2018

Every Child School Ready:

Community, School, and Student Predictors of Kindergarten Readiness and Academic Progress

ERDC
Education Research & Data Center

AUTHORS

Christopher Blodgett, Ph.D.

Washington State University

Myah Houghten, MSLA, MPA

Washington State University

ABOUT THE ERDC

The research presented here utilizes data from the Education Research and Data Center, located within the Washington Office of Financial Management. ERDC works with partner agencies to conduct powerful analyses of learning that can help inform the decision-making of Washington legislators, parents, and education providers. ERDC's data system is a statewide longitudinal data system that includes de-identified data about people's preschool, educational and workforce experiences.

This study project was funded by a U.S. Department of Education Institute of Education Sciences 2015 Statewide Longitudinal Data Systems grant obtained and lead by the state of Washington Office of Financial Management's Education Research and Data Center and completed under contract by the Washington State University Child and Family Research Unit. One hundred percent of the $226,409.50 total cost of this project was financed with federal money, and no non-governmental sources funded this project. The analysis and interpretation of data in this report reflects the work of the authors and not necessarily that of the sponsor.

ADDRESS

Education Research and Data Center
106 11th Ave SW, Suite 2200
PO Box 43124
Olympia, WA 98504-3113

PHONE

360-902-0599

FAX

360-725-5174

EMAIL

erdc@ofm.wa.gov

Executive Summary

Kindergarten readiness is highly predictive of subsequent academic success, which in turn is predictive of health and wellbeing and economic success. In addition, the demands of growing up poor become a shared risk for residents in low income communities (in addition to the individual risk factors). Prior researchers have established that poverty – as a *community* characteristic – has a major impact on social success, emotional wellbeing, and health in individuals.

This leads to a relevant series of research questions: Do community characteristics help explain differences in school readiness across Washington State communities? In other words, do risk factors prevalent within a community – regardless of whether they are experienced by individual students – help account for variations in whether children are prepared for kindergarten? This report uses four years of data from the Washington Kindergarten Inventory of Developing Skills (WaKIDS) assessment, coupled with early academic progress for more than 150,000 students, to help answer these questions.

We found that the level of poverty within a community was a statistically significant predictor of community differences in kindergarten readiness. In other words, whether or not a child grows up in a low income home, growing up in a low income community has a statistically significant (negative) impact on their kindergarten readiness. The percent of students who were Hispanic, and the percent of students who were English language learners (ELLs), were also statistically significant predictors. Further, the number of adverse childhood experiences (ACEs) within a community was associated with decreased kindergarten readiness on some WaKIDS measures but not others.

Introduction[1]

Purpose of the study

This report describes how community characteristics impact the school readiness of Washington's children as they enter Kindergarten and their progression through school in their first years. The title, *Every Child School Ready*, describes the hope, but not the reality, for our children. Rather, significant numbers of children each year enter school without the foundational preacademic and developmental skills they need to succeed. School readiness and how to improve the success of children is a dominant policy discussion not only in education but in health, criminal justice, and social services. School readiness is a significant predictor for our communities' economic success, citizens' potential to contribute to our communities, and our health across the lifespan.

The policy debate about school readiness is an old one in the United States. In 1990, congressionally endorsed national education goals included the statement that, "By the year 2000, all children in America will start school ready to learn" (The National Education Goals Panel, 1997). While this aspirational statement still reflects educational goals 27 years later, we have not approached meeting the promise. In Washington State, a similar contemporary target has been set by the state's Department of Early Learning (DEL): "By 2020 90% of five-year-olds will be ready for kindergarten, with race/ethnicity and family income no longer predictors of readiness" (Washington State Department of Early Learning, 2017[2]). While DEL's statement reflects the national educational goals of the past 27 years, we have yet to achieve the promise.

School readiness is conceived as equally (1) the readiness of the child, (2) the readiness of the school, and (3) the readiness of family and community to support children's success (National Education Goals Panel, 1997):

1. Children's school readiness describes the physical skills, pre-academic skills (letter and number recognition, exposure to common cultural knowledge), social emotional regulation and relationship skills, and positive emotional engagement (curiosity and persistence) that support learning.
2. The readiness of schools is reflected in practices such as outreach and engagement of caregivers, intentional orientation and transition activities for students and families, coordination of information and preparation activities with early learning programs, school safety, commitment to quality improvement based on evidence of practice benefits, and a commitment to skills development in staff.
3. The readiness of families and communities includes parents committing to learning activities regularly at home, access to high quality early learning programs, access to

[1] This report is intended for a general audience. Comprehensive statistical findings are not presented in the body of the report to assist with ease of reading. Key findings are presented and confirming results described but not discussed in detail.

[2] http://delconnect.blogspot.com/2017/09/research-analysis-to-support-90-goal.html

health care, and the nutritional and physical activity opportunities needed to physically develop well.

The focus on school, family, and community readiness defines the supports needed for children's developmental success as they enter school, the institutional capacity to sustain children's positive developmental trajectory as they transition to school, and critically the capacity to remediate developmental gaps when necessary. From this lens, school readiness is less a threshold child need to cross than it is a dynamic process in which family, community, and school combine to support the child entering school.

In a review of the social conditions effecting school success, Berliner (2009) identified six out-of-school factors that directly impact on the success of schools. These are:

4. non-genetic issues such as access to care in pregnancy that create prenatal challenges to development
5. inadequate access to health care
6. food insecurity
7. family stress and disruption
8. environmental pollutants that compromise health and
9. neighborhood factors such as access to social support and safety.

Berliner goes on to state, "Because America's schools are so highly segregated by income, race and ethnicity, problems related to poverty occur simultaneously, with greater frequency and act cumulatively in schools serving disadvantaged communities. These schools therefore face significantly greater challenges than schools serving wealthier children and their limited resources are often overwhelmed" (p. 1). Berliner's six factors thematically describe three broad challenges in supporting children's school readiness: capacity to meet basic needs and safety, supports for vulnerable parents, and a sense of community belonging.

Given our common focus on individual children and school response, the impact of community belonging and social connection often does not receive comparable emphasis. The nature of school and community belonging is complex and these domains of belonging may act as counter influences on each other. Narayan and Petesch (2007) argued that movement out of poverty results both from the opportunities permitted for greater economic success and the individual's skills and capacity to act on opportunities. As a result, both the conditions that contribute to differences in school readiness and the conditions that can permit recovery from deficits in school readiness are a complex mix of individual capacity and the opportunities provided in their communities. For example, Maurizi et al. (2013) found that in a sample of Latino youth, school belonging was mediated by teacher and peer relationships such that school belonging was associated with better academic outcomes. However, stronger neighborhood and peer identification had a negative effect on academic success. But, strong identification in either domain was associated with better mental health. The evidence demonstrates that school readiness is a dynamic balance of how communities help families and children maximize their capacity to meet these core challenges of basic needs, safety, support, and connection.

Communities will differ in terms of their capacity to support students, families, and schools as well as the degree to which community efforts are cohesive and aligned. Communities are defined to large degree by a sense of common values and experiences that can build connections and mutual support. But equally, common experiences can shape the degree to which there is a shared sense of hope and connections among residents. In this report, we focus on (1) the impact of poverty and (2) how experiencing significant disruptions to relationships and safety in childhood across residents in a community can shape the nature of relationships among adults and their collective capacity to support the success of the community's children.

Understanding how community characteristics impact education success may offer recommendations that can help increase success for all children. For example, the ability to invest public resources based on local need may be a superior strategy to using funding formulas based on population counts or fixed awards. In California for the past four years, the state has employed a needs-based funding strategy referred to as Local Control Funding where supplemental funding to schools is based on the number of English learners, foster youth, and low-income students. The intent is to equalize funding across low and high need school districts to address disparities in educational access and academic outcomes. While there is evidence that the Local Control Funding approach has equalized funding, it is presently too early to determine if this strategy is leading to better student academic outcomes (Chen & Hanel, 2017). Second, understanding how community characteristics impact education success may also offer recommendations about modifiable conditions in communities that can help increase success for all children. Washington's emphasis on caregiver outreach and engagement as part of kindergarten entry supports is at least in part a strategy to build greater school-home alliance in support of students.

Washington State's support for school readiness.

Washington State introduced standardized kindergarten assessment and support strategies beginning in 2010 referred to as the Washington Kindergarten Inventory of Developing Skills (WaKIDS). WaKIDS is both an assessment process and specific steps required of teachers to engage students and caregivers to increase school success. The support plan calls for teachers and schools as organizations taking an active role monitoring child progress through repeated assessments, family education and engagement activities, and increased coordination between early learning providers and kindergarten teachers as children transition into kindergarten. More information on the WaKIDS program can be found at http://www.k12.wa.us/WaKIDS/.

Because of its complex scope, WaKIDS was tested and progressively rolled out in Washington over multiple years. Initially, a limited number of school districts facing high levels of need among students and families and adopting full day kindergarten were prioritized for WaKIDS implementation. By the 2016-17 school year, WaKIDS approached universal adoption in Washington schools. As a result, Washington now has a kindergarten assessment and response system to progressively refine in the interest of improved school outcomes for all children. Notably, Washington State has invested significantly in the data reporting and training structures needed to have educators use the resulting information to guide support to students. The following table details the progressive implementation of WaKIDS.

Table 1. WaKIDS implementation 2010-2017

Year	Districts	Schools	Students	Teachers
2016-17	266	1,097	77,314	4,372
2015-16	257	887	58,656	2,974
2014-15	193	623	43,298	2,110
2013-14	187	550	38,443	1,800
2012-13	102	308	21,811	981
2011-12	68	165	6,661	392
2010-11	51	63	1,760	116

Source: http://www.k12.wa.us/WaKIDS/Data/default.aspx

The research questions guiding this report were:

1. What are the principal community risk and protective characteristics that predict initial differences in school readiness?
2. Are students' initial school readiness results predictive of school adjustment and academic success?
3. Do community ACEs and poverty serve as principal factors through which to characterize community risk?
4. What are the individual differences that influence community risk and protective factors as predictors of school readiness and progressive academic success?

Selected literature review

This school readiness report extends the results of a previous study, *No School Alone*[3], that documented community differences on risk and protective factors and their impact on K-12 academic success and youth wellbeing. In the *No School Alone* report, we examined the relationship across more than 130 specific risk and protective indicators in Washington communities. While every community is a unique mix of challenges and resources, our measures of good and bad characteristics in communities often correlate with each other to a significant degree. Whenever personal or community qualities correlate with each other, it is likely that some common characteristic contributes to more than one risk or asset.

We found two broad characteristics of school communities capture the multiple specific risks and protective factors without sacrificing predictive power. The first is the level of poverty in the community, and the second is the degree to which adults in the community report multiple adverse childhood experiences (ACEs) as part of their childhoods. While we provide details about specific risks and protective factors in the body of this report, we again confirmed the value of poverty and ACEs as the two summary concepts to organize our discussion about community differences, kindergarten readiness, and school success.

[3] The *No School Alone* report may be downloaded at http://www.erdc.wa.gov/publications-and-reports/no-school-alone-how-community-risks-and-assets-contribute-to-school-and-youth-success.

Why focus on poverty and adverse childhood experiences as the key community characteristics?

Where we live matters to our health and social success. The impact of place on wellbeing has a long history. The research has been dominated by studies addressing two issues, socioeconomic status and segregation by race and ethnicity, both as single dimensions and as combined impact of communities' (e.g., Jencks & Mayer, 1990). Risks to health and poor health outcomes increase as poverty and equity in access to social, recreational, educational, and health resources are compromised.

'Neighborhood' and 'area' are the phrases commonly used to reference the geographically defined places people live. Studies looking at the impact of place include geographic areas ranging from census tracts to whole cities or counties. For purposes of this report, *area deprivation* is the term employed because the geographic and administrative units we are analyzing (schools, school districts) include geographies larger than common definitions of neighborhood.

While specific resources vary across states, community descriptive information based on public records and high-quality, large-scale surveys are routinely updated and accessible. These information sources commonly describe economic indicators, school success, social and health indicators, and community safety. Information sources like the U.S. Census, public health data, criminal justice data, and summary academic performance down to the level of individual schools are well-known. These resources are supplemented by regularly administered large scale surveys that allow us to use samples of residents to estimate the level of risk or assets in their community. By linking multiple data sources to the smallest common geographic areas, we can use these sources to describe community wellbeing and challenges. In this report, we integrate multiple data sources at the level either of the individual school or the school district.

Poverty's effects on child and adult outcomes

The reach of poverty in American childhoods is sobering. Ratcliffe (2015) reports that nearly 40 percent of all children will live in poverty at some time before they become adults. Being poor is also entangled with race: fully three-quarters of African-American children compared to 30 percent of White children will live in poverty at some point in their childhood.

Poverty is defined by both material and social deprivation. 'Deprivation' refers to a lack of critical assets needed to support health and wellbeing. Deprivation can be both an individual characteristic and a quality shared by groups of people in a community. Individual levels of deprivation and assets, including the critical role of family and intimate social networks, are more powerful predictors of health and social outcomes than deprivation at the community level, but the evidence demonstrates that risk shared by people in a geographic area adds moderate predictive power above that provided by individual differences (Pickett & Pearl, 2001).

Economic resources in communities dominate analyses of communities' health and social success. Poverty is inversely correlated with educational attainment, employment, housing, and occupation levels. Communities' economic resources predict residents' physical health including: heart disease (Diez et al, 2001; Picket & Pearl, 2001), breast cancer (Yost et al.,

2001), and increased early mortality (Robbins & Webb, 2004). Further, poverty contributes to health risks including teen pregnancies (Carlson et al., 2014), low birth weight (Grady, 2006), intimate partner violence (Cunradi et al., 2000), childhood injuries (Shenassa et al., 2004), injuries to women (Grisso et al., 1999), and drug use associated with pregnancies (Finch et al., 1999). Finally, economic area deprivation has also been associated with increased mental health disorders (Kubzansky et al., 2005; Ramanathan et al., 2013; Reijneveld et al., 2005; Rehkopf & Bukai, 2006), child maltreatment incidence (Doige et al., 2017; Maguire-Jacks & Font, 2017; Slack et al., 2017), and reduced levels of educational attainment and employment (Jencks & Mayer, 1990).

Deprivation involves more than a lack of capacity to reliably meet basic survival needs of shelter, food, and safety. Problems with reliable access to educational, recreational, social, and cultural experiences result in disruptions to the social and intellectual assets needed for optimal development (Gordon & Spicker, 1999). The potential social disruptions resulting from poverty contribute to risk for groups of residents both in combination with and independently of the effects of material needs. Examples of an area's social assets that can impact health and wellbeing include cultural and social program access, levels of social cohesion, access to health care, access to affordable nutritious food, and high-quality schools. These community social indictors predict child welfare involvement (Fong, 2017), childhood mental health disorders (Solmi et al., 2017), and multiple indicators of risk to optimal child development (Walker et al., 2011).

Leventhal and Brooks-Gunn (2000) argued that three dimensions- institutional resources, relationships, and norms/collective efficacy- help explain how community can influences the success of both children and adults. *Institutional resources* in an area include having acceptable, accessible, and affordable supports from schools, recreational and educational resources like parks and libraries, social services, medical facilities, public safety, and employment. *Relationships* address both (1) the opportunity for social connection and support among adults and children and (2) the quality of parent-child relationship in the area with a focus on responsivity and warmth in relationships compared to parental harshness and control. *Norms and collective efficacy* refer to the degree an area is characterized by a shared sense of acceptable behavior, degree of social connection among residents, and the degree to which monitoring for safety and wellbeing is viewed as a community responsibility. While related, these three dimensions can vary widely across communities. For example, a community can have high institutional resources but little sense of collective efficacy and shared norms of conduct.

Two common theories used to explain these social effects in areas are the role of 'collective socialization (Wilson, 1996)' and 'social capital (Coleman, 1988).' Collective socialization argues that communities vary in terms of the quality and scope of adults' capacity to serve as role models and to share a common responsibility to monitor children's behavior. Social capital is defined as the level of social connectedness among adults such that children know that they are supported and will be held accountable for their behavior. Similarly, Sampson et al. (2002) discusses the role of 'community efficacy' on health and social success. Using social cohesion as a concept related to both socialization and social capital, Schiefer & van der Noll (2017) argued in their review that three components of social cohesion are common: social relations, identification with the geographical unit, and orientation towards the common good.

Poverty is recognized to be both absolute and relative in nature. Absolute poverty involves a level of resource deprivation so profound that basic survival is compromised. Relative poverty, more typical of experiences in developed countries, involves a lack of the resources needed to be a fully engaged participant in the typical activities of your community (work, education, cultural, and civic contributions). Research has demonstrated that the impact of poverty on child wellbeing occurs both with absolute and relative poverty (Adjaye-Gbewonyo & Kawachi, 2012). In their classic literature review from 20 years ago, Brooks-Gunn and Duncan (1997) concluded that the experience of poverty in childhood results in increased odds ratios for common problems including child death (1.7 times), teen parenting (3.3 times), lead poisoning (3.5 times), grade retention (2.0 times), high school dropout (2.2 times), and parental report of child behavior problems (1.3). More recent reviews (e.g., Blakeley et al., 2004; Mullainathan & Shafir, 2013) confirm the long-standing impact of poverty on risk in both individuals and communities.

Friedman et al. (2015) and Wickrama et al. (2012) found that the effects of early economic deprivation on health status in adults was significantly buffered by increasing educational attainment, which in turn is significantly predicted by school readiness. Indeed, graduation from high school is among the single most effective predictors of life course health and wellbeing (Freudenberg & Ruglis, 2007). The authors demonstrated that *allostatic load,* the cumulative level of strain placed on body systems because of persistent stress, was moderated by the level of education in adults. This finding reinforces the significance of educational attainment as a health protective factor. However, the authors did not find an equivalent effect of adult education attainment as a buffer for the effects of early life physical abuse. Rather, the level of social support among adults was a more effective predictor of the impact of early adversity on adult health. Merkin et al. (2009) also used allostatic load biomarkers in a large representative U.S. sample to examine the effects of area economic deprivation. Like Friedman et al., the authors found that allostatic load increases in low income communities and that African American youth may be particularly vulnerable to this biological risk. The potential for different pathways of risk and mitigation of risk resulting from poverty and adversity supports the need to consider poverty and ACEs as related but distinct influences on life success and health.

Poverty and school readiness

The link between community poverty and school readiness is well-established (e.g., Black et al, 2000; Campbell et al., 2001; Cushon et al., 2011). While there is a broad agreement that poverty reduces opportunities, the influence of poverty is not uniform and is mediated through several associated effects. Chazen-Cohen et al. (2009) found in a large scale Early Head Start study that parental capacity in low income families (early parenting stress, parental depression, level of parental supportiveness, and quality of learning environment) all account for school readiness in this low-income population. These findings reinforce concepts that (1) the impact of poverty is not universal and (2) that poverty's impact is more than material deprivation and often reflects the intrapersonal and social disruptions that result from or contribute to the risk of being poor.

Additionally, Barnes et al. (2006) found that while area deprivation contributed to school performance differences, the level of 'school disorder' (including violence, conflict, social disruption) remained predictive of school outcomes after controlling for community differences

in poverty. These findings exemplify the conclusion that school readiness is mediated by the capacity of both parents and the quality of school response.

Two complementary theories have been used as principal means to describe the impact of poverty on school readiness. The first is the 'cognitive stimulation theory (Haveman & Wolfe, 1994)' which proposes that the lack of material resources results in lack of critical learning experiences that in turn place cognitive development at risk. The second theory commonly referenced is the 'family stress model (e.g., Conger et al., 1994)' which proposes that living in poverty results in significant persistent stress which in turn puts at risk parenting capacity for emotional support and connection particularly important to social emotional development. Other theorists have elaborated on elements of both theories. For example, Mullainathan and Shafir (2013) have argued that deprivation (scarcity) narrows options and requires a level of effort such that cognition involves a limited 'bandwidth' for effort that pushes us toward the immediate solution even if it ultimately is not in our best interest. Blair (2002) has argued that the stresses of poverty on children result in parents being at risk of not being able to provide the emotional support that help children learn to manage emotions effectively. Handling emotions effectively (i.e., the capacity to tolerate emotional tension and persist in behavior) is critical for motivation and persistence. Without adequate experiences in being emotionally flexible, heightened negative emotions lead to stereotyped reactive response that overwhelm or interrupt what can be the motivating and organizing qualities of emotion.

Ethnicity, race, and place as moderators of the effects of area deprivation.

Ethnicity and race are influences on area deprivation because racism and segregation impact community membership and the quality of material and social assets above what poverty alone may influence[4]. The ethnic density hypothesis (e.g., Becares et al., 2009; Halpern, 1993) suggests that ethnic minorities living in communities with higher percentages of residents of their same ethnicity are likely to experience health protective benefits. These benefits are proposed to result from the quality of social networks and resulting support. These potentially positive effects are significant and serve as counterbalancing influences on the common finding that segregation by race and ethnicity is associated with greater health risk.

In Hispanic populations, this potential protective benefit in the face of significant deprivation is often referred to as the 'Hispanic Paradox'. Bécares et al. (2012) found in their review that support for the protective effects of ethnic density in Hispanic communities, particularly with respect to social support and support for positive health behaviors. The authors did not find comparable protective factors in African American populations but suggest that this may result from a distinctive history of segregation and racism among African Americans as a group. The potentially protective aspects of ethnic density are not fixed characteristics of any group. For example, Shihadeh and Barranco (2013) argue that changing immigration and settlement patterns in recent years may limit the protective influence of community suggested in earlier generations.

---

[4] There is some debate in the area deprivation literature if the effects of racism and segregation in communities bias risk descriptions in communities with high minority residency. Baker et al. (2013) conclude that while there is some loss of sensitivity when addressing non-White groups, area deprivation estimates do not disadvantage non-White groups when describing risk.

Further, the existing literature principally has focused on Mexican-Americans and the validity across other Hispanic groups is unknown.

Poverty and risk summary.

While difficult, the effects of living in poverty can be overcome or mitigated. A critical conclusion in the school readiness literature is that low income children begin life demonstrating developmental trajectories comparable to their more affluent peers. However, by the time low income children enter toddlerhood, these children are at significantly increased risk of development delays (Schweinhart & Weikart, 1989). The hopeful news is that several policy investments can modify this risk. Persistent high quality early educational supports are associated with recovery from these early life deficits (Campbell et al., 2001; Schweinhart & Weikart, 1989). In addition, as family stability, parenting skills, the value placed on learning in the family, and access to opportunities for social, physical, and cultural enrichment increase in communities and families, the impact of poverty on school readiness can be mitigated.

ACEs, social disruption, and life course success

Central to the discussion of how poverty in communities impacts educational success is the role poverty plays as a stressor that puts emotional wellbeing at risk. This mental wellbeing effect from poverty is reflected in the significant role family and parent capacity plays in mitigating poverty effects. While fully acknowledging the significant stressors resulting from the lack of resources, the central role of family and parents in mitigating risk opens the discussion of how individual differences in development may reflect collective experience among residents in communities like how poverty becomes a community influence. Because poverty may have direct impacts on development, the quality of children's developmental experiences is separate from but interwoven with the effects of poverty.

ACEs as an individual health risk indicator

ACEs describe the effects of violence and family disruption on the developing child (e.g., Anda et al., 2006). The fact that bad things are more likely to happen when children's lives are chaotic and connection of caregivers disrupted has a long history. However, the added value of the ACEs framework is to emphasize (1) how common these experiences are in any community, (2) that the effects of childhood disruption increases risk across the lifespan, and (3) that it is the accumulation of disruptions more than any single type of adversity that explains relative risk across people. As used in the original research, ACEs include ten specific risks before the age of 18 including: sexual abuse, emotional abuse, physical abuse, neglect, divorce or separation, death of a key caregiver, substance abuse in a key caregiver, mental health problems in a key caregiver, incarceration of a family member, and intimate partner violence in the home. An individual's ACE score can be from 0-10, describing how many of these experiences occurred in childhood.

Estimates of ACE prevalence in the general population are that approximately one-in-four adults in the United States experienced three or more ACEs in childhood (Anda et al., 2006) with roughly comparable results confirmed across the world. As ACEs increase in adults, risk of health and social problems increase in a largely linear fashion referred to as *the ACE dose effect*.

More than 25 years after the start of the original ACEs study, increasing ACEs predict health risk behaviors such as smoking and substance use, the development of chronic illnesses, poor life satisfaction, low educational and employment attainment, increased involvement with the criminal justice system, increased risk of additional trauma exposure as an adult, and premature death. Like poverty, ACEs are now considered a leading social determinant of health and life success.

ACEs as community risk factor and effects on health and school success

The use of ACEs to describe the non-economic factors that can contribute to area deprivation has been proposed (Smith et al., 2016; Tomer, 2014); but currently, ACEs have not been integrated in area deprivation studies. In related work, area deprivation studies have begun considering the effects of cumulative social and familial disruptions across individuals. This work is beginning to include ACEs as the definition of risk but earlier research has employed similar concepts without specifically adopting an ACEs lens. It is well-established that educational and employment attainment are reduced in adults with high ACEs (e.g., Metzler et al., 2017) with the consequence that ACEs contribute to poverty risk in adults and their children. While not always using an area deprivation analysis, multiple studies show the related but independent effects of ACEs and poverty:

- Flouri et al. (2010) found that preschool children's ACEs exposure remained a significant predictor of preschool behavior concerns after accounting for area economic deprivation, maternal income, and maternal mental health.
- Bellis et al. (2015) found that ACEs increased with area economic deprivation, that residents in a given geographic area can demonstrate significant variability in their histories of ACEs, and that increasing ACEs among residents in an area were associated with greater morbidity and mortality after accounting for the level of poverty in the community. Bellis and colleagues also suggest that the association between poverty and ACEs is such that residents with the highest ACE exposure are disproportionately concentrated in low income communities while more moderate exposure to ACEs is not linked to poverty.
- Chung et al. (2009), while not addressing the role of ACEs in a geographic community, did find that in a large sample of low income women that the use of infant spanking as a parenting strategy increased in women as ACEs exposure increased. This suggests that the impact of poverty on parenting may be mediated by significant family experiences common to ACEs.
- Giovanelli et al. (2016) studied the impact of ACEs in a large scale longitudinal study of life course success in a low-income cohort. The authors found that after controlling for demographic differences and involvement in early support services, ACEs reliably predicted health risk behaviors, mental health problems, and criminal justice involvement in this low-income sample. Their findings confirm that ACEs are a discrete predictor of health and life course adjustment that operate in addition to the effects of poverty.
- Kerns et al. (2017) examined the role of ACEs, family demographics, and poverty on physical and mental health status among more than 1,200 youth with autism spectrum disorder. The authors found that ACEs exposure increased with greater economic loss and increasing co-occurrence of mental health disorders. This study is significant because

it suggests a particularly vulnerable group of youth are placed at greater risk for adjustment as a function of poverty but that the effects of poverty are meaningfully mediated again by ACEs exposure.

- While the authors employed a cumulative risk rather than an ACEs framework, Morales and Guerra (2006), in an urban high deprivation cohort of children, demonstrated that cumulative stress was associated with educational achievement lags and increased adjustment struggles. Significantly, cumulative risk rather than the current risks often associated with the effects of poverty was the more powerful predictor of adjustment problems.
- In an adult sample, Nurius et al., (2012) found that ACEs were predictive of mental health adjustment after controlling for current socioeconomic status furthering the argument that ACEs, while related to poverty, have a distinctive predictive value when examining risk.
- Metzler et al. (2016) used multi-state BRFSS results to document that ACEs are associated with lower high school completion, lower current income, and less occupational success. Confirming a bidirectional relationship between ACEs and social and material capacity in families, Metzler et al.'s findings indicate that adversity in caregivers impacts not only their psychosocial adjustment as caregivers but their children's comparative risk to encounter significant problems with material and social resources because of lower parental educational and employment success.

Relatively little work has been done to distinguish the effects of poverty and ACEs on child and adult adjustment. Generally, the studies addressing this relationship have determined ACEs remains a meaningful predictor of risk after controlling for the effects of poverty. Steele et al. (2016) found that after controlling for poverty, ACEs were still predictive of parenting stress as a principal influence on the quality of parent-child relationships. Consequently, parent stress is a candidate mechanism to explain the intergenerational transmission of adversity. Chung et al. (2009) identified the role parental ACEs played in their use of physical discipline with infants after controlling for poverty.

While there is a presumption that ACEs are transferred across generations, relatively little work has examined this link explicitly. There is, however, a larger literature that confirms the intergenerational transmission of risk around single loss included in ACEs (e.g., Appleyard et al., 2011; Bifulco et al., 2002). Wickrama et al. (2005) found in their research that among children growing up in families with significant parental adversity, struggles with mental health and physical illness in adolescence contributed to struggles with adult adjustment thus creating a mechanism of persistent adversity risk across generations. Madigan et al. (2017) found that among mothers with four or more ACEs, infant risk of physical disorders increased twofold while behavior concerns increased fivefold. The authors suggest that prenatal and perinatal, pregnancy, and postnatal maternal health and emotional distress were among the likely mechanisms for parental transmission of adversity. Unfortunately, little information about the influence of fathers' experience is presently available.

ACEs, school readiness, and school success

Until recently, ACEs research has focused on adult health and social outcomes and little information about ACEs exposure and concurrent developmental risk in childhood has been available. Several studies recently have begun to document ACEs exposure and educational impact in both general and high need populations.

Bethell et al. (2014) used a large national survey of child and adolescent health to assess ACEs exposure and impact. The authors found that that 23 percent of children 0-17 years of age experienced two or more ACEs with most exposure initiated before the age of 11 years. Bethell and her colleagues determined that compared to children with no ACEs, children with two or more ACEs were nearly three times as likely to repeat a grade and to experience significantly lower school affiliation. In a large Head Start sample, Blodgett (2014) used parental report of their children's ACEs exposure finding that 55 percent of children had experienced two or more ACEs and 25 percent had experienced four or more ACEs. In this Head Start sample, teachers without knowledge of children's ACEs, assessed the children with four or more ACEs as (1) developmentally lagging at program entry compared to their peers with lower levels of ACEs exposure and (2) that these differences persisted a year following enrollment. Blodgett and Lanigan (2015) used school personnel's knowledge as the mechanism to assess ACEs exposure and found in a random sample of 2,101 elementary aged children that 22 percent of children had two or more known ACEs and 11 percent had three or more known ACEs. In their sample, as students' known ACEs increased, academic failure, attendance problems, and school behavior concerns also increased significantly. Burke et al. (2011) found that 36 percent of children in a high-risk pediatric practice experienced at least two ACEs and children with four or more ACEs demonstrated significant learning difficulties and academic failure. While still limited, ACEs in childhood are significantly associated with academic and school adjustment problems emerging as early as preschool. In the present context, the implication is that ACE exposure is likely to directly impact school readiness.

Summary of the literature's key implications

There is compelling evidence that the assets and challenges in each community are part of what each child brings to school. While the evidence for the power of place has focused principally on economic resources, the impact of economic resources is because of the security and economic and social opportunity that can be provided to children. As a result, area deprivation is both about material resources and the social and spiritual resource that help us reach our individual potential. The rise of ACEs as a unifying concept to describe risk across all communities and individuals is comparatively new but like poverty has the potential to be a collective experience across residents that in part defines the quality of community. The best evidence is that poverty and ACEs are independent effects on child success, but that they also influence each other. The goal in this report is to determine how, together or as independent influences, income and ACEs can help explain school readiness across Washington communities.

Method

This report utilizes a mix of public and restricted use data sets that the descriptive information can be tied to a child's WaKIDS school readiness assessment by linking the community descriptors to the school or school district the child initially attended[5]. The data sources[6] include:

- Deidentified individual demographic and initial WaKIDS results for children entering kindergarten in the 2012-13, 2013-14, and 2015-16 school years with a total N=157,569.
- For WaKIDS children, de-identified individual school program data including details such as Free and Reduced Meal enrollment in kindergarten and depending on the year the child entered kindergarten for grades 1-3.
- Publicly available summary school demographic and program data for schools and school districts.
- Washington State Department of Social and Health Services (DSHS) Division of Research and Data Analysis (RDA) Community Risk Profiles providing five-year rates relative to state averages for multiple health, social, and criminal justice risks in communities defined by school district.
- Washington State results from the U.S. Center for Disease Control Behavioral Risk Factor Surveillance System (BRFSS) from the 2009-2011 data administration to describe community characteristics and to estimate community ACEs in adults.
- De-identified individual results from the 2016 Healthy Youth Survey (HYS) with a total N=238,174 including participants in grades 6, 8, 10, and 12. HYS data was used to provide youth voice in describing school community characteristics.

Details for each data source are provided as their results are considered later in this report.

Our geographically defined data either describes schools' catchment areas or the catchment area of the school district. Each of the data sets listed above can be organized as summaries (averages, percentages, rates) for residents or students living in or enrolled in a school or school district. To provide community risk and protective estimates for small districts, we adopted a practice developed by the DSHS RDA to pool small district descriptors into 'locales' based on geographic proximity and similar school district demographics. As a result, medium-sized and large school districts are single locales while small districts may be paired with 1-11 other small districts in a single locale. The result is that Washington's 295 school districts are consolidated into 118 locales of which 59 are single districts and 59 are pooled small district results.

---

[5] A small percent of students had more than one initial WaKIDS assessment. This resulted typically because the child repeated kindergarten or transferred school during kindergarten and the assessment was repeated at the new school. When duplicate WaKIDS assessment occurred, we used the first or the most complete assessment as the assessment describing school readiness.

[6] Findings for 2016 HYS results were confirmed by replicating the results from the 2014 BRFSS administration. Findings from the 2016 HYS were confirmed by replicating the results from the 2014 HYS administration. In each case, we confirmed that the results reported for the 2016 surveys were confirmed with 2014 data. Census information is not included in this report because census tract and zip code summary information from the 2010 Census is now more than seven years out of date.

Students' initial WaKIDS kindergarten assessments were linked through their school to the following data resources:

- The individual students' demographic information, attendance, discipline, and special program enrollment status for kindergarten and each subsequent year of school enrollment. For students entering kindergarten in the 2012-13 school year, we also examined academic success based on passing success on the statewide Smarter Balance Assessment testing tied to the Common Core curriculum in grade 3.
- HYS aggregated data at the level of school district the student was registered in as they entered kindergarten.[7]
- DSHS RDA risk and protective five-year rate estimates for multiple indicators organized at the level of the locale.
- BRFSS estimates of the ACEs exposure in a community's adult population[8]. In Washington State, the ACEs questions were included in three successive surveys conducted in 2009, 2010, and 2011. ACEs results were available for 32,660 residents and their responses were organized at the level of the school's DSHS RDA locale.

Details about each data source's variables are presented as we discuss each in turn in the Findings section.

Because of the large number of risk and protective factors considered, we used a data reduction strategy (1) determining the community factors that were significantly related to WaKIDS results and then (2) testing using hierarchical regression to determine if the specific community factor was a unique predictor when school poverty and community ACEs were added to the analyses.

As explained earlier, we confirmed that either school poverty, community adult ACEs, or an interaction of these two factors were the most powerful predictors of WaKIDS differences across communities. Moreover, by examining how each risk and protective factor was related to community poverty and ACEs, we were in this report able to document in more detail how poverty and ACEs impact school readiness.

Our principal analytic approach was Generalized Estimating Equations (GEE) in which the predictive power of school poverty and community ACEs was examined on WaKIDS and the

---

[7] In this report, HYS results are principally used to include youth descriptions of community risk and protective factors. Because HYS surveys begin in Grade 6 and we are focusing on early primary school experiences and readiness, we can use youth responses to describe elementary schools' districtwide characteristics but information specific to the elementary schools is not available.

[8] The ACEs questions in BRFSS are not part of the core question set and adding these supplemental questions requires additional expense. The ACEs module in Washington has not been included since 2011. It is unlikely population changes in resident ACES report have changed significantly in six years. By contrast, we do not include census data because employment rates and income levels are likely to vary widely compared to current conditions eight years later. We summarize the BRFSS findings from the 2009-2011 BRFSS surveys in this report. Although the 2012-2016 BRFSS survey was available as this report was completed, the data was not available at the level of the locale. Linking individual BRFSS responses to their geographic location is work completed by a group of Washington State researchers after the BRFSS results are released. As a result, it was not possible to conduct analyses testing BRFSS results in a community with the WaKIDS results.

various community risk and protective factors. The GEE analysis approach is particularly useful for controlling group effects that are highly correlated with the variables we are interested in testing (Hanley et al., 2003). The nature of the community, the practices of the district, and differences across schools all potentially could influence school readiness, community risk, and academic progress over time. Indeed, we document large differences in school readiness and risk across communities but our purpose is explaining why communities may differ not simply documenting that the differences exist. In the GEE analyses, we included the student's locale, type of community (urban, suburban, small town, rural) and their specific school as control variables in our tests of the explanatory power of school poverty and community ACEs.

We found that Hispanic ethnicity and English Language Learner (ELL) program enrollment in schools each have dramatic effects on academic readiness and multiple community risk and protective differences. Hispanic ethnicity and ELL status also were significantly related to community levels of ACEs and school poverty. Hispanic ethnicity and ELL status were included in our analyses as covariates to clarify the impact of community ACEs and poverty on academic progress and comparative risk. When differences due to ethnicity and ELL status were found, we discuss these findings in each section of the report.

Measures

The data used in this report either is administrative data or established survey data that can provide estimates of the status of geographically defined communities. The value in this approach is that we are close to describing whole populations with the administrative data and are using well-tested survey results for estimation across communities. The disadvantage is that we are using data developed for one purpose to ask a series of complex research questions. Consequently, we are limited to the data that we have, and our ability to explore the 'why' of some findings presented in this report is limited to the available data.

WaKIDS School Readiness

School readiness was measured based on the WaKIDS assessment tool which employs the Teaching Strategies Gold (TSG) assessment tool. The WaKIDS assessment includes six domain scales measuring cognitive, language, literacy, math, physical, and social emotional development. In addition, WaKIDS results are summarized as the number of domains (0-6) on which the student is considered to have met or exceeded developmental expectations.

The TSG assessment is the most widely employed teacher observation rating system in early learning. Rather than a direct assessment of the child, TSG permits educators to use their cumulative experience of the child to assess progress through a series of questions assessing developmental progress within each domain. TSG produces both a scale score based on age norms and a categorical rating if the child met developmental expectations for their age, exceeded expectations, or had yet to meet development expectations. In summarizing the experiences of children in a class or school, it is typical to report the 'pass percentage' for each individual scale as well as the count of scales on which the child was meeting or exceeding developmental expectations.

Educational data and defining school poverty

Like all states, Washington maintains a data collection system that describes the status and progress of all enrolled children each year as well as their cumulative academic career. Demographic information includes enrollment information, gender, age, race, ethnicity, primary language, and disability status. Academic information includes enrollment in special programs (special education, homeless services, English Language Learner (ELL) enrollment, Free and Reduced Meal eligibility (FRM), attendance, disciplinary actions, and academic testing results. School level data includes percentages of students in each of these demographic and academic categories plus enrollment counts, teachers' educational attainment, and teachers' years in the profession. De-identified individual educational data was provided under a data sharing agreement with the Washington State Educational Research and Data Center.

Our measure of individual and school poverty is either the individual student's Free and Reduced Meal (FRM) eligibility or the percent of FRM-eligible students in a school or district. In Washington, FRM eligibility is defined as a child living in a household earning 185 percent of federal poverty for reduced cost meals or living in a household at 130 percent of federal poverty for free meals.

DSHS RDA Community Risk Profiles

The DSHS RDA community risk profiles[9] are annually updated multi-year rates of various risk and protective factors organized at the state, county, school district, and locale geographic levels. The community risk profiles include a range of measures organized in the following domains:

- Community domain, including drug availability, indicators of extreme economic and social deprivation, mobility, criminal behavior in adults, and neighborhood attachment and community disorganization.
- Family domain, including a number of family disruption indicators.
- School domain, including academic achievement and school climate measures.
- Individual and peer domain, including early criminal justice involvement.
- Problem outcomes, including substance use, child health, and caregiver health.

We employed the most recently available five-year rate estimates at the level of the school locale. Locales are geographic areas defined either by medium to large school districts who we treated as their own locale or pooled results for clusters of small school districts with similar characteristics.

Healthy Youth Survey

Healthy Youth Survey (HYS) is a voluntary anonymous survey of approximately 200,000 students in grades 6-10 conducted in most but not all Washington state schools. HYS addresses involvement in risk behaviors such as drug use and violence, attitudes and beliefs on prosocial values and affiliation, and experiences in school. For this report, we analyzed de-identified

[9] https://www.dshs.wa.gov/sesa/research-and-data-analysis/community-risk-profiles

individual student response from the 2016 HYS in grades 6 and 12. Individual responses were then aggregated to provide district (locale) summary estimates.

Behavioral Risk Factor Surveillance System and defining community ACEs.

Conducted as an annual telephone survey in all 50 states, BRFSS is the principal health surveillance survey used by the U.S. Centers for Disease Control and Prevention. BRFSS addresses adults' health risk behaviors, the occurrence of many health conditions, and access to and use of preventive services. The BRFSS also collects data on health issues like the report of ACEs in the general population.

We employed the 2009-2011 BRFSS findings for two purposes. First, BRFSS surveys in Washington State are used to estimate the percent of adults in a school community at significant risk because of their ACEs history. Over three years from 2009-2011, more than 30,600 Washington residents completed the ACEs questions as part of BRFSS. Based on this large sample, we estimate the percent of adults in each locale with high ACEs as a community characteristic. Second, we selectively used 2011 BRFSS results as an independent description of community characteristics relevant to child wellbeing and parenting.

Community ACEs are defined in this report as the estimated percent of adults in a locale who report growing up with three or more ACEs. While the general ACEs literature supports the conclusion that health and social risk increases with each additional level of ACE exposure, individual adults with three or more ACEs represent a sub-population with significantly increased risk of health and social disruptions.

Findings

The WaKIDS sample.

The present findings principally describe the experiences of more than 137,000 children with completed WaKIDS assessments as they entered kindergarten in three academic years (2013-14, 2014-15, and 2015-16). Because of the buildout of WaKIDS, these are the three years in which WaKIDS implementation became nearly universal, and, as a result, generalization of findings is defensible. Unless, specifically discussed, our WaKIDS analyses focus on these three years of school readiness assessments.

Separately, we use the results from the 2012-13 academic year WaKIDS implementation for 20,335 children to examine the effects of WaKIDS kindergarten readiness and community differences as predictors of children's success completing the grade 3 state standardized Smarter Balanced Assessment (SBA) tests in English Language Arts and Math. However, because of the selection process used in the buildout of WaKIDS, the 2012-13 results are exploratory and presented separately from the three years where participation in WaKIDS is more representative of the general population.

Community descriptors of risk and protection and their association with poverty and ACEs

Poverty, place, and ACEs

In this section, we test the unique explanatory power of poverty and ACEs as community characteristics to explain differences on a wide range of community risk and protective factors. Our data sources are DSHS RDA community risk profiles, relevant risk and protective measures from the BRFSS household survey, and the risk and protective factors based on youth voice in the HYS. As we examine each of these three sets of community descriptors we ask the following questions:

1. Do the risk factors relate to school readiness and academic success individually;
2. Do poverty and/or ACEs explain community risk differences; and,
3. If a risk factor is related to school success, is it a unique descriptor to be retained in analyses of school readiness and success or is it redundant with the explanatory power of ACEs and/or poverty?

Because the area deprivation effects of poverty include social and family stress as recognized influences, it is not possible to entirely distinguish the concurrent effects of ACEs and poverty on wellbeing and life success. This is further complicated by the evidence from the research that poverty and ACEs can contribute to vulnerability by each influencing the effects of the other. As a result, our interest is in the comparative degree poverty and ACEs are potential independent influences on school readiness and community risk and where there is evidence of an interactive effect on these outcomes.

We examined place (the type of community), ELL status, and Hispanic enrollment as school characteristics that may help explain the relative contribution of poverty and ACEs to risk and indicators of academic success. We examined the risk and protective measures from the DSHS RDA, BRFSS, and HYS data sources with two objectives. First, because poverty has dominated area deprivation research, we tested the scope of the unique contribution of ACEs to explain how risk after poverty has been accounted for. Second, as we tested the explanatory power of poverty and ACEs, we examined if there was evidence of areas of family and community life influenced specifically by poverty and/or ACEs.

Hispanic kindergarteners comprise 32 percent of this sample and ELL students 26 percent. While 58 percent of Hispanic students in the sample are identified as ELL students, Hispanic students comprise 72 percent of all ELL students in the sample. Among non-Hispanic students, 52 percent of these children were eligible for FRM but this increased to 74 percent in non-Hispanic ELL students. Among Hispanic students in this sample, 74 percent of Hispanic students not designated as ELL were FRM eligible compared to 93 percent of Hispanic ELL students. Consequently, Hispanic ethnicity, ELL status, and poverty are highly overlapping characteristics of schools likely to interact with each other as potentially complex influence of school readiness and community characteristics.

We confirmed that Hispanic and ELL student groups differ significantly in terms of the level of ACEs in their communities. The data indicates that as the percent of Hispanic students and/or

ELL increases in an area, students are more likely to live in communities with *lower* reported ACEs exposure in the general population. This finding is consistent with the effects discussed previously about the protective aspects of ethnic density as a community characteristic.

Table 2. Student Hispanic and ELL groups by percent of adults in their communities with three or more ACEs

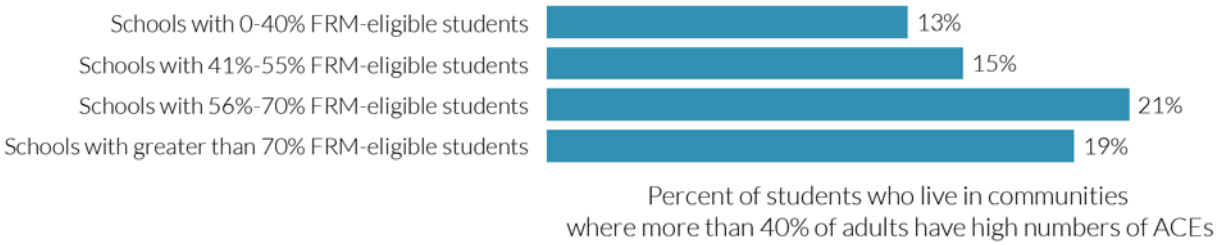
	Percent Adults 3+ ACEs
Non-Hispanic/Not ELL N=83,961	33%
Non-Hispanic/ELL N=9,729	31%
Hispanic/Not ELL N=17,873	31%
Hispanic/ELL=25,470	29%

Significance level: F(3, 137,032) = 1,450, p<.0001

We examined the relationship between the type of community a school is in including cities, suburbs, towns, and rural communities[10]. There were systematic differences on ACEs, poverty, Hispanic student enrollment, and the percent of ELL students. ACEs were greater in city and towns. Poverty was greater in urban school communities and less so in suburbs. Hispanic students were disproportionately enrolled in small town schools while ELL percentages were highest in urban and small-town schools. While not a principal focus of the current report, in recognition of these community differences, we included the type of community as a control variable in analyses addressing risk, school readiness, and academic progress.

We examined the relationship between poverty and community ACEs both with poverty as a school characteristic and as an individual characteristic. We found that school level poverty and community ACEs were related. Described in the next figure, the highest poverty schools were disproportionately likely to be in communities in which adult ACEs were estimated to be greatest. While the level of poverty in a school was associate with the level of ACEs in a community, we did not find that individual student poverty meaningfully related to the level of community ACEs.

Figure 1. Student percent enrollment by school poverty and community ACEs (see also Table A1 in the appendix)



Chi Square (6) = 2,128, p<.0001

[10] Schools were designated based on U.S. Department of Education coding information.

In describing community characteristics, ACEs, poverty, place, ethnicity, and level of English language skills are related to each other in a complex interaction suggesting both protective potential among some parts of the population and the potential for accelerated risk for others. It is because of these complex associations that ACEs, poverty, ethnicity, and ELL status are the principal independent variables in the current study and place was included a control variable.

DSHS RDA community risk profiles.

DSHS indices include multiple data sources to report key community indicators associated with substance abuse risk including: family disruption, economic and social deprivation, drug use and criminal behavior in adults, youth involvement in drugs and criminal acts, school climate and child abuse referrals. RDA community risk information is available both at the level of the school district and the locale. We chose to use locale to organize the data to permit more stable estimates of risk across small districts.

Washington State's Department of Social and Health Services RDA has developed standardized protocols to describe rates or percentages of community residents utilizing social services, involved in criminal justice actions, or demonstrating significant health needs. Specifically, we examined the following RDA community indicators:

- Temporary Assistance to Needy Families (TANF), Child Recipients, Five Year Rates
- Victims of Child Abuse and Neglect in Accepted Referrals, Five Year Rates
- Alcohol- or Drug-Related Deaths, Five Year Rates
- Arrests (Age 10-17), Alcohol Violation, Five Year Rates
- Arrests (Age 10-17), Drug Law Violation, Five Year Rates
- Births to School-Aged (10-17) Mothers
- Injury or Accident Hospitalizations for Children, Five Year Rates
- Child Mortality (Ages 1-17), Five Year Rates
- Low Birth Weight Babies, Five Year Rates
- Injury or Accident Hospitalizations for Women, Five Year Rates
- Offenses, Domestic Violence, Five Year Rates
- Suicide and Suicide Attempts (Age 10-17), Five Year Rates
- Total Arrests (Age 10-17), Five Year Rates
- Weapons Incidents in School, Five Year Rates

This list does not represent the full range of RDA risk indicators but rather factors that provided unique information compared to our other sources and were logically related to early childhood development opportunities and resources as well as indicators of community stress such as alcohol related problems and violence.

RDA results[11] were linked to school district by locale. We then examined the predictive value of district level FRM, the percent of adults in the community with three or more ACEs, Hispanic

[11] The number of districts included in each analysis is based on the availability of acceptable rate estimates in the RDA protocol. Please note that these RDA data analyses are based on summary district information, not individual

enrollment percent, and ELL enrollment percent in explaining variations in community risks and assets. Tests employed ANCOVA comparisons with FRM percent enrollment and ACEs as the main independent variables and district ELL enrollment percent and Hispanic enrollment percent as the covariates.

RDA community risk indicators and WaKIDS school readiness. We found several RDA community risk indicators were moderately correlated with the percent of kindergarteners in a district who were rated as school ready on all six WaKIDS scales. In each case, as risk in the community increased on these RDA measures, WaKIDS school readiness in the district was lower. However, when these selected RDA risk measures were included with school poverty and community ACEs in hierarchical regression analyses of districts' WaKIDS percent school readiness, only school poverty and children's injury hospitalization proved to be significant predictors. This finding suggests that principally the RDA risk profiles are not independently related to school readiness but rather are correlates of some common factor such as poverty or increasing levels of childhood adversity as a characteristic of residents.

Table 3. Significant correlations between RDA Risk Indicators and WaKIDS School Readiness

RDA Risk Indicators	Percent District Kindergarten Students School Ready on All Six WaKIDS Scales
TANF enrolled	-0.25
Teen Births	-0.32
Child Injury Hospitalizations	0.20
All Child Arrests	-0.29
Weapons Incidents in Schools	-0.26

All correlations are significant at p<.01

In addition, we found that multiple RDA risk indicators correlated moderately with grade 3 Smarter Balance Assessment (SBA) standardized test results for 2016. In grade 3, students are assessed on English Language Arts (ELA) and Math. Using regression analyses, we determined that teen births and alcohol-related deaths were independent predictors in addition to school poverty and community ACEs.

Table 4. Significant Correlations between RDA Risk Indicators and Grade 3 2016 District SBA Pass Percent

	ELA Percent Met Standard	Math Percent Met Standard
TANF	-0.50	-0.40
Alcohol Deaths	-0.35	-0.28
Teen Births	-0.60	-0.42
DV Offences	-0.34	-0.28
All child arrests	-0.26	-0.26

All correlations are significant at p<.001

data. As a result, meaningful results can be interpreted with more modest significance tests. In addition, the definitions of subgroups for community ACEs and ELL percent enrollment were simplified to permit adequate counts of school districts in the poverty X ACEs groups and ELL groups.

We confirmed that several RDA risk indicators are correlated both with WaKIDS results and grade 3 SBA results. In regression analyses, either poverty or poverty and community ACEs proved to be significant predictors of school readiness and grade 3 academic success. When poverty and ACEs were included in the analyses, the unique individual RDA risk factors were not independent predictors of WaKIDS or SBA results. These analyses support the conclusion that district poverty and community ACEs can serve as principal predictors of school readiness and academic success.

Please note that because of the distribution of ELL and Hispanic students across school districts, it was not possible to assess the interaction of ELL percent by Hispanic percent across districts concurrently. Because most ELL students in Washington are Hispanic, low Hispanic enrollment districts had too few ELL students for us to have adequate numbers of districts included across the ELL X Hispanic groups. When both Hispanic and ELL percent enrollment were significant covariates in our tests of poverty and ACEs effects, we examined ELL and Hispanic separately to determine if they uniquely influenced the risk variable.

Table 5. RDA risk factors by FRM status (those that involve significant differences).

	Less than 50% FRM	50%-70% FRM	Greater than 70% FRM
TANF Enrollment Rates per 100 children birth to 17 years	7.3	9.7	11.8
All Alcohol-Related Deaths Rate per 100 deaths	12.0	12.5	13.2
Teen birth rate per 1,000 females 10-17 years	3.8	5.0	6.6
Low birth weight rate per 1,000 live births	60.8	63.0	64.8
DV Offences rate per 1,000 residents	5.3	6.1	6.7
Accepted Child Abuse/Neglect Referrals Rate per 1,000 children 0-17	30.1	39.2	44.6

Table 6. RDA risk factors by ACE rates (those that involve significant differences).

	10%-30% High Adult ACEs	More than 30% High Adult ACEs
Teen birth rate per 1,000 females 10-17 years	5.6	4.6
DV Offences rate per 1,000 residents	5.8	6.3
Accepted Child Abuse/Neglect Referrals Rate per 1,000 children	34.8	41.0
Child Mortality Rate per 100,000 children	24.7	18.5
Weapons Incidents in School Rate per 1,000 children K-12	1.9	2.3

TANF participation. TANF (Temporary Assistance for Needy Families) rates, as expected, were found to be highly associated with the percent of students who were FRM eligible [$F(2, 286) = 34.5$, $p < .0001$]. Community ACES were not associated with TANF rates. Both Hispanic and ELL percent enrollment were significant covariates. In separate analyses, we found that TANF participation rates were not meaningfully associated with Hispanic or ELL percentages despite their interaction with FRM status and ACEs.

Alcohol or drug-related deaths. Death rates for all ages associated with alcohol and/or drugs increased as a function of poverty in the community [$F(2, 279) = 11.1$, $p < .0001$] but not community ACEs. ELL percent enrollment was a significant covariate but when we examined

ELL percent separately, the differences in ELL percent enrollment were not independently associated with alcohol-related deaths.

Adolescent arrests for alcohol or drugs. Alcohol and drug related arrests for adolescents 10-17 years of age were not associated either with school poverty or community ACEs in these analyses. However, we did find a significant school poverty by community ACEs interaction for total arrests of adolescents 10-14 years (rate of arrests per 1,000 adolescents). Hispanic and ELL percent enrollment did not reach significance as covariates for any of these analyses. Please note some caution is indicated for this finding because of significant missing data across districts.

Teen Births. Teen births were significantly associated with both school poverty [$F(2, 273) = 19.8$, $p < .0001$] and community ACEs [$F(1, 273) = 10.4$, $p < .0001$] with percent Hispanic and ELL enrollment both significant covariates. Teen birth rates increased with increasing school poverty but the results suggest that teen birth rates may drop with increasing community ACEs.

We found that both ELL and Hispanic enrollment percentages were related to teen birth rates such that higher ELL and Hispanic enrollment were both associated with increased teen birth rates.

Hispanic ethnicity and ELL status are associated with teen birth rates through an interaction effect described in the next figure. In the highest Hispanic enrollment group of districts, teen pregnancy rates increase as the percent of Hispanic students in ELL services increases.

Low Birth Weights. Low birth weight rates were significantly associated with school poverty percentages with risk increasing as poverty increases [$F(2, 279) = 6.0$, $p < .003$]. ACEs were not a significant predictor and neither Hispanic nor ELL enrolment percentages were significant covariates.

Domestic Violence Offences. Domestic violence offenses were significantly related to school poverty [$F(2, 191) = 9.3$, $p < .001$]. Community ACEs were also significantly associated with domestic violence offences [$F(1, 191) = 5.1$, $p < .03$] but this was a comparatively modest finding. Both Hispanic and ELL percent enrollment were significant covariates but again were found to not be significant independent predictors of differences in DV offences.

Accepted Child Abuse and Neglect Referrals. Child abuse and neglect accepted referrals were significantly related to both school poverty [$F(2, 283) = 31.8$, $p < .001$] and community ACEs [$F(1, 283) = 19.5$, $p < .001$]. ELL but not Hispanic percent enrollment was found to be a significant covariate but not an independent effect on child maltreatment accepted referrals.

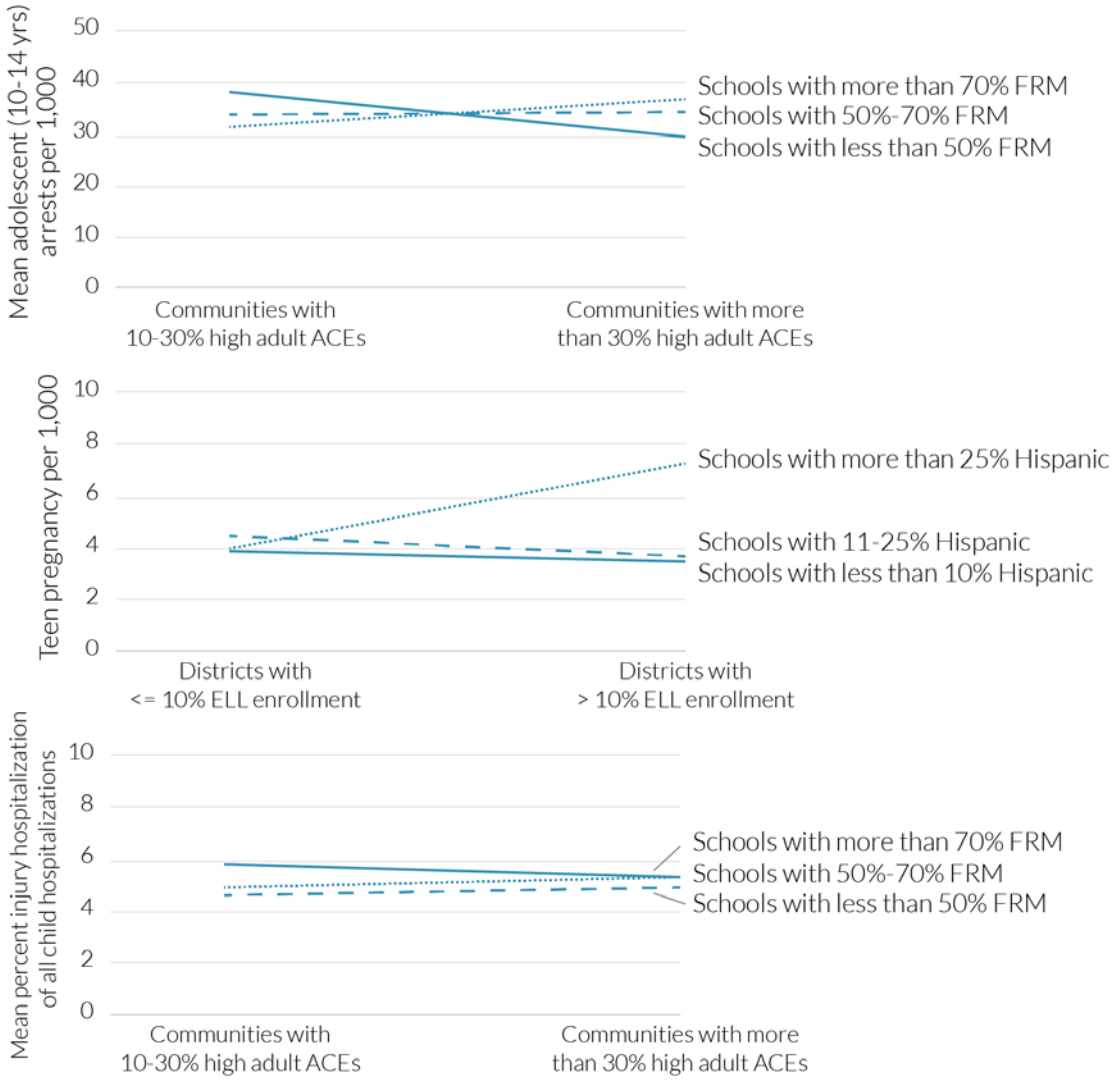
Child Hospitalizations for Injuries. Child hospitalizations for injuries reported as the percent of all hospitalizations for children 0-17 years old due to injuries. Injury hospitalizations in children demonstrated a significant school poverty by community ACEs interaction such that for lower levels of school poverty, community ACEs are associated with increased risk. However, for the highest poverty school districts, although child injury hospitalizations are high overall, ACEs may be associated with comparatively reduced risk. Hispanic ethnicity but not ELL status

was found to be a significant covariate but not a significant independent influence on rates of child hospitalizations for injuries.

Child Mortality. Death among children ages 1 to 17 years old were significantly associated with community ACEs [F (2, 251) = 14.7, p< .001]. For these analyses, both Hispanic and ELL percent enrollment were significant covariates. In separate analyses, ELL and Hispanic enrollment were not associated independently with child mortality rates. Mortality risk increases with poverty but appears to be lower in communities with higher ACEs.

School Weapon Incidents. Weapons incidents in schools was significantly associated with community ACEs [F (1, 286) = 13.0, p< .001] but not with school poverty or percent enrollment of Hispanic or ELL students.

Figure 2. Interaction effects for RDA risk factors (each significant at a p<.05 level). See also Table A2 in the appendix.



For the RDA risk indices, the evidence suggests that poverty drives some early life risks (teen births, low birth weight) and exposure to child abuse/neglect and domestic violence. ACEs influence child abuse/neglect and personal and social risk (adolescent alcohol violations, DV offences, and weapons in schools). Hispanic and ELL enrollment percentages were not significant influences on risk indicators except for teen births. However, on several risk measures, Hispanic and/or ELL percent enrollment were important mediating influences for the poverty and community ACEs results.

There are several findings for the RDA community risk indicators (child arrests, teen births, child injury hospitalizations, and child mortality) that suggest the need for additional data to fully explain the observed relationships. For example, ELL percent enrollment appears to moderate the risk of teen births but not among school districts with the highest Hispanic enrollment. Given the fixed nature of the data we used, we don't have additional information that can explain this result but data presented later in this report suggests that Hispanic ELL students may be at greater risk than non-Hispanic ELL students. Second, with respect to teen births, child injury hospitalizations, and child mortality the current findings suggest that higher community ACEs have a protective effect. A possible explanation for these counter-intuitive findings is that these measures are affected by the type of community. Community ACEs are significantly higher in cities and towns which also may be communities with greater health care access and different law enforcement priorities than suburban and rural communities. For adolescent arrests, the data suggests that ACEs are associated with increased arrests with increasing poverty but lower arrests in communities with lower poverty. These mixed effects suggest that the type of community results in differing norms, health and safety practices, and access to services. We present the findings but caution against over-interpretation of these specific findings.

In summary, we conclude that community differences on several of the RDA community risk profiles are explained in part by either poverty or community ACEs as possible causal influences. This confirms our contention that school poverty and community ACEs are effective summary measures of a range of specific risk indicators. We also conclude that poverty and ACEs operate to a large degree as independent influences on risk. Specifically, on multiple RDA risk indicators, ACEs add explanatory power for explaining risk after poverty has been accounted for. Finally, we recommend caution on interpreting some of the findings for ACEs and ELL status. It is possible that factors we could not address help explain why ACEs appear protective with respect to subgroups for child mortality and teen births and ELL status in districts with higher Hispanic enrollment may contribute to greater risk of teen births.

BRFSS and community well-being.

The annual BRFSS[12] household survey addresses a range of issues including physical health status, health behaviors, mental health and wellbeing, access to care, and health screening as areas of public health concern. Because a core function of BRFSS is surveillance for health

[12] Washington State Department of Health, Center for Health Statistics, Behavioral Risk Factor Surveillance System, supported in part by Centers for Disease Control and Prevention, Cooperative Agreement U58/CCU002118- 1 through 17 (1987-2003), U58/CCU022819-1 through 5 (2004-2008), U58 DP001996-1 through 2 (2009-2010), or U58/SO000047-1 through 3 (2011-2013).

concerns, each year's survey also can vary and include specific questions of national or state health interest. The BRFSS data on ACEs exposure in adults that we use to estimate community ACEs is an example of such targeted surveillance activities in BRFSS. Out of the wide range of information available, we examined questions about general physical health and mental health that were included in the 2009, 2010, and 2011 BRFSS administrations[13]. The following BRFSS findings are based on 56,099 respondents if the question was asked in all three years. Annual survey counts are 20,796 in 2009, 20,542 in 2010, and 14,761 in 2011.

BRFSS variables, WaKIDS, and SBA testing results. We tested these selected BRFSS variables with WaKIDS school readiness percent across districts and the SBA state pass percent results for grade three English Language Arts and Math. None of the selected BRFSS variables correlated significantly with WaKIDS results. However, as community characteristics, general physical health, current percent of residents who smoke, and current level of emotional distress all were moderately correlated with SBA test results in grade three. In regression analyses that included ACEs and school district poverty, the BRFSS results were not found to be unique predictors of academic results. This evidence supports the conclusion that school poverty and ACEs are effective summary measures of community risk and protective capacity.

General Physical Health. BRFSS respondents (N=56,099) reported the general state of their physical health on a five-point scale from 1=Excellent to 5=Poor. We found that as poverty increased [$F(2, 286) = 28.5$, $p < .001$], average participant ratings of health were poorer. Hispanic and ELL percent district enrollment were significant covariates but did not prove to be independent predictors of general health status.

Table 7. BRFSS variables by FRM eligibility

	Less than 50% FRM	50%-70% FRM	Greater than 70% FRM
Mean Rating of General Health	2.5	2.6	2.7
Mean Days Poor Physical Health in Past 30	2.7	2.9	3.3
Mean BMI	27.8	27.9	28.1
Percent disabled adults	32%	34%	35%
Mean Days Poor Mental Health in Past 30	4.2	4.4	4.6

In a related question, respondents (N=13,427) reported the number of days physical health concerns interfered with routine activities in the past 30 days. Both increasing poverty [$F(2, 286) = 8.1$, $p < .001$] and ACEs [$F(2, 286) = 23.3$, $p < .001$] were determined to be independently associated with increasing days of poor physical health. ELL percent district enrollment, but not

[13] While results from the BRFSS in 2012-2016 were available, the work to link responses to DSHS locale was not available for use in this report. Therefore, we use the pooled results for three years 2009-2011 to describe community status. Please note that not all questions are asked in all years. Some candidate variables in BFSS, like lifetime intimate partner violence victimization, are not reported because on examination there were too few participants in locales to provide stable estimates. Non-significant results from BRFSS are not presented in the body of this report. The additional BRFSS variables tested included life time intimate partner violence exposure, alcohol use and heavy drinking, mental illness incidence, current level of life distress, satisfaction with neighborhood, education attainment, and personal energy level.

Hispanic enrollment, was a significant covariate but ELL did not prove to be an independent predictor of mental health status.

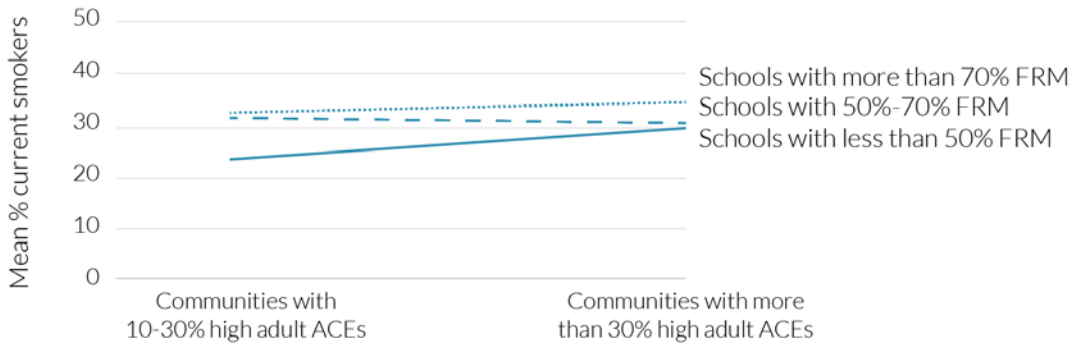
Table 8. BRFSS variables by level of ACEs

	Less than 20% high ACEs	20-30% high ACEs	Greater than 40% high ACEs
Mean Days Poor Physical Health in Past 30	2.5	3.2	3.3
Percent disabled adults	31%	34%	35%
Mean Days Poor Mental Health in Past 30	3.8	4.5	4.9
Mean Life Satisfaction Score (1-5)	4.13	4.10	4.01

BRFSS also permits calculation of respondents' Body Mass Index (BMI, N=53,402) which was tested as the average BMI by locale. We determined that poverty [F (2, 286) = 7.8, p< .001] but not ACEs was predictive of BMI differences with BMI increasing for locale residents as a function of level of poverty in the school districts. Hispanic and ELL percent district enrollment were significant covariates but did not prove to be independent predictors of general health status. The BMI range defining overweight is 25-29.9.

Participants in BRFSS (N=24,688) were asked if they currently smoke cigarettes every day, some days, or never. Daily use and some use of cigarettes were combined to estimate the percent of current smokers. We found that there was a significant interaction of poverty by ACEs such that ACEs appear to increase the likelihood of residents being smokers above the effect of poverty alone. ELL status, but not Hispanic ethnicity, was found to be a significant covariate in the analyses but not a significant independent influence on current cigarette use.

Figure 3. Interaction effects of poverty and ACEs on current cigarette use (see also Table A3 in the appendix)



F (2, 118) = 4.0, p< .02

BRFSS participants were asked to self-identify as having a disability defined as a physical, mental, or emotional condition that limits daily activities. We examined the percent of disabled within locale and found that both poverty [F (2, 295) = 15.5, p< .001] and community ACEs [F (2, 295) = 46.0, p< .001] significantly predict percent of the adult population that is disabled. ELL percent enrollment was a significant covariate and proved to independently predict

disability percent such that increasing ELL enrollment was associated with lower disability percent in the community [F (2, 295) = 16.2, p< .001].

Table 9. BRFSS variables by district ELL enrollment.

	0-10% ELL	11-20% ELL	More than 20% ELL
Percent disabled adults	33%	33%	30%

Mental Health. BRFSS respondents (N=17,527) reported the number of days in the past 30 that their mental health was not good. Both increasing poverty [F (2, 286) = 7.5, p< .001] and ACEs [F (1, 286) = 53.4, p< .0001] were determined to be independently associated with increasing days of poor mental health. ELL percent district enrollment, but not Hispanic enrollment, was a significant covariate but did not prove to be an independent predictor of mental health status.

BRFSS includes four life satisfaction questions (Life is close to ideal, Conditions of life are excellent, Satisfaction with life; Gotten the important things you want in life) ranked from 1-Strongly Disagree to 5=Strongly Agree. We averaged these four questions for a life satisfaction scale (N=12,700). We found that while poverty was not a significant predictor, community ACEs were [F (2, 286) = 7.8, p< .001] with reported life satisfaction lower in a community with increasing adult ACEs. ELL and Hispanic enrollment percentage were not significant covariates.

In summary, on measures of adult physical and mental health, health risk (cigarette use, BMI) and burden (disability, poor reported physical and mental health) both ACEs and poverty were found to be predictive of differences across communities in Washington State. ELL and Hispanic enrollment across districts continued to be meaningful covariates in analyses but do not appear on these physical and emotional health indictors to be significant independent influences on health status across communities. No clear pattern of results emerges from the BRFSS findings distinguishing the effects of poverty and ACEs. Rather, like the RDA community risk profile findings presented above, poverty and ACEs in communities appear to operate as related but independent influences on community wellbeing.

Healthy Youth Survey Risk and Protective factors

HYS is a voluntary anonymous survey conducted every two years with approximately 230,000 students in grades 6, 8, 10, and 12. Most but not all Washington state schools participate and school districts have significant control over the range of questions addressed in their versions of the surveys. HYS addresses attitudes toward and involvement in risk behaviors such as drug use and violence, attitudes and opportunities for prosocial values and affiliation, and experiences in school. HYS was specifically designed to address the risk and protective structure developed by Hawkins and Catalano (Hawkins et al., 1992).

In this report, HYS data is summarized at the level of the school district (DSHS locale) to provide youth voice describing community and school assets and risks. HYS data is from the 2016 survey with analyses conducted separately for grades 6, 8, 10, and 12. We used the 2014 HYS to confirm the findings reported here for the 2016 survey and to confirm the stability of these survey results. With minor exceptions, the 2016 findings presented here were reproduced with 2014 HYS data. The grade participation counts for the HYS 2016 are included in Table 10.

Table 10. Grade participation counts for HYS 2016.

	Count of 2016 HYS Participants
Grade 6	71,606
Grade 8	64,970
Grade 10	55,601
Grade 12	38,982
Total	231,159

HYS produces a set of risk and protective scales as summary measures that permit identification of youth whose answers indicate they are individually at risk on the specific risk or responded suggesting they have assets to resist engagement in risk behaviors. Data in this report is presented as the percent of youth in the school district identified with the specific risk or asset. Please recall on the risk dimension, higher percentages of youth reflect greater risk while for youth assets, higher percentages indicate a greater percent of youth in the area report the asset. These measures are organized by domain and type of risk or asset and can include elements that are only answered in specific grades. The selected HYS scales tested in these analyses are summarized in the following table.

Table 11. HYS Risk and Protective Factor Scales by Grade Level 2016

Domain	Factor	Grade 6	Grade 8	Grade 10	Grade 12
Community Risk	Laws and Norms Favorable to Drug Use	x	x	x	x
Community Risk	Perceived Availability of Drugs	Xx	x	x	x
Community Risk	Opportunities for Prosocial Involvement	NA	x	x	x
Family Protective Factor	Rewards for Prosocial Involvement	X	NA	NA	NA
Family Protective Factor	Opportunities for Prosocial Involvement	X	x	x	x
Family Risk Factor	Poor Family Management	NA	x	x	x
Family Risk Factor	Parental Attitudes Favorable Towards Drug Use	NA	x	x	x
Peer-Individual Protective Factor	Interaction with Prosocial Peers	NA	x	x	x
Peer-Individual Protective Factor	Social Skills	NA	x	x	x
Peer-Individual Protective Factor	Belief in the Moral Order	NA	x	x	x
Peer-Individual Protective Factor	Opportunities for Prosocial Involvement	x	NA	NA	NA
Peer-Individual Risk Factor	Early Initiation of Drug Use	NA	x	x	x
Peer-Individual Risk Factor	Favorable Attitudes Towards Drug Use	x	x	x	x
Peer-Individual Risk Factor	Perceived Risk of Drug Use	x	x	x	x
Peer-Individual Risk Factor	Friends' Use of Drugs	NA	x	x	x
School Protective Factor	Rewards for Prosocial Involvement	x	x	x	x
School Protective Factor	Opportunities for Prosocial Involvement	NA	x	x	x
School Risk Factor	Academic Failure	x	x	x	x
School Risk Factor	Low Commitment to School	x	x	x	x

X= assessed at grade level; NA=Not assessed at grade level

Correlations among the HYS risk and protective factor scales at the district level generally include moderate to strong associations within grade levels. The strong intercorrelation among many scales suggests that the specific HYS questions are describing shared influences on student wellbeing rather than clearly discrete domains of influence.

Healthy Youth Survey, WaKIDS school readiness, and Grade 3 SBA results.

We examined the correlations of HYS scale results with the percent of children school ready on all six WaKIDS domains, and the correlations of HYS scales and SBA English Language Arts and Math pass percent for grade 3 students in 2016. Across the four HYS grades levels, five of the correlations demonstrated a set of modest correlations (r=0.2-0.33) between HYS factors and WaKIDS results. All five of the significant correlations addressed either opportunities for or rewards for prosocial involvement with peers, family, or community. As a result, we conclude there is a modest level of association between HYS results and WaKIDS district school readiness whereas risk increases, school readiness is lower.

A more substantial set of correlations was found between HYS results and grade 3 SBA results as a marker of academic success. We found that modest correlations between grade 12 and 10 student responses and grade 3 SBA results, but these correlations became more robust representing moderate to strong correlations for grade 6 as summarized in the next table.

Table 12. HYS Grade 6 Correlations with Students' Grade 3 SBA Results

HYS Risk and Protective Factors Grade 6	SBA ELA	SBA Math
Community Risk Laws and Norms Favorable to Drug Use	-0.40	-0.36
Community Risk Perceived Availability of Drugs	-0.32	-0.32
Community Risk Opportunities for Prosocial Involvement	0.27	0.22
Family Protective Opportunities for Prosocial Involvement	0.57	0.47
Family Protective Rewards for Prosocial Involvement	0.43	0.32
School Risk Academic Failure	-0.55	-0.47
School Risk Low Commitment to School	-0.22	NS
School Protective Rewards for Prosocial Involvement	NS	NS
Peer-Individual Risk Favorable Attitudes Towards Drug Use	-0.40	-0.38
Peer-Individual Risk Perceived Risk of Drug Use	-0.49	-0.44
Peer-Individual Protective Opportunities for Prosocial Involvement	0.46	0.40

All correlations are significant at the p<.01 level. NS= Not a significant correlation

Because of the higher levels of correlation between grade 6 results and SBA performance in younger children in their districts, the following analyses are limited to grade 6 results. Parallel analyses for grades 8, 10, and 12 confirmed the pattern of relationships presented for grade 6 students.

HYS Community Risk Factors. In grade 6, the HYS survey asked questions about youth's perceptions of community conditions that are organized in three scales:

- Community Risk Factor: Laws and Norms Favorable to Drug Use

- Community Risk Factor: Perceived Availability of Drugs
- Community Protective Factor: Opportunities for Prosocial Involvement

As with previous analyses, we examined the contribution of school poverty and community ACEs, controlling for Hispanic and ELL enrollment, as explanatory concepts for differences in community conditions.

We examined if the grade 6 HYS scale scores listed above contribute meaningfully to predicting grade 3 SBA results for English Language Arts and Math. After accounting for the predictive power of school poverty, community ACEs, and percent ELL and Hispanic enrollment, the grade 6 HYS results did not add meaningful additional predictive power (. We again concluded that school poverty and community ACEs are effective summary measures of community risk differences when considering impact on grade 3 academic performance.

For HYS' Laws and Norms Favorable to Drug Use, we found a significant main effect for school poverty as an explanation of differences across districts [$F(2, 228) = 34.3$, $p < .001$]. As poverty increases across school districts, the percent of students identified at risk increases. ELL and Hispanic enrollment were not significant covariates.

Table 13. HYS risk factors by percentage eligible for FRM within a district

	Less than 50% FRM	50%-70% FRM	Greater than 70% FRM
Percent Students at Risk "Laws and Norms Favorable to Drug Use"	36%	44%	56%
Percent Students at Risk "Perceived Availability of Drugs"	17%	22%	32%
Percent Students at Risk "Opportunities for Prosocial Involvement"	53%	46%	38%
Percent Students at Risk "Rewards for Prosocial Involvement"	57%	49%	44%
Percent Students at Risk "Academic Failure"	39%	44%	46%
Percent Students at School Risk "Low School Commitment"	42%	47%	53%
Percent Students at Peer-Individual Risk "Favorable Attitudes toward Drug Use"	20%	26%	36%
Percent Students at Peer-Individual Risk "Favorable Attitudes toward Drug Use"	42%	37%	35%

Similarly, HYS' Perceived Availability of Drugs that school poverty also was the significant factor contributing to increased student risk across districts [$F(2, 212) = 26.6$, $p < .001$]. ELL and Hispanic enrollment were not significant covariates. The HYS protective factor "Opportunities for Prosocial Involvement" was statistically significant for school poverty but the level of change described across poverty groups was too modest to be treated as meaningful.

HYS Family Risk and Protective Factors. Grade 6 questions related to family influence produced the following scales for analysis:

- Family Protective Factor: Opportunities for Prosocial Involvement
- Family Protective Factor: Rewards for Prosocial Involvement.

We found for both protective factors that as poverty in school districts increased, students' report of family prosocial opportunities [$F(2, 228) = 36.7$, $p < .001$] and rewards [$F(2, 228) = 24.9$, $p <$

.001] for prosocial involvement decreased. Higher levels of community ACES[14] were also associated with lower percent of students reporting rewards for prosocial involvement [F (1, 228) = 5.1, p< .03] but was not related to opportunities for prosocial involvement. ELL and Hispanic enrollment were not significant covariates.

Table 14. HYS risk and protective factors, by level of ACEs within a community.

	Less than 20% High Adult ACEs	Greater 20% Adult ACEs
Percent Students with Family Protective Factor "Rewards for Prosocial Involvement"	52%	49%
Percent Students at Risk "Academic Failure"	42%	45%
Percent Students at School Risk "Low School Commitment"	46%	49%

HYS School Risk and Protective Factors. Grade 6 questions related to school influences produced the following HYS scales for analysis:

- School Risk Factor: Academic Failure
- School Risk Factor: Low Commitment to School
- School Protective Factor: Rewards for Prosocial Involvement.

For academic failure, we found that as either poverty [F (2, 228) = 13.7, p< .001] or community ACEs [F (1, 228) = 5.8, p< .02] increased, the percent of students reporting in grade 6 they were failing academically increased. Hispanic enrollment but not ELL enrollment was a significant covariate. Irrespective of poverty and community ACEs, as the percent of Hispanic enrollment in a district increased, students report greater risk of academic failure [F (2, 228) = 36.7, p< .001].

Table 14. HYS risk factors by levels of Hispanic enrollment.

	Less than 10% Hispanic	10-20% Hispanic	Greater than 20% Hispanic
Percent Students at Risk "Academic Failure"	39%	41%	45%
Percent Students at Peer-Individual Risk "Favorable Attitudes toward Drug Use"	42%	40%	34%

With respect to the risk of low school commitment, we found that commitment to school was an increasing concern across districts as poverty in the school districts increased [F (2, 228) = 12.6, p< .001]. Increasing community ACEs were also related to increased risk of low school commitment [F (1, 228) = 5.8, p< .02]. ELL and Hispanic enrollment were not significant covariates. The school protective factor, rewards for prosocial involvement, was not associated with either poverty or ACEs.

[14] Because not all districts complete the HYS, the count of districts in the cells when we tested levels of poverty and community ACEs required we simplify the levels of ACEs group to two in order to have sufficient districts in each cell.

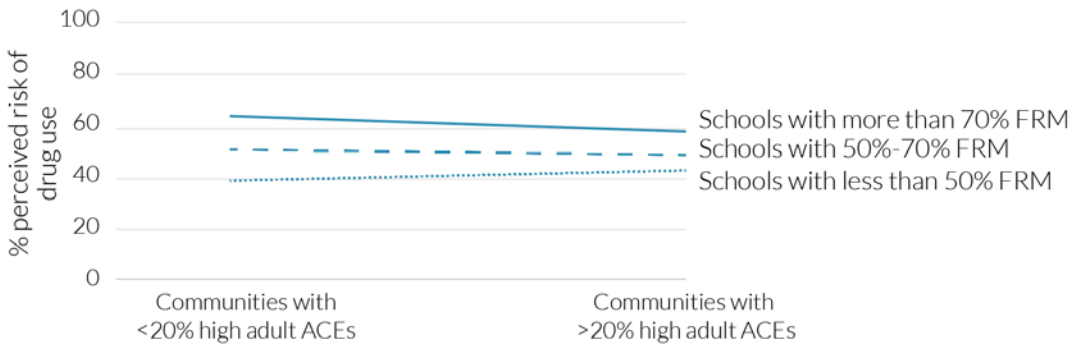
HYS Peer-Individual Risk and Protective Factors. Grade 6 questions related to peer and individual influences produced the following HYS scales for analysis:

- Peer-Individual Risk Factor: Favorable Attitudes Towards Drug Use
- Peer-Individual Risk Factor: Perceived Risk of Drug Use
- Peer-Individual Protective Factor: Opportunities for Prosocial Involvement.

For the HYS scale "favorable attitudes toward drug use", we found that risk increases significantly as school poverty increases [F (2, 228) = 13.7, p< .001]. No relationship with community ACEs was observed. ELL and Hispanic percent enrollment were not significant covariates.

For percent of students with "perceived risk of drug use" we found that there was a significant interaction of poverty and ACEs. Risk increased progressively with increasing poverty but community ACEs appears to increase risk modestly in the lowest poverty group and decrease risk modestly in higher poverty groups. ELL and Hispanic enrollment were not significant covariates.

Figure 4. The interaction of poverty and ACEs on HYS perceived risk of drug use



F (2, 228) = 4.5, p< .01

For the HYS protective factor "Peer-Individual Opportunities for Prosocial Involvement" we found a main effect for poverty [F (2, 228) = 7.8, p< .001]. Hispanic enrollment but not ELL enrollment was a significant covariate. As Hispanic enrollment increases in districts, students report fewer peer-individual opportunities for prosocial involvement [F (2, 228) = 13.1, p< .001].

In reviewing the HYS results, we again confirm that poverty as a principal explanatory tool and ACEs to a lesser degree again are confirmed as the primary explanatory tools for explaining differences in community risk. The initial data suggests that community ACEs may be more related to children's developmental trajectories (school failure, low school commitment, perceived risk of drug use) while poverty has a more extensive effect on community norms in addition to school and peer influences.

Summary: The explanatory power of poverty and ACES with community risk and protective factors.

The following figure summarizes the pattern of results for the effects of school poverty and community ACEs. As a general observation, school poverty is more powerful explanatory influence with the effects of ACEs adding explanatory power on most but not all the risk and protective factors. Generally, ACEs and poverty are independent influences on risk and protective factors but the potential for synergistic interaction effects is suggested. We conclude that (1) school poverty and community ACEs are effective summary descriptors of many risk and protective factors and (2) poverty and ACEs appear to operate as overlapping but distinct influences on risk and protective indicators in communities.

Across the three risk and protective data sources, there were a scattering of risks that were related to either Hispanic ethnicity or ELL status. As Hispanic enrollment increases in a community, there are higher rates of academic failure and teen births reported. ELL enrollment is associated with lower rates of disability in the community and increased teen births. However, the principal impact of Hispanic and ELL enrollment was in terms of adjusting their effects on poverty and ACEs as the principal predictors. In general, despite the dramatic effect on WaKIDS school readiness and grade 3 SBA results, Hispanic and ELL enrollment across communities is not associated broadly with differential risk.

While multiple RDA, HYS, and BRFSS risk indicators were associated with school readiness and academic success in grade 3, their association with either poverty and/or ACEs was of such a degree that these two overarching community characteristics were confirmed as effective summary indicators of relative risk across communities.

Table 15. Summary of Significant Findings for Poverty, ACEs, and Specific Community Risk and Protective Factors

Risk/Protective Factor	Poverty	ACEs	Poverty X ACEs
DSHS RDA Community Risk Profiles			
TANF enrollment	X		
Alcohol-related deaths	X		
Adolescent alcohol and drug arrests			X
Teen births	X	X*	
Low birth weight	X		
Domestic violence incidents	X	X	
Child abuse and neglect accepted referrals	X	X	
Child injury hospitalizations			X*
Child mortality		X*	
Weapons incidents in schools		X	
BRFSS			
General adult physical health	X		
Mean days poor physical health past 30 days	X	X	
Body Mass Index	X		
Current cigarette use	X	X	
Disability	X	X	
Mean Days Poor Mental Health in Past 30	X	X	
Life satisfaction scale		X	
HYS (Grade 6)			
Community Risk Factor: Laws and Norms Favorable to Drug Use	X		
Community Risk Factor: Perceived Availability of Drugs	X		
Family Protective Opportunities for Prosocial Involvement	X		
Family Protective Rewards for Prosocial Involvement	X	X	
School Risk Academic Failure	X	X	
School Risk Low Commitment to School	X	X	
Peer-Individual Risk Factor: Favorable Attitudes Towards Drug Use	X		
Peer-Individual Risk Factor: Perceived Risk of Drug Use			X
Peer-Individual Protective Factor: Opportunities for Prosocial Involvement	X		

X = significant predictive relationship; X* = result may reflect community resource differences

Individual, school, and community factors influencing school readiness

Student individual differences and WaKIDS school readiness

Differences in student gender, race, ethnicity, English Language Learner (ELL) designation, and enrollment in Free and Reduced Meal (FRM, our index of poverty) were tested for WaKIDS initial kindergarten results. Using regression analyses with the total number of WaKIDS domains the child was school ready as the dependent measure, we found in order of significance that the following individual differences were predictive of school readiness:

- Student FRM eligibility in kindergarten
- Hispanic ethnicity
- ELL status in kindergarten, and
- Gender.

The race of the child was not a significant predictor of school readiness.

The following table presents the mean number of domains students met developmental expectations for each group. ACEs are not included in these analyses because ACEs as used in this report describe a community characteristic not the experience of the individual child.

Table 16: Individual student differences and mean number of domains (0-6) child is kindergarten ready

Student characteristics	sub-groups	N	Mean	Std. Deviation
Free and reduced meal eligibility	Not FRM Eligible	47,899	5.0	1.5
	FRM Eligible	83,536	4.0	2.0
Hispanic ethnicity	Not Hispanic	90,875	4.7	1.8
	Hispanic/Latino	40,431	3.8	2.0
English Language Learners	No	99,062	4.7	1.8
	Yes	32,373	3.6	2.0
Gender	Female	64,574	4.6	1.8
	Male	66,590	4.2	2.0

All sub-group differences are statistically significant $p<.001$

The distribution of the number of WaKIDS domains for which students have met expectations is not normally distributed. The next figure describes the impact of FRM eligibility across the WaKIDS followed by the equivalent charts for gender, Hispanic ethnicity, and ELL status. For FRM eligibility groups, low income students lag dramatically with respect to the percent of kindergarteners rated as school ready on all WaKIDS domains (58 percent not FRM eligible v. 32 percent FRM eligible group).

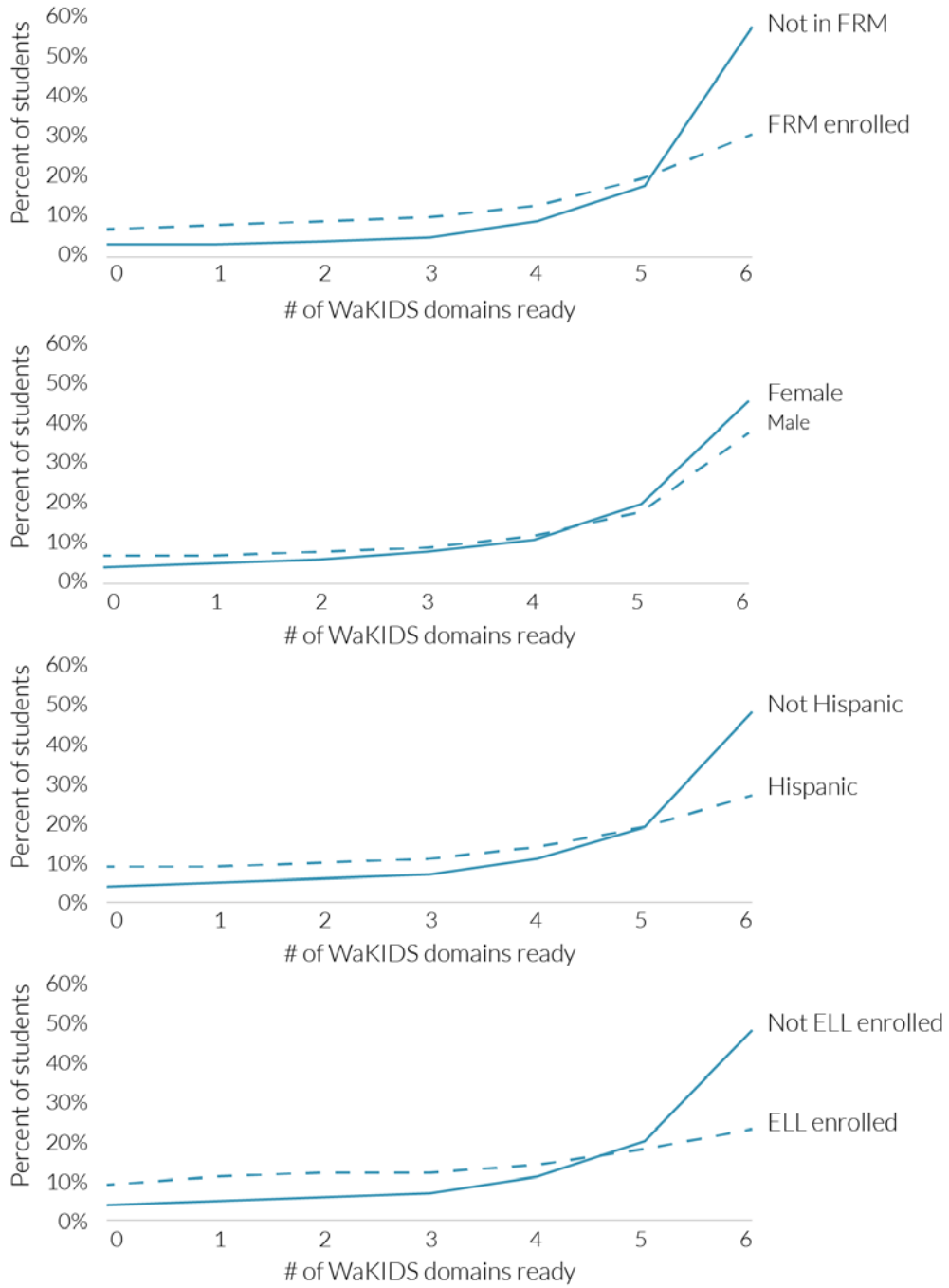
In addition to the total number of WaKIDS domains a child is considered school ready, we examined the differences across groups on the six WaKIDS specific domains. The results for poverty, Hispanic ethnicity, ELL status, and gender are presented in the following figures. For

FRM eligibility and ELL status, we found that group differences were meaningful[15] across all six dimensions. Hispanic group differences were significant for all domains except physical development and social emotional development. Gender differences were meaningful except for math and literacy.

On multiple measures, the individual student differences for poverty, Hispanic ethnicity, and ELL status point to large gaps in school readiness based on the WaKIDS assessments. For poverty, the differences are reflected on all six domains. For Hispanic and ELL students, the pronounced differences are in the initial academic skills while physical and social emotional developmental ratings are comparable across subgroups. Gender differences, while not included in subsequent analyses, are consistent with known development differences between boys and girls. Because of these large student group differences on Hispanic and ELL school readiness, we included each as covariates in analyses of risk and academic progress.

[15] For these individual student differences, we defined a meaningful result as one documenting at least a three-percentage point group difference. A three-percentage point change reflects differences involving approximately 40,000 students in this sample for the pooled 2013-2016 school years.

Figure 5. Differences in domains school ready by student poverty, gender, ethnicity, and ELL status (see also Table A5 in the appendix)



All differences significant at a p<.0001 level.

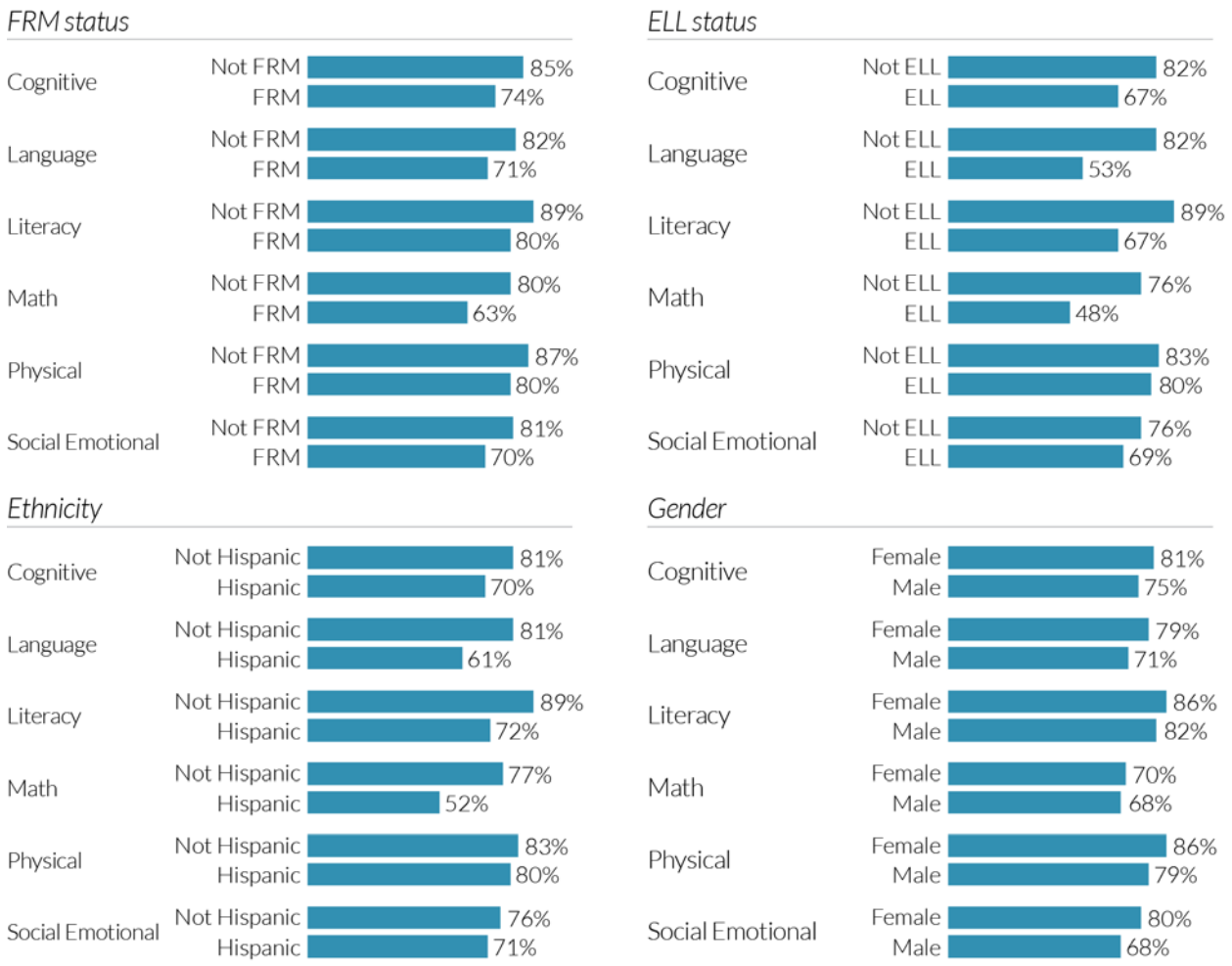
The combined effects of Hispanic ethnicity and ELL status on school readiness further emphasize the gaps in school readiness across Washington. ELL status generally is associated with lower school readiness and this difference is particularly acute among Hispanic children who qualify for ELL supports.

Table 17. Ethnicity and ELL group differences in WaKIDS Domains (0-6) School Ready

Student groups	Mean WaKIDS Domains School Ready
Non-Hispanic/Not ELL N=81,592	4.7
Hispanic/Not ELL N=17,349	4.3
Non-Hispanic/ELL N=9.283	4.0
Hispanic/ELL N=23,082	3.4

F (3, 131,305) = 3,382, p<.0001

Figure 6. WaKIDS scale pass percent differences by FRM eligibility in kindergarten, ethnicity, ELL status, and gender (see also Table A6 in the appendix)



All sub-group differences are statistically significant p<.0001

In summary, individual student differences due to poverty, ethnicity, and English language proficiency result in significant variations in WaKIDS school readiness results across schools. These differences define gaps in readiness embedded in the population that will contribute meaningfully to differences across schools as a function of the population served. The systematic differences resulting from Hispanic ethnicity and ELL status are profound. In examining the impact of community characteristics on school readiness and childhood risk, we use Hispanic ethnicity and ELL status as control variables while at the same time examining the nature of risk and readiness in these large sub-populations of our state's students.

Schoolwide demographic differences and school readiness

In the following analyses examining community characteristics, student individual differences were included to address Hispanic ethnicity and ELL status. Gender differences were not included because with roughly equal distribution of males and females in schools, gender was not a meaningful influence on differential performance across schools. Because our interest in this report is on the school community's characteristics, we used the percent of FRM eligible children in a student's school rather than individual FRM eligibility status to capture impact of poverty as a community characteristic.

Washington State provides annual updates for school characteristics on multiple measures including student demographics (see previous section), percent of students in specialized programs (e.g., special education), and teacher characteristics (percent of teachers with advanced degrees, average years of teaching experience). Some data such as migrant student status and Section 504 participation (individual educational accommodation plans) were not included in our analyses because of low numbers. Using regression analyses to assess the predictive power of these school characteristics on WaKIDS total domains students were school ready, school percent of students FRM eligible, percent ELL enrollment, and percent Hispanic enrollment were all meaningful unique predictors of variations in WaKIDS results.

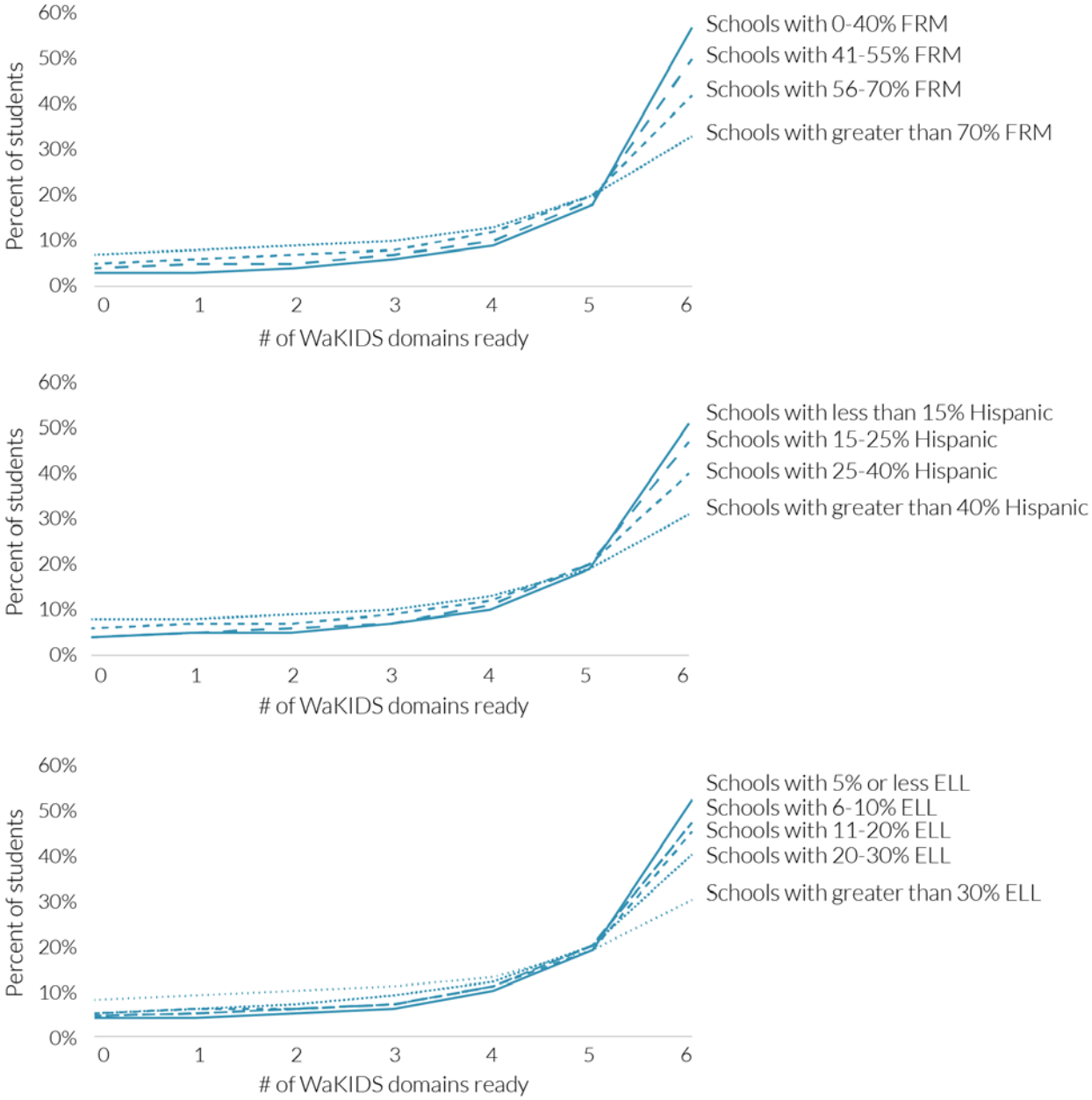
As shown in the following table, as the percent of students enrolled in the FRM increases, the percent of students who met developmental expectations on all six WaKIDS domains decreases with the lowest poverty schools having nearly twice the percent of students meeting expectations on all six domains than schools with the highest level of FRM eligibility (57 percent v. 33 percent). Special education enrollment percent and teacher experience measures (years in the profession, percent of educators with advanced degrees) were not found to be meaningful predictors of WaKIDS outcomes and were not retained in our subsequent analyses.

Table 18. School demographic differences and mean number of domains (0-6) children were Kindergarten ready

School Characteristics	Sub-groups	N	Mean	Std. Deviation
School percent free and reduced meal eligible	0-40% FRM	19,834	5.0	1.6
	41%-55% FRM	21,273	4.7	1.7
	56%-70% FRM	33,895	4.5	1.8
	Greater than 70% FRM	53,679	4.0	2.0
School percent Hispanic enrollment	Less than 15% Hispanic	37,314	4.7	1.7
	15-25% Hispanic	26,805	4.6	1.8
	25-40% Hispanic	24,220	4.3	1.9
	Greater than 40% Hispanic	41,385	4.0	2.0
School percent ELL enrollment	5% or less ELL	27,680	4.8	1.7
	6-10% ELL	14,137	4.7	1.7
	11-20% ELL	21,573	4.5	1.8
	20-30% ELL	20,400	4.4	1.8
	Greater than 30% ELL	35,541	3.9	2.0

All sub-group differences are statistically significant $p<.0001$.

Figure 7. School FRM, Hispanic, and ELL enrollment, and percent of students meeting WaKIDS expectations across 0-6 domains (see also Table A7 in the appendix)



All differences significant at a p<.001 level.

WaKIDS school readiness and community differences

In the following discussion of community effects on school readiness, we focus on two data sets. The first data set involves 137,234 children entering kindergarten in 2014-15, 2015-16, and 2016-17. In these years, the implementation of WaKIDS was nearly universal across Washington State and the students assessed represent a large majority of students entering Kindergarten. We focus on these three years of student assessments to determine initial school readiness and progress through the end of their first year in school. For the 2014-15 cohort, we follow their progress through Grades 1 and 2 and for the 2015-16 cohort their progress through the end of Grade 1.

The second data set includes students assessed in WaKIDS as they entered kindergarten in the 2013-14 school year. This was the first year in which we could link kindergarten WaKIDS results with Grade 3 standardized academic tests. But because of the more selective inclusion of schools in WaKIDS during 2013-14, we caution there are limitations on the generalizability of these findings. Please note that the WaKIDS assessment is completed more than once in kindergarten as educators track progress. In this report, we focused on the initial assessment completed as children entered kindergarten.

We examined the mean percent of students who met or exceeded WaKIDS developmental expectations on each of the six WaKIDS domains and the sum of domains on which entering kindergartners were meeting or exceeding expectations. The following results are based on analyses using generalized estimating equations with school locale, type of community, and the individual school as the geographic levels controlled for when testing the predictive power of school level poverty and community ACEs as the principal predictors.

In these analyses, individual students' Hispanic ethnicity and ELL status were used as covariates given the large and systematic differences in school readiness and school demographics on these two variables. When we found that Hispanic and ELL status were significant covariates in our primary analyses, we examined Hispanic and ELL status as the main predictors to clarify the impact of Hispanic and ELL status were independent influences on school readiness.

Community type and school readiness. In our analyses, we treated the geographic as the unit for linking data to individuals, schools, and school districts. We then used statistical control strategies to address these geographic differences including district (locale), type of community, and individual school when appropriate as three levels of influence to be controlled. To exemplify the need for these control steps, we specifically examined the effects of community type on WaKIDS school readiness. We found that there are large and significant differences indicating that schools in cities and towns systematically report lower levels of school readiness than do schools in suburban and rural communities. The following table presents the sum of WaKIDS domains school ready and the results for the six WaKIDS domains. It was not possible to do similar analyses for SBA Grade 3 results because SBA results were summarized at the district level and more than one type of community occurs within some districts.

Table 19. Type of community and WaKIDS differences

	Mean Sum of Domains School Ready	Cognitive	Language	Literacy	Math	Physical	Social Emotional
City N=47,351	4.2	75%	70%	80%	65%	79%	71%
Suburban N=44,329	4.6	81%	79%	87%	74%	84%	76%
Town N=20,568	4.3	76%	72%	81%	65%	83%	74%
Rural N=19,197	4.6	80%	78%	87%	72%	85%	76%

In ANOVA analyses, all tests are statistically significant at p<.001

WaKIDS Cognitive Development. For cognitive development, school readiness was predicted by the level of school poverty [Wald Chi Square (3, 136,822) =50.2, p<.001]. Differences in school readiness were marginally related to community ACEs [Wald Chi Square (1, 136,822) =6.8 p<.03] but not interpreted as meaningful[16]. Cognitive development school readiness was significantly mediated by Hispanic and ELL student identity.

Table 20. School poverty levels and percent of students meeting development expectation on Cognitive Development

	Percent Met Expectations for Cognitive Development
0-40% FRM	82%
41%-55% FRM	80%
56%-70% FRM	79%
Greater than 70% FRM	73%

The observed effect of community ACEs is presented next to help illustrate the distinction we make between a statistically significant and meaningful difference. The mean difference between the lowest and highest ACEs groups on percent of students meeting the WaKIDS standard is two percent after controlling for poverty's effect. Given the comparatively greater impact of poverty, ethnicity, and English language proficiency for cognitive development, our conclusion is that addressing the relative modest impact of ACEs in this instance complicated the discussion of the implication of these overall effects on policy and practice.

Table 21. Community ACEs levels and percent of students meeting development expectation on Cognitive Development

	Percent Met Expectations for Cognitive Development
10%-30% High Adult ACEs	79%
30% to 40% High Adult ACEs	80%
More than 40% High Adult ACEs	77%

[16] Because of the very large sample in these analyses, achieving statistical significance is comparatively easy but the result may not be practically meaningful. In reporting results, we present the results but chose not to interpret results when the difference was less than a mean three percentage points in meeting developmental expectations.

We examined the effects of Hispanic ethnicity and ELL status on cognitive development ratings. We determined that ELL status resulted in substantially lower percentages of students rated as school ready on Cognitive Development [Wald Chi Square (1, 136,822) =300.2, p<.001]. Irrespective of ELL status, the percent of Hispanic students meeting expectations on Cognitive Development was lower than for non-Hispanic students [Wald Chi Square (1, 136,822) =27.7, p<.001].

Table 22. Hispanic Ethnicity and ELL status effects on percent of students meeting development expectation on Cognitive Development

	Not ELL	ELL
Not Hispanic	82%	71%
Hispanic	78%	67%

WaKIDS Language Development. WaKIDS language development as a school readiness marker was predicted by school poverty levels [Wald Chi Square (3, 136,822) =78.9, p<.001] with community ACEs demonstrating a modest effect like cognitive development [Wald Chi Square (3, 136,822) =9.2, p<.01] where the result was significant but not treated as meaningful for this report.

Table 23. School poverty levels and percent of students meeting development expectation on Language Development

	Percent Met Expectations for Language Development
0-40% FRM	80%
41%-55% FRM	76%
56%-70% FRM	76%
Greater than 70% FRM	71%

Hispanic ethnicity and ELL status were found to be significant covariates in the analyses. When we examined the effect of Hispanic ethnicity and ELL status as primary predictors, we found that Hispanic children and ELL-identified students were at significantly greater risk of lower school readiness with respect to language development.

Table 24. Hispanic Ethnicity and ELL status effects on percent of students meeting development expectation on Language Development

	Not ELL	ELL
Not Hispanic	83%	58%
Hispanic	78%	52%

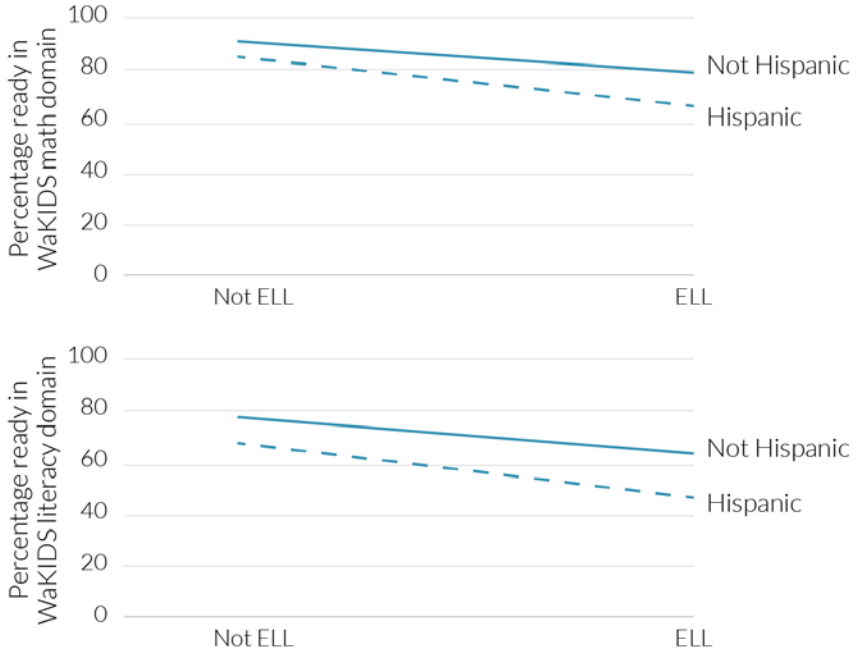
WaKIDS Literacy Development. We again found that school poverty was highly associated with school readiness as measured on the language development scale [Wald Chi Square (3, 136,822) =51.0, p<.001]. Community ACEs once again was statistically significant but not considered to be meaningful for this report [Wald Chi Square (3, 136,822) =8.5, p<.02]. Both Hispanic ethnicity and ELL status were significant covariates.

Table 25. School poverty levels and percent of students meeting development expectation on Literacy Development

	Percent Met Expectations for Literacy Development
0-40% FRM	88%
41%-55% FRM	86%
56%-70% FRM	84%
Greater than 70% FRM	80%

We found a significant and meaningful interaction of Hispanic ethnicity and ELL status. Our evidence indicates that Hispanic students who are English language learners are at greater risk for being assessed as not school ready in the literacy domain.

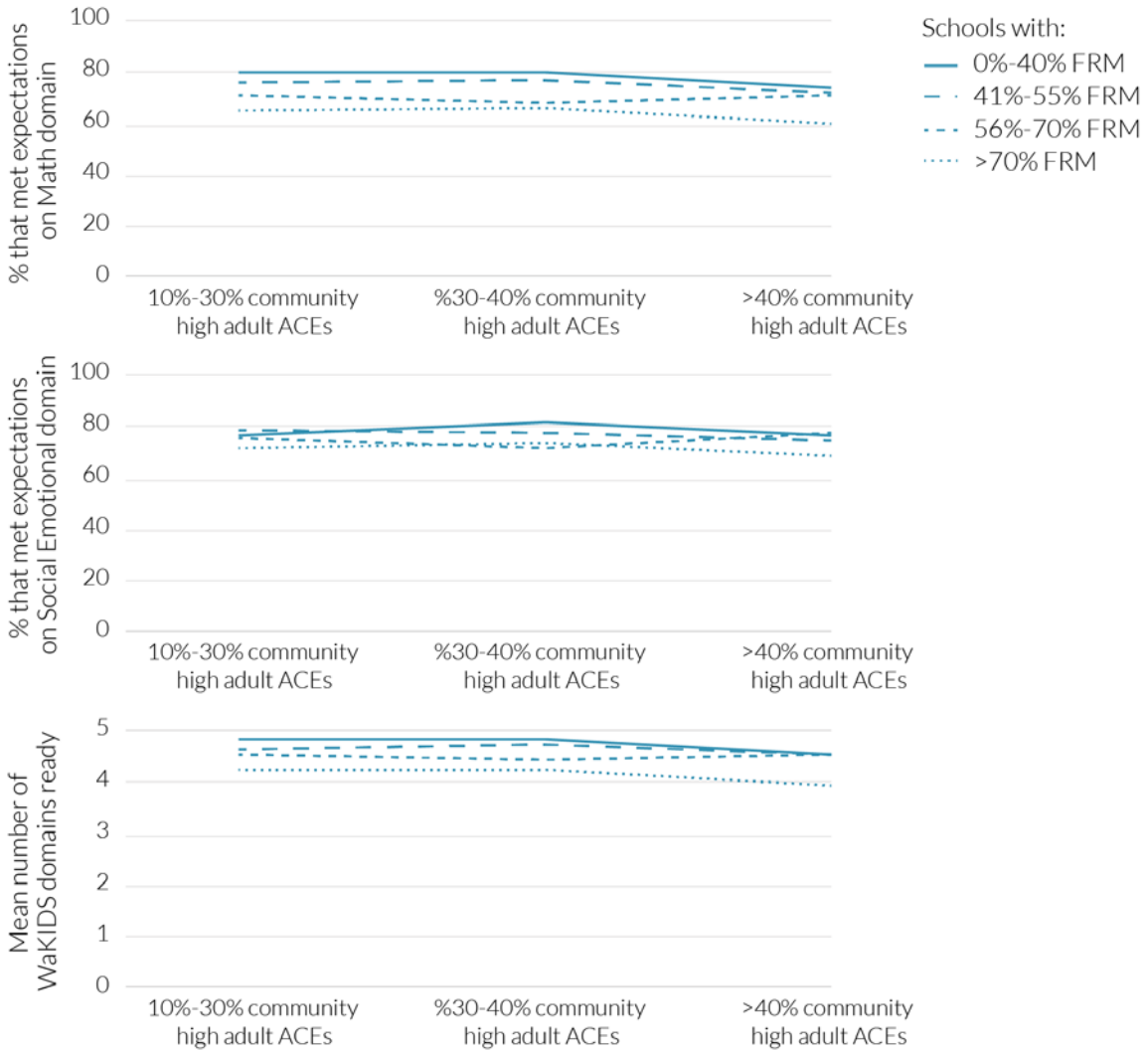
Figure 8. Hispanic ethnicity and ELL status interaction on WaKIDS math & literacy development (see also Table A8 in the appendix)



Interaction test: Wald Chi Square (1, 136,822) =26.0, p<.001

WaKIDS Math Development. With respect to school readiness in the domain of math, we determined that there were significant main effects for both poverty [Wald Chi Square (3, 136,822) =193.6, p<.001] and ACEs [Wald Chi Square (2, 136,822) =10.2, p<.006]. Indeed, we found that the interaction of poverty and ACEs on math readiness was itself significant (see next figure) but modest enough to not emphasize the interaction effect. We again found that Hispanic ethnicity and ELL status were significant covariates.

Figure 9. The interaction of poverty and ACEs on WaKIDS math & literacy development, and number of domains school-ready (see also Table A9 in the appendix)



All interaction effects significant at a p<.05 level or lower.

We found a significant interaction effect for Hispanic ethnicity and ELL status. While there are systematic group differences for Hispanic and ELL students, the results suggest that like literacy development on the WaKIDS assessment, Hispanic ELL students are particularly at risk as they enter Kindergarten.

WaKIDS Physical Development. For WaKIDS physical development, we demonstrated a significant effect for school poverty [Wald Chi Square (3, 136,822) =37.2, p<.001] and a statistically significant but not meaningful impact for community ACEs [Wald Chi Square (6, 136,822) =7.8, p<.02]. As school poverty increases, entering kindergarteners are less likely to be assessed as developmentally ready. Neither Hispanic ethnicity nor ELL status were significant predictors.

Table 26. School poverty levels and percent of students meeting development expectation on Physical Development

	Percent Met Expectations for Physical Development
0-40% FRM	86%
41%-55% FRM	83%
56%-70% FRM	85%
Greater than 70% FRM	78%

WaKIDS Social Emotional Development. We found a significant school poverty by community ACEs interaction for social emotional development. As poverty in schools increases, there is a general reduction in the percent of children identified as meeting development expectations for social emotional skills. For two of the four levels of poverty, increasing levels of community ACEs increase the risk of developmental concerns on social emotional skills.

ELL status but not Hispanic ethnicity was found to be a significant covariate [Wald Chi Square (6, 136,822) =60.8, p<.001]. Seventy-one percent of ELL students met developmental expectations compared to 75 percent of non-ELL students.

WaKIDS Sum of Domains School Ready. The overall measure of readiness for students in the WaKIDS assessment is the sum of domains on which they are considered school ready (range 0-6). We determined that there was a significant interaction of school poverty and community ACEs on this global measure of school readiness. For two of the four poverty levels (41-55 percent FRM, Greater than 70 percent FRM), there is a meaningful reduction in the mean number of WaKIDS domains on which children are school ready as ACEs in the community increase. In these analyses, both Hispanic ethnicity and ELL status were significant covariates.

We found that both Hispanic ethnicity [Wald Chi Square (61 136,822) =110.6, p<.001] and ELL status [Wald Chi Square (6, 136,822) =600.2, p<.001] were significant independent effects on the total WaKIDS domains children were school ready. Hispanic students were assessed school ready on 3.9 domains compared to non-Hispanic students with a mean of 4.4 domains school ready. ELL students demonstrated school readiness on 3.8 domains compared to 4.5 domains for non-ELL students.

Individual student differences, community risk, and academic progress.

Indicators of academic progress included students' involvement in educational support programs, the occurrence of problematic behaviors, and school disciplinary responses that are common barriers to academic success, through grade 3. As we did for WaKIDS results, we first tested the role of individual differences and then the various risk and protective factors from RDA, BRFSS, and HYS as predictors of academic progress. We then tested the utility of poverty and community ACEs as predictors of educational experiences, including any unique risk and protective factors, after controlling for geographic variables including locale, type of community, school.

Individual student differences and academic progression

In the initial analyses, we included student gender, race, Hispanic ethnicity, individual student poverty (FRM eligibility), and sum of WaKIDS domains school ready as the predictors.

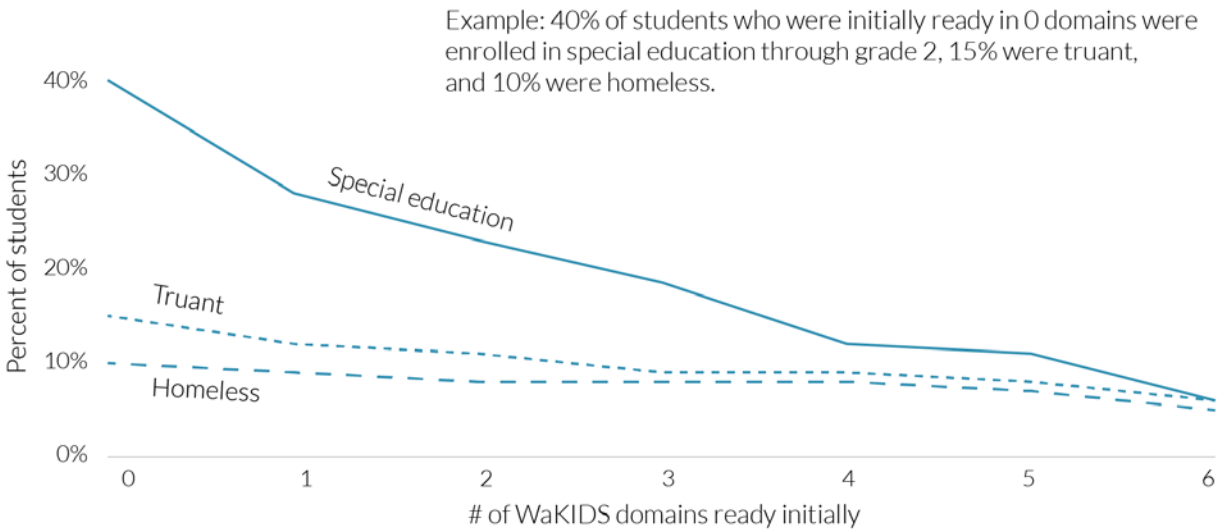
- Enrollment in special education
- Identification of disabilities
- School mobility
- Homelessness
- Truancy (defined as seven or more unexcused absences in a year)
- Discipline actions resulting in suspension or expulsion

Student group differences on the above academic experiences are established in kindergarten and these individual group differences do not change over time even as the numbers of students identified increases. For example, the percent of students in special education increases from kindergarten through grade 2 (e.g., 11 percent of White students are enrolled in special education in kindergarten and 14 percent by grade 2) but the differences in enrolled percent across student groups remains unchanged. As a result, in examining academic progression from kindergarten enrollment, we tested both occurrence of events during kindergarten and progression in school though the end of grade 2 for the 2013-14 WaKIDS cohort (N= 37,196) from kindergarten through grade 2.

Special education enrollment. We found that all the individual differences except for the school's locale and the student's specific school were significant predictors of special education enrollment.

- Town and rural school districts report higher special education student populations than do urban and suburban school districts [15 percent v. 13 percent, Chi Square (3) = 32.9, p<.001].
- As widely reported in the education literature (Oswald et al., 2003), young boys are significantly more likely to be enrolled in special education than girls [19 percent v. 9 percent Chi Square (1) = 743.3, p<.001].
- Student race is predictive of differences in special education enrollment Chi Square (4) = 54.9, p<.001). Asian (10 percent) and Native Hawaiian and Pacific Islander students (12 percent) are reported to have lower special education enrollment than White (14 percent), Native American (15 percent), and African American (13 percent) students.
- Hispanic students were reported with lower special education enrollment than non-Hispanic students [13 percent v. 15 percent, Chi Square (1) = 25.8, p<.001].
- ELL enrolled students are less likely to be enrolled in special education than non-ELL students [11 percent v. 15 percent, Chi Square (1) = 148.1, p<.001].
- Students eligible for free and reduced meals were significantly more likely to receive special education supports [15 percent v. 11 percent, Chi Square (1) = 145.4, p<.001].
- As the number of WaKIDS domains the student is school ready increases, special education enrollment in the first three years is significantly lower [Chi Square (6) = 2,489.3, p<.001]. Please see next figure.

Figure 10. Special education enrollment, truancy, and homelessness from kindergarten through Grade 2 by the sum of WaKIDS domains students are school ready (see also Table A10 in the appendix)



Students with identified disabilities. Students with an identified disability reflect the same pattern of results reported for special education enrollment. Seventy-six percent of students with any type of disability are also enrolled in special education.

Student mobility. Student mobility was defined as the group of students who change schools at least once after initially enrolling in kindergarten.

- Mobility varies significantly across districts/locales, types of communities, and individual schools. For type of community, mobility is significantly higher in urban schools (39 percent) compared to suburban (29 percent), town (22 percent), and rural schools (19 percent), Chi Square (4) = 1,020.8, p<.001.
- African American and Native Hawaiian/Pacific Islander students are more likely to be mobile (39 percent for both groups) compared to White student (30 percent), Asian students (31 percent), and Native American/Alaskan Native students (28 percent), Chi Square (4) = 126.3, p<.001.
- Hispanic students are less likely than non-Hispanic students to change schools [27 percent v. 33 percent, Chi Square (1) = 141.0, p<.001].
- ELL enrolled students are less mobile than non-ELL students [26 percent v. 32 percent, Chi Square (1) = 155.2, p<.001].
- Students eligible for free and reduced meals were significantly more mobile [32 percent v. 28 percent, Chi Square (1) = 50.7, p<.001].
- Students who are assessed at entry into kindergarten as school ready on no WaKIDS domains are also more likely to be mobile (38 percent) than any of their peers (mobility range 30-31 percent for 1-6 domains school ready), Chi Square (4) = 54.9, p<.001.

Homeless students. School locale, specific school, and type of community did not prove to be meaningful predictors of homelessness. Student gender was not a significant predictor of

homelessness. Hispanic ethnicity was also not found to be associated with greater risk of homelessness. For the other student characteristics tested as predictors of homelessness, we found:

- White students (6 percent) and Asian student (3 percent) were significantly less likely to be homeless than Native Hawaiian/Pacific Islander (10 percent), Native American/Native Alaskan (10 percent), and African American students (12 percent), Chi Square (4) = 225.7, p<.001.
- ELL students were significantly less likely to be homeless than other students [5 percent v. 8 percent, Chi Square (1) = 78.1, p<.001].
- As we would anticipate, students who are FRM eligible are significantly more likely to experience homelessness [9 percent v. 1 percent, Chi Square (1) = 911.3, p<.001].
- Homeless risk is significantly higher in students who also are assessed as having fewer WaKIDS domains on which they are school ready [Chi Square (6) = 159.9, p<.001]. Please see next figure.

Truancy. Truancy was defined as seven or more unexcused absences in an academic year. School locale, specific school, and type of community were not meaningful predictors of truancy. Student gender, ELL status, and Hispanic ethnicity also were not significant predictors of truancy. For the other student characteristics tested as predictors of truancy, we found:

- Students who are FRM eligible are significantly more likely to experience truancy early in their school careers [10 percent v. 3 percent, Chi Square (1) = 588.9, p<.001].
- Truancy also varied significantly based on student race with Asian and White students experiencing lower percent truancy both during kindergarten and through the end of their Grade 2 experience, Chi Square (1) = 588.9, p<.001. See the table below for racial group differences.
- The sum of WaKIDS domains students are school ready was significantly associated with truancy risk such that risk is reduced as students enter kindergarten with greater mastery of WaKIDS indicators, Chi Square (1) = 300.9, p<.001.

Table 27. Percent Truancy by Student Race in Kindergarten and Cumulatively through Grade 2

	Percent Truancy in Kindergarten	Percent Truancy Grades K-2
American Indian/Alaskan Native	9%	17%
Asian	3%	8%
Black/African American	7%	15%
Native Hawaiian/Pacific Islander	7%	13%
White	3%	7%

Serious disciplinary actions. Serious disciplinary actions were defined as incidents resulting in the student being expelled or suspended. In their kindergarten year, 2,324 children (1.7 percent of all students) were suspended/expelled at least once during the year. Expulsions are very rare with 21 children expelled in their kindergarten year. Cumulatively, among the students enrolled through grade 2, three percent of students were suspended or expelled in at least one of the three years.

We did not find meaningful differences in disciplinary actions across geographic groups (locale, type of community, specific school), for Hispanic ethnicity, or ELL status. Students who were FRM eligible were slightly more likely than their non-FRM peers to be truant (4 percent v 2 percent) but we chose not to treat this difference as meaningful.

- Young boys are significantly more likely to be referred for serious disciplinary concerns compared to girls [5 percent v. 1 percent, Chi Square (1) = 455.9, p<.001].
- African American students were significantly more likely to have a serious disciplinary action compared to the other racial groups which ranged from 2-4 percent truancy, Chi Square (4) = 102.8, p<.001.
- The sum of WaKIDS domains students were school ready was a significant predictor of truancy where the meaningful difference was 6 percent truancy rate among students with zero domains school ready compared to 2 percent truancy among students, Chi Square (6) = 99.4, p<.001.

WaKIDS and Grade 3 state standardized test success.

We examined the correlations among the WaKIDS scale scores, total WaKIDS domains school ready, and the SBA Math and ELA pass results using the 2012-13 student cohort (N=20,335). Because of missing data in WaKIDS or SBA results, approximately 15 percent of students from the WaKIDS 2012-13 cohort were not included in these analyses. Please recall that caution is needed in interpreting the following results because the sample may not be representative of the general population given WaKIDS' rolling implementation.

Summarized in the following table, SBA grade 3 test results for ELA and Math are highly correlated with each other and WaKIDS initial school readiness results demonstrate small to moderate correlations with the two SBA results.

Table 28. Correlations between SBA pass rates and WaKIDS domains.

	SBA Math Passed	Number WaKIDS Domains School Ready	Cognitive Scale Score	Language Scale Score	Literacy Scale Score	Math Scale Score	Physical Scale Score	Social Emotional Scale Score
SBA ELA Passed	0.61	0.31	0.32	0.31	0.42	0.40	0.14	0.24
SBA Math Passed	---	0.30	0.31	0.29	0.39	0.39	0.16	0.24

All correlations are significant at p<.001

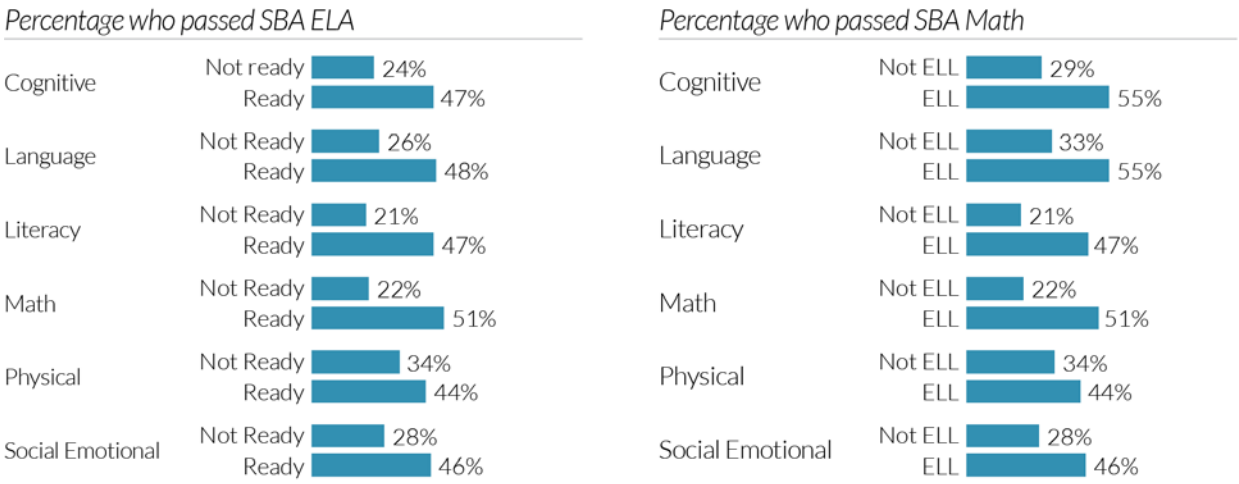
Using hierarchical regression, we tested the predictive power of the WaKIDS scales for grade 3 SBA results in association with our principal measures, school poverty[17], community ACEs,

[17] Please note in the 2012-13 WaKIDS cohort, because of few low poverty schools and students in the cohort, it was necessary to modify the group definitions for school poverty by combining schools with 0-40% FRM eligibility and 41-55% FRM eligibility into a single group 0-55%

Hispanic ethnicity, and ELL status. We found that school poverty, Hispanic ethnicity, and all the WaKIDS scales except for physical development were significant predictors. As poverty increases, SBA results for both ELA and Math are lower; Hispanic students are more likely to not pass the grade 3 SBA tests; and the percent of students who met expectations on WaKIDS scales (Cognitive, Language, Literacy, Math, and Social Emotional Development) had greater success than students on the grade 3 SBA results than student who were rated as not meeting expectations as they entered kindergarten.

The following tables the SBA results based on WaKIDS initial school readiness pass results. We found large differences in grade 3 SBA results associated with initial WaKIDS results. As summarized earlier in this report, Hispanic and ELL enrolled students demonstrate systematic differences with lower initial WaKIDS school readiness. The Hispanic and ELL differences persist into grade 3. Hispanic and ELL status group differences appear to operate independently for the SBA results.

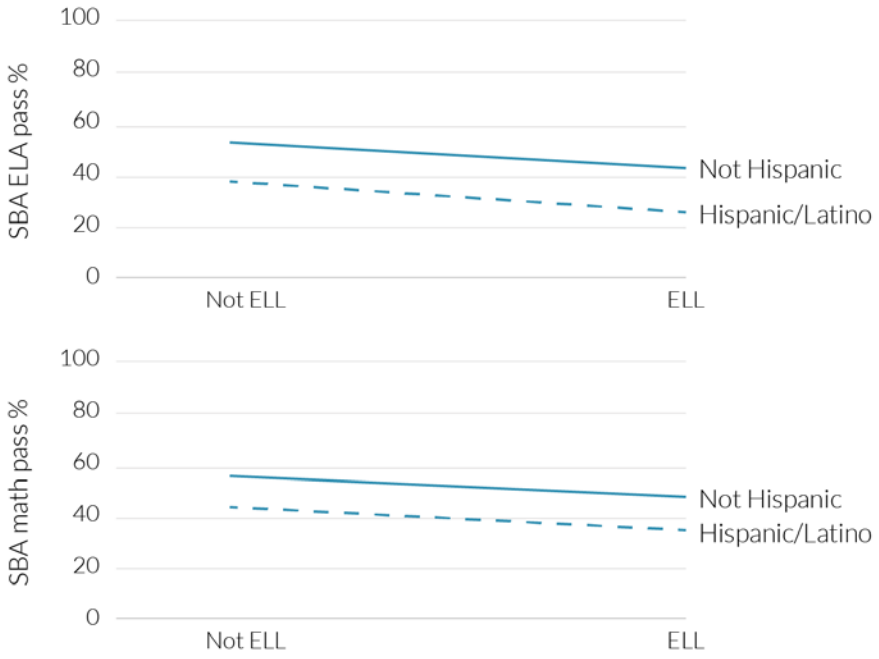
Figure 11. SBA ELA and math differences based on initial WaKIDS school readiness by domain (see also Table A11 in the appendix)



All WaKIDS differences are significant at the p<.001 with Hispanic ethnicity and ELL status as covariates in these ANCOVA analyses.

FRM eligibility. This reflects the implementation practice early in the WaKIDS implementation to select higher need schools in early adoption waves.

Figure 12. SBA ELA and Math differences based on Hispanic ethnicity and ELL status (see also Table A12 in the appendix)



All differences significant on a p<.001 level.

These findings demonstrate that academic success in grade 3 is meaningfully predicted but not completely by initial WaKIDS results. The results provide a predictive validity check on the value of WaKIDS as one part of individual student education planning. In this section, we also confirmed that the large initial differences based on ethnicity and English fluency are persistent effects that shape both individual and school level outcomes on academic success.

Community risk and academic progression

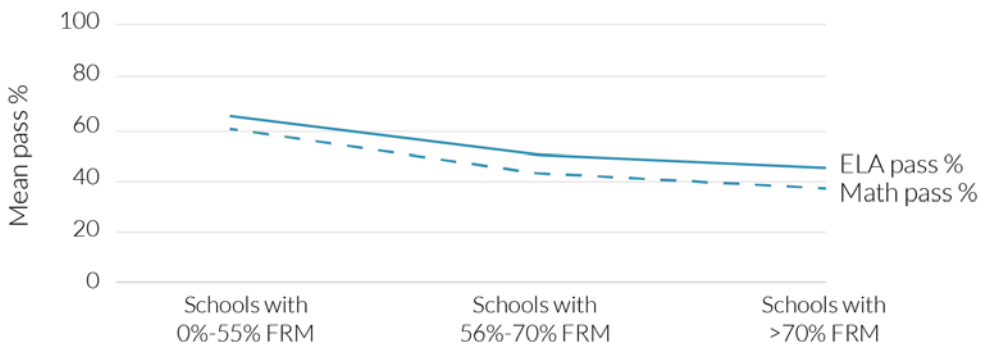
We extended the analysis of progression into academic support programs and school risk behaviors by examining community level risk and protective factors with district level percentages for homelessness, special education enrollment, truancy, and serious disciplinary actions. Using correlation analyses for each school support program or risk behavior, we tested for significant relationships between the single dimension risks and protective factors from RDA, BRFSS, and HYS with district measures of academic support program participation (FRM eligibility, special education enrollment) and school risk behaviors (truancy, serious disciplinary actions, homelessness). We concluded that the individual community risk measures from RDA, BRFSS, and HYS are not meaningfully related to enrollment in academic support programs or the incidence of homelessness, truancy, or serious school disciplinary actions.

In addition, for the 2012-13 cohort, we examined the association of the HYS, RDA, and BRFSS community indicators with standardized test pass rates for children in Grade 3. No significant and meaningful correlations with Grade 3 SBA results.

In logistic regression analyses, we examined the unique predictive power of student characteristics (gender, Hispanic ethnicity, ELL status, number of WaKIDS domains school ready, school level of poverty, and the level of community ACEs. All predictors were significant except for community ACEs.

We then examined the relationship of school poverty and community ACEs, with Hispanic and ELL status as covariates, on grade 3 SBA results. School poverty was significantly associated with SBA results for ELA and Math but community ACEs were not.

Figure 13. SBA ELA and Math pass differences based on school poverty (see also Table A13 in the appendix)



ELA: Wald Chi Square (2) =106.2, p<.001; Math: Wald Chi Square (2) =101.1, p<.001.

Discussion

Before entering a more detailed discussion of the findings, let's return to the core questions that guided this research.

1. What are the principal community risk and protective characteristics that predict initial differences in school readiness?
    a. Specifically, do community ACEs and poverty serve as principal factors through which to characterize community risk?
2. What are the individual and collective differences that influence community risk and protective factors as predictors of school readiness and progressive academic success?
3. Is students' initial school readiness predictive of school adjustment and academic success?

The principal community predictors of school readiness. With respect to question 1, a variety of specific community risk and protective factors were found to be associated with school readiness. However, we confirmed that school poverty and the level of community ACEs serve as integrative concepts to organize our understanding of risk and resilience in children, schools, and communities. While highly valued as markers of community wellbeing, generally our attention to specific risk factors and offsetting assets are products of root conditions to be addressed, not the root concern itself. For example, as devastating as the effects of domestic

violence are in any family or community, the domestic violence is the result of struggles with human connection, hope, and the ability to manage ourselves other than at a cost another person.

The level of school poverty, percent Hispanic enrollment, and percent ELL enrollment across districts were all found to be significant predictors of community differences in school readiness. The level of community ACEs was found to be significant on multiple WaKIDS measures but not of a magnitude after controlling for poverty to be an unambiguous influence on school readiness except for an interaction effect for ACEs in the highest poverty communities. As a result, we confirm the significance of poverty as a central explanatory tool for addressing school readiness and provide more limited evidence for the effects of ACEs as an explanatory tool for differences in communities' collective school readiness.

Understanding individual and collective differences. Regarding question 2, individual student differences play a foundational role in understanding school readiness, social risk, and academic progress. The information we had access to in describing students' individual differences is limited but based on what is available boys compared to girls, FRM eligible students, ELL enrolled students, and Hispanic students all were at greater risk for lower school readiness. Notably, we did not find race group differences. For Hispanic and ELL students, the initial school readiness deficits are not universal but rather restricted to the four domains (cognitive, language, literacy, and math) most directly associated with academic preparation. On social emotional and physical development, Hispanic and ELL students effectively are rated as equivalent on physical development and modestly less likely to be social emotionally meeting expectations compared to their age peers.

The scope of poverty in Washington's public schools needs to be called out as definitional to the context of public education. In 2017, 43 percent of all enrolled students in public K-12 programs were FRM eligible. Also in 2017, approximately half of all Washington school districts reported than 50 percent or more of their students were FRM eligible. However, for the WaKIDS sample examined in this report, 64 percent of entering kindergarteners were FRM eligible. This higher FRM eligible percentage reflects selection practices in where WaKIDS has been implemented, Consequently, some caution with generalizing the present results is indicated for schools not included in the initial years of WaKIDS implementation. We believe this report does not to overstate the impact of poverty but rather somewhat limits our ability to examine the pattern of effects in the most affluent school districts. We confirm the extensive evidence for school readiness that mitigating the common effects of poverty on academic readiness must remain a central educational goal.

Poverty, whether absolute or relative, involves a level of daily burden due to not having access to key resources for our children or struggling to access what is available. This persistent burden can impose a physiological debt that is true for anyone but also can disrupt many of the key experiences children and families need to develop successfully because of caregiver strain and capacity. Poverty also may inflict a psychological debt where hope and mental wellbeing can be placed at risk. Vulnerability to adversity at any age often results from poverty because limited resources make avoiding or exiting from adverse experiences difficult. As a common example, in the face of domestic violence, women often stay in the abusing relationship because of their legitimate need to protect their children from other threats such as homelessness. While poverty

does not cause ACEs, poverty can increase vulnerability and acts as ‘gasoline on the fire’ when adversity occurs because of absent or limited material and social capital to prevent or respond to the risk.

By contrast, even though ACEs are often higher in low income families, ACEs occur at all income levels. ACEs involve either the loss of stable caregiving or victimization through neglect or active injury. Crucially, many families living in poverty do not experience multiple ACEs. Therefore, ACEs and poverty can have potentiating effects for risk when they occur together but, even in the absence of poverty, ACEs provide a common mechanism for disrupting optimal child development with resulting academic risk.

In general, as either poverty or ACEs increase in a community, social risk increases, and assets are lower. We concluded that ACEs and poverty at the community level are overlapping but distinct dimensions. Indeed, at the community level, ACEs and poverty are not significantly correlated with each other. Communities differ with high poverty/low ACEs, low poverty/high ACEs, and intermediate combinations documented across Washington communities. While many specific risk and protective factors are associated with school readiness and subsequent academic success, ACEs and community poverty served as principal predictors and the various individual assets and risks we examined did not add additional explanatory power.

In examining specific risk and protective factors in communities, we did not identify any patterning suggesting ACEs and poverty were related to distinctive sets of community characteristics. Rather, it appears that community poverty and ACEs operate as independent predictors of risk across communities with the potential to combine with resulting accelerated risk. The concurrence of poverty’s and ACEs’ effects in communities likely results from their shared impact on parenting capacity, the adaptive behaviors learned to survive significant disruption in relationships and resources, the capacity of youth and adults to self-regulate, and the physiological adaptations that occur because of persistent stress.

Distinct from most discussions of ACEs, we do not address the specific effects adversity has on individual children. Rather, our interest is how the collective ACEs history of adults in a community may influence the social and developmental environment for the communities’ children. Supported by the larger ACEs literature, our contention is that developmental risk among children in a community is likely to increase as ACEs exposure in adult caregivers increase. As the percent of adults with significant ACEs increases, the quality of community is challenged because the character of a community is a dynamic process shaped by the adults in the community. Core to this contention is that ACEs is a trans-generational risk and that unaddressed the childhood histories of caregivers becomes part of the foundational capacity of adults to care for the next generation.

There are important constraints on our use of ACEs as a community characteristic. In contrast to our definition of poverty based on universally applied eligibility criteria for children, we estimated community ACEs in a school community based on a credible cross-section of residents. Such estimation can’t be as powerful a measurement strategy as a direct reporting strategy. Further, ACEs estimation in rural communities was potentially attenuated by the necessity to pool communities together for stable estimates of specific risk and protective factors.

Inevitably, this resulted in us combining communities with differing risk profiles in a single group. Finally, a foundational lesson from the ACEs literature is that ACEs are an indicator of relative risk not a guarantee the risk has manifested. Even among high ACE exposed individuals, individual differences, level of social emotional supports, opportunity and capacity to be resilient, and opportunities for countering experiences that promote growth assure that some people in high risk groups don't necessarily manifest major social and health consequences because of the ACEs history. Notably, many of these countering experiences are facilitated by having the resources and experiential opportunities that result from increasing affluence, which is an aspect of how poverty and ACEs interact that is beyond the ability of this report to describe. We conclude that despite these constraints on ACEs as a community characteristic, ACEs in adults is well-documented contributor to school readiness and academic success independent of the effects of poverty.

An essential part of understanding ACEs, resilience, was beyond the data we had to work with. Resilience is defined as the ability to grow and thrive despite prolonged adversity (Luthar et al., 2000). Even in the face of significant cumulative adversity, children can have experiences that build resilience. Under the best circumstances, the development of resilience occurs through the daily 'ordinary magic (Masten, 2001)' built through family, school, and community connections that permit the experience of mutually supportive relationships, the ability to contribute, the resulting sense of mastery, and the resulting capacity for hope and the belief in value of persistence in the face of frustration or loss.

Schools are essential resources that can offer opportunities for children to succeed and to earn their resilience. This is important for all children and essential for children who have histories of trauma. Rutter (1987) proposed that changing the trajectory of risk from adversity requires several mutually supportive strategies, beginning with efforts to address basic safety or survival needs. Second, students need specific access to and skills building in effective relationships and self-management strategies. Trauma behaviors were once effective strategies for surviving adversity, but are mismatched to the progressive developmental tasks of childhood and adolescence. Rutter argues self-regulation and relationship skills are developed by creating experiences with students that support a reality-based and earned sense of self-esteem and self-efficacy by accomplishing real and meaningful contributions through work and relationships that promote genuine personal mastery. It is this focus on building a trajectory of growth out of trauma which is at the heart of adopting resilience as a core component of trauma-informed school practice. Ginsberg (2011) identified seven "Cs" to define the goals of resilience work: Competence, Confidence, Character, Connection, Contribution, Coping, and Control. Three of these goals- Competence, Confidence, and Contribution- require opportunities for students to try with real opportunities to fail. Resilience-building work in trauma-informed schools require a school culture that supports the systematic scaffolding of the conditions to become resilience through real effort calibrated to the current capacity of the student.

The changing ethnic make-up of Washington, particularly with respect to Hispanic ethnicity and English language competency, provides a powerful framework for understanding the nature of school readiness in Washington. In the 2017 school year, 23 percent of all students in Washington were Hispanic and 11 percent were identified as ELL students. However, in the WaKIDS sample, Hispanic kindergarteners comprised 32 percent of the sample and ELL

students 26 percent. This in part reflects selection of schools in which WaKIDS was introduced in its rolling implementation but likely we are seeing the future demographics of public education based on population projections.

We found that Hispanic and ELL status were repeatedly significant covariates in our analyses and were needed to sort out the relative impact of poverty and ACEs. Despite the dramatic differences in school readiness and academic progress associated with Hispanic identity and ELL status, the scope of these effects was not robust enough in their own right to produce standalone effects on most community risk and protection measures. The reader should note that these analyses were based on percent enrollment in schools, not the experiences of individual students which inevitably captures a wide range of individual experiences. We found modest evidence (i.e., protective attitudes regarding drug use) suggesting that increasing Hispanic and ELL enrollment may be protective regarding adversity. Emerging research (e.g., Cabarello et al., 2017) confirms (1) the present findings that Hispanic ethnicity and Hispanic recent immigrant status may be associated with lower ACEs exposure, and (2) that these Hispanic and ELL group effects are school attributes that provide explanatory power in addition to understanding individual student differences.

What influences on school readiness are predictive of academic progression? With respect to question 3, we documented that WaKIDS initial school readiness is highly predictive of grade 3 standardized test performance and the early need for learning supports. The lower the initial report of school readiness, the greater the markers of student need (special education, mobility, homelessness, truancy, and serious disciplinary incidents). Individual poverty, race, gender, Hispanic ethnicity, and ELL status all contributed to understanding different levels of need across Washington's schools.

Our initial test of grade 3 SBA results supported the role of school poverty but not community ACEs as a significant predictor of later academic success. Because of the scale of investment in WaKIDS, this is positive news as the state progressively builds its knowledge of the predictive utility of the WaKIDS assessment. Further, poverty, Hispanic ethnicity, and ELL enrollment both for individuals and as school community characteristics are highly predictive of WaKIDS initial school readiness and subsequent academic progression. We strongly recommend given their explanatory power that these three student and school characteristics be used as part of the explanatory framework used in planning with WaKIDS results.

The role of community ACEs in predicting academic progression was limited in the present analyses. When ACEs influences were present, the results were modest or acted in combination with poverty effects. This may reflect a genuine limitation on the explanatory power of community ACEs. However, we believe that the attenuated predictive power of ACEs is more likely reflecting the level of data and comparative precision we have in testing the effects of community ACEs. School readiness, ethnicity, poverty, ELL status, and progressive academic experiences are all individual characteristics we can link in analyses with resulting greater sensitivity. Community ACES by contrast are an attribute we assigned to all students based of their school enrollment resulting in less sensitive predictive power. The potential effects of community ACEs is indirect through the complex action of adults on community and family characteristics beyond the capacity of our data to address. Despite these constraints, we partially

confirmed the utility of community ACEs as a tool for explaining differences in academic progress.

The complex nature of poverty and adversity as characteristics of communities. It is well established that poverty has psychosocial impacts that overlay the problems of financial security such that poverty has the potential to act a principal stressor with resulting parental and family disruptions. While poverty and race have been dominant questions addressed in looking at the effect of place, a literature is emerging in the area deprivation studies that use either ACEs or concepts related to ACEs. Initial results support the conclusion that the risks associated with adversity as a community characteristic co-occur with poverty's effects but are distinct mechanism of increasing risk in communities.

Given the multi-faceted impact of poverty, the fact that poverty and ACEs co-occur, and that ACEs and poverty share some similar influences, separating the distinct effects of poverty and ACEs may not be a realistic goal. Rather, given the established impact of poverty, the relevant question is does adversity offer explanatory power for community differences after accounting for poverty. The evidence presented in this report indicates that for school readiness, ACEs serve as either a distinct community risk or an influence that accelerates the risk resulting from poverty.

The central role of community demographics in understanding school readiness, academic success, and risk. School readiness is influenced by differences operating at the individual, the school, and the community levels. At the individual level, gender, individual poverty, Hispanic ethnicity, and ELL status were all significant influences on school readiness. In turn, these individual differences were confirmed as aggregated characteristics of the school communities in which students live. Poverty uniformly resulted in lower reports of school readiness, but the impact of Hispanic ethnicity and ELL status were more specifically associated with pre-academic skills. The degree of the differences in school readiness is substantial. For example, using five or more WaKIDS domains as a marker of school readiness, 46 percent of Hispanic children met this threshold compared to 67 percent of non-Hispanic kindergartners. For ELL students, school readiness was reported for 41 percent of students compared to 68 percent for non-ELL students. Hispanic ELL students define a particularly vulnerable academic group with 38 percent reported to be school ready.

The impact of Hispanic ethnicity and ELL enrollment on increasing academic risk has implications for educational policy that reach beyond the assessment of differences in school readiness. In the 2016-17 school year, Washington State's public K-12 enrollment was 23 percent Hispanic and 11 percent ELL. In the WaKIDS sample for the 2013-2014 through 2016-17 school years, the period in which WaKIDS approached universal implementation, 32 percent of the entering kindergarteners were Hispanic, 26 percent were identified as ELL students, and 19 percent of the total kindergarten sample were Hispanic ELL students. White, non-Ell students accounted for 61 percent of the sample.

The growth in Washington's Hispanic and ELL enrollment is aligned with longer term projections of demographic changes in the United States where by 2050 based on current trends the Hispanic population in the United States will reach 29 percent of the general population and

population growth will significantly reflect new immigration (Pew Research Center, 2008). Changing demographics make addressing the large structural differences in academic success based on Hispanic ethnicity and ELL enrollment a pressing educational challenge. Specific to this report, the pronounced differences introduced by differences in demographics across communities made addressing ethnicity and ELL status foundational to interpreting the school readiness differences across communities.

While individual differences are the most powerful predictors of social and academic success, the collective characteristics of communities become additive influences on understanding individual success. An important secondary finding of the present study is the interaction of the type of community (city, suburban, town, rural), relative risk, levels of school readiness, and protection early academic progress on several measures of academic demands (e.g., student mobility and special education enrollment percent). Specifically, we found large and systematic differences in WaKIDS school readiness results where city and towns report lower levels of school readiness than do suburban and rural communities. Unfortunately, given the data resources we integrated in this report, our ability to examine these community differences was limited. These different communities differ in terms of levels of ACEs, poverty, Hispanic enrollment, and ELL status. We note the complex nature of these effects across communities to highlight the need to account for type of community in subsequent analyses.

We found a comparatively limited role for student race in our analyses, and this is itself noteworthy. Meaningful differences in school readiness were observed such that school readiness was lower for the groups of Native American/Alaskan Native and African American students but in comparison to the effects of poverty, ethnicity, ELL status, and ACEs the differences were more modest. This is not to suggest that race should not be at the center of understanding academic access and success. For example, we did find that race was a factor in differential disciplinary reports and actions consistent with the now recognized challenges of implicit bias in school responses. Rather, for the range of questions we addressed in this report on differential school readiness and community influences, race was not a significant explanatory tool. We strongly support continued efforts to understand the impact of race and educational responses including in the continued refinement of how the WaKIDS assessment results guide educational policy. Given the profound effects of Hispanic ethnicity and ELL status, there is a compelling need to understand the protective and risk trajectories of adversity and resilience in the lives of children from diverse racial and ethnic communities. The changing demographics of the state, our commitment to equity, and the evidence of the complex role race and ethnicity play in educational outcomes makes this an urgent area of policy research.

Implications and recommendations. As a framework for considering actions to address school readiness, we return to the three areas of emphasis identified in the National Educational Goals panel (1997): (1) the readiness of the child, (2) the readiness of the school, and (3) the readiness of family and community to support children's success. Critically, it is action in all three arenas that appears needed to move outcomes. We note that the WaKIDS system is designed to address all three elements. WaKIDS programmatic goals of individualization of supports for students, caregiver education, teacher-caregiver connection, and creation of feedback and accountability systems at the school level all are program strategies supportive of creating conditions in local communities. However, the success of this policy and practice framework ultimately will depend

on local execution and ability to adapt supports to the setting and needs of the individual child and family.

The overarching implication of this report is that our physical space, our social space, and how we are connected to our neighbors matters. There is no lack of effective strategies to support better opportunities for children. What can challenge us is a sense of common purpose and willingness to invest in strategies when resources are finite. Local, state, and federal policy regarding best practices to invest in and the standards defining best practice create the framework of action[18]. However, the evidence in this report documents how localized and locally guided efforts may need to be to adapt to the range of conditions present across communities which effect outcomes.

With respect to addressing poverty's potential risk for the individual child, the hopeful but sobering conclusion (Campbell et al. 2001; Schweinhart & Weikart, 1989) is that the developmental readiness of most children at birth is not a reflection of the income level of their family. Rather, problems with the developmental trajectories of children resulting from income reflect consequences emerging early in life as there is disruption in the quality with which basic needs are met, the level of parental capacity to be responsive and nurturant, and the quality and accessibility of developmental assets in the neighborhood supporting early cognitive stimulation and social connection. Berliner (2009) identified health care (prenatal care, access to postnatal care), food security, and reductions in environmental toxin exposure as practical elements of addressing basic needs that can enhance school readiness.

Obviously, improving economic conditions in communities to reduce poverty is necessary and plausibly can have effects on school readiness and success given the outsized role of poverty as a predictor of academic success. However, independent of the economic strategies to address greater opportunity, the research reviewed in this report argues that investments in cultural and recreational resources, access high quality early education, parent support when indicated, and sense of social connection are likely to mitigate the effects of poverty on children's school readiness. Early identification and response to family stress and disruption emphasizes support to caregivers is a core intervention with the level of formality of supports needing to reflect the level of need for the caregiver. Ranging from formal early learning services to cultural and recreational opportunities like Read and Play programs and parks programs, early enrichment strategies have good empirical support as strategies to address the risk of impoverished developmental assets due to income. The significance of many of these strategies is that these are frequently community responses supporting the quality of life for the entire community but by their presence are likely to have significant benefits to children.

Formal treatment supports for health and behavioral health issues must be considered as part of the continuum of resources needed for vulnerable children and families. We can document that the effects of adversity and poverty manifest very early life (Blodgett, 2014) with resulting significant academic and social emotional disruption. Like poverty, childhood adversity is to a

---

[18] Colorado's Blueprints for Prevention, the U'S' Department of Education's What Works web resource, and the U.S. DHHS National Registry of Evidence Based Programs and Practices are examples of such resources.

significant degree a transgenerational challenge with tragedies in one generation passed forward to the next. Efforts to support children are likely to be most effective if concurrently supports are provided to parents to address their struggles. This transgenerational challenge often places schools in the difficult role as the professionals with the greatest access to and opportunity to influence help seeking in parents. While many schools have effective strategies to engage parents our experience working to address trauma from childhood adversity and its impact on schools is that there is no systematic development of capacity in schools to bridge this connection with parents and other caregivers effectively. We recommend given the central role of parent capacity in creating the conditions for school readiness that how to support schools in more effectively engaging parents is an under-developed opportunity. Lessons from social sciences such as motivational interviewing (Miller & Rollnick, 2012) provide frameworks for more effective engagement. Educators are appropriately concerned that such non-academic system efforts involve unfunded transfer of responsibility to functions beyond their skill sets and role. The evidence regarding school readiness is that without effective parental engagement and supports we may be missing one of the three principal mechanisms for addressing school readiness improvement.

While formal treatment and support programs are needed as parts of a continuum of responses to improve school readiness, much of the impact of poverty and adversity neither requires, would qualify, nor is well-aligned with formal treatment goals. The quality of parks, libraries, and strategies to address food security all potentially are school readiness interventions that can mitigate the impact of poverty on child development. Home visiting programs for young parents are a parenting education and support strategy that is an established evidence-based practice.

For schools, both established practice and emerging work specific to trauma from ACEs offers significant promise for addressing core impacts of both ACEs and poverty. Specifically, what both ACEs and poverty place at risk is social emotional competence and the capacity to self-regulated under stress. Social emotional competence is defined by the quality of regulation of emotional arousal in order to persist in goal-directed behavior and the mastery of effective regulatory/coping skills (Eisenberg & Fabes, 1992). Because of their common effect, a focus for schools on social emotional competence as core academic skills allows us to focus on the developmental barrier rather than the specific cause.

The social emotional competence of children is a principal predictor of academic success and adjustment across the lifespan (Durlak et al., 2011; Elias et al., 2007; Gabrieli et al., 2015;; Suido & Shaffer, 2008; Weare & Nind, 2014). Individuals with greater social emotional competence have higher rates of high school graduation, higher academic achievement while in school, lower involvement in the criminal justice system, greater employment success, higher income in adulthood, and reduced health risk behaviors like smoking and drug use. Meta-reviews of SEL practice conclude that *high quality* implementation of evidence-based social emotional learning interventions can deliver meaningful gains in student behavior, attendance, and academic success (e.g., Durlak et al., 2011). However, not all well-designed SEL efficacy studies support SEL benefits because challenges to the quality of SEL delivery interferes with the ability to produce expected benefits (SCDRC, 2010). As a result, social emotional learning practices for all students are available, supported by research, but dependent upon the quality and persistence of implementation.

Trauma-informed school programs (Blodgett & Dorado, 2016) are emerging practices to address the pervasiveness of high ACEs exposure in children and consequent developmental and academic risk. Trauma-informed schools practice is closely aligned to social emotional learning practices but address the specific risks in how core effects of ACEs- the dominant need for safety, ambivalent and disrupted relationships, and coping adaptations- change typical behavior and may be expressed in school behavior. Trauma-informed school responses are relatively new and established practices are still emerging[19]. However, because of the extensive research about the neurodevelopmental consequences of trauma from adversity and lessons from mental health on the treatment of trauma, adoption of trauma-informed practices in schools offers significant promise as enhancements to existing school academic and support practices. Attention to high quality social emotional learning practices that are implemented with fidelity and incorporate the new science of adversity and trauma offer significant opportunities for improving the schools' capacity to address school readiness challenges as children enter kindergarten.

Finally, we recommend that investment in a deeper understanding of the population level impact of adversity, specifically ACEs, be considered as an infrastructure and policy research need. The present study and the related *No School Alone* report provide meaningful evidence of the explanatory value of ACEs in examining school outcomes and youth wellbeing. However, our principal resource for examining ACEs as a community characteristic is soon to lose its utility. The BRFSS ACEs data is now seven or more years old as this report is released and the value of these estimates will be less as time goes by. We encourage re-introducing the BRFSS ACEs questions in the state's data collection to be sure this information remains current and useful. We also encourage a more systematic discussion of the role of local assessment of adversity exposure. Currently, the adoption of universal screening for ACEs in systems like health care and education is significant national conversation. The value is to have more sensitive information to address both individual and systemic risk. However, we caution that how to collect this information is a complex discussion with the need to manage both burden and genuine risk to children due to disclosure and over-interpretation of risk as equivalent to demonstration of developmental problems.

[19] The exception to this statement is formal mental health treatment services where several school-based interventions are evidence-based practices applicable to the most vulnerable children.

References

Adjaye-Gbewonyo, K. & Kawachi, I. (2012). Use of the Yitzhaki Index as a test of relative deprivation for health outcomes: A review of recent literature. *Social Science* & Medicine, 75, 129-137.

Appleyard, K., Berlin, L.J., Rosanbalm, K.D., & Dodge, K.A. (2011). Preventing early child maltreatment: implications from a longitudinal study of maternal abuse history, substance use problems, and offspring victimization. *Prevention Science,12,* 139-49.

Anda, R., Felitti, V, Bremner, J. D., Walker, J. D, Whitfield, C., Perry, B., Dube, S., & Giles, W. (2006). The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *European Archives of Psychiatry and Clinical Neuroscience, 256*(3), 174-86.

Bécares L., Nazroo, J.Y., & Stafford M. (2009). The buffering effects of ethnic density on experienced racism and health. *Health and Place. 15(3),* 670-678.

Bécares, L., Shaw, R., Nazroo, J., Stafford, M., Albor, C., Atkin, K., et al., (2012). Ethnic density effects on physical morbidity, mortality, and health behaviors: A systematic review of the literature. *American Journal of Public Health, 102*(12), e33-e66.

Bellis, M., Hughes, K., Leckenby, N., Hardcastle, K.A., Perkins, C., & Lowey, H. (2015). measuring mortality and the burden of adult disease associated with adverse childhood experiences in England: a national survey. *Journal of Public Health, 37(3), 445–454.*

Berliner, David C. (2009). Poverty and Potential: Out-of-School Factors and School Success. Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit.

Bethell, C. D., Newacheck, P., Hawes, E., & Halfon, N. (2014). Changing Epidemiology Of Children's Health. Adverse Childhood Experiences: Assessing the Impact On Health And School Engagement And The Mitigating Role Of Resilience. Health Affairs, 33(12), 2106-2115.

Black, M. M., Hess, C., & Berenson-Howard, J. (2000). Toddlers from low-income families have below normal mental, motor, and behavior scores on the revised bayley scales. *Journal of Applied Developmental Psychology, 21*(6), 655-666.

Blakely, T., Hales, S., & Woodward A. (2005). Poverty: assessing the distribution of health risks *by socioeconomic position at national and local levels.* Geneva, World Health Organization, 2004. (WHO Environmental Burden of Disease Series, No. 10).

Blodgett, C. (2014). ACEs in Head Start Children and Impact on Development. Research brief: WSU Child and Family Research Unit, http://ext100.wsu.edu/cafru/research/.

Blodgett, C., & Dorado, J. (2016). *A selected review of trauma-informed school practice and alignment with educational practice.* WSU Child and Family Research Unit, http://ext100.wsu.edu/cafru/research/.

Blodgett, C., & Lanigan, J. (2015). The Association between Adverse Childhood Experience and Academic Risk in Elementary School Children. Manuscript submitted for publication.

Brooks-Gunn, J. & Duncan, G. (1997). The effects of poverty on children. *The Future of Children*, 7(2), 55-71.

Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse & Neglect, 35(6),* 408-413.

Caballero, M., Johnson, S., Muñoz Buchanan, C., & Ross DeCamp, L. (2017). Adverse Childhood Experiences Among Hispanic Children in Immigrant Families Versus US-Native Families. *Pediatrics.* e20170297. 10.1542/peds.2017-0297.

Campbell, F. A., Pungello, E. P., Miller-Johnson, S., Burchinal, M., & Ramey, C. T. (2001). The development of cognitive and academic abilities: Growth curves from an early childhood educational experiment. *Developmental Psychology, 37*(2), 231-242.

Carlson, D. L., McNulty, T. L., Bellair, P. E., & Watts, S. (2014). Neighborhoods and racial/ethnic disparities in adolescent sexual risk behavior. *Journal of Youth and Adolescence, 43*(9), 1536-1549.

Chen, T., & Hahnel, C. (2017). The Steep Road to Resource Equity In California Education—The Local Control Funding Formula after Three Years. Oakland, CA: The Education Trust West.

Chung, E. K., Mathew, L., Rothkopf, A. C., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2009). Parenting attitudes and infant spanking: The influence of childhood experiences. *Pediatrics, 124*(2), e278-e286.

Conger, R. D., Ge, X., Elder, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and development problems of adolescents. *Child Development, 65,* 541–561.

Cunradi, C, Caetano, R., Clark, C., & Schafer, J. (2000). Neighborhood poverty as a predictor of intimate partner violence among white, black and Hispanic couples in the United States: a multilevel analysis. *Annals of Epidemiology, 10(5),* 297–308.

Diez Roux, A.V., Merkin, S.S., Arnett, D., et al. (2001). Neighborhood of residence and incidence of coronary heart disease. *New England Journal of Medicine, 345(2),* 99–106.

Doidge, J.C., Higgins D.J., Delfabbro, P., Edwards, B., Vassallo, S., Toumbourou J.W., & Segal, L. (2017). Economic predictors of child maltreatment in an Australian population-based birth cohort. Children and Youth Services Review, 72, 14–25.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-Analysis of school based universal interventions. *Child Development, 82(1),* 405-432.

Eisenberg, N., & Fabes, R. A. (1992). Emotion, regulation, and the development of social competence. In Clark, Margaret S. (Ed), Emotion and social behavior. Review of personality and social psychology, Vol. 14., (pp. 119-150). Thousand Oaks, CA, US: Sage Publications, Inc,

Elias, M. J., Parker, S. J., Kash, V. M., & Dunkeblau, E. (2007). Social-emotional learning and character and moral education in children: Synergy or fundamental divergence in our schools? *Journal of Research in Character Education, 5(2),* 167-18

Finch, B., Kolody, B., & Vega W. (1999). Contextual effects of perinatal substance exposure among black and white women in California. *Sociological Perspectives, 42(2),* 141–156.

Flouri, E., Mavroveli, S., & Tzavidis, N. (2010). Modeling risks: Effects of area deprivation, family socio-economic disadvantage and adverse life events on young children's psychopathology. Social Psychiatry and Psychiatric Epidemiology, 45(6), 611-619.

Fong, K. (2017). Child welfare involvement and contexts of poverty: The role of parental adversities, social networks, and social services. *Children and Youth Services Review, 72,* 5–13.

Friedman, E. M., Karlamangla, A. S., Gruenewald, T. L., Koretz, B., & Seeman, T. E. (2015). Early life adversity and adult biological risk profiles. *Psychosomatic Medicine, 77*(2), 176-185.

Freudenberg, N., & Ruglis J. (2007). Reframing school dropout as a public health issue. Preventing Chronic Disease, 4(4), 1-11.

Gabrieli, C., Ansel, D., & Bartolino-Krachman, S. (2015). Ready To Be Counted: Trauma-informed School Practices 78. The Research Case for Education Policy Action on Non-Cognitive Skills. Working paper produced by www.transformingeducation.org.

Giovanelli, A., Reynolds, A. J., Mondi, C. F., & Ou, S. (2016). Adverse childhood experiences and adult well-being in a low-income, urban cohort. *Pediatrics, 137*(4), 1-11.

Gordon, D., & Spicker, P. (Eds.). (1999). *The international glossary on poverty.* London: Zed Books.

Grady, S. C. (2006). Racial disparities in low birthweight and the contribution of residential segregation: A multilevel analysis. *Social Science & Medicine, 63*(*12),* 3013-3029.

Grisso J, Schwarz D, Hirschinger N, et al. (1999). Violent injuries among women in an urban area. New England Journal of Medicine, 341(25), 1899–1905.

Hanley, J., Negassa, A., Edwardes, M. and Forrester, J. (2003). Statistical Analysis of Correlated Data Using Generalized Estimating Equations: An Orientation. *American Journal of Epidemiology,* 157: 4, 364–375.

Halonen, J. I., Vahtera, J., Kivimäki, M., Pentti, J., Kawachi, I., & Subramanian, S. V. (2014). Adverse experiences in childhood, adulthood neighbourhood disadvantage and health behaviours. *Journal of Epidemiology and Community Health, 68(8),* 741-746.

Halpern, D. (1993). Minorities and mental health. *Social Science and Medicine, 36(5),* 597-607.

Haveman, R., & Wolfe, B. (1994). *Succeeding generations: On the effects of investments in children.* New York: Russell Sage Foundation.

Hawkins, J.D., Catalano, R.F., & Miller, J. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. Psychological Bulletin 112 (1), 64-105.

Jencks, C., & Mayer, S. (1990). The social consequences of growing up in a poor neighborhood. In L. E. Lynn & M. F. H. McGeary (Eds.), *Inner-city poverty in the United States*. Washington, DC: National Academy Press, 111-186.

Kerns, C. M., Newschaffer, C. J., Berkowitz, S., & Lee, B. K. (2017). Brief report: Examining the association of autism and adverse childhood experiences in the national survey of children's health: The important role of income and co-occurring mental health conditions. *Journal of Autism and Developmental Disorders, 47*(7), 2275-2281.

Kubzansky, L.D., Subramanian, S.V., Kawachi, I., Fay, M.E., Soobader, M., & Berkman, L.F. (2005). Neighborhood Contextual Influences on Depressive Symptoms in the Elderly, *American Journal of Epidemiology*, 162 (3), 253–260,

Leventhal, T., & Brooks-Gunn, J. (2000). The Neighborhoods They Live in: The Effects of Neighborhood Residence on Child and Adolescent Outcomes. *Psychological Bulletin, 126(20),* 309-337.

Madigan, S., Wade, M., Plamondon, A., Maguire, J. L., & Jenkins, J. M. (2017). Maternal adverse childhood experience and infant health: Biomedical and psychosocial risks as intermediary mechanisms. *The Journal of Pediatrics, 187*, 282-289.

Maguire-Jack, K. & Font S.A. (2017). Intersections of individual and neighborhood disadvantage: Implications for child maltreatment. *Children and Youth Services Review, 72,* 44–51.

Masten, A. (2001). Ordinary magic. Resilience processes in development. *American Psychologist*, 56(3),227-38.

Maurizi, L. K., Ceballo, R., Epstein-Ngo, Q., & Cortina, K. S. (2013). Does neighborhood belonging matter? examining school and neighborhood belonging as protective factors for latino adolescents. *American Journal of Orthopsychiatry, 83*(2-3), 323-334.

Merkin, S., Basurto-Da´Vila, R., Karlamangla, A., Bird, C. Lurie, N., Jose Escarce, J., & Seeman, T. (2009). Neighborhoods and Cumulative Biological Risk Profiles by Race/Ethnicity in a National Sample of U.S. Adults: NHANES III. *Annals of Epidemiology,* 19(3), 194-201.

Metzler, M., Merrick, M. T., Klevens, J., Ports, K. A., & Ford, D. C. (2017). Adverse childhood experiences and life opportunities: Shifting the narrative. *Children and Youth Services Review, 72*, 141-149.

Miller, W. R., & Rollnick, S. (2012). Motivational Interviewing, Helping People Change, 3rd ed. New York: Guilford Press.

Morales, J. R., & Guerra, N. G. (2006). Effects of multiple context and cumulative stress on urban children's adjustment in elementary school. *Child Development, 77*(4), 907-923.

Mullainathan, S. & Shafir, E. (2013). *Scarcity: The New Science of Having Less and How It Defines Our Lives.* Time Books, Henry Holt & Company LLC, New York, NY.

Narayan, D. & P. Petesch, P. (2007). Agency, opportunity structure and poverty escapes. In D. Narayan & P. Petesch, (Eds.), *Moving Out of Poverty: Cross- Disciplinary Perspectives on Mobility*, Palgrave MacMillian and The World Bank. Washington, DC.

The National Education Goals Panel (1997). *Getting a good start in school.* Washington, DC: National Education Goals Panel.

Nurius, P. S., Logan-Greene, P., & Green, S. (2012). Adverse childhood experiences (ACE) within a social disadvantage framework: Distinguishing unique, cumulative, and moderated contributions to adult mental health. *Journal of Prevention & Intervention in the Community, 40*(4), 278-290.

Nurius, P. S., Prince, D. M., & Rocha, A. (2015). Cumulative disadvantage and youth well-being: A multi-domain examination with life course implications. *Child & Adolescent Social Work Journal*, 32(6), 567-576

Odgers, C. L., Caspi, A., Russell, M. A., Sampson, R. J., Arseneault, L., & Moffit, T. E. (2012). Supportive parenting mediates neighborhood socioeconomic disparities in children's antisocial behavior from ages 5-12. *Development and Psychopathology, 24*(3), 705-721.

Pew Research Center. (2008). U*.S. Population Projections: 2005–2050*. Washington, D.C.: Author.

Porche, M. V., Costello, D. M., & Rosen-Reynoso, M. (2016). Adverse family experiences, child mental health, and educational outcomes for a national sample of students. *School Mental Health,* 8(1), 44-60.

Pickett, K. & Pearl, M. (2001). Multilevel analysis of neighborhood economic context and health outcomes: a critical review. Journal of Epidemiology and Community Health, 55(2), 111–122.

Ramanathan, S., Balasubramanian, N., & Krishnadas, R. (2013). Macroeconomic environment during infancy as a possible risk factor for adolescent behavioral problems. *JAMA Psychiatry, 70*(2), 218-225.

Ratcliffe, C. (2015). *Child poverty and adult success.* Washington, D.C., the Urban Institute.

Rehkopf, D.H., & Bukai, S. (2006). The association between suicide and the socio-economic characteristics of geographical areas: a systematic review. *Psychological Medicine, 36,* 145–157.

Reijneveld, S. A., Brugman, E., Verhulst, F. C., & Verloove-Vanhorick, S. (2005). Area deprivation and child psychosocial problems: A national cross-sectional study among school-aged children. *Social Psychiatry and Psychiatric Epidemiology, 40*(1), 18-23.

Robbins, J. & Webb, D. (2004). Neighborhood poverty mortality rates, and excess deaths among African Americans: Philadelphia 1999–2001. *Journal of Health Care for the Poor and Underserved*. 15(4), 530–537.

Schiefer, D. & van der Noll, J. (2017). The essentials of social cohesion: A literature review. *Social Indicators Research*, 132, 579–603.

Schweinhart, L. J., & Weikart, D. P. (1989). The High/Scope Perry preschool study: Implications for early childhood care and education. *Prevention in Human Services, 7,* 109–132

Shenassa, E., Stubbendick, A., & Brown M. (2004). Social disparities in housing and related pediatric injury: a multilevel study. *American Journal of Public Health, 94(4),* 633–639.

Shihadeh, E. & Barranco, R. (2013). The imperative of place: Homicide and the New Latino Migration. *The Sociological Quarterly*, 54**,** 81–104.

Slack, K., Berger, L., & Noyes, J. (2017). Introduction to the special issue on the economic causes and consequences of child maltreatment. *Children and Youth Services Review 72*, 1–4.

Smith, M., Williamson, A., Walsh, D., & McCartney, G. (2016). Is there a link between childhood adversity, attachment style and Scotland's excess mortality? Evidence, challenges and potential research. *BMC Public Health,16,* 1-11.

Snow, K. (2006). Measuring school readiness: Conceptual and practical considerations, *Early Education and Development*, 17(1), 7-41,

Solmi, F., Colman, I, Weeks, M., Lewis, G., & Kirkbride, J.B. (2017). Trajectories of Neighborhood Cohesion in Childhood, and Psychotic and Depressive Symptoms at Age 13 and 18 Years. *Journal of the American Academy of Child and Adolescent Psychiatry, 56(7),* 570–577.

Steele, H., Bate, J., Steele, M., Dube, S. R., Danskin, K., Knafo, H., . . . Murphy, A. (2016). Adverse childhood experiences, poverty, and parenting stress. Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement, 48(1), 32-38.

Suido, S. M., & Shaffer, E. J. (2008). Looking beyond psychopathology: The dual-factor model of mental health in youth. *School Psychology Review, 37,* 52-68.

Tomer, J. (2014). Adverse Childhood Experiences, Poverty, and Inequality: Toward an Understanding of the Connections and the Cures. *World Economic Review 3,* 20-36.

Walker, S., Wachs, T., Grantham-McGregor ,S., Black, M., Nelson,C. Huffman, S., et al. (2011). Inequality in early childhood: risk and protective factors for early child development. *Lancet,* 1325-1338.

Washington State Department of Early Learning. (2017). *Racial Equity Initiative Data Report 2017.* Olympia, WA: Author.

Weare, K., & Nind, M. (2014). Promoting mental health and wellbeing in schools. Interventions and policies to enhance wellbeing (vol. VI). (pp. 93-140) Wiley-Blackwell.

Wickrama, K. A. S., Conger, R. D., & Abraham, W. T. (2005). Early adversity and later health: The intergenerational transmission of adversity through mental disorder and physical illness. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 60,* 125-129.

Wickrama, K. A. S., Simons, L. G., & Baltimore, D. (2012). The influence of ethnicity and adverse life experiences during adolescence on young adult socioeconomic attainment: The moderating role of education. *Journal of Youth and Adolescence, 41*(11), 1472-1487.

Yost, K., Perkins, C., Cohen, R., Morris, C., & Wright, W. (2001). Socioeconomic status and breast cancer incidence in California for different race/ethnic groups. *Cancer Causes Control, 12(8),* 703–711.

Appendix

Table A1. Student Hispanic and ELL groups by percent of adults in their communities with three or more ACEs

	10%-30% High Adult ACEs	30% to 40% High Adult ACEs	More than 40% High Adult ACEs
0-40% FRM N=20,303	42%	45%	13%
41%-55% FRM N=22,610	43%	43%	15%
56%-70% FRM N=35,865	50%	29%	21%
Greater than 70% FRM N=58,306	45%	37%	19%

Table A2. Interaction effects for RDA risk factors (each significant at a p<.05 level).

	10%-30% High Adult ACEs	30% to 40% High Adult ACEs
Mean adolescent (10-14 yrs) arrests per 1000		
Less than 50% FRM	37.7	29.2
50%-70% FRM	33.3	33.8
Greater than 70% FRM	30.9	36.3
Teen pregnancy rates per 1000		
Less than 50% FRM	3.9	3.5
50%-70% FRM	4.5	3.7
Greater than 70% FRM	4.0	7.3
Mean % injury hospitalization/all child hospitalization		
Less than 50% FRM	4.6	4.9
50%-70% FRM	4.9	5.3
Greater than 70% FRM	5.8	5.3

Table A3. Interaction effects of poverty and ACEs on current cigarette use

	10%-30% High Adult ACEs	30% to 40% High Adult ACEs
Mean % current smokers		
Less than 50% FRM	23%	29%
50%-70% FRM	31%	30%
Greater than 70% FRM	32%	34%

Table A4. The interaction of poverty and ACEs on HYS perceived risk of drug use

	<20% High Adult ACEs	>20% High Adult ACEs
% perceived risk of drug use		
Less than 50% FRM	38%	42%
50%-70% FRM	50%	48%
Greater than 70% FRM	63%	57%

Table A5. Differences in domains school ready by student poverty, gender, ethnicity, and ELL status

	0	1	2	3	4	5	6
Female	4%	5%	6%	8%	11%	20%	46%
Male	7%	7%	8%	9%	12%	18%	38%
Not Hispanic	4%	5%	6%	7%	11%	19%	48%
Hispanic	9%	9%	10%	11%	14%	19%	27%
Not in FRM	2%	3%	4%	5%	9%	18%	58%
FRM Enrolled	7%	8%	9%	10%	13%	20%	32%
Not ELL	4%	5%	6%	7%	11%	20%	48%
ELL	9%	11%	12%	12%	14%	18%	23%

Table A6. WaKIDS scale pass percent differences by FRM eligibility in kindergarten, ethnicity, ELL status, and gender

	Cognitive	Language	Literacy	Math	Physical	Social Emotional
Female	81%	79%	86%	70%	86%	80%
Male	75%	71%	82%	68%	79%	68%
Not Hispanic	81%	81%	89%	77%	83%	76%
Hispanic	70%	61%	72%	52%	80%	71%
Not in FRM	85%	82%	89%	80%	87%	81%
FRM Enrolled	74%	71%	80%	63%	80%	70%
Not ELL	82%	82%	89%	76%	83%	76%
ELL	67%	53%	67%	48%	80%	69%

Table A7. School FRM, Hispanic, and ELL enrollment, and percent of students meeting WaKIDS expectations across 0-6 domains

	0	1	2	3	4	5	6
FRM eligibility							
0-40% FRM	3%	3%	4%	6%	9%	18%	57%
41%-55% FRM	4%	5%	5%	7%	10%	19%	50%
56%-70% FRM	5%	6%	7%	8%	12%	20%	42%
Greater than 70% FRM	7%	8%	9%	10%	13%	20%	33%
Ethnicity							
<15% Hispanic	4%	5%	5%	7%	10%	19%	51%
15%-25% Hispanic	4%	5%	6%	7%	11%	20%	47%
25%-40% Hispanic	6%	7%	7%	9%	12%	20%	40%
>40% Hispanic	8%	8%	9%	10%	13%	19%	31%
ELL status							
5% or less ELL	4%	4%	5%	6%	10%	19%	52%
6%-10% ELL	4%	5%	6%	7%	11%	20%	47%
11%-20% ELL	5%	6%	6%	7%	11%	19%	45%
20%-30% ELL	5%	6%	7%	9%	12%	20%	40%
>30% ELL	8%	9%	10%	11%	13%	19%	30%

Table A8. Hispanic ethnicity and ELL status interaction on WaKIDS math & literacy development

	Not ELL	ELL
% met expectations on WaKIDS literacy domain		
Not Hispanic	90%	78%
Hispanic	84%	65%
% met expectations on WaKIDS math domain		
Not Hispanic	77%	63%
Hispanic	67%	46%

Table A9. The interaction of poverty and ACEs on WaKIDS math & literacy development, and number of domains school-ready

	10%-30% High Adult ACEs	30% to 40% High Adult ACEs	More than 40% High Adult ACEs
% met expectations on WaKIDS math domain			
0-40% FRM	79%	79%	73%
41%-55% FRM	75%	76%	71%
56%-70% FRM	70%	67%	70%
Greater than 70% FRM	64%	65%	59%
% met expectations on WaKIDS social emotional domain			
0-40% FRM	76%	81%	76%
41%-55% FRM	78%	77%	74%
56%-70% FRM	75%	72%	77%
Greater than 70% FRM	71%	73%	68%
Number of domains school-ready			
0-40% FRM	4.8	4.8	4.5
41%-55% FRM	4.6	4.7	4.5
56%-70% FRM	4.5	4.4	4.5
Greater than 70% FRM	4.2	4.2	3.9

Table A10. Special education enrollment, truancy, and homelessness from kindergarten through Grade 2 by the sum of WaKIDS domains students are school ready

	0	1	2	3	4	5	6
Percent special education	40%	28%	23%	19%	14%	11%	6%
Percent homeless	10%	9%	8%	8%	8%	7%	5%
Percent truant	15%	12%	11%	9%	9%	8%	6%

Table A11. SBA ELA and math differences based on initial WaKIDS school readiness by domain

	Cognitive	Language	Literacy	Math	Physical	Social Emotional
% SBA ELA pass						
Met expectations: No	24%	26%	21%	22%	34%	28%
Met expectations: Yes	47%	48%	47%	51%	44%	46%
% SBA Math pass						
Met expectations: No	29%	33%	21%	22%	34%	28%
Met expectations: Yes	55%	55%	47%	51%	44%	46%

Table A12. SBA ELA and Math differences based on Hispanic ethnicity and ELL status

	Not ELL	ELL
% SBA ELA pass		
Not Hispanic	52%	42%
Hispanic	37%	25%
% SBA Math pass		
Not Hispanic	57%	49%
Hispanic	45%	36%

Table A13. SBA ELA and Math pass differences based on school poverty

	0%-55% FRM	56%-70% FRM	>70% FRM
SBA ELA pass %	60%	43%	37%
SBA Math pass %	65%	50%	45%