barnert, MD, MPH\(^1\,\,2\); Ryan J. Coller, MD, MPH\(^3\); Bergen Nelson, MD, MS\(^1\,\,2\); Lindsey Thompson, MPH, MS\(^1\,\,2\); Vincent Chan\(^1\,\,2\); John Tran\(^1\,\,2\); Cesar Padilla\(^1\,\,2\); Thomas Klitzner, MD\(^1\,\,2\); Moira Szilagyi MD, PhD\(^1\,\,2\); Paul J Chung, MD, MS\(^1\,\,2\,\,4\,\,5\)

\(^1\)Department of Pediatrics, UCLA; \(^2\)Children’s Discovery & Innovation Institute, Mattel Children’s Hospital UCLA; \(^3\)Department of Pediatrics, University of Wisconsin-Madison; \(^4\)UCLA Fielding School of Public Health; \(^5\)RAND Corporation

**Background:** Consensus population health outcomes for children with medical complexity (CMC) do not yet exist. Through systematic literature review, we identified 17 candidate health outcomes for CMC. It is unclear which of these outcomes would be most feasible or impactful to measure.

**Objective:** To gather expert opinion to help identify a core set of population health measures for CMC.

**Methods:** We are conducting qualitative analysis of interviews with 22 diverse, nationally renowned experts on CMC to identify core population health outcomes for CMC. Interviewees include child and family advocates; health and social service providers; and research, health systems, and policy leaders. Interviews are nearly complete, and iterative thematic content analyses are in progress.

**Results:** All interviewees agreed that CMC can be defined as a discrete population with important and measurable common health outcomes. Interviewees generally defined health for CMC as a broad measure of current and long-term potential. Interviewees emphasized child and family-centered approaches to measuring population health for CMC that include but also extend beyond traditional health metrics. Core recommended outcomes included quality of life (child and family), mental health (child and family), participation in school (child) and employment (parent), social engagement,
community integration, care coordination, and access to appropriate care. Interviewees emphasized mental health as an under-discussed yet highly prevalent challenge facing CMC and their families.

Conclusions: Experts have taken initial steps in identifying key population health outcomes for CMC. Successfully capturing these outcomes will require a broad approach to measuring health that emphasizes families’ abilities to optimize their child’s potential. Capturing these outcomes for CMC may help reveal opportunities to improve health measurement for all children.

3. How Does Incarcerating Young People Affect Their Long-term Health Outcomes?
Elizabeth S Barnert, MD, MPH, MS1,2; Rebecca Dudovitz, MD, MSHS1,2; Bergen Nelson, MD, MS1,2; Tumaini R. Coker, MD, MBA1,2; Lello Tesema, MD3; Christopher Biely, MS1; Ning Li, PhD4; Paul J Chung, MD, MS1,2,4,5
1Department of Pediatrics, UCLA; 2Children’s Discovery & Innovation Institute, Mattel Children’s Hospital UCLA; 3Robert Wood Johnson Foundation Clinical Scholars Program; 4Department of Health Policy & Management, UCLA; 5RAND Corporation

Background: Despite the widespread epidemic of mass incarceration in the United States, relatively little literature exists examining the longitudinal effects of youth incarceration on adult health outcomes.

Objective: To quantify the impact of youths’ juvenile and early adult criminal justice involvement on adult health outcomes.

Methods: We analyzed data from the National Longitudinal Study of Adolescent Health, a nationally representative survey of participants sampled from 1994-2008. We used multivariate logistic regressions to investigate the relationship between an individual’s cumulative duration of incarceration (none, <1 month, 1-12 months, >1 year) prior to Wave IV (ages 24-32) and health outcomes (self-reported general health, functional limitations, suicidality) in Wave IV. Models controlled for Wave I (ages 12-17) health variables, socio-demographics, and covariates known to be associated with incarceration and health (e.g., prior substance use).

Results: 14.0% of the analytic sample of 14,344 young adults reported ever being incarcerated. Of these, 50.3% reported a cumulative incarceration duration of <1 month, 34.7% reported 1-12 months, and 15.0% reported >1 year. Incarceration duration of >1 month significantly predicted worse general health (odds ratio=1.44; p=0.021). Similarly, incarceration duration of >1 year significantly predicted having functional limitations (OR=2.92; p=0.002) and suicidality (OR= 2.32; p=0.032) during adulthood. Associations between incarceration and health were not modified by gender or race/ethnicity.

Conclusions: Incarceration during adolescence and early adulthood is independently associated with worse general, physical, and mental health outcomes during adulthood. Exact causal mechanisms linking incarceration with worse health merit examination and, if confirmed, intervention.

4. Commercially Sexually Exploited Youths’ Perspectives on Health Needs and Use of Health Services: A Qualitative Analysis
Elizabeth S. Barnert, MD, MPH, MS1,2; Roya ljadi-Maghsoodi, MD3; Mekeila Cook, PhD3; Lauren Textor, BA3; Shushana Gaboian, MSW3; Eraka Bath, MD3
1Department of Pediatrics, UCLA; 2Children’s Discovery & Innovation Institute, Mattel Children’s Hospital UCLA; 3Department of Psychiatry & Biobehavioral Sciences, UCLA

Background: Commercially sexually exploited (CSE) youth have high rates of violence-related injury, sexually transmitted infections (STIs), pregnancy, and mental health problems, including depression and substance use. Despite their need for healthcare services, to our knowledge, no prior studies have examined CSE youths’ perspectives on their health needs and use of health services.

Objective: To understand CSE youths’ perspectives on their health needs and experiences with healthcare services, including physical, mental, and substance use health services.

Methods: We performed in-depth thematic content analysis of 3 focus groups conducted with CSE youth (n= 12 girls) at two residential group home facilities in Los Angeles. Focus groups explored youths’ health needs and experiences with healthcare services.

Results: Overall, participants’ knowledge and concern about STIs was a main motivator for accessing health services. Barriers to care included concerns about confidentiality, perceived judgment by providers, and provider gender, with some youth strongly preferring females and others males. Participants emphasized the importance of independence and of being “smart” in order to survive which, at times, conflicted with their need for health services.

Conclusions: Although CSE youth are aware of some of their health risks, they face significant barriers to accessing care. Their health needs, utilization patterns, and barriers to care directly relate to their experiences of sexual exploitation. Understanding the experiences and perceptions of CSE youth regarding health services is critical to engaging and providing comprehensive care to this vulnerable population.

| Table 1: Quotations From Participants on Use of Health Services |
| Knowledge and Concern about STIs |
| The smart thing is to always use condoms… I’ve never had a disease in my life because I know what I’m into and I’m scared to get a disease. |
5. Well-Child Care Clinical Practice Redesign: A Qualitative Analysis of Intervention Parents’ Perspectives from the PARENT Trial
Sandra M Chacon, BA1, Paul J Chung, MD, MS1,2, Naomi A Mimila, BS1, Sandra Contreras, MPH1, Tanesha Moss, MD1 and Tumaini R Coker, MD, MBA1. 1Mattel Children's Hospital UCLA, Los Angeles, CA, United States and 2UCLA Fielding School of Public Health, Los Angeles, CA, United States.

Background: Practice redesign can create more effective, sustainable systems for preventive care delivery. We partnered with two pediatric practices that serve a predominately Medicaid population to create a new comprehensive model for well-child care (WCC) called Parent-focused Redesign for Encounters, Newborns to Toddlers (PARENT).

Objective: To assess the perspectives of parent participants in the intervention arm of a randomized controlled trial to evaluate PARENT among children in low-income families.

Design/Methods: PARENT was designed using a stakeholder-engaged process and includes: 1) a parent coach (i.e., health educator) to provide anticipatory guidance, psychosocial screening and referral, and developmental/behavioral surveillance, screening, and guidance at each well-visit; 2) a web-based tool to customize visits to parents’ needs and facilitate pre-visit screening, 3) a text message service for periodic, age-specific health messages to families, and 4) a brief, problem-focused encounter with the pediatrician. 251 parents of a child ≤12 months arriving at one of the practices were randomized to control or intervention. A 25% random sample of intervention group parents (n=30) were interviewed; discussions were recorded, transcribed, and analyzed using the constant comparative method of qualitative analysis.

Results: Intervention parents reported that involvement of the Parent Coach created a more family-centered and comprehensive well-visit. Parents noted that although the Parent Coach and pediatrician used a team-based approach to care, each was responsible for a distinct set of WCC services. Parents also perceived that wait time during visits (particularly in the exam room) was more efficiently used, and that the web-based tool was helpful in visit preparation, though they would have preferred more user-friendly options for accessing the tool (e.g., mobile app, paper version).

Conclusions: The PARENT intervention provided enhanced parent experiences in WCC using a team-based approach to care. Parent perceptions potentially explained some of the previously reported quantitative effects of the PARENT trial.

6. Are Hospitalizations Sensitive to Ambulatory Care among Children with Medical Complexity?
Ryan J Coller, MD, MPH1 and Paul J Chung, MD, MS2,3,4,5. 1Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison, WI, United States; 2Pediatrics, David Geffen School of Medicine UCLA, Los Angeles, CA, United States; 3Health Policy and Management, Fielding School of Public Health UCLA, Los Angeles, CA, United States; 4RAND Health, RAND Corporation, Santa Monica, CA, United States and 5Children's Discovery and Innovation Institute, Mattel Children's Hospital, Los Angeles, CA, United States.

Background: Hospitalizations for ambulatory-care sensitive conditions (ACSCs) have been considered potentially preventable in general populations; however, their relevance for children with medical complexity (CMC) is unknown.

Objective: Characterize ACSC hospitalizations for CMC and children with non-complex chronic diseases (“NC-CD”), and identify associations with ambulatory care factors.

Design/Methods: Retrospective cohort study of hospitalizations at a children's hospital during 2007-2014, excluding labor/delivery and children over 21 years. The Pediatric Medical Complexity Algorithm stratified patients into CMC, NC-CD, or children without chronic disease. CMC and NC-CD were included in analyses. Demographic and primary care characteristics were compared between ACSC and non-ACSC hospitalizations with logistic regression clustered by patient. For CMC admitted with ACSCs to the hospitalist service and with PCPs at our institution, timing of ambulatory contacts prior to admission was also determined.

Results: Among 4,035 children with NC-CD, 720 (14.6%) of the 4,926 hospitalizations were for ACSCs. A PCP was identified for 94.3% of encounters. ACSC hospitalizations were associated with no insurance (OR 2.0, P=0.01) and <2 (OR 1.26, P=0.006) or no (OR 1.44, P=0.001) prior-year outpatient visits. Among 5,084 CMC, 788 (5.5%) of the 14,390 hospitalizations were for ACSCs. CMC had PCPs in 96.6% of encounters. ACSC hospitalizations were unrelated to having a PCP (P=0.3), having insurance (P=0.6), or number of prior-year outpatient visits (P=0.3). ACSC hospitalizations were much more likely among non-CMC than CMC encounters (OR 3.0, P<0.001). Moreover, among CMC admitted with an ACSC to the hospitalist service and a PCP within the institution, 77.2% actually had ambulatory clinic or phone encounters in the week prior to admission, and 97.5% in the 90 days prior to admission.

Conclusions: Among CMC, it is not clear whether ACSC hospitalizations are truly sensitive to ambulatory care.
7. Medical Complexity, Family-Delivered Healthcare at Home, and Outcomes
Ryan J Coller, MD, MPH1, Mary Ehlenbach, MD1, Gemma GS Warner, MSSW1, Jens C Eickhoff, PhD2 and Paul J Chung, MD, MS1,4,5,8. 1Pediatrics, University of Wisconsin School of Medicine and Public Health, Madison, WI, United States; 2Biostatistics and Medical Informatics, University of Wisconsin School of Medicine and Public Health, Madison, WI, United States; 3Biostatistics, David Geffen School of Medicine UCLA, Los Angeles, CA, United States; 4Health Policy and Management, Fielding School of Public Health UCLA, Los Angeles, CA, United States; 5RAND Health, RAND Corporation, Santa Monica, CA, United States and 6Children’s Discovery and Innovation Institute, Mattel Children’s Hospital UCLA, Los Angeles, CA, United States.

Background: Families of children with medical complexity (CMC) often deliver extensive healthcare at home, with unclear implications for child health and family outcomes.

Objective: Explore relationships between family-delivered health care at home for ≥20 hours/week and hospitalizations, ED use, and parent employment outcomes.

Design/Methods: Using the 2009-2010 National Survey of Children with Special Healthcare Needs, CMC were identified from previously described approaches. Families spending ≥20 hours/week delivering healthcare at home were identified. Outcomes included parent-reported need to cut down or to stop work as a result of the child's illness, number of ED visits, and presence of a hospitalization in the prior year. Hospitalizations were assessed in only one state. Associations between family-delivered care ≥20 hours/week and outcomes were explored for CMC with weighted multivariate logistic or negative binomial regression, adjusting for patient and family characteristics. Severity of illness was indicated by the presence of ≥3 subspecialists.

Results: Families of 21.3% of CMC and 2.6% of non-CMC delivered healthcare at home ≥20 hours/week. CMC receiving care ≥20 hours/week averaged 2.6 ED visits in the prior year, with 38.6% hospitalized at least once; most families reported at least one parent having to stop work (65.4%) or cut down (51.6%). Compared to CMC with <20 hours/week, these children had more ED visits (IRR 1.16, 95% CI 1.00-1.34) and parents stopping work (AOR 2.99, 95% CI 2.31-3.85) or cutting down (AOR 1.57, 95% CI 1.22-2.03). Hospitalizations, assessed in only one state, were likely underpowered to detect a difference.

Conclusions: Extensive family-delivered healthcare at home is associated with utilization and major reductions in parent employment. Whether extensive family-delivered care directly drives utilization remains unclear.

8. Parental Childhood Experience and Parenting Attitude: Implications for Pediatric Practice
AM Conn, PhD, MED1, M Szilagyi, MD, PhD2, S Jee, MD, MPH1, J Manly, PhD1, R Briggs, PsyD3 and P Szilagyi, MD, MPH2. 1University of Rochester, Rochester, NY, United States; 2UCLA, Los Angeles, CA, United States and 3Montefiore, New York, NY, United States.

Background: Adverse childhood experiences (ACE), such as maltreatment or other family dysfunction, can result in lifelong cognitive, physical and emotional impairments. Little is known about the impact of parent ACE on parenting attitudes or child social-emotional health, or whether and how to address parent ACE in pediatric practice.

Objective: To: 1) describe the distribution of parent ACE in a general urban pediatric population; 2) examine the relation between parent ACE and parenting attitude and child social-emotional problems; 3) evaluate parent perceptions of pediatric interventions to address parent ACE.

Design/Methods: Interviews of 62 parents of children birth to five years attending an urban pediatric continuity clinic assessed: a) the presence of 10 ACE (using an ACE screener), b) parenting attitudes (using the Adult-Adolescent Parenting Inventory; AAPI), c) child social emotional development (using Ages and Stages Questionnaires: Social Emotional; ASQSE), and d) parent perceptions of pediatric ACE interventions (1:1 interviews; N =10). We used: univariate analysis to describe the number of parent ACE; bivariate and multivariate analysis to examine the relation between parent ACE and parenting attitude and 2) child social-emotional problems (stepwise adjustment for parent demographics and depression); and a thematic framework to identify themes in parental perceptions of ACE interventions.

Results: Most parents ranged from 18 to 34 years (79%), were black (50%) and earned <$25,000 annually (79%). Parent ACE: 42% of parents had 4 or more ACE (considered high). The mean number of ACE was 3.4 (2.5 SD). Parenting attitudes: Parent ACE predicted higher risk attitudes toward corporal punishment (p = .026). Child social-emotional problems: 61% of children at-risk for social emotional problems had parents with 4 or more ACE, compared to 33% of children without identified risk (p = .039). Parent perceptions of ACE interventions: Parents were not averse to sharing sensitive information in the context of a confidential, trusting clinical interaction

Conclusions: Parents of children seen in an urban pediatric clinic have high rates of ACE that are associated with high risk attitudes toward corporal punishment, and problems in their young children's social emotional health. Identification of parental childhood experience and subsequent anticipatory parenting guidance may be one way for pediatricians to address parental ACE in pediatric practice.
Background: "What do you want to be when you grow up?" is a simple, commonly asked question that may provide insight into adolescent wellbeing. Career aspirations may reflect an adolescent's sense of identity, hope for the future, and self-efficacy, all of which are critical to address when assessing health behavior risk and counseling adolescents on healthy behavior changes. However, there are no studies testing whether the presence or content of a teen's reported career aspirations is associated with hopelessness, wellbeing, depression, and risky health behaviors.

Objective: To determine whether career aspirations are associated with adolescent wellbeing and health behaviors.

Methods: We analyzed cross-sectional surveys of 929 9th-12th grade low-income minority adolescents in Los Angeles assessing career aspirations, hopelessness, general self-efficacy, depression, and risky health behaviors, including substance use, violence, and risky sexual activity. We used Department of Labor statistics to categorize career aspirations by amount of education required, income, and prestige. We performed generalized estimating equations accounting for clustering at the school level and controlling for socio-demographics, school type and academic performance.

Results: Career aspirations varied by gender with girls significantly more likely to name careers in education and healthcare, including medicine and mental health, and less likely to name careers in athletics or STEM fields. Grades, standardized test scores, and health behaviors varied by career type. Adolescents with any career aspiration rather than none had less hopelessness and more self-efficacy, as did those with higher career aspirations rather than lower. Career aspirations requiring a high school diploma or less were associated with increased odds of alcohol use (OR 1.55, p=0.046), other drug use (OR 2.24, p=0.047), and at-school substance use (OR 2.19, p=0.031), even after controlling for individual academic performance and other potential confounders.

Conclusions: Career aspirations may be a marker for adolescent health and wellbeing. Providers might consider asking a teen what they want to be when they grow up to gain insight into their underlying hopelessness and self-efficacy and provide context for assessing and counseling regarding health behavior risk.

Background: Studies suggest adolescent substance use aligns with academic and behavioral self-concept (whether teens think of themselves as good or bad students and as rule followers or rule breakers) as well as peer and adult social networks. Schools are an important context in which self-concept and social networks develop, but it is not clear how school environments might be leveraged to promote healthy development and prevent substance use.

Objective: To describe how youth perceive the relationships among school environments, adolescent self-concept, social networks, and substance use.

Design/Methods: We conducted 32 semi-structured interviews with youth ages 17-22 about their self-concept development, substance use decisions, school environments and social networks. Participants were recruited from a prior study of 9th-12th grade males and females who attended charter and non-charter schools in low-income minority Los Angeles communities. Recruitment was stratified by whether, in high school, they had healthy or unhealthy self-concept profiles and had engaged in or abstained from substance use. Interviews were recorded, transcribed, and analyzed in Atlas.ti using a coding process based on grounded theory. Three coders used consensus to develop and refine the codebook until a kappa >0.8 was achieved for all major codes.

Results: Students described how they felt quickly labeled by their school peers and teachers as "good" or "bad" kids, and how these labels became incorporated into their self-concept. Teachers who made students feel noticed (e.g., by learning students' names) and had high academic expectations reinforced positive self-concepts. Academic tracking, extracurricular activities, and school norms determined the universe of potential friendships, grouping students either with well-behaving or misbehaving peers. Students described the powerful need to belong and how their peer groups combined with their self-concept to shape their substance use decisions. Affirming healthy aspects of their self-concept at key risk behavior decision points (e.g., "This is not me") helped youth avoid substance use in the face of peer pressure.

Conclusions: Youth narratives suggest school environments powerfully shape adolescent self-concept and adult and peer social networks, all of which impact adolescent substance use. Specific aspects of a school environment that contribute to this process might be targeted for substance use prevention.
11. Which General Pediatricians Co-Manage Pediatric Mental Health Problems?
Cori Green, MD, MS1, Amy Storfer-Isser, PhD2, Ruth EK Stein, MD3, Bonnie D Kerker, PhD4, Moira Szilagyi, MD, PhD5, Andrew S Garner, MD, PhD6, Karen G O'Connor, BS7, Kimberly E Hoagwood, PhD4 and Sarah M Horwitz, PhD4. 1General Academic Pediatrics, Weill Cornell Medical College/New York Presbyterian Hospital, New York, NY, United States; 2Statistical Research Consultants, Schaumburg, IL, United States; 3General Pediatrics, Albert Einstein College of Medicine/Children's Hospital at Montefiore, Bronx, NY, United States; 4New York University School of Medicine, New York, NY, United States; 5University of California at Los Angeles, Los Angeles, CA, United States; 6Case Western Reserve University, Cleveland, OH, United States and 7American Academy of Pediatrics, Elk Grove Village, IL, United States.

Background: National mental health (MH) competencies state that pediatricians should manage children and adolescents with attention deficit hyperactivity disorder (ADHD), anxiety, and depression either alone or by co-managing (CM) with MH professionals. However, data indicate most pediatricians are not CM disorders other than ADHD, even when MH professionals are co-located in practices.

Objective: To investigate physician characteristics, practice characteristics, and training experiences that are associated with the likelihood general pediatricians (GP) CM patients with MH problems.

Design/Methods: The sample included 305 GPs who completed a 2013 AAP Periodic Survey (response rate 37%, weighted to correct for nonresponse bias). Exposure variables included physician (age, sex) and practice characteristics (e.g. small and large group primary care pediatric practices vs. multi-specialty practices, co-location of MH services), completion of ≥4 weeks of a developmental-behavioral pediatrics (DBP) rotation; interest in further MH education, and the number of residency trainings in medication dosing for ADHD, anxiety, and depression (range 0-3). The outcome was CM ≥50% of patients with MH problems. Weighted logistic regression analyses were performed.

Results: About 1/3 of GPs CM ≥50% of their patients. GPs who completed ≥4 weeks of DBP had twice the odds of CM (p=0.02). Being very interested in further education on managing/treating pediatric MH problems was associated with a 2.8 higher odds of CM (p<0.001). Among GPs working in multi-specialty practices, each training in medication dosing was associated with twice the odds of CM (p<0.001). This association did not exist among GPs practicing in primary care settings. None of the other physician or practice characteristics (including co-location) were associated with CM after adjusting for other variables.

Conclusions: These results highlight the importance of education for producing GPs capable and willing to CM patients with MH problems. Past training experiences and interest in further education were both associated with GPs and CM, unlike physician and practice characteristics. This also supports the importance of 4 weeks of DBP training with targeted instruction on medication management. Further study is needed to understand why targeted instruction was associated with CM only in GPs practicing in multi-specialty groups.

12. Family Determinants of Weight Related Practices among Young Latino Children
Alma D Guerrero, MD, MPH1, Paul J Chung, MD, MS1 and Deborah Glik, ScD2. 1Pediatrics, UCLA David Geffen School of Medicine, Los Angeles, CA, United States and 2Community Health Sciences, UCLA Fielding School of Public Health, Los Angeles, CA, United States.

Background: Parents and family members play a critical role in shaping weight-related behaviors in young children.

Objective: To identify beliefs, practices, and interactions of mothers, fathers, and grandmothers that shape nutritional and physical activity behaviors of young Latino children.

Design/Methods: Focus groups with Latina mothers, fathers, and grandmothers of 6- to 24-month old or 24- to 60-month old children were completed. Groups were audiotaped, transcribed, and analyzed. Codes were independently identified by the principal investigator and two research assistants; disagreements were resolved by consensus. Codes within and across focus group strata were reviewed for thematic content.

Results: A total of 52 mothers, 37 fathers, and 64 grandmothers participated; each focus group averaged 7 caregivers. All caregivers lived in East Los Angeles; approximately 70% were of Mexican descent and 70% resided in low-income households. All mothers, fathers, and grandmothers reported playing a significant role in shaping the nutritional and physical activity behaviors of young children. Regarding nutritional practices, all caregivers reported playing a role in providing children with fruits and vegetables. Limiting junk food and fast food, providing home cooked meals, increasing water, and diluting juice, however, were reported with varying frequency. Regarding physical activity, grandmothers and mothers did not feel that supporting physical activity was important for healthy weight development in children younger than 24-months of age, while all fathers reported supporting physical activity practices across both age groups. Regarding caregiver interactions, all caregivers reported having disagreements over child-specific dietary practices with at least one other caregiver in the home. Caregivers reported that such disagreements occurred frequently at grocery stores, family parties, and others' homes. Common strategies to resolve caregiver differences did not emerge and caregivers admitted giving in or avoiding disagreements to prevent any strain between family members.

Conclusions: All caregivers play a role in shaping weight-related behaviors of young Latino children.
Fathers and grandmothers may be vitally important for inclusion in interventions. Family cohesion, particularly when grocery shopping or in front of family and friends, and promoting physical activity in children younger than 24-months old may also be important and under-recognized needs to address in future interventions.
13. Beliefs and Practices Related to the Intake of Poor-Nutrient Dense Foods in Young Latino Children: The “It’s Okay Sometimes” Fallacy
Alma D Guerrero, MD, MPH1, Paul J Chung, MD, MS1 and Deborah Glik, ScD2. 1Pediatrics, UCLA David Geffen School of Medicine, Los Angeles, CA, United States and 2Community Health Sciences, UCLA Fielding School of Public Health, Los Angeles, CA, United States.

**Background:** Families play an important role in shaping weight-related dietary practices in young children.

**Objective:** To identify beliefs and practices of mothers, fathers, and grandmothers that shape the consumption of poor-nutrient dense foods in young Latino children.

**Design/Methods:** Separate focus groups with Latina mothers, fathers, and grandmothers of 6- to 60- month old children were completed. Groups were audiotaped, transcribed, coded and analyzed.

**Results:** A total of 52 mothers, 37 fathers, and 64 grandmothers participated; each focus group averaged 7 caregivers. All caregivers lived in East Los Angeles; approximately 70% were of Mexican descent and 70% resided in low-income households. Each caregiver type reported that occasionally giving a child a cookie, ice cream, fast food or some other form of poor-nutrient dense foods was acceptable, but each caregiver reported different times and reasons for doing so. Mothers believed it was acceptable for children to eat out of the home particularly on weekends in order to provide mothers with a break from cooking. Fathers also believed that children occasionally have poor-nutrient dense foods to reward good behavior. Grandmothers also believed that poor-nutrient dense foods in moderation were acceptable, believing that children should be allowed to try everything in order to learn different tastes and avoid developing folk illnesses (“se le puede reventar la hiel”). In addition, grandmothers admitted that providing poor-nutrient dense foods to their grandchildren was sometimes done to show and receive love and kindness. For fathers, providing poor-nutrient dense foods in moderation was largely done to control children's behaviors and prevent children from crying or throwing a tantrum.

**Conclusions:** Latino mothers, fathers, and grandmothers in this study report that poor-nutrient dense foods in moderation are acceptable which aligns well with evidence that over-restricting foods may backfire in children. Because each caregiver had different times and reasons for doing so, however, caregivers collectively provide near-constant opportunities for young children to consume unhealthy foods. Supporting families with strategies to develop a unified approach to occasional provision of poor-nutrient dense foods (especially avoiding food as rewards, symbols of love, or ways to control child tantrums) may be particularly important for healthy weight development in young Latino children.

14. A Randomized Controlled Trial of School-Located Influenza Vaccination with Billing and Online Consent
Sharon Humiston, MD, MPH1, Stanley Schaffer, MD, MS2, Cynthia Rand, MD, MPH2, Phyllis Vincelli2, Christina Albertin, MPH, RN3, Nicolas Goldstein2, Ashley Eagan, MPH2, Aaron Blumkin, PhD3 and Peter Szilagyi, MD, MPH3. 1Pediatrics, Children's Mercy, Kansas City, Missouri, United States; 2Pediatrics, URMC, Rochester, NY, United States and 3Pediatrics, UCLA, Los Angeles, CA, United States.

**Background:** Influenza (flu) vaccination rates for US school-aged children are below national goals. Primary care practices may not have the capacity to vaccinate all children during flu vaccination season. School-located influenza vaccination with billing (SLIV) has demonstrated increased rates, but the costliness of paper consent hampered sustainability.

**Objective:** Evaluate SLIV with online consent in elementary schools in Monroe County, NY during winter 2014

**Design/Methods:** We performed a RCT of SLIV across 7 school districts (6 suburban, 1 large urban). Stratifying 44 schools by location (24 suburban, 20 urban), we selected pairs of schools (matching by school district, school size and free lunch eligibility rates) and randomized 1 school per pair to SLIV vs. usual care. Each intervention school offered nasal spray (default) and injectable vaccines in 1 SLIV clinic during school hours in 12/2014, well after most office-based vaccination. Receipt of ≥1 dose of flu vaccine was assessed using the state immunization registry. We compared intervention vs. control groups using chi-square tests and multivariate logistic models with matched pair fixed effects to account for random assignment within matched pairs.

**Results:** We included 19,912 children. In the baseline year, SLIV and control group children had no significant differences in their flu vaccination rates. In the intervention year, children in SLIV schools were more likely than controls to be vaccinated (OR 1.26, p<0.001). Similar findings were noted in suburban and urban schools. In suburban schools, SLIV also seemed to increase vaccination in practices (with an opposite effect in urban schools).

**Conclusions:** SLIV with billing and online consent increased flu vaccination rates in both urban and suburban schools.

15. The Residency Leadership’s Role in Resident Support and Well-being
Su-Ting T. Li, MD, MPH; Savanna Carson, MS; Maura R. Reilly, MS; Kate Perkins, MD, PhD

**Background** While program directors and the program leadership team are charged with the responsibility for promoting well-being and monitoring stress amongst residents, little is known about the extent to which the program leadership team is involved in providing support to residents or the effect that providing resident support has on the leadership team.

**Objective** Determine the ways in which residency leadership teams support and promote trainee well-being, the impact of providing this support upon the team, and the implications for additional training needs for program leaders.
Methods We performed a national cross-sectional web-based survey of pediatric program directors (PD), associate program directors (APD), and coordinators (PC) in June 2015, on their experience supporting resident well-being (WB). Results 44% (364/821) of participants responded. All (100%) PD and APD, as well as 91% PC strongly agreed that supporting resident WB is an important part of their role. The majority of PD and APD (68-95%), and less frequently PC (26%-88.4%), report that they have supported residents experiencing grief, burnout, health challenges, and other stressors at least annually, and in some cases weekly, with a majority (72%) spending over 10% of their time on resident WB. In addition, 45% of PD supported residents who experience domestic abuse, discrimination, or sexual harassment semi-annually. Respondents reported mixed feelings related to supporting resident WB at least some of the time. While almost all (>90%) felt both valued and fulfilled, many felt stressed (67%) in the role. Negative feelings related to supporting WB were more likely to impact PD than APD or PC; for example, PD were more likely to feel unable to take time off work (PD 65%, APD 49%, PC 45%, p<0.05). The majority of respondents agreed that they needed additional training in their roles supporting resident WB, including for resident burnout (70%), patient grief (67%) and mental health (65%).

Conclusions Residency program leadership spends a significant amount of their time supporting resident well-being. While they feel that supporting resident well-being is an important part of their job, it is also a significant source of stress and there are opportunities to improve preparedness and training in providing support to residents.

16. Testing the Efficacy of Telephone-based Early Childhood Developmental Screening and Care Coordination through 2-1-1
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Background: Early detection of developmental and behavioral (DB) concerns is important so that children receive timely evaluations and interventions. Studies have shown that developmental screening in primary care is often lacking, and that subsequent care coordination is challenging. 2-1-1 Los Angeles (211LA) offers free telephone-based developmental screening and care coordination (DSCC) for families with young children. It is unclear whether 211LA services can enhance care quality in primary care clinics.

Objective: To test a model of telephone-based DSCC, through a partnership between 211LA and a community clinic.

Design/Methods: We are conducting a randomized controlled trial to compare telephone-based DSCC with usual care. Children ages 12-42 months who receive primary care at a partner clinic site are randomized to receive DSCC 1) by phone with 211LA plus primary care or 2) through primary care alone. We are conducting parent interviews (with validated screening tools) and 211LA and clinic medical record abstractions to measure DB concerns by parents and providers, screening rates with validated tools, and referrals to evaluations and interventions. We will conduct follow-up interviews with parents at 6 months post-enrollment, and quarterly record reviews for 12 months. Intention-to-treat analyses include logistic regression to test differences in primary outcomes (concerns noted, screening done, referral made), with group assignment as the primary predictor.

Results: To date, we have enrolled 120 families in the study and have completed baseline data collection for 87 children (46 in the intervention group and 41 in the control group). Average child age is 25.4 months, and 93% identify as Latino or Hispanic. Based on validated screening tools administered at recruitment, 40% of all children have high or moderate DB risk. Primary care clinicians asked 87% of all children in the study about developmental milestones, but noted concerns in the medical record for only 12%. Meanwhile, use of validated screening tools by either 211LA or primary care clinicians was dramatically higher in the 211LA group (78% vs. 0%), as were referrals for evaluation or intervention (33% vs. 2%, p=0.005).

Conclusions: Although results are preliminary and recruitment is ongoing, DSCC through 211 may provide important improvements over usual care in terms of identifying DB concerns and linking families to services.

17. Using Telehealth to Improve Mental Health Referral and Coordination for Children at a Community Health Center
Lorena Porras Javier, MPH1, Sandra Contreras, MPH1, Bonnie Zima, MD, MPH2, Neelkamal Soares, MD3, Paul J Chung, MD, MS1,4, Christine Park, MD, MPH5, Alpa Patel, MD6 and Tumaini R Coker, MD, MBA1. 1Mattel Children's Hospital UCLA, David Geffen School of Medicine at UCLA, Los Angeles, California, United States; 2Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA, Los Angeles, CA, United States; 3Geisinger Health System, Lewisburg, PA, United States; 4UCLA Fielding School of Public Health, Los Angeles, CA, United States; 5Northeast Valley Health Corporation, San Fernando, CA, United States and 6Child and Family Guidance Center, Northridge, CA, United States.

Background: Publicly-insured children who receive a referral from their primary care provider (PCP) for specialty mental health care often never receive services.

Objective: To use a community-partnered approach to create a telehealth-based system to improve the mental health referral and coordination process for children referred by PCPs at a multi-site federally-qualified health center (FQHC) to community mental health clinics.
Design/Methods: In collaboration with the FQHC and 2 community mental health clinics, we convened a Project Working Group with clinicians, staff, and parents for each of the community partner organizations. The Project Working Group met monthly over an 8-month period, using qualitative data from key stakeholders to design this telehealth-based system.

Results: Three critical transition points in the mental health clinic referral and coordination process were identified. The Project Working Group designed a telehealth-based system to address each of these key “voltage drops”. The voltage drops and accompanying system changes were as follows:

- Voltage drop #1: Parents refuse initial referral to the mental health clinic due to stigma regarding mental health services. System solution: Parents watch a video introducing them to the mental health clinic at the time of initial referral.
- Voltage drop #2: Parents do not complete the mental health clinic's screening and eligibility process after referral. System solution: A live videconference session connecting parents at the FQHC with mental health clinic staff ensures completion of the screening and eligibility process.
- Voltage drop #3: PCPs reject transfer of stable but medicated patients back to primary care for ongoing management. System Solution: Regularly scheduled live videoconferences connect PCPs and mental health clinicians for PCP educational sessions, transfer case sessions, and co-management rounds.

Conclusions: A community-partnered approach to care redesign can address key challenges in mental health care access for children by meeting concrete needs of community partners.

18. Provider Prompts to Improve HPV Vaccination Rates within the Continuity Research Network (CORNET)

CM Rand, SJ Schaffer, N Dhepaysuwun, A Blumkin, C Albertin, JR Serwint, P Darden, SG Humiston, K Mann, W Stratbucker, PG Szilagyi

Background: HPV vaccination rates lag behind those of Tdap and MenACWY; provider prompts and a strong provider recommendation may improve HPV vaccination rates.

Objective: To decrease missed opportunities (MO) for HPV vaccination and increase documentation if the vaccine wasn't given, using provider prompts and a strong provider recommendation over a 12 month quality improvement (QI) project in pediatric resident continuity clinics (CCs).

Methods: Eight CCs participated in the QI study, including monthly learning collaborative calls to teach improvement science, drive PDSA cycles, and discuss barriers to strong provider recommendations. CCs implemented provider prompts (nurse and/or EHR). The primary outcome measure was captured opportunities for HPV vaccine. Practices performed chart audits and received performance feedback monthly. Data was plotted on a p-chart and analyzed with Excel QI Macros. Conditional logistic regression, conditioning on practice was performed, with an outcome of vaccine received at the index visit, and study time period as the independent variable.

Results: Six of eight CCs were hospital-based (5 urban); 6 used an EHR. Most patients were publicly insured (69%), with 42% Black, 33% White, and 71% non-Hispanic. Overall, captured opportunities for HPV immunization increased by 13.6% (47.4% to 61%). Special cause was demonstrated by centerline shift, with 8 consecutive points above the pre-intervention mean; patients were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates increased by 13.6% (47.4% to 61%). Special cause was demonstrated by centerline shift, with 8 consecutive points above the pre-intervention mean; patients were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively). Documentation of refusals and deferring vaccination were more likely to receive a vaccine during the intervention (OR 1.87, p <0.001). HPV immunization rates improved at both well child and other visits (by 11.7% and 13%, respectively).

Conclusions: Implementing provider prompts and strong provider recommendations combined with learning collaborative calls and feedback can decrease MO for HPV vaccine.

19. Addressing the Impact of Child Poverty: A New Curriculum for Pediatric Providers across the Education Continuum

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Background: One in five US children live in poverty and reap negative sequelae on health and development. While there are existing curricular resources on advocacy in pediatric training, a gap exists in linking poverty, health and advocacy for children. The APA Taskforce on Child Poverty formed the Child Poverty Education Subcommittee (CPES) to address this curricular need.

Objective: 1. Develop a national curriculum emphasizing the social and biological links between poverty and child health. 2. Explore ways to implement this curriculum to train future healthcare providers to effectively engage in advocacy for children living in poverty.

Design/Methods: CPES members were recruited from key stakeholders in the child health and medical education communities. The CPES first identified the key domains of a novel child poverty curriculum not well addressed in current curricula. Utilizing the principles of backward design, the CPES drafted goals and objectives and built interactive learning...
modules targeted to those objectives. Work was done asynchronously in small workgroups with group discussion and consensus building through virtual, telephone, and face-to-face interactions.

**Results:** Four curricular domains were identified: epidemiology, pathophysiology, social determinants of health, and leadership and taking action. Each domain contains two learning goals with 3-4 objectives per goal. The final curriculum consists of four interactive modules, one per domain, structured utilizing the flipped-classroom model with a brief amount of pre-work and a 1 hour face-to-face session. Facilitator guides accompany each module to allow standardization and dissemination of the educational components. Each guide also includes in-depth follow-up activities for the advanced learner. Finally, each module has a standardized format for ease of implementation, still allowing for adaptation to the target audience.

**Conclusions:** At a time of increasing wealth inequity and health disparities, a national curriculum on child poverty is crucial for future pediatricians given its well-established negative health impacts. This curriculum addresses current gaps in pediatric education in a flexible and customizable structure to allow for easy dissemination across programs and learner levels.

### 20. Use of Practice-Level Reports from An Immunization Information System (IIS) to Improve HPV Vaccination Efforts - Results Of A Randomized Controlled Trial (RCT)

Stanley J Schaffer, MD, MS1, Ashley Eagan, MS1, Sharon G Humiston, MD, MPH2, Peter G Szilagyi, MD, MPH3, Cynthia M Rand, MD, MPH1, Phyllis Vincelli, BS1, Dina Hoefer, PhD4, John Stevenson, MA5 and Aaron Blumkin, MS1. 1Department of Pediatrics, University of Rochester, Rochester, NY; 2Department of Emergency and Urgent Care, Children's Mercy Hospital, Kansas City, MO; 3Department of Pediatrics, UCLA, Los Angeles, CA; 4New York State Department of Health, Albany, NY and 5National Center for Immunization and Respiratory Disease, Centers for Disease Control and Prevention, Atlanta, GA.

**Background:** US HPV immunization rates lag behind immunization rates for other adolescent vaccines. Although state IISs potentially can help improve immunization rates, few studies have linked with IISs to evaluate how their use can impact HPV rates.

**Objective:** To determine if practice use of reports from an IIS can improve HPV vaccination rates.

**Design/Methods:** A year-long 3-arm RCT was performed in 31 pediatric and family medicine practices in New York State. Practices were randomized to 1 of 2 intervention groups (reminder-recall or immunization forecasting & audit/feedback) or to a standard of care control group. Intervention practice staff were taught how to run reports from the NY State IIS listing 1) 12-15 year old patients who were due or overdue for HPV vaccine and 2) which eligible adolescents subsequently were immunized between specific dates. Staff were instructed to use their designated intervention to try to immunize patients who were due for HPV vaccine and had upcoming birthdays. Percentages of eligible adolescents who received a dose of HPV vaccine within 3 months of their birthday were compared between each intervention group and the control group for all practices and by specialty. P-values are from a Poisson model with receipt of HPV vaccine as the outcome using an intention to treat analysis.

**Results:** In pediatric but not family medicine practices, reminder-recall resulted in significantly more patients receiving HPV vaccine in the time period observed than was the case for patients in control practices, but HPV vaccine uptake in the immunization forecasting-audit/feedback group was actually lower than controls.

<table>
<thead>
<tr>
<th>Randomly Assigned Group, Overall &amp; By Specialty</th>
<th># Eligible</th>
<th>% Immunized</th>
<th>P-Value</th>
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<tr>
<td>Overall</td>
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<td></td>
<td></td>
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<tr>
<td>Reminder-Recall</td>
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<td>Immunization Forecasting/Audit-Feedback</td>
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<td>Control</td>
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<td>Reminder-Recall</td>
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<tr>
<td>Control</td>
<td>741</td>
<td>17.5</td>
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</tbody>
</table>

**Conclusions:** A reminder-recall intervention for HPV vaccination utilizing reports from an IIS can improve HPV vaccination rates.
21. The Impact of Family Financial Assets on Child Health, Obesity, and Chronic Illness
Adam Schickendanz, MD1, Jose Escarce, MD, PhD2,3, and Paul Chung, MD, MS1,3. 1Pediatrics, University of California Los Angeles, Los Angeles, CA, United States; 2Medicine, University of California Los Angeles, CA, United States and 3Health Policy & Management, University of California Los Angeles, Los Angeles, CA, United States.

Background: Family economic stability is a central determinant of child health. Income, the most commonly used measure of economic stability, is unable to account for cost of living and debts. Family assets are an unexplored child health determinant but may be useful to reflect what a family keeps after expenses are factored in. We hypothesize that assets represent a reservoir that buffers against fluctuations in income and expenses, and protects child health over time.

Purpose: To understand whether household financial asset poverty affects overall child health, obesity, and chronic illness burden independent of traditional measures of socioeconomic status (income and education) over a five-year period among a national cohort.

Methods: Data from 2,907 children in families from the Panel Study on Income Dynamics, the world’s longest running longitudinal household survey, were used in separate random-effects multivariate logistic regression analyses to model the impact of family assets on child health measures over time. Family financial asset poverty is defined conventionally as net worth below the cash value of three months of basic household expenses, conservatively calculated as three months of income at the Federal Poverty Level. Family asset level was specified similar to income level as range multiples of the asset poverty threshold (0-100%, 101-200%, 201-300%, 301-400%, and >400%). An asset poverty count totaled the number of survey waves (conducted every 1-2 years) over time in which a family was in asset poverty. Primary child health outcomes included overall parent- or child-rated health, obesity, and chronic illness count. Additional covariates included socioeconomic status (parent income, education, employment), family structure, and demographics.

Results: Family asset level was associated with overall child health, adjusting for other SES covariates. Compared to those children in asset-sufficient families, children in families below twice the asset poverty threshold had higher odds (OR 1.48, 95% CI 1.1-1.99) of worse health. Children in families living in asset poverty also had higher odds of being obese (OR 1.48, 95%CI 1.02-2.13), and every additional year in asset poverty increased the odds of obesity by 20 percent (OR 1.2, 95%CI 1.07-1.34). A trend toward significance was seen for higher asset poverty counts predicting number of child chronic illnesses (OR 1.06, 95% CI 0.99-1.15).

Conclusion: Family financial assets may be an important socioeconomic determinant of child health outcomes, independent of family income.

22. Pediatric Resident Involvement in a National Quality Improvement (QI) Project in their Continuity Site: A CORNET Study
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Background: The Accreditation Council on Graduate Medical Education requires pediatric residents to participate in a QI project. Studies show wide variations in resident QI projects with variable satisfaction and learning. National QI projects may be an innovative strategy to improve resident QI engagement and learning.

Objective: Assess 1) Resident level of involvement, 2) Educational benefits and 3) Challenges to participation in a national QI study to increase HPV vaccination rates.

Design/Methods: CORNET sites (13) participated in a national QI study to enhance HPV vaccine administration. Sites chose either a Nurse Prompts (NP, 8 sites) or Standing Orders (SO) strategy (5 sites) and were asked to involve their continuity residents in this project. Residents were asked to complete a survey about their types and level of involvement and to provide comments regarding educational benefits and main challenge to resident involvement.

Results: Of 242 residents, 147 residents (49%) from 8 NP sites and 95 (49%) from 5 SO sites responded; 19% were PGY1, 36% PGY2 and 45% PGY3. Thirteen residents (5%) stated they had a leadership role in the project, 10 (4%) participated in the monthly learning collaborative calls, 33 (14%) participated in clinic meetings, 47 (19%) conducted chart reviews, 7 (3%) assisted with the IRB submission, and 16 (7%) presented findings. However, 113 residents (47%) stated they were not involved in the QI project.

Of 405 responses, the top 3 educational benefits include; enhanced knowledge about HPV disease and vaccine (31%), more effective counseling strategies (26%), enhanced knowledge of QI methodology and importance in practice (17%), importance of interdisciplinary collaboration (3%), and unaware of the QI project (23%). The top challenge to participation (137 comments) mentioned insufficient time (52%), need for more awareness of project (35%), parental resistance (7%) and challenges with interdisciplinary collaboration (6%).

Conclusions: Many pediatric residents participated in this national QI project, yet many residents were unaware of the intervention at their site. Participation subjectively enhanced residents' subject matter expertise and skill in QI
methodology. Training programs need to provide adequate time and resident targeted education to enhance their involvement and leadership.

23. Perceived Benefits of Resident Involvement in a National Quality Improvement (QI) Initiative on Improving HPV Vaccine: The Faculty (Site Director) Perspective, a CORNET Study

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Background: Many immunization experts recommend practice-based QI to improve HPV vaccination rates. Pediatric residents must learn both how to implement QI projects and maximize immunization rates. We linked resident QI projects in 13 CORNET (Continuity Research Network) clinics with a national QI project to increase HPV vaccination rates.

Objective: Survey CORNET site directors to understand their perspectives on the value and level of resident involvement in the national HPV vaccination QI initiative

Design/Methods: Sites chose either Nurse Prompts (NP, 8 sites) or Standing Orders (SO, 5 sites) strategies, and were asked to involve residents in their clinic-wide QI project. Site directors completed a 9 question survey; content included level of resident involvement, top 3 educational benefits and challenges of including residents. The value of various curricular components was assessed (Likert scale; 1=not at all valuable, 5= very valuable).

Results: All 13 (100%) site directors completed the survey. Resident exposure to the QI initiative ranged from 12-60 residents/site. Responses for NP and SO sites were similar, so results were combined. Resident leaders were identified at all sites (2-5/site). Resident participation in monthly learning collaborative (LC) calls occurred at 9/13 sites. Resident activities included: participation in chart reviews (all sites, 2-4 residents); IRB applications (4/13 sites); clinic meetings (9/13 sites); and presentations of findings (8/13 sites). Valuable curricular components included webinars (12/13), on-site meetings (12/13), and learning collaborative calls (7/13). The most important educational benefits for residents, of 35 comments provided, 63% mentioned QI methods, 11% improved counseling, 11% improved inter-professional teamwork, 6% improved knowledge of HPV vaccine, and 5% provision of leadership opportunity. The major challenge to resident involvement was time to commit to the project: resident lack of interest in the topic was mentioned by 2 sites.

Conclusions: Involvement in a national QI project can provide important educational benefits and value for a subset of residents, yet a majority of residents were not involved. Future work to maximize resident involvement in larger-scale QI efforts should be considered.

24. Does Length of DBP Block Rotation Matter?

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Background: Since 1997 the Residency Review Committee has mandated that pediatric residents have a month-long block rotation in developmental behavioral pediatrics (DBP), but some programs have been slow in implementing this rotation and others have allowed residents to take vacation and/or to be reassigned to other rotations during it.

Objective: The purpose of these analyses is to determine if length of the DBP experience is related to self-reported barriers and behaviors in response to mental health (MH) issues.

Design/Methods: Data come from the 2013 American Academy of Pediatrics Periodic Survey (overall response rate 37%; all analyses were weighted to correct for nonresponse). Analyses were restricted to the 231 residents who completed residency after 1998 and pertinent survey questions. Almost 2/3 were female; 68.5% Caucasian; 60% had been in practice ≥ 5 years. We compared the 68% with 4+ weeks (DBP+) to the 32% with <4 weeks (DBP-) of training using weighted percentages.

Results: DBP+ and DBP- groups did not differ on personal or practice characteristics or in their reports of MH experiences or interest in future education in MH, except for DBP+ being younger age (38.9 v 37.2 yrs; p<.01) and having been in practice fewer years (p=.02). DBP+ were more likely to treat/manage/co-manage children with anxiety, depression or behavior and learning problems (all p≤.05) and less likely to identify lack of training as a barrier to identifying children with MH problems (38 v 53%; p=.03), although otherwise they identified the same barriers overall. DBP+ also reported higher rates of training in motivational interviewing (p=.003), and in DSM criteria for depression, anxiety and ADHD (all p<.03), and of being more comfortable dosing children (85 v 69%; p<.01) and adolescents (82 v 68%; p=.02) with ADHD.
Conclusions: Longer DP residency training appears to be associated with increased treatment and management of MH issues among pediatric patients. This argues for the importance of the completion of at least the full 4-week DP block rotation. It raises questions about why a third of residents did not receive 4 weeks and whether even longer DP training would help increase MH care for children and adolescents.

25. National Multisite Quality Improvement (QI) of HPV Vaccination Opportunities through Standing Order (SO) Implementation: A CORNET (Connectivity Research Network) Study

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Background: Effective strategies are needed to improve low rates of HPV vaccination. A SO (allowing nurses/techs to vaccinate without a patient-specific order) can change process flow in primary care and has the potential to empower clinical staff to reduce missed vaccination opportunities. Yet SOs have not been studied for HPV vaccination.

Objective: To test the effect of implementation of a SO for HPV vaccination in a national multisite QI study.

Design/Methods: Faculty, residents and staff at five pediatric academic primary care sites within CORNET collected baseline HPV vaccination captured opportunities. Practices participated in a one-year learning collaborative with monthly chart audits (10/site), Plan-Do- Study-Act cycles, and QI mentor-facilitated webinars focused on SO implementation. Site-specific data was used for feedback using p-Charts and analyzed through Excel QI Macros.

Results: Of the five practices, 3 were hospital-based, 4 were urban, and all used an EMR. Most patients were publicly insured (71%), with race 64% White, 16% Black, and ethnicity 69% non-Hispanic. Overall, HPV vaccination captured opportunities improved by 4.3% (40.5% to 44.8%) over 12 months (Figure – “intervention”) with nine out of last ten monthly data points above the pre-intervention mean. Change in %HPV captured opportunities in the 5 practices was variable (+22.5, +10.8, +8.3, -1.7 and -18.3). When captured opportunities improved, they did most often at non-well child visits.

Conclusions: A national multisite QI learning collaborative focused on implementation of a SO within pediatric academic primary care sites modestly improved HPV captured opportunities with high site variability. Challenges exist and more learning opportunities should be sought to build on what is known about best strategies for HPV vaccination QI.

26. Pediatricians' Perceived Barriers to Addressing Early Brain and Child Development and Inquiring about Child/Parent Adverse Childhood Experiences

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Background: The American Academy of Pediatrics (AAP) encourages pediatricians to address Adverse Childhood Experiences (ACE) because of their negative impact on early brain and child development (EBCD). Although most pediatricians endorse the importance of positive parenting on a child's life-course and that screening for social-emotional risks is within their scope of practice, they seldom inquire about child or parent (C/P) ACE.

Objective: To examine pediatricians' perceived barriers to addressing EBCD and the association with inquiring about any C/P ACE.

Design/Methods: The sample included 305 General Pediatricians (GPs) who completed a 2013 AAP Periodic Survey (response rate 37%, weighted to correct for nonresponse). We examined endorsement of 12 barriers as moderate/significant vs. somewhat/not at all and their association with inquiring about any C/P ACE using weighted bivariate analyses.

Results: 10 barriers were endorsed as moderate/significant by >40% of GPs: 2 physician barriers [lack of training in positive parenting techniques (46%) and lack of comfort in asking about parent ACE (43%)]; 2 parent barriers [parental reluctance to discuss existing family social-emotional risk factors (62%) or their own ACE history (54%)]; and, 6 system barriers [lack of practice-friendly tools to assess family risk factors (61%) or to promote healthy child-parent relationships (50%), lack of local resources (66%), lack of care coordination services (62%), and inadequate reimbursement screening (70%) or counseling (70%) time. GPs endorsing a lack of comfort in asking about parent ACE were less likely to ask about C/P ACE (p <.05). A minimal barrier, endorsing a lack of knowledge regarding toxic stress was related to not asking about any child ACE (p <.05), and endorsing a lack of practice-friendly tools to assess family risks was related to not asking about any parent ACE (p <.05).
Conclusions: GPs endorsed multiple barriers in addressing EBCD. Some specific physician and system barriers were associated with not asking about C/P ACE. Improved education about toxic stress and having difficult conversations with parents, and developing practice-friendly assessment tools may facilitate GPs addressing EBCD.