

## Introduction

The objective of this study is to determine an estimate for the impacts of chronic absenteeism on student outcomes in North Dakota. The data that follows consists of students who were enrolled in grade 7 in a North Dakota school in the school years 2013-14, 2014-15, or 2015-16.

For the purposes of this study, a student is considered chronically absent if are enrolled at least 170 days in a school and are absent for at least 10% of those days.

## Summary of outcomes for chronically absent students in North Dakota

Table 1 below shows a brief summary of the differences between students who were chronically absent in 7th grade compared with those that were not. Students who were chronically absent were roughly 4.5x more likely to dropout of high school at some point, while also being 2x more likely to be on an IEP or free/reduced lunch.

Table 1: Summary of students by chronically absent status, grade 7, fall 2013-2015

Group	Count	Dropout Rate	IEP Rate	Free/Reduced Lunch Rate
Not chronically absent	19540	6.9%	12.9%	30.4%
Chronically absent	1563	31.0%	25.8%	61.6%

However, this does not indicate the effect of chronic absenteeism on student outcomes, as factors such as academic performance, IEP, free/reduced lunch status, etc. must be controlled for to determine the true impact of chronic absenteeism.

## Comparing similar students

Outcomes for chronically absent students cannot be directly compared to those students who were not chronically absent due to the confounding effects of other variables, such as demographics and academic performance. To further isolate the effects of chronic absenteeism, students were only considered for further analysis if they had not been chronically absent in any year prior to their 7th grade year. Even when removing students who had not been chronically absent prior to 7th grade, there is still a significant difference in many underlying variables between chronically absent and non-chronically absent 7th graders.

	NDSA State Percentile		IEP %	Free/reduced lunch %
	NDSA Mathematics	NDSA Reading		
Chronically absent	42.8	44.4	10.6%	45.7%
Not chronically absent	53.1	52.9	6.6%	24.6%

Table 2: Summary information for 6th grade students by 7th grade absenteeism status when students were not chronically absent in any prior grade

To more closely isolate the effect of chronic absenteeism, students who were chronically absent in 7th grade were matched utilizing propensity score matching with similar students who were not chronically absent in 7th grade. Students were matched on the following characteristics:

- IEP status in 4th, 5th, and 6th grade
- Free/reduced lunch status in 4th, 5th, and 6th grade
- NDSA Mathematics and Reading state percentiles in 4th, 5th, and 6th grade

The resulting propensity score match provides a much more even comparison of the effects of chronic absenteeism in isolation. The table below illustrates the comparison between the two groups of students after matching had been performed. 4th and 5th grade information was also used to increase the quality of the match, such that students were matched with a very similar student over the three years prior to 7th grade.

	Count	NDSA State Percentile		IEP %	Free/reduced lunch %
		NDSA Mathematics	NDSA Reading		
Chronically absent	384	44.4	46.0	11.5%	40.4%
Not chronically absent	384	44.9	45.8	11.7%	41.9%

Table 3: Summary information for 6th grade students by 7th grade absenteeism status following propensity score matching

### Effect of chronic absenteeism on high school dropout risk

Determining the effect of chronic absenteeism on dropout risk for students requires comparison of dropout rates for similarly matched 7th grade students. The dropout counts by matched pair are given below.

		<i>Not chronically absent</i>	
		Dropout	Not Dropout
<i>Chronically Absent</i>	Dropout	5	63
	Not dropout	17	299

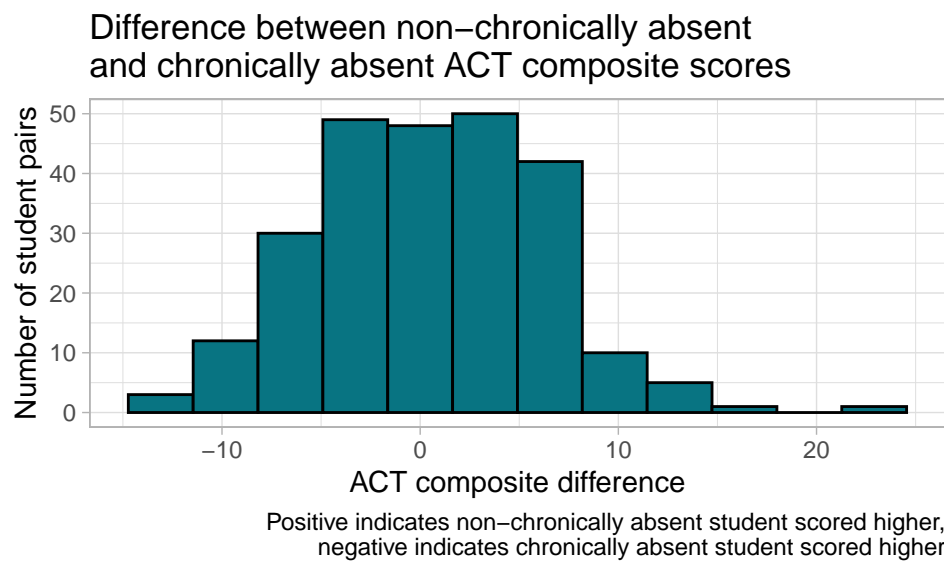
Table 4: Dropout results for student matched pairs

The dropout rate among the matched student groups for chronically absent students was 17.7%, while students who were not chronically absent in 7th grade had a dropout rate of 5.7%. McNemar’s test for related samples was used to create a 95% confidence interval for the true difference in dropout rates between chronically absent and not chronically absent.

The difference between these rates shows the high school dropout rate for chronically absent students in 7th grade to be 5.0% percentage points to 19.0% percentage points higher than students not chronically absent in 7th grade.

Effect of chronic absenteeism on ACT composite scores

Interestingly, while chronic absenteeism appears to have a negative connection with high school graduation rates, that correlation does not appear to extend to ACT composite scores. Of the 251 matched pairs of students where both the chronically absent student and their non-chronically absent counterpart both took the ACT exam, there is not conclusive evidence to conclude that there is a difference between the ACT composite scores for chronically absent students and non-chronically absent students (with similar backgrounds).



The 95% confidence interval for the difference between paired ACT tests for non-chronically absent students minus their matched pair chronically absent student is -0.27 lower to 1.12 higher.

Effect of chronic absenteeism on postsecondary enrollment

For students in the matched pair groups who graduated high school, there appears to be a connection between chronic absenteeism in 7th grade and a lower postsecondary enrollment rate. The enrollment rates of the matched student pairs are shown below where both students graduated from high school. Enrollment is in-state or out-of-state postsecondary enrollment in the fall semester immediately following the spring of high school graduation.

		Not chronically absent	
		Enrolled	Not enrolled
Chronically Absent	Enrolled	96	29
	Not enrolled	72	28

Table 5: Dropout results for student matched pairs

55.5% of students in the chronic absenteeism group were enrolled in postsecondary, compared with 74.7% of the students who were not chronically absent in 7th grade. Again utilizing McNemar’s test, a 95% confidence interval for the difference between the two proportions shows that chronically absent are between -10.8% to -27.5% percentage points lower than similar students who were not chronically absent.