



Health Impact of Full-Day Kindergarten

Executive Summary

In collaboration with other organizations, the Guinn Center contributed to a recent study examining the potential impact of full-day kindergarten on health outcomes: *Full-Day Kindergarten in Nevada: A Health Impact Assessment (HIA)*.¹ The purpose of the HIA study is to inform the Nevada Legislature as it considers expanding full-day kindergarten. This policy brief links the research and recommendations of the HIA study to legislation pending before the 2015 Nevada Legislature.

What does research say?

- Expansion of full-day kindergarten has the greatest potential to increase academic achievement and future high school graduation for low-income students and English Language Learners.
- Higher levels of educational attainment are associated with positive health outcomes.
- Expanding full-day kindergarten can improve access to services that can improve future health outcomes, such as school meals, nutrition education, and physical activity.

Health Impact Assessment and Related Legislation

Topic	HIA Recommendations	Related Legislation
Expansion of Full Day Kindergarten	<ol style="list-style-type: none"> 1. Consider continuing to make full-day kindergarten available to English Language Learners (ELL) and lower-income students. 2. Prioritize allocation of funds to schools with the highest levels of Free and Reduced price Lunch (FRL) and ELL students. 3. Nevada Department of Education and school district leaders could evaluate the effectiveness of full-day kindergarten. 	<p>1. Proposed budget Expands full-day kindergarten to all schools at cost of \$78.4 million over the 2015-2017 biennium.</p> <p>2. SB 508 Funds kindergarten students at the same rate as other students beginning in FY 2018.</p> <p>3. SB 345 (no further action allowed) Requires full-day kindergarten to be offered at every school and funds kindergarten students at the same rate as other students beginning in FY 2016.</p>
Access to School Meals	<p>School districts could implement initiatives to:</p> <ol style="list-style-type: none"> 1. Ensure kindergarten students in full-day programs receive access to both school breakfast and lunch. 2. Increase school meal participation, as recommended by the Centers for Disease Control and Prevention (CDC), by using evidence-informed strategies such as Breakfast after the Bell and universal free breakfast/lunch for all students eligible for reduced price meals. 3. Encourage school districts to work with community organizations to provide meals to students in need who remain in half-day programs and do not have access to breakfast 	<p>SB 503 Provides \$2 million for start-up grants for schools with FRL rates of 75 percent or greater to implement Breakfast After the Bell programs.</p>

Topic	HIA Recommendations	Related Legislation
Health services in schools	<p>or lunch.</p> <ol style="list-style-type: none"> 1. School districts, the Nevada Division of Public and Behavioral Health, and local health departments could consider collaborating to measure height and weight annually and to track data over time by using unique student identification numbers to maintain the confidentiality of personally identifiable information and make the data publicly available for monitoring purposes. School districts could: <ol style="list-style-type: none"> a. Collect a representative sample of height and weight information of all students, including kindergarteners. b. Track changes for individual students over time. c. Report results to the Chief Medical Officer and the local health authority. 2. The Nevada Division of Public and Behavioral Health could consider making the results of the hearing and vision screening data collected publicly available, while protecting personally identifying information, for monitoring purposes. 	<ol style="list-style-type: none"> 1. AB 206 Expands notification to parents of health issues identified during screening to include a list of any resources to provide appropriate medical attention, including services available for free or at a reduced cost. 2. SB 402 Removes the sunset on requiring Clark and Washoe School Districts to conduct a sample of height and weight for students in 4th, 7th, and 10th grades.
Access to Nutrition Education	<ol style="list-style-type: none"> 1. School districts could: <ol style="list-style-type: none"> a. Begin teaching nutrition education in kindergarten, which is consistent with Nevada health standards for grades K-2. b. Provide professional development to kindergarten teachers on nutrition education strategies, consistent with CDC guidelines c. Combine nutrition education with physical activity. d. Work with community partners to obtain grants to promote nutrition education and to support professional development. 2. The Nevada Department of Education could use its website to post resources for a nutrition education curriculum that is appropriate for kindergarten students and is aligned with health standards. 	None
Access to Physical Activity	<ol style="list-style-type: none"> 1. School districts could ensure that kindergarten students receive the minimum minutes of physical activity included in each school district's or school's Wellness Policy through a combination of recess, physical education (PE), and physical activity integrated into academic instruction. 2. Each school district could develop a comprehensive school physical activity program as recommended by the CDC, with an emphasis on programs for kindergarten students. 	<p>SB 178 (no further action allowed) Requires students in grades K-11 to take at least 30 minutes of PE per day.</p>



Health Impact of Full-Day Kindergarten

Introduction

Health outcomes for Nevada’s children and adults lag behind the national average, which can result in increased medical costs, lower productivity, and increased demand for public benefits.² As the Nevada Legislature considers whether to expand availability of full-day kindergarten, it is important to consider the potential impact on health. This policy brief discusses the findings of a recent study, *Full-Day Kindergarten in Nevada: A Health Impact Assessment (HIA)*, and links the research and recommendations of the study to legislation pending before the 2015 Nevada Legislature.³

1. Governor’s budget recommends expansion of full-day kindergarten

Governor Sandoval’s Executive Budget includes \$78.4 million over the 2015-2017 biennium to expand full-day kindergarten to all schools throughout Nevada.

a. Current State of Kindergarten in Nevada

The Nevada Legislature began providing State funding for full-day kindergarten in 2005, but funding has never been sufficient to serve all schools. The Legislature increased funding by 66 percent in the 2013-2015 biennium and the Nevada Department of Education reports that 74 percent of elementary schools currently offer State-funded full-day kindergarten.⁴ Funds are prioritized for schools with the highest levels of students eligible for Free and Reduced price Lunch (FRL). Table 1 illustrates that schools with state-funded kindergarten are in the areas with the highest rates of FRL and English Language Learner (ELL) students in the Clark County School District (CCSD) and the Washoe County School District (WCSD). The schools that do not have State-funded full-day programs are located primarily in middle/upper-class neighborhoods. However, Table 1 reveals there are also low-income students in these neighborhoods.

Table 1: FY 2014 Academic outcomes and demographics by type of kindergarten program

District	Program	Number of Elementary Schools	Average % Proficient in Reading	Average % Proficient in Math	Average FRL %	Average ELL %
Clark	Full-Day	150	59.22	61.58	76.06	32.17
	Tuition/ Half-Day	42	81.07	81.82	28.88	7.04
	Half-Day	30	65.12	65.96	46.22	6.24
Clark Total		222	64.07	65.93	63.33	24.37
Washoe	Full-Day	51	63.84	66.14	67.08	28.93
	Tuition/ Half-Day	11	86.11	87.36	16.04	5.35
Washoe Total		62	67.79	69.91	58.02	25.62

Source: Nevada Report Card, CCSD and WCSD

In some areas where State-funded full-day kindergarten is not provided, parents can opt to pay for full-day kindergarten. These programs represent approximately 5 percent of all kindergarten classes in CCSD

and 11 percent in WCSD. The cost of the program is \$3,100 per year in CCSD and \$2,340 per year in WCSD.^{5,6} Some stakeholders have argued that tuition-based kindergarten programs are inequitable and the State has a duty to make free full-day programs available to all students.

Governor Sandoval does not propose to change any policies related to kindergarten. Currently, kindergarten is optional in Nevada. Schools are not required to offer full-day kindergarten and students are not required to attend school until age 7 (NRS 392.040). Kindergarten students are funded at 60 percent of the funding rate provided for other students, however, making it difficult for school districts to provide full-day kindergarten without additional funds (NRS 387.1233).

Two bills introduced in 2015 address the funding rate for kindergarten students. SB 508 would fund kindergarten students at the same rate as other students effective in FY 2018 while SB 345 would implement this change in FY 2016.⁷

b. Full-day kindergarten has the potential to improve educational attainment and health

The HIA, conducted in part by the Guinn Center, found that full-day kindergarten has the potential to improve educational attainment, which in turn has the potential to improve future health outcomes. National research finds that in the short term, students who attended full-day kindergarten have higher test scores than students who attended half-day kindergarten.⁸ In contrast, results are less definitive over the long term.⁹ Studies of students in general found no significant differences in language arts or math scores in 2nd, 3rd, 5th and 8th grades. However, studies of low socio-economic status, minority, ELL and inner-city students found significant differences in math and language arts scores in 3rd and 5th grades.

Academic research also shows that students who are proficient in reading by 3rd grade are more likely to graduate from high school.¹⁰ Therefore, if full-day kindergarten helps students achieve reading proficiency by 3rd grade, their likelihood to graduate increases.

Achieving a higher level of educational attainment is strongly linked to improved health outcomes.¹¹ People with higher educational attainment have a higher socioeconomic status. They have greater access to higher paying jobs, jobs in healthier physical environments and jobs that provide health insurance. Additionally, they are able to afford healthy food, live in communities which support physical activity and pay for preventive care.¹² People with higher educational attainment are less likely to engage in health-related risk behaviors such as smoking and are more likely to participate in healthy behaviors such as physical activity and eating fruits and vegetables.¹³ People with higher educational attainment have lower rates of chronic diseases, including cardiovascular disease, diabetes and hypertension.¹⁴

In Nevada, data on the academic impact of full-day kindergarten is limited. School districts do not utilize uniform assessments during kindergarten so statewide data is not available on the short-term academic impact. Statewide standardized assessments begin in grade three, so it is possible to measure the long-term impact of full-day kindergarten. CCSD conducted a longitudinal study of students who attended full and half-day kindergarten in FY 2006, which was the first year of State support for full-day kindergarten.¹⁵ This study found significant and lasting impacts on proficiency in reading and math in 3rd and 4th grade. However, the applicability of this study is limited since it was done at a time when very few schools had full-day kindergarten and before implementation of the current Nevada Academic Content Standards.

It is too early to tell if implementation of full-day kindergarten has yielded large-scale increases in reading proficiency in Nevada. Following the infusion of new funds in the 2013-2015 biennium, many schools only began offering full-day kindergarten in FY 2014. Students are not tested by the State until 3rd grade, so the results of the expansion will not be seen until FY 2017. Looking at current academic data, it is evident that the schools offering full-day kindergarten in FY 2014 are those struggling the most in reading proficiency and have the highest rates of FRL and ELL students (see Table 1).

The HIA study found that full-day kindergarten has the most potential to improve outcomes for FRL and ELL students. If insufficient funding is available to provide universal full-day kindergarten, funds should continue to be prioritized for FRL and ELL students.

HIA Recommendations:

- Policymakers could continue to make full-day kindergarten available to ELLs and low-income students.
- Policymakers could prioritize allocation of funds to schools with the highest levels of FRL and ELL students.
- Nevada Department of Education and school district leaders could evaluate the effectiveness of full-day kindergarten through the following measures. For each measure, consider comparing the impact of full-day vs. half-day separately for ELL and FRL students, if applicable.
 - Consider implementing a statewide assessment to measure academic proficiency at both the beginning and end of kindergarten. Given the importance of early childhood education, data could also be tracked by whether the student attended Pre-Kindergarten (Pre-K) and the type of Pre-K program attended.
 - Consider conducting an evaluation of full-day kindergarten through 3rd grade.
 - Consider continuing to evaluate full-day kindergarten students through high school to assess the impact on high school graduation rates.

Related Legislation:

- Governor's proposed budget- Provides \$78.4 million for universal full-day kindergarten.
- SB 508- Funds kindergarten students at the same rate as other students beginning in FY 2018.
- SB 345- Funds kindergarten students at the same rate as other students beginning in FY 2016 and requires each elementary school to offer full-day kindergarten.

2. Full-day kindergarten can increase access to school-based services

The HIA study investigated whether increasing access to full-day kindergarten could provide more access to school-based services, such as school meals and health screenings, which could improve future health outcomes.

a. School Breakfast and Lunch

Expanding availability of full-day kindergarten could increase access to school-based meals, which could lead to improved health outcomes. National research shows that access to school-based meals is associated with positive academic performance for students, which in turn can lead to improvements in long-term health outcomes.¹⁶ However, evidence is mixed about the relationship between access to school-based meal programs and being overweight or obese.¹⁷

While all Nevada school districts participate in the National School Lunch Program and the School Breakfast Program, kindergarten students do not always have access to these services. Students in half-

day programs may not be able to participate in one of these meals because they are not on campus when the meal is served. In rural areas, long bus rides may make it difficult for kindergarten students to arrive at school in time to eat breakfast. Access to school meals is not solely a problem for kindergarten students; Nevada's school meal participation rate lags behind the national average in 31 percent of schools for breakfast and 19 percent of schools for lunch.¹⁸

To address access to school breakfast, Governor Brian Sandoval has recommended \$2 million in funding over the 2015-2017 biennium for start-up grants for schools with FRL rates of 75 percent or greater to implement Breakfast After the Bell programs (SB 503). These programs provide food in the classroom during the regular school day. The goal is to break down the stigma and transportation barriers inherent in traditional programs that occur before school. School districts are also currently implementing several initiatives to increase school breakfast participation, including: universal free breakfast (63 schools), universal breakfast at Title I schools (76 schools in CCSD), and free breakfast to students eligible for reduced price meals (438 schools).¹⁹

HIA Recommendations:

School districts could implement initiatives to:

- Ensure kindergarten students in full-day programs receive access to both school breakfast and lunch.
- Increase school meal participation, as recommended by the Centers for Disease Control (CDC), by using evidence-informed strategies such as Breakfast after the Bell and universal free breakfast/lunch for all students eligible for reduced price meals.
- Encourage school districts to work with community organizations to provide meals to students in need who remain in half-day programs and do not have access to breakfast or lunch.

Related Legislation: SB 503- Provides \$2 million for start-up grants for schools with FRL rates of 75 percent or greater to implement Breakfast After the Bell programs.

b. Health screenings

Requiring or encouraging students to attend public kindergarten could increase access to hearing and vision screenings. Research suggests that hearing and vision screenings at an early age provide opportunities to detect unrecognized hearing loss or vision problems, which can lead to interventions that provide correction and limit further loss.²⁰ Nevada schools are currently required to conduct hearing and vision screenings "before the completion of the first year of initial enrollment in elementary school" (NRS 392.420). In most school districts, this screening is done in kindergarten. If parents opt to delay enrollment of their children until first grade, then access to these health screenings is postponed until first grade.

Screening alone does not correct hearing or vision deficits; follow-up care is necessary.²¹ Schools must send notices to parents and legal guardians regarding any issues identified and recommend appropriate medical attention (NRS 392.420). AB 206, pending before the 2015 Legislature, expands this notification to include a list of any resources that may be available in the community to provide appropriate medical attention, including services available for free or at a reduced cost. However, the school would not be responsible for providing these services or ensuring that the pupil receives the services.

It is also important to monitor Body Mass Index (BMI) of Nevada's students to help inform future state policy to reduce obesity. State law currently requires CCSD and WCSO to conduct a sample of height and

weight for 4th, 7th, and 10th grades (NRS 392.420). This survey requirement does not apply to kindergarten and does not track students from year to year, so it currently provides limited data. In addition, this program is set to sunset on June 30, 2015. The Nevada Legislature is currently considering SB 402, which would lift this sunset and make the annual survey permanent. It would also require the State to publish and disseminate the data.²² This legislation could be expanded to include kindergarten and track individual students over time. Longitudinal data would enable Nevada to more effectively respond to obesity issues.

HIA Recommendations:

- School districts, the Nevada Division of Public and Behavioral Health, and local health departments could consider collaborating to measure height and weight annually and to track data over time by using unique student identification numbers to maintain the confidentiality of personally identifiable information and make the data publicly available for monitoring purposes. School districts could:
 - Collect a representative sample of height and weight information of all students, including kindergarteners.
 - Track changes for individual students over time.
 - Report results to the Chief Medical Officer and the local health authority.
- The Nevada Division of Public and Behavioral Health could consider making the results of the hearing and vision screening data collected by the Chief Medical Officer publicly available, while protecting personally identifying information, for monitoring purposes.

Related Legislation:

- AB 206- Expands notification to parents of health issues identified in screening to include a list of any resources to provide appropriate medical attention, including services available for free or at a reduced cost.
- SB 402- Requires the annual survey of height and weight to continue in Washoe and Clark counties for students in 4th, 7th and 10th grades.

3. Full-day kindergarten can provide more time for nutrition education

Full-day kindergarten could increase the amount of time available for nutrition education, which research shows can have a positive effect on knowledge and attitudes about nutrition and physical activity into adolescence.²³ Nutrition education programs that are longer in duration, have a physical activity component, hands-on approaches, and parental involvement appear to be the most successful.²⁴

Access to nutrition education is currently limited. Nutrition education is included in the Nevada Health Standards for Pre-K through second grade (NAC 389.2423).²⁵ Instruction must be designed so pupils meet performance standards by the end of second grade. Therefore, nutrition instruction is not specifically required in kindergarten. Of the school districts reviewed, the HIA found that only CCSD provides a specified number of minutes per week for health/science curriculum, which includes nutrition. The district provides 75 minutes per week for students in full-day kindergarten and 35 minutes per week for students in half-day kindergarten. The other school districts reviewed do not have formal requirements to provide nutrition education for kindergarten students (Douglas, Lincoln, Lyon, Nye, and Washoe).

HIA Recommendations

- School districts could:

- Begin teaching nutrition education in kindergarten, which is consistent with Nevada health standards for grades K-2.
- Provide professional development to kindergarten teachers on nutrition education strategies, consistent with CDC guidelines.
- Combine nutrition education with physical activity.
- Work with community partners to obtain grants to promote nutrition education and to support professional development.
- The Nevada Department of Education could use its website to post resources for a nutrition education curriculum that is appropriate for kindergarten students and is aligned with health standards.

Related Legislation: None

4. Full-day kindergarten can increase opportunities for physical activity in school

Increasing the amount of time students spend in kindergarten could also increase opportunities for physical activity, which research shows can lead to improved health outcomes.²⁶ In Nevada, physical activity is provided to kindergarten students through a combination of recess, physical education (PE), and activities integrated into academic instruction. The HIA found that Nevada lacks robust physical activity requirements and that it is difficult to provide adequate opportunities for physical activity during half-day kindergarten programs.

Nevada does not currently require schools districts to provide physical education instruction in kindergarten. The PE standards for grades K-2 require pupils to meet the standards by the completion of the second grade, so no PE instruction is specifically required in kindergarten.²⁷ In addition, Nevada does not require a specific number of minutes of PE instruction. During the 2015 Session, the Legislature considered SB 178, which would have required students in grades K-11 to take at least 30 minutes of PE per day. This bill was not approved, however, due to concerns that there is not currently sufficient time in the school day to accommodate the proposed law.

While Nevada does not require a specific number of minutes for PE instruction, each Nevada school district's Wellness Policy includes a minimum number of minutes per day for physical activity for students.²⁸ Fourteen out of 17 school district policies require schools to provide 30 minutes per day for physical activity, which can include recess. Two districts do not specify an amount of time for physical activity (Elko and Lander) and Mineral only requires 20 minutes per day.

In practice, the HIA found that access to PE is difficult for students in half-day kindergarten programs and for kindergarten students in rural areas. CCSD requires 100 minutes of PE per week for full-day students and 50 minutes per week for half-day students, while WCSD provides 60 minutes of PE per week for full-day students and 30 minutes per week for half-day students. The rural districts reviewed do not have minimum PE minute requirements (Douglas, Lincoln, Lyon, and Nye) and the amount of PE provided varies by school. Stakeholders in rural areas indicated that it may be difficult to provide a formal PE class for kindergarten students because rural schools often lack a PE teacher.

Recess is more universally available across districts but students in half-day kindergarten programs receive fewer minutes of recess. All school districts reviewed by the HIA provide at least 150 minutes of recess per week for full-day kindergarten students. Clark and Nye provide 150 minutes per week,

Douglas and Lyon provide 225 minutes per week, and Washoe provides 300 minutes per week. Half-day students received at least 50 minutes of recess per week in Clark, 75 minutes per week in Lincoln, and no recess in Washoe.

The HIA found that existing time set aside for recess, PE, and academic instruction could be creatively used to ensure students receive the minimum number of minutes in each district's Wellness Policy.

HIA Recommendations:

1. School districts could ensure that kindergarten students receive the minimum minutes of physical activity included in each school district's Wellness Policy through a combination of recess, PE, and physical activity integrated into academic instruction (for example, integrating physical activity within kindergarten classrooms as part of planned lessons that teach mathematics, language arts, social studies, and other academic subjects). School Wellness Policies could meet Healthy People 2020 recommendations for PE and recess.
2. Each school district could develop a comprehensive school physical activity program as recommended by the CDC, with an emphasis on programs for kindergarten students. Each plan could:
 - Take into account different approaches necessary for full-day vs. half-day kindergarten programs.
 - As recommended by the CDC, implement strategies to ensure that kindergarten students maximize recess for physical activity, including: providing age-appropriate equipment for students, having adult recess supervisors encouraging students to be physically active, and providing semi-structured activity that involves activity stations (e.g., jump rope, four square, hopscotch stations).
 - Integrate physical activity within kindergarten classrooms as part of planned lessons that teach mathematics, language arts, social studies, and other academic subjects.

Related Legislation: SB 178- Requires students in grades K-11 to take at least 30 minutes of PE per day.

Conclusion

The Health Impact Assessment of full-day kindergarten study reveals several important relationships between expanding full-day kindergarten and improving health outcomes. Expansion of full-day kindergarten has the potential to increase academic outcomes, especially for English Language Learners and low-income students. The HIA found that higher levels of educational attainment are strongly linked with better health outcomes. The HIA also showed that expanding full-day kindergarten has the potential to increase access to services and instruction that can lay the groundwork for healthy habits that can endure through adulthood, including school breakfast and lunch, nutrition education, and physical activity.

There are several bills pending before the Nevada Legislature that are related to the recommendations in the HIA, including: (1) providing funding to expand full-day kindergarten to all schools; (2) changing the funding formula so that kindergarten students are funded at the same rate as other students (SB 508 and SB 345); (3) providing funding to implement Breakfast After the Bell (SB 503); (4) expanding notification to parents of health issues (AB 206); (5) tracking height and weight of students (SB 402); and (6) requiring instruction in physical education (SB 178). The research conducted by the HIA can serve as a tool to help inform the Legislature's decisions on these proposals.

About the Kenny C. Guinn Center for Policy Priorities



The Kenny C. Guinn Center for Policy Priorities is a 501(c)(3) nonprofit, bipartisan, think-do tank focused on independent, fact-based, relevant, and well-reasoned analysis of critical policy issues facing Nevada and the Intermountain West. The Guinn Center engages policy-makers, experts, and the public with innovative, data-driven research and analysis to advance policy solutions, inform the public debate, and expand public engagement. The Guinn Center does not take institutional positions on policy issues.

© 2015 Kenny C. Guinn Center for Policy Priorities, All rights reserved.

Address

Kenny C. Guinn Center for Policy Priorities
c/o Innevation Center
6795 Edmond Street, Suite 300
Las Vegas, NV, 89118
Phone: (702) 522-2178
Email: info@guinncenter.org
Website: www.guinncenter.org

Contacts

Dr. Nancy E. Brune, Executive Director
Phone: (702) 522-2178
Email: nbrune@guinncenter.org

Victoria Carreón, Director of Education Policy
Phone: (702) 522-2178
Email: vcarreon@guinncenter.org

¹ University of Nevada Las Vegas, School of Community Health Sciences. Full Day Kindergarten in Nevada: A Health Impact Assessment. May 2015. <https://www.unlv.edu/publichealth> and https://drive.google.com/a/alumni.stanford.edu/file/d/0ByWfG_1jQMvUSEh6b0VzVFpCY0E/view

² Nevada Report from the National Survey of Children's Health. NSCH 2011/2012. Child and Adolescent Health Measurement Initiative, Data Resource Center for Children and Adolescent Health website. Retrieved [02/24/15] from www.childhealthdata.org. and National Urban League Policy Institute. The State of Urban Health: Eliminating Health Disparities to Save Lives and Cut Costs. 2012. http://iamempowered.com/sites/default/files/nul_state_of_urban_health_2012_report_.pdf

³ University of Nevada Las Vegas, School of Community Health Sciences. Full Day Kindergarten in Nevada: A Health Impact Assessment. May 2015. <https://www.unlv.edu/publichealth> and https://drive.google.com/a/alumni.stanford.edu/file/d/0ByWfG_1jQMvUSEh6b0VzVFpCY0E/view

⁴ Nevada Department of Education. The Executive Budget- DSA and Related K-12 Budgets: 2015-2017 Biennium. January 20, 2015. <https://www.leg.state.nv.us/interim/77th2013/Committee/Interim/LegCommisionBudgetSubcomm/Other/20-January-2015/DSA.pdf>

⁵ Clark County School District. Tuition Based Extended Day Kindergarten Program. <http://ccsd.net/district/faq/resources/tuition-based-k-brochure.pdf>

⁶ Washoe County School District.

<http://www.washoeschools.net/cms/lib08/NV01912265/Centricity/Domain/332/Alphabet%20handbook%20foster.pdf>

⁷ SB 345 did not receive a hearing. This bill would have: (1) required school districts and charter schools to offer full-day kindergarten at each elementary school; (2) reduced the mandatory age for school enrollment from age seven to age five; and (3) funded kindergarten students at the same rate as others students effective FY 2017.

⁸ Chang, M. (2012). Academic performance of language-minority students and all-day kindergarten: A longitudinal study. *School Effectiveness and School Improvement*, 23(1), 21-48.; and Cooper, H., Allen, A., Patal, E. A., & Dent, A. L. (2010). Effects of full-day kindergarten on academic achievement and social development. *Review of Educational Research*, 80(1), 34-70. doi:10.3102/0034654309359185

⁹ Ibid

¹⁰ Hernandez, D. J. (2011). Double jeopardy: How third-grade reading skills and poverty influence high school graduation. Annie E. Casey Foundation

¹¹ Braveman, P., Egerter, S., & Williams, D. R. (2011). The social determinants of health: coming of age. *Annual review of public health*, 32, 381-398.; Braveman, P., & Gottlieb, L. (2014). The Social Determinants of Health: It's Time to Consider the Causes of the Causes. *Public health reports (Washington, DC: 1974)*, 129, 19-31.; Braveman, P. A., Egerter, S. A., & Mockenhaupt, R. E. (2011). Broadening the focus: the need to address the social determinants of health. *American journal of preventive medicine*, 40(1), S4-S18.; and Marmot, M., & Wilkinson, R. (2006). *Social determinants of health*. Oxford University Press.

¹² Ibid

¹³ Ibid

¹⁴ Ibid

- ¹⁵ L. Pitch and B. Campbell. 2011. Long-term effects of full-day kindergarten in third and fourth grades (FEDS-L4). Clark County School District Department of Research. <http://www.ccsd.net/resources/assessment-accountabilityresearch-school-improvement-division/long-term-effects-of-full-day-kindergarten-2011.pdf>
- ¹⁶ Basch, C. E. (2011). Healthier students are better learners: A missing link in school reforms to close the achievement gap. *Journal of School Health*, 81(10), 593-598.; and
- ¹⁷ Farris, A. R., Misyak, S., Duffey, K. J., Davis, G. C., Hosig, K., Atzaba-Poria, N. & Serrano, E. L. (2014). Nutritional Comparison of Packed and School Lunches in Pre-Kindergarten and Kindergarten Children Following the Implementation of the 2012–2013 National School Lunch Program Standards. *Journal of nutrition education and behavior*, 46(6), 621-626.; Gleason, P. M., & Dodd, A. H. (2009). School breakfast program but not school lunch program participation is associated with lower body mass index. *Journal of the American Dietetic Association*, 109(2), S118-S128.; and McLoyd, Vonnie C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, Vol 53(2), Feb, 185-204. Retrieved from <http://dx.doi.org/10.1037/0003-066X.53.2.185>
- Mirtcheva, D. M., & Powell, L. M. (2013).
- ¹⁸ Nevada Department of Agriculture. School Meals in Nevada. 2014. http://dhhs.nv.gov/uploadedFiles/dhhsnv.gov/content/Programs/Grants/Advisory_Committees/Food_Policy_Council/DeptofAg_School-Meals-in-NV-Update_Summer2014.pdf
- ¹⁹ Nevada Department of Agriculture. School Meals in Nevada. 2014. http://dhhs.nv.gov/uploadedFiles/dhhsnv.gov/content/Programs/Grants/Advisory_Committees/Food_Policy_Council/DeptofAg_School-Meals-in-NV-Update_Summer2014.pdf
- ²⁰ Basch, C. E. (2011). Healthier students are better learners: A missing link in school reforms to close the achievement gap. *Journal of School Health*, 81(10), 593-598.; Centers for Disease Control and Prevention. (2013). Behavioral Risk Factor Surveillance System. Prevalence and Trends Data. Retrieved from <http://apps.nccd.cdc.gov/brfss/>; and Mathers, M., Keyes, M., & Wright, M. (2010). A review of the evidence on the effectiveness of children's vision screening. *Child: Care, Health and Development*, 36(6), 756-780.
- ²¹ Ibid
- ²² Nevada Legislature, 2015 Session, Assembly Bill 402, Proposed Amendment 6909 <https://www.leg.state.nv.us/App/NELIS/REL/78th2015/ExhibitDocument/OpenExhibitDocument?exhibitId=15510&fileDownloadName=AHHS%2005-08-15%20WSD.pdf>
- ²³ Flynn, M., McNeil, D., Maloff, B., Mutasingwa, D., Wu, M., Ford, C., & Tough, S. (2006). Reducing obesity and related chronic disease risk in children and youth: A synthesis of evidence with 'best practice' recommendations. *Obesity Reviews*, 7(s1), 7-66.; Puma, J., Romaniello, C., Crane, L., Scarbro, S., Belansky, E., & Marshall, J. A. (2013). Long-term student outcomes of the integrated nutrition and physical activity program. *Journal of Nutrition Education and Behavior*, 45(6), 635-642.
- ²⁴ Ibid
- ²⁵ Nevada Administrative Code 389.2423 <https://www.leg.state.nv.us/NAC/NAC-389.html#NAC389Sec2423>
- ²⁶ See for example: DeCorby, K., Robeson, P., Husson, H., Tirilis, D. (2009). School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6-18 (review). *Evidence-based Child Health: A Cochrane Review Journal*, 4; O'Donovan, G., Blazeovich, A. J., Boreham, C., Cooper, A. R., Crank, H., Ekelund, U., Gill, J. M. R. (2010). The ABC of physical activity for health: A consensus statement from the British association of sport and exercise sciences. *Journal of Sports Sciences*, 28(6), 573-591.; and Warburton, D., Nicol, C., Bredin, S. (2006). Health benefits of physical activity: the evidence. *Canadian Medical Association Journal*, 174(6), 801-809.
- ²⁷ Nevada Register R062-13 amending NAC 389.2425 <https://www.leg.state.nv.us/Register/2013Register/R062-13A.pdf>
- ²⁸ Wellness Policies are required by Federal Public Law 108-265