



Pathways to College and Career for Students Identifying as Deaf, Hard of Hearing, or Deaf/Blind

March 31, 2021

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About the Minnesota Office of Higher Education

The Minnesota Office of Higher Education is a cabinet-level state agency providing students with financial aid programs and information to help them gain access to postsecondary education. The agency also serves as the state's clearinghouse for data, research, and analysis on postsecondary enrollment, financial aid, finance, and trends.

The Minnesota State Grant Program is the largest financial aid program administered by the Office of Higher Education, awarding more than \$207 million in need-based grants to Minnesota residents attending accredited institutions in Minnesota. The agency oversees tuition reciprocity programs, a student loan program, Minnesota's 529 College Savings Plan, licensing, and early college awareness programs for youth.

About Minnesota SLEDS

Minnesota has developed the Minnesota Statewide Longitudinal Education Data System (SLEDS) matching student data from prekindergarten through completion of postsecondary education and into the workforce. SLEDS facilitates analysis to address a range of educational programmatic and delivery methods to gauge their effectiveness and ease the design of targeted improvement strategies that help students. SLEDS brings together data from education and workforce to:

- Identify the most viable pathways for individuals in achieving successful outcomes in education and work.
- Inform decisions to support and improve education and workforce policy and practice.
- Assist in creating a more seamless education and workforce system for all Minnesotans.

The Minnesota P-20 Education Partnership governs the SLEDS system. The project is managed jointly by the Minnesota Office of Higher Education (OHE), Minnesota Departments of Education (MDE), and Employment and Economic Development (DEED).

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Introduction

National research indicates that Deaf, Deaf/Blind, and Hard of Hearing students are less likely to finish high school, enroll in college, or find sustainable employment than their hearing peers. Nationally, only 5% of the Deaf, Deaf/Blind, and Hard of Hearing community between 18-64 enrolled in a postsecondary institution or training program, only 51% complete some college, and only 15.2% complete a bachelor's degree (Garberoglio et al., 2019).

For the national Deaf, Deaf/Blind, and Hard of Hearing community, employment rates, and employment industries vary greatly. The five most common employment industries were business management, education, science-related, engineering, and the social sciences (Garberoglio et al., 2019). However, in 2017, only 53% of the Deaf, Deaf/Blind, and Hard of Hearing community were employed compared to 76% of the hearing population. The Deaf, Deaf/Blind, and Hard of Hearing community's unemployment rates were 3.8% in 2017 versus 3.4% for their hearing peers, which is statistically significant (Garberoglio et al., 2019). Employment rates have not increased since 2008.

Our study finds that Deaf, Deaf/Blind, and Hard of Hearing students in Minnesota are only slightly less likely to finish high school than their hearing peers in Minnesota. Additionally, 68% enrolled in a postsecondary institution which was less than that of all Minnesota students (81%) but higher than the national average in 2019 of 66% (U.S. Bureau of Labor Statistics, 2020). 59% of Deaf, Deaf/Blind, and Hard of Hearing students in Minnesota were employed post-high school exit, which is larger than the national average of 53% for the Deaf, Deaf/Blind, and Hard of Hearing community but smaller than the average for all residents in Minnesota of 68% (U.S. Bureau of Labor Statistics, 2021).

Minnesota is one of the few states that provides data to the National Deaf Center, the leading research center in Deaf, Deaf/Blind, or Hard of Hearing and Transition (age 14-21) systems. However, minimal research on Minnesota Deaf, Deaf/Blind, and Hard of Hearing students exists. To leverage comparisons across states and nationally, Minnesota commissioned an analysis of K-12, postsecondary, and employment outcomes for students from 2006-2019. This research is needed to begin to improve outcomes and success rates for these students.

Why This Study is Important

Education attainment correlates to success in many of life's transitional outcomes, such as personal and financial security, better health, and increased social involvement. Critical to understanding the systemic factors affecting educational attainment for all students is the ability to collect and analyze comprehensive data on college enrollment, retention, and completion rates. The data and analysis in this study offer stakeholders and policymakers crucial information on systemic factors that affect college and career outcomes. Employment opportunities, the potential for career advancement, and overall lifetime earnings all increase as educational attainment increases. Garberoglio et al. (2019)

indicated that Deaf, Deaf/Blind, and Hard of Hearing students' employment rates increased from 31.7% for those without a high school diploma or equivalent to 74.4% for those with a graduate degree.

For individuals in the Deaf/Hard of Hearing and Deaf/Blind community, the smaller population size makes the reporting of college and career outcomes difficult. Best practices and confidentiality call for the suppression of low-incidence rates, which result in the outcomes for this community often being overlooked. According to the National Deaf Center (2017), a concerted national effort is being made to increase the collection of comprehensive data on transitions from K-12 to college and work and college to work. With a greater number of Deaf, Deaf/Blind, and Hard of Hearing students attending a variety of institutions, the number of Deaf/Hard of Hearing and Deaf/Blind students attending individual schools becomes even smaller. It is not uncommon for Deaf, Deaf/Blind, and Hard of Hearing students to attend schools where they are one of only a few deaf students enrolled (National Deaf Center, 2017).

What is SLEDS Data?

Data analyzed for this report is from the Minnesota Statewide Longitudinal Education Data System, more commonly known as SLEDS. SLEDS tracks student data from prekindergarten through completion of postsecondary education and into the workforce. SLEDS facilitates data analysis to address a range of educational programmatic and delivery methods to gauge their effectiveness and ease the design of targeted improvement strategies that help students.

The cohort of students for analysis included K-12 students enrolled 2006-2019 with a primary disability code of deaf/hard of hearing, deaf and blind, or both at any point in grades kindergarten through 12. The Minnesota report also includes comparison data for peer groups in the report, if available.

K-12 and Adult Basic Education data comes from the Minnesota Department of Education (MDE). Postsecondary enrollment and graduation data came from the Minnesota Office of Higher Education (OHE) and the National Student Clearinghouse. Employment data comes from the Minnesota Department of Employment and Economic Development (DEED). The data are linked across data sources at the individual level based on matching personal identifiers, including first name, last name, date of birth, MARSS number (K-12 student identifier), and social security number, if available.

Description of the Study

To maximize reporting of Minnesota Deaf, Deaf/Blind, and Hard of Hearing student outcomes, we created five student cohorts/groupings to minimize cell size suppression where possible. In Minnesota, students who identify as Deaf, Deaf/Blind, or Hard of Hearing represent only 0.3% of the student population, with some districts having less than ten Deaf, Deaf/Blind, and Hard of Hearing students. In order to protect student privacy, no data is shown for students where cell size is less than ten.

We created the five student cohorts by sectioning the 3271 students included in the study by the year the student started 9th grade and enrollment status between the years of 2006 – 2019. These cohorts allowed trend analysis between cohorts rather than individual students. The data analyzed included K-12, postsecondary, and workforce outcomes for Deaf, Deaf/Blind, and Hard of Hearing students with an academic record in high school for years 2006 – 2019. Due to the low counts of Deaf, Deaf/Blind, and Hard of Hearing students in the population in a given year, these cohorts were chosen to minimize cell suppression.

The cohort division for the study is as follows based on the year the student entered 9th grade:

- **Cohort One** from 2002 to 2005 (550 students)
- **Cohort Two** from 2006 to 2009 (834 students)
- **Cohort Three** from 2010 to 2012 (600 students)
- **Cohort Four** from 2013 to 2015 (574 students)
- **Cohort Five** from 2016 to 2019 (713 students)

Working with stakeholders from the Minnesota Commission of Deaf, Deaf/Blind, and Hard of Hearing (MNCDHH), Minnesota Department of Education (MDE), Minnesota Department of Employment and Economic Development (DEED), K-12, and Deaf, Deaf/Blind, and Hard of Hearing stakeholders, this study assesses the educational and career transitions and outcomes for deaf, deaf/blind, and hard of hearing students to establish a baseline for Minnesota students. The following research questions were developed in consultation with stakeholders. The primary focus of research includes demographics, K-12 outcomes, postsecondary outcomes, and workforce outcomes.

Student Demographics

1. What are the demographics of students that identify as Deaf, Deaf/Blind, and Hard of Hearing in Minnesota?

K-12 outcomes

2. What percentage of students that identify as Deaf, Deaf/Blind, and Hard of Hearing complete K-12 with a diploma or GED? What percentage dropout or age out of high school? How do these outcomes compare to peer groups?
3. How do students that identify as Deaf, Deaf/Blind, and Hard of Hearing perform on academic assessments compared to other peer groups? What percentage of students that identify as Deaf, Deaf/Blind, and Hard of Hearing participate in rigorous courses?

Postsecondary Outcomes

4. What is the college enrollment rate for Deaf, Deaf/Blind, and Hard of Hearing students? How do these rates compare to other reported primary disability codes?
5. What is the rate of full-time and part-time college enrollment for Deaf, Deaf/Blind, and Hard of Hearing students after high school exit? What percentage of students that identify as Deaf, Deaf/Blind, and Hard of Hearing complete college? What is their highest credential earned?

Workforce Outcomes

6. What percentage of students that identify as Deaf, Deaf/Blind, and Hard of Hearing are employed after K-12 exit? At what rate are they employed full-time?
7. What is the average income of students that identify as Deaf, Deaf/Blind, and Hard of Hearing post-K-12 exit? How does this compare to other peer groups?

Findings: What the Data Tells Us

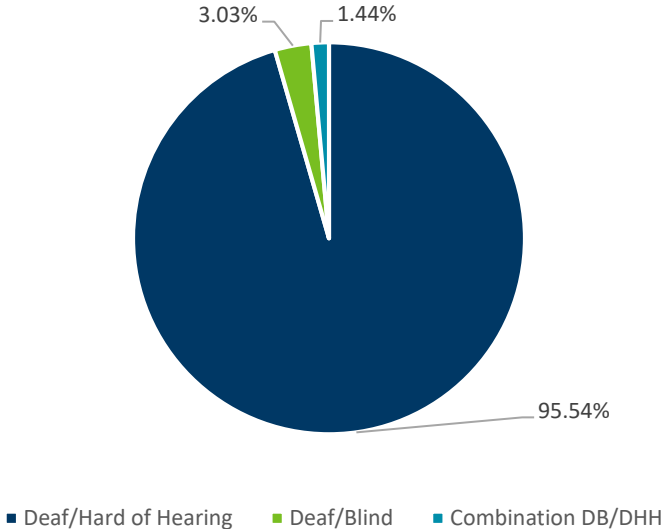
Our study found:

- Eighty-four percent of Deaf, Deaf/Blind, and Hard of Hearing students in Minnesota completed high school, which is slightly less than the overall high school graduation rate of 86%.
- Sixty-eight percent of Deaf, Deaf/Blind, and Hard of Hearing students that graduated from high school enrolled in a postsecondary institution compared to 81% of all the Minnesota student body and 55% of their hearing peer groups. However, for Deaf, Deaf/Blind, and Hard of Hearing students, this percentage is rising from previous cohorts.
- Deaf, Deaf/Blind, and Hard of Hearing high school graduates typically earn a higher education credential in approximately four and a half years. Deaf, Deaf/Blind, and Hard of Hearing students earning a bachelor's degree completed it in about five and a half years.
- For Deaf, Deaf/Blind, and Hard of Hearing students in the workforce ten years post-high school exit, 59% were employed compared to 53% nationally and 68% in Minnesota (U.S. Bureau of Labor Statistics, 2020). Of the Deaf, Deaf/Blind, and Hard of Hearing students in Minnesota that were employed, 51% were employed full-time.

Demographics

Ninety-six percent of the students in the population identified as having a primary disability as Deaf/Hard of Hearing.

Figure 1: Percentage of Students by Reported Primary Disability



Race and Ethnicity

For all years in the study, the percentage of students in the population by ethnicity/race were as follows:

Figure 2: Percentage of Students by Reported Primary Disability

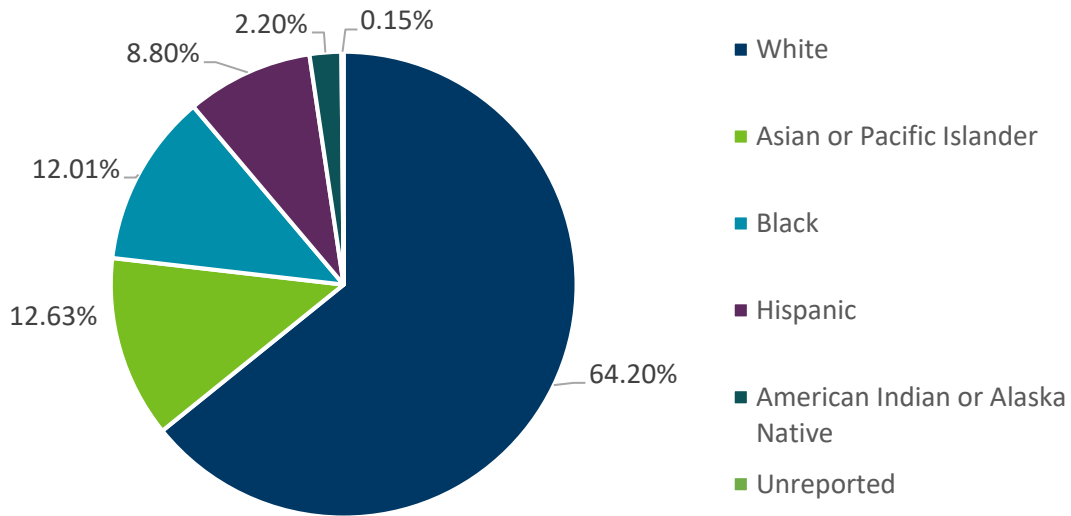
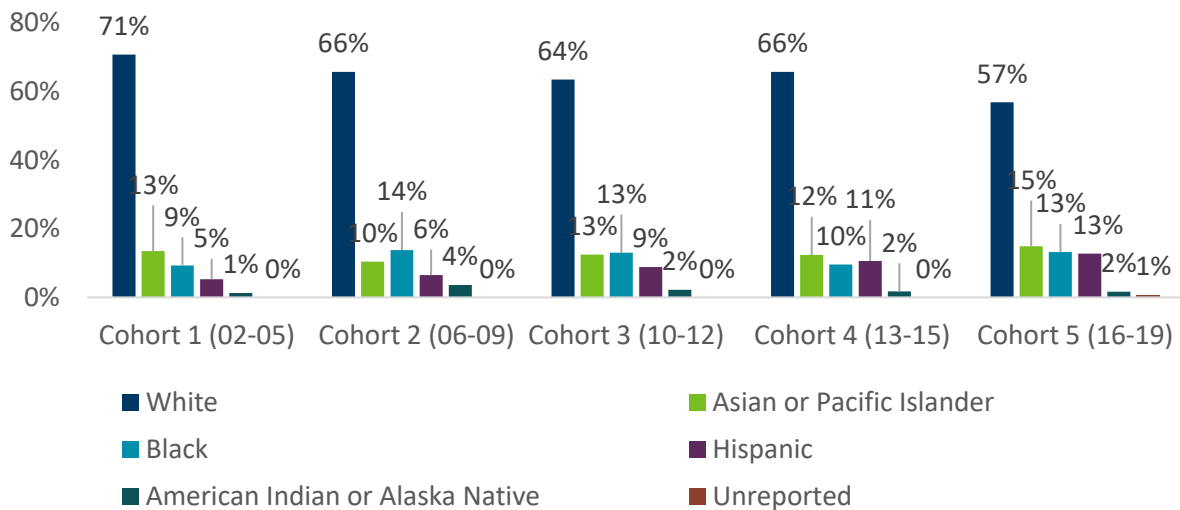


Figure 3: Percentage of Students in the Population Identifying as Students of Color or Indigenous Students

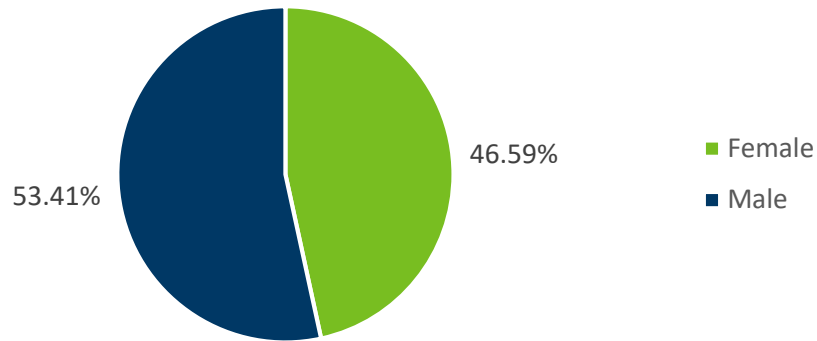


The percentage of students reporting as Hispanic or black increased between 2006 and 2009 while the percentage of those reporting as White decreased. The percentage of students reporting as Asian or Pacific Islander and American Indian or Alaska Native remained consistent.

Gender

Fifty-three percent of the population among all cohort years identified as male.

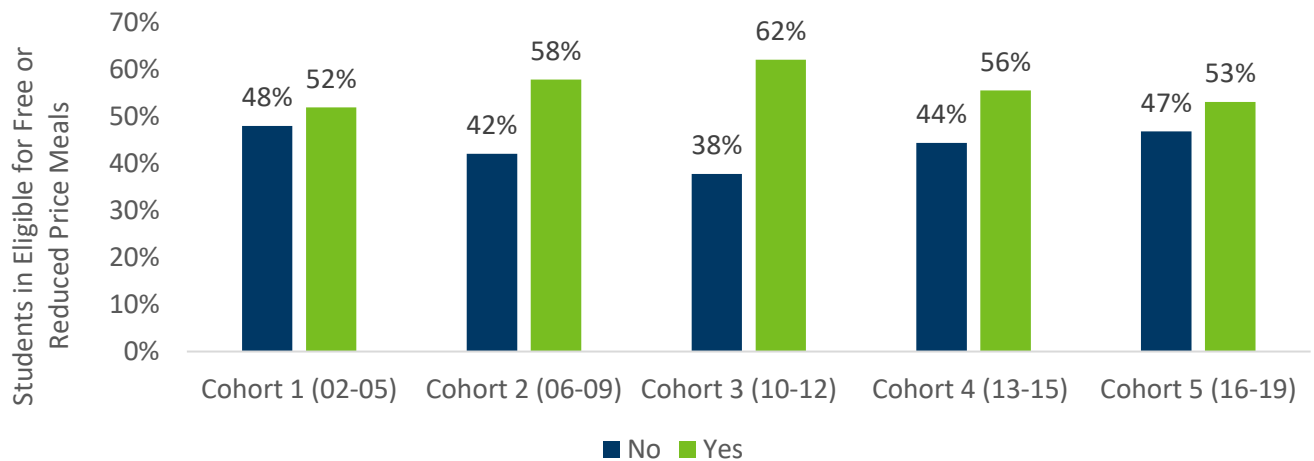
Figure 4: Percentage of Students by Gender



Free or Reduced-Price Meal Eligibility (FRPM)

Over 50% of the population among all cohort years were eligible for free or reduced-price meals at any point in grades 9 - 12.

Figure 5: Students Eligible for Free or Reduced-Price Meals



The highest percentage of the population eligible for free or reduced-price meals occurred in cohort 3 with 62%. The percentage has decreased since then but remains over 50% of the population.

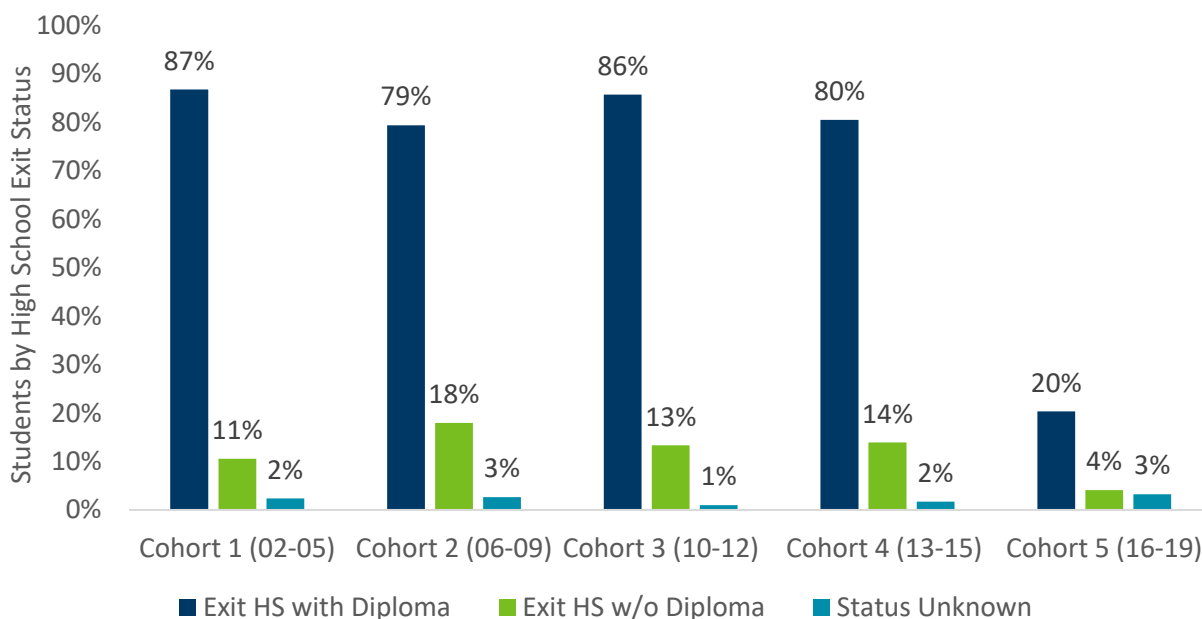
Eligibility for free or reduced-priced meals in Minnesota is determined by annual family income. The Minnesota Department of Education guidelines for the 2020-2021 school year state that for a family of five, eligibility for free or reduced-price meals is as follows:

- Free Meals – Maximum Annual Salary of \$39,884
- Reduced Price Meals – Salary Range of \$39,885 - \$56,758

K-12 Outcomes

Sixty-nine percent of all cohort groups exited high school with a diploma, and 14% exited high school without a diploma.

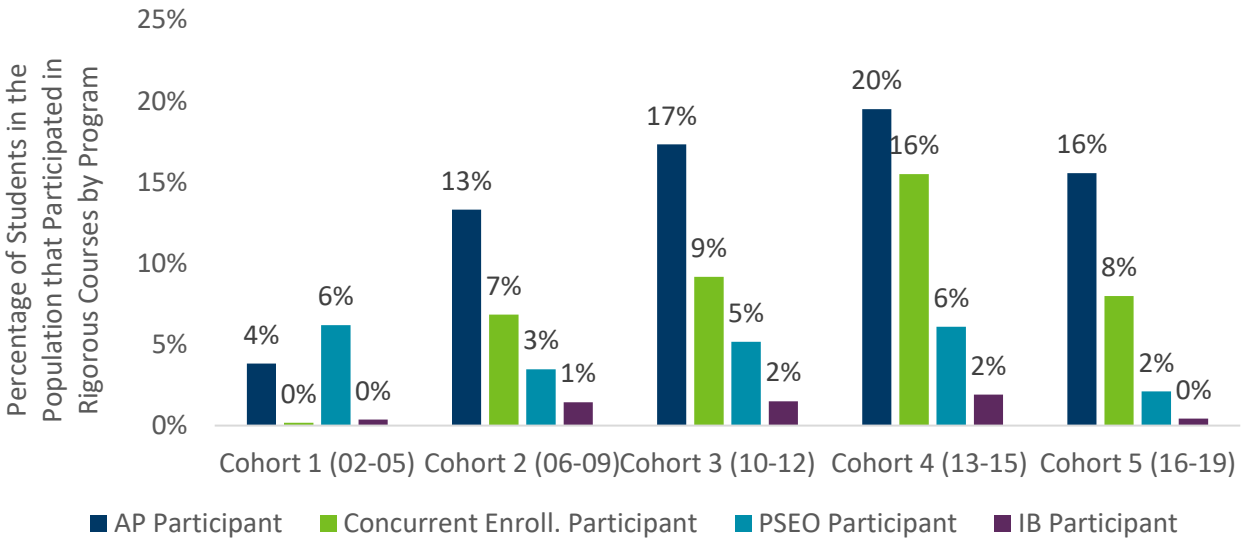
Figure 6: Students Exiting High School with a Diploma



Note that cohort five only includes students with an HS graduation note or who were not enrolled in the most recent year (2019).

Twenty-seven percent of students participated in Rigorous courses such as Concurrent enrollment (CE), Postsecondary enrollment options (PSEO), International Baccalaureate (IB), and Advanced Placement (AP).

Figure 7: Students Participating in Rigorous Courses

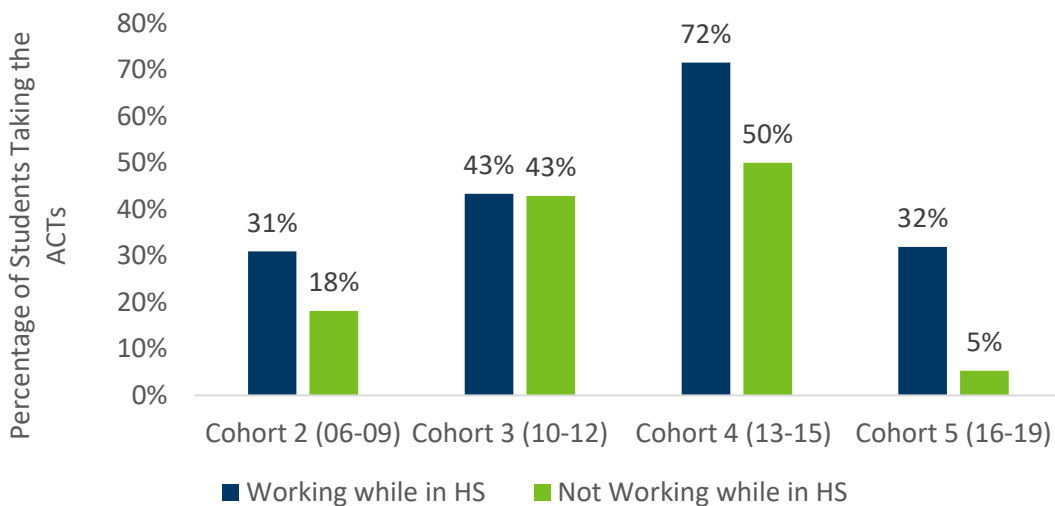


Note that cohort 5 are more recent students who may still be enrolled in K12.

Twenty-nine percent of all students and 42% of graduates took the ACT exams.

- The average composite ACT score was 19.13
 - The average Math scale score was 19.51
 - The average English scale score was 17.29
 - The average Reading scale score was 19.43
 - The average Science scale score was 19.71

Figure 8: The Percentage Students that took the ACT While Working Increased in Recent Cohorts

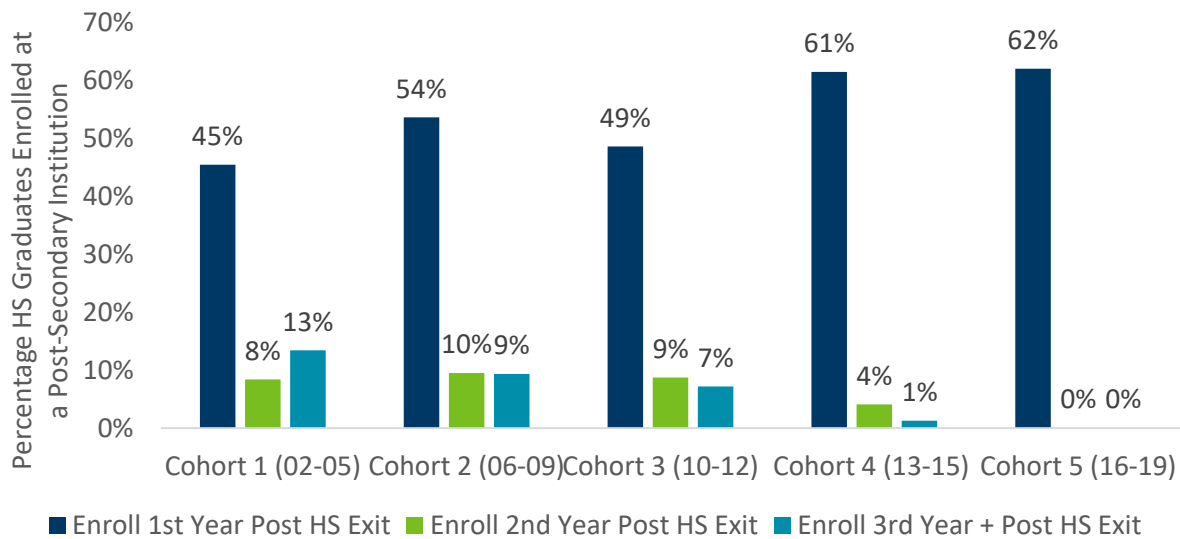


The average composite and scale scores for students in the population decreased between cohort two and cohort 5.

Postsecondary Outcomes

Sixty-eight percent of high school graduates enrolled at a postsecondary institution. Eighty-three percent of those enrolled at an institution in Minnesota.

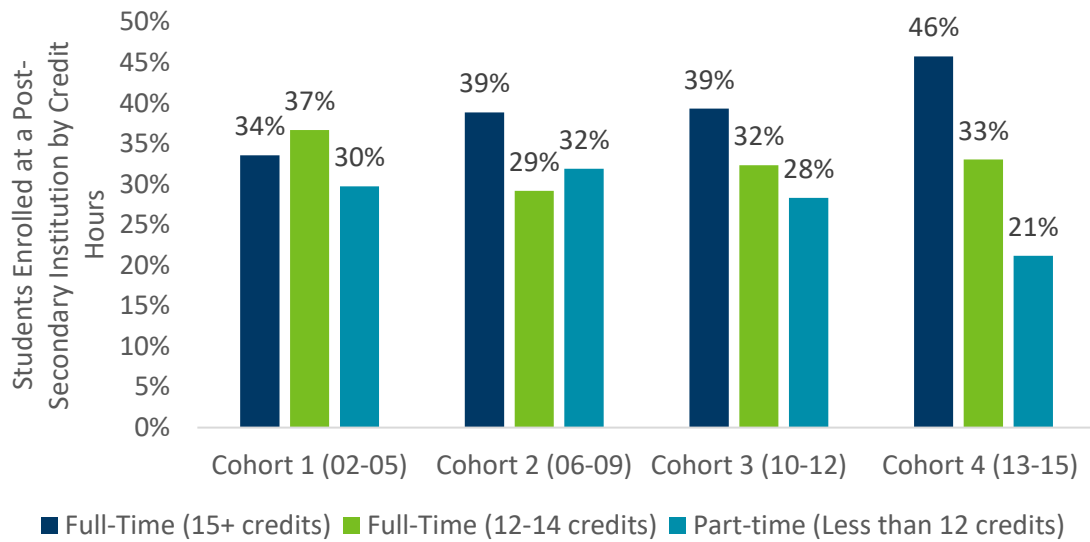
Figure 9: The Percentage of High School Graduates Enrolled in a Postsecondary Institution the First Year Post HS Exit Increased in Newer Cohorts



Note that cohort five does not include students that enrolled in high school in 2019.

Fifty-two percent of students that enrolled in a postsecondary institution attended full-time, and 21% attended part-time.

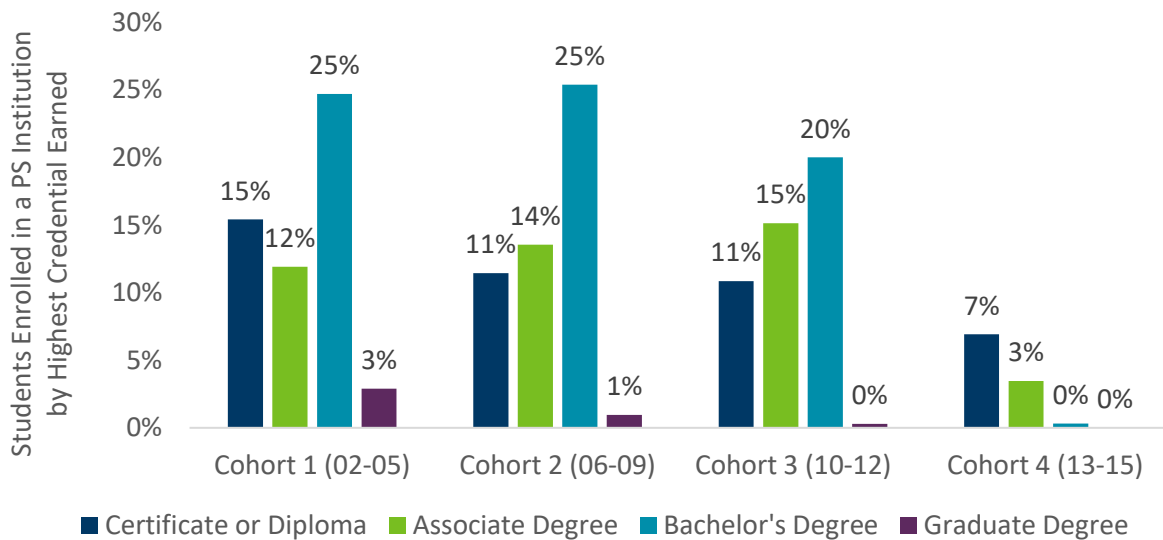
Figure 10: Students that Reported Enrolling in Full-Time Credits Increased in Newer Cohorts



Full-time enrollment in the first term of college is a predictor of college completion. Most high school graduates enroll in college full-time.

Thirty-nine percent of students that enrolled in a postsecondary institution earned a credential. Of those, 17% earned a bachelor's degree.

Figure 11: The Percentage of Students Earning a Higher Credential



Workforce Outcomes

Forty-nine percent of students were employed one year after exiting high school. By ten years after exiting high school, 31% of students were employed

Table 1: The Percentage of Students Employed

Cohort Group	1 yr. Post HS Exit	2 yrs. Post HS Exit	3 yrs. Post HS Exit	4 yrs. Post HS Exit	5 yrs. Post HS Exit	6 yrs. Post HS Exit	7 yrs. Post HS Exit	8 yrs. Post HS Exit	9 yrs. Post HS Exit	10 yrs. Post HS Exit
Cohort 1 (02-05)	66.9%	66.7%	65.1%	64.5%	62.5%	64.5%	62.9%	64.0%	61.5%	59.1%
Cohort 2 (06-09)	55.2%	59.2%	61.9%	61.4%	62.7%	60.1%	55.6%	42.6%	28.5%	NA
Cohort 3 (10-12)	67.7%	66.8%	64.2%	56.5%	40.7%	18.5%	NA	NA	NA	NA
Cohort 4 (13-15)	63.6%	39.0%	20.4%	NA	NA	NA	NA	NA	NA	NA
Cohort 5 (16-19)	0.3%	0.1%	NA	NA	NA	NA	NA	NA	NA	NA

The data in year 9 for cohort two, year 6 for cohort three, and year 3 for cohort four, is only for a partial year and should not be used for trend analysis.

Of the students working post-high school exit, 7% worked full-time one year after exiting high school. By ten years post-high school exit, 50% were employed full-time.

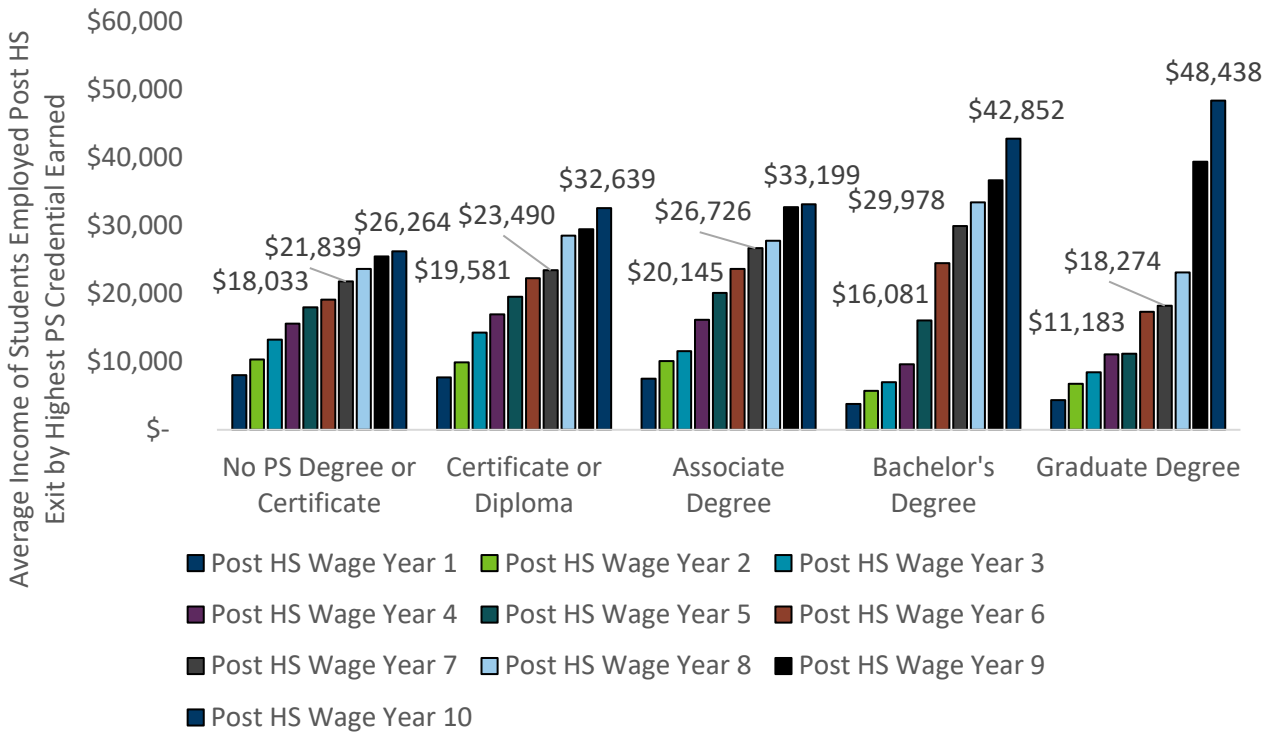
Table 2: The Percentage of Students Employed Full-Time

Cohort Group	Full-Time Yr. 1	Full-Time Yr. 2	Full-Time Yr. 3	Full-Time Yr. 4	Full-Time Yr. 5	Full-Time Yr. 6	Full-Time Yr. 7	Full-Time Yr. 8	Full-Time Yr. 9	Full-Time Yr. 10
Cohort 1 (02-05)	9.8%	13.1%	18.7%	23.1%	27.9%	28.7%	36.1%	44.3%	49.4%	51.1%
Cohort 2 (06-09)	5.4%	9.7%	16.5%	23.4%	30.2%	35.3%	43.8%	42.0%	44.1%	48.2%
Cohort 3 (10-12)	6.7%	14.2%	20.5%	31.3%	35.2%	30.6%	NA	NA	NA	NA
Cohort 4 (13-15)	5.8%	10.3%	13.7%	NA	NA	NA	NA	NA	NA	NA
Cohort 5 (16-19)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

The data in year 9 for cohort two, year 6 for cohort 3, and year 3 for cohort 4 is for a partial year only and should not be used for trend analysis.

Ten years post-high school exit, trends indicate that students with Graduate Degrees earned the highest average annual income.

Figure 12: The Average Income of Students



In the first several years post-high school exit, students that did not enroll in a PS institution earned a higher average income than those enrolled in a PS institution. By year 5, those with associate degrees and certificates/diplomas earned more than those who did not enroll in a PS institution and those enrolled in bachelor's or grad programs.

Notes and Definitions

Data sources. This report utilizes analysis resulting from linking student-level data within the Minnesota Statewide Longitudinal Education Data System (SLEDS) on Minnesota public high school graduates from the Minnesota Department of Education with college enrollment data from the Minnesota Office of Higher Education and the National Student Clearinghouse.

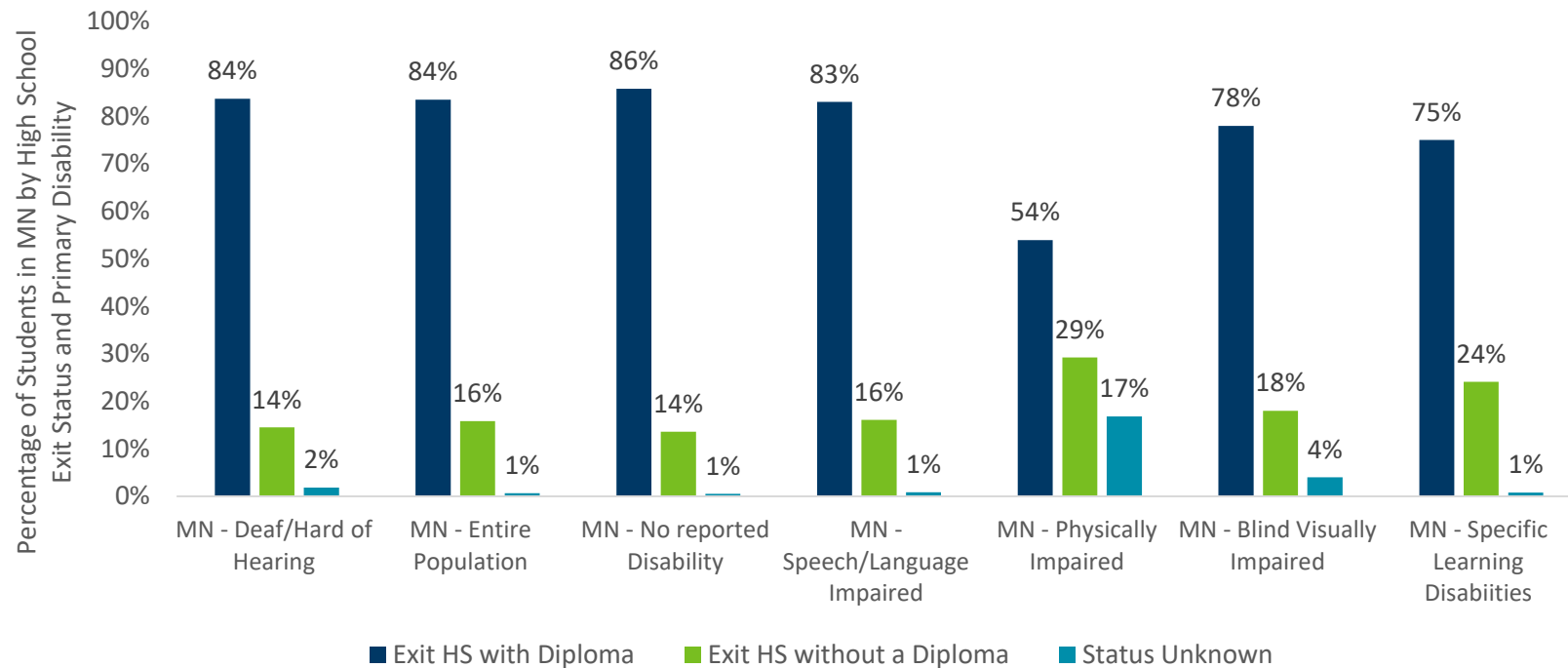
Time period covered. This report uses data on students enrolled in a K-12 program in Minnesota with a primary disability code of deaf/hard of hearing, deaf and blind, or both at any point in grades K-12 between 2006 and 2019. **Terms:**

- **Disability Code:** For this report, we define the student's reported disability code as the type of impairment or disability associated with a student as indicated in an Individualized Education Program (IEP), Individualized Family Service Plan (IFSP), or Individual Interagency Intervention Plan (IIIP).
- **MARSS Number:** The Minnesota Automated Reporting Student System, or MARSS, is an individual student record system serving as the primary reporting system for student data for the Minnesota Department of Education.

Additional Figures and Tables

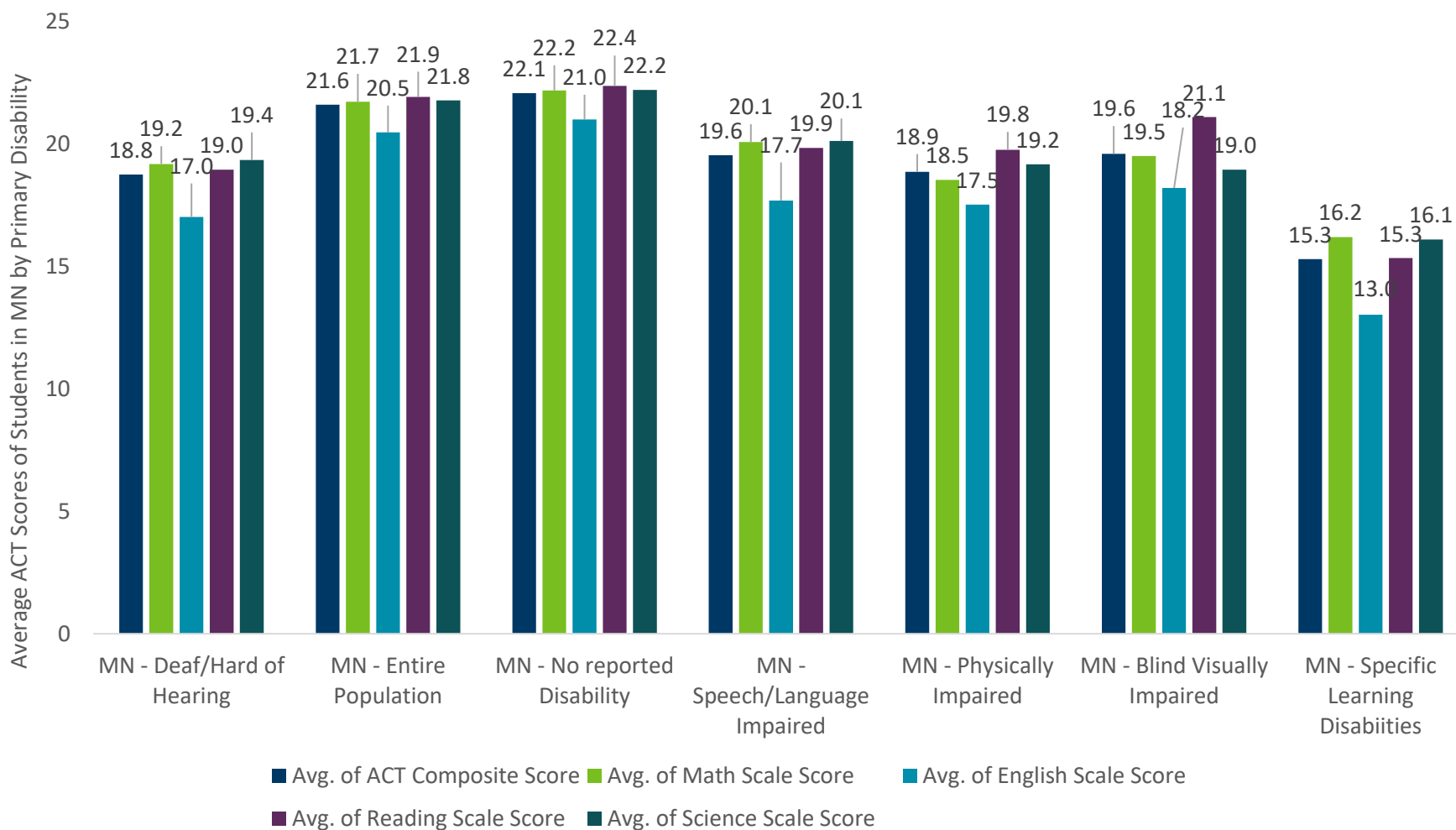
The percentage of Deaf, Deaf/Blind, and Hard of Hearing students graduating from High School with a diploma is only slightly less than the percentage of students who graduated and reported no disability.

Figure 13: The Percentage of Deaf, Deaf/Blind, and Hard of Hearing Students that Exit High School with a Diploma



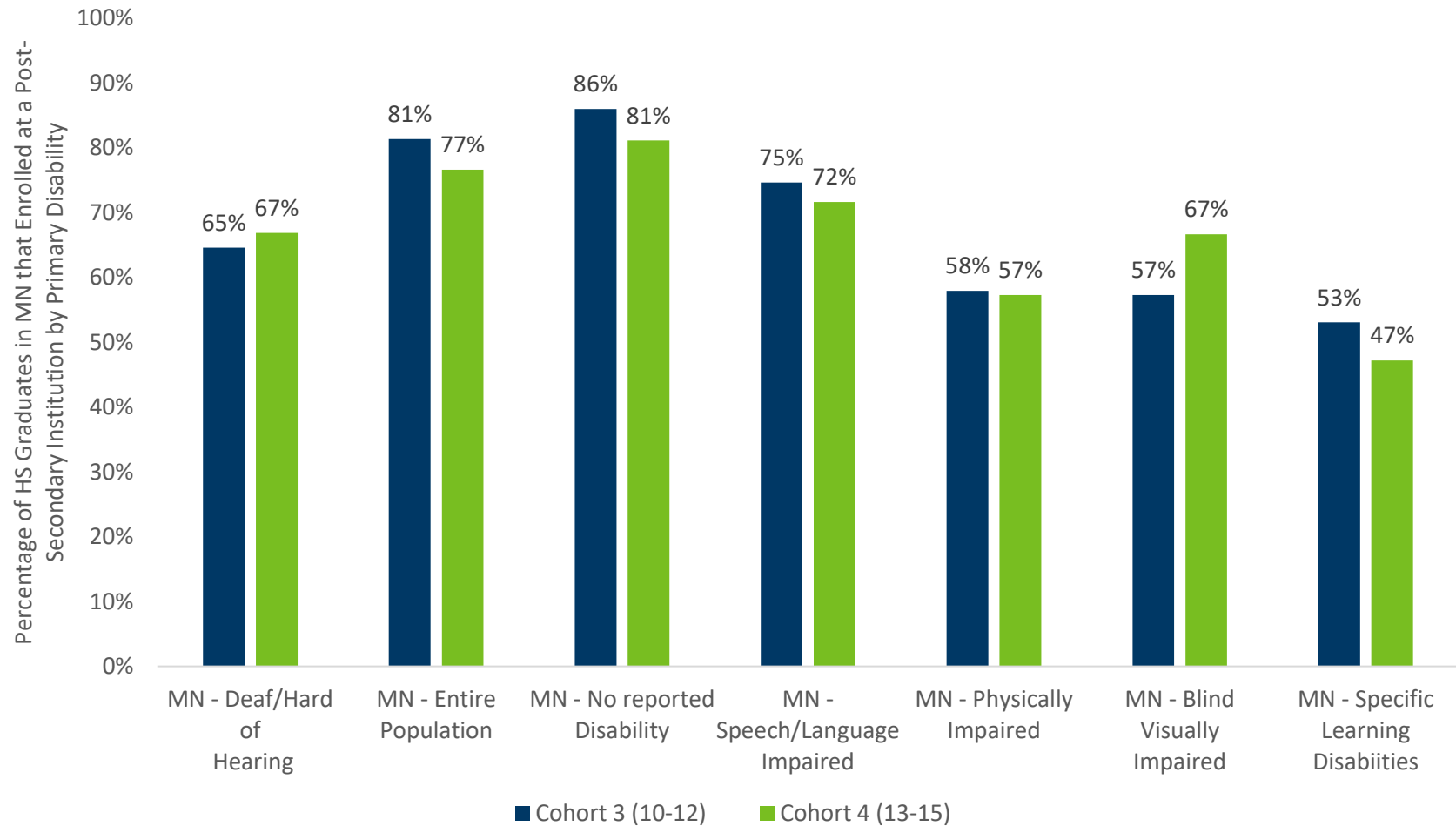
The average ACT scores for Deaf, Deaf/Blind, and Hard of Hearing students was less than the entire population of Minnesota and comparable to the average ACT scores of other reported disabilities.

Figure 14: The Average ACT Scores for Deaf, Deaf/Blind, and Hard of Hearing Students



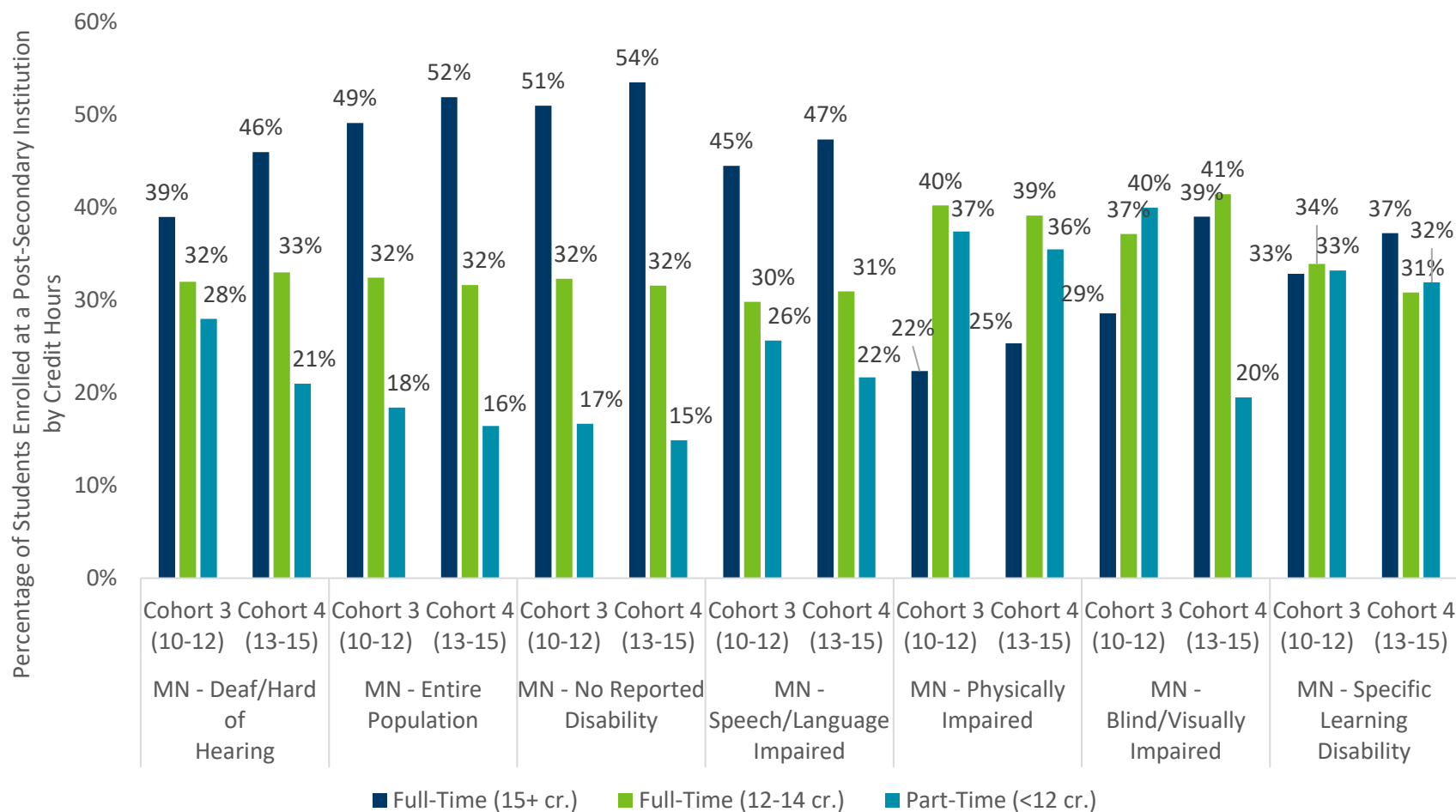
A smaller percentage of students who identify as having a primary disability of Deaf/Hard of Hearing enrolled in a postsecondary institution than students who report no disability. However, that percentage did increase from cohort three to cohort four.

Figure 15: The Percentage Deaf, Deaf/Blind, and Hard of Hearing High School Graduates that Enrolled in a Postsecondary Institution



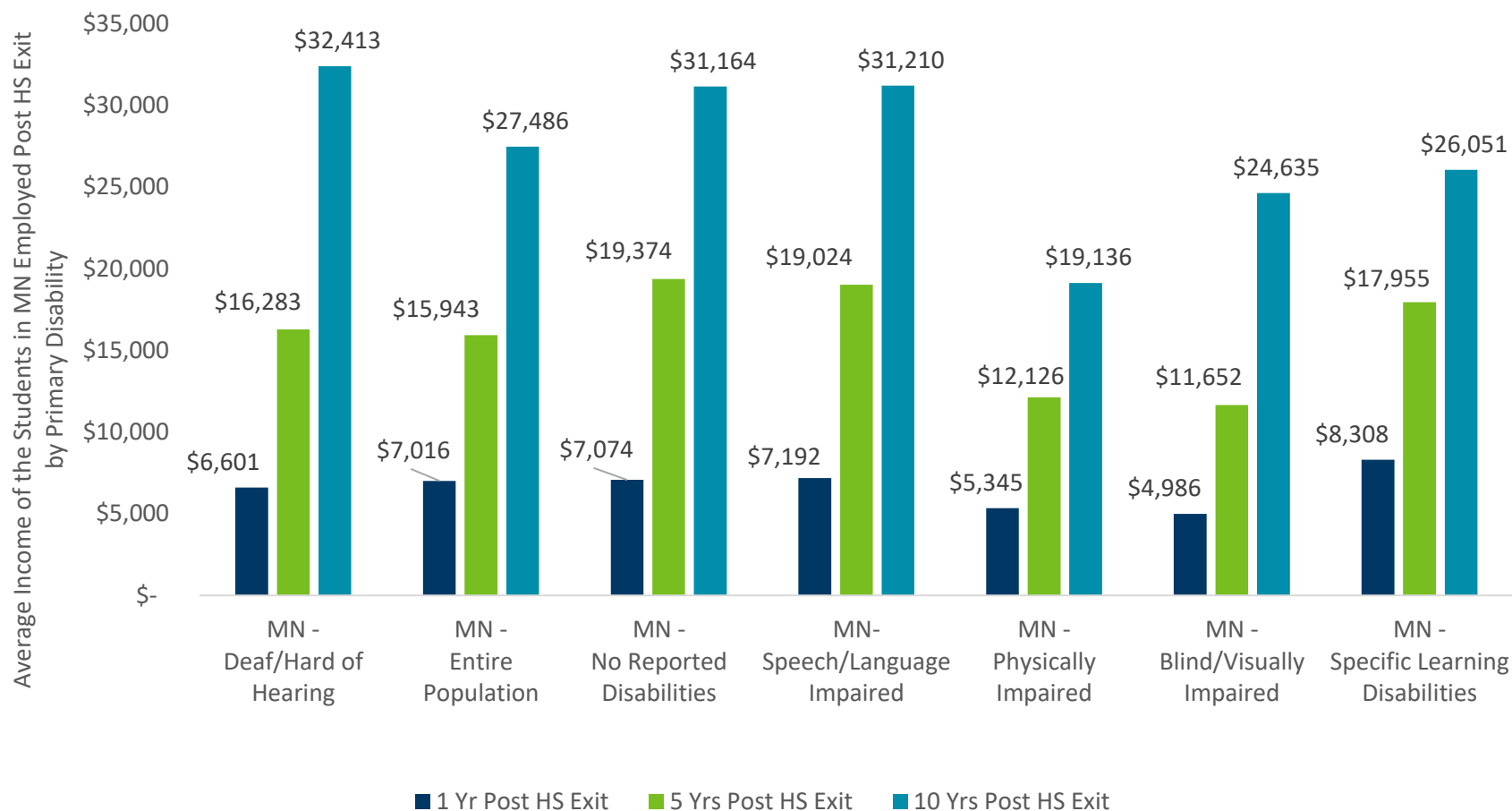
Fewer students that identify as having a primary disability of Deaf/Hard of Hearing enrolled full-time at a postsecondary institution than those that report no disability. However, a more significant percentage enrolled part-time with less than 12 credit hours. Full-time enrollment in the first term of college is a predictor of college completion. Most high school graduates enroll in college full-time.

Figure 16: The Percentage of Deaf, Deaf/Blind, and Hard of Hearing Students that Reported Full-Time Credits at a Postsecondary Institution



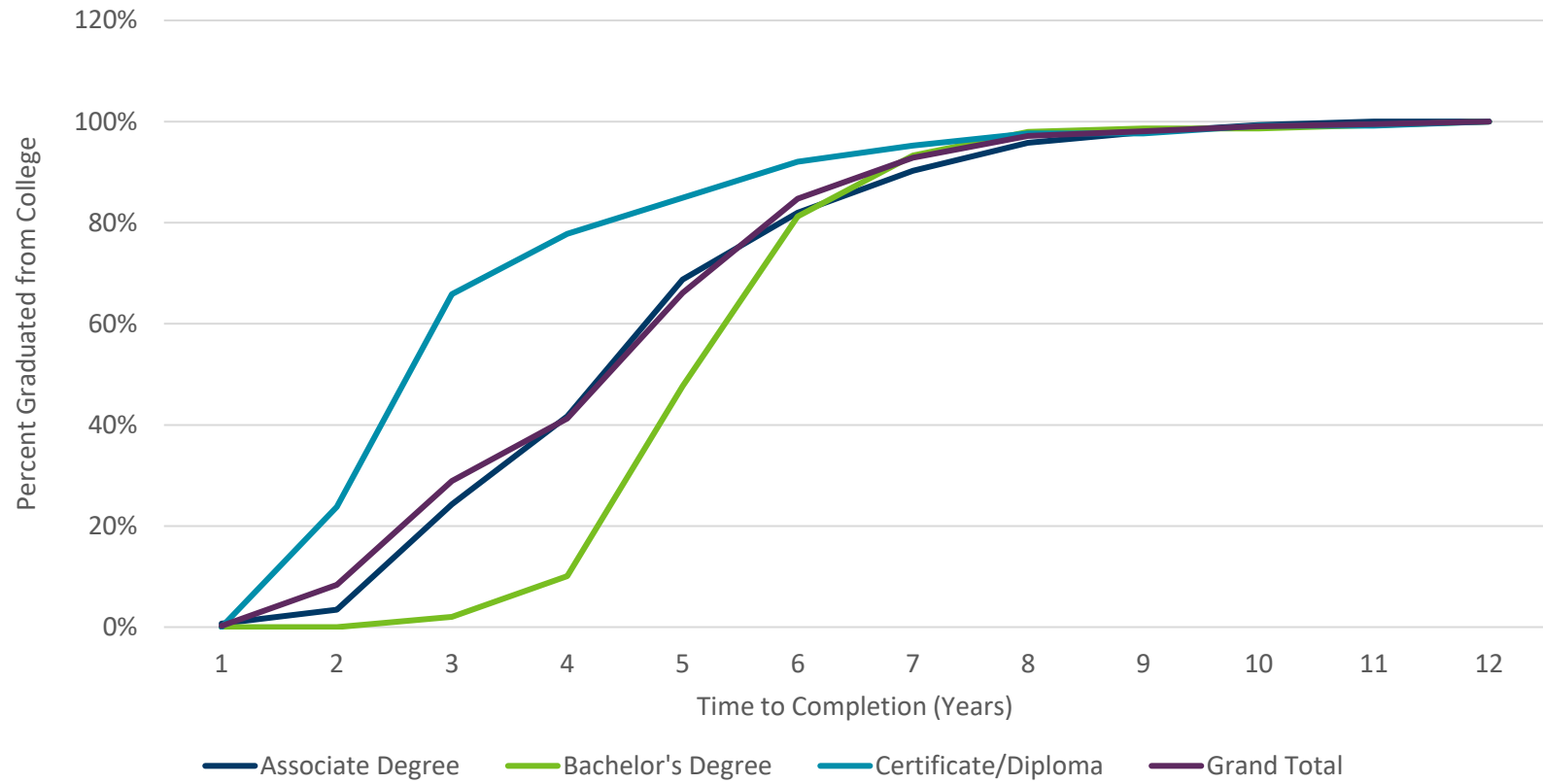
For cohorts one and two, by the tenth-year post-high school exit, the average income of Deaf, Deaf/Blind, and Hard of Hearing students is higher than that of students that reported no disability. In the first and fifth-year post-high school exit, the average income of Deaf, Deaf/Blind, and Hard of Hearing is lower than that of the students who report no disability.

Figure 17: Post High School Exit Average Income for Deaf, Deaf/Blind, and Hard of Hearing students



Students attending a postsecondary institution, and earning a higher credential, took an average of 5 and a half years to complete their certification. Twenty-seven percent of students earned their associates degree within four years of entering into the program. Thirty-eight percent of students earned their bachelor's degree within four years, and 34% earned their credential after five years of entering the program. Year ten was higher than students in Minnesota with no Reported Disabilities and other Comparison Disability Groups

Figure 18: Students Graduating from a Postsecondary with a Certificate or Credential



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2021