

# The Changing Face of Apprenticeship in Montana

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When you think of apprenticeships, what jobs come to mind? Perhaps electricians, plumbers, or carpenters? Occupations in the trades are commonly associated with apprenticeship because they make up a significant amount of current apprenticeship programs. Montana's Registered Apprenticeship program has been growing and evolving in recent years to not only increase apprenticeship in these traditional apprenticeable occupations, but also to expand into industries such as healthcare and information technology. These efforts have not only helped participation growth but have led to a more diverse population of apprentices. Due to this recent activity, this EAG focuses on understanding Montana's Registered Apprenticeship program and how the program is expanding.

## What is Registered Apprenticeship?

Montana's Registered Apprenticeship program is a type of work-based learning where a worker participates in both classroom time and on-the-job training. Apprenticeships typically last three to four years (although some programs are shorter), and apprentices are paid a wage while working.

Once completed, the apprentice receives an industry-recognized certificate indicating to employers throughout the U.S. that the worker is trained and qualified. Some occupations in Montana, such as plumbers and electricians, require apprenticeship certification for state occupational licensing. In some instances,

the participant can simultaneously earn a simultaneous post-secondary degree as part of their classroom training.

New registered apprenticeship programs are created when employers express interest and work with the Montana Registered Apprenticeship Program to establish a curriculum that is customized to meet the needs of the employer. Once the program is in place, the employer is responsible for hiring and training the apprentice. The Montana Department of Labor & Industry's Registered Apprentice Program is a recognized State Apprenticeship Agency by the U.S. Department of Labor, allowing the Department to monitor the apprenticeship and award the apprentice credentials.

## Growth of Montana's Registered Apprenticeship Program

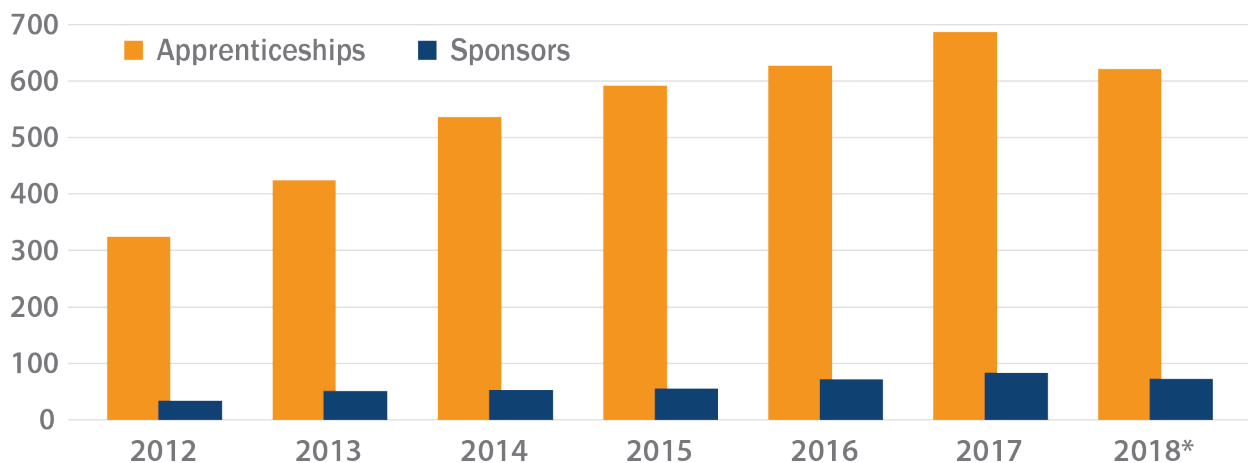
In 2017 there were 2,082 active apprenticeships sponsored by 554 businesses. These apprentices trained in one of 60 different occupations throughout that year. Although registered apprenticeship has been around for decades, it has recently experienced significant

growth. There were 687 new apprenticeships in 2017 compared with 324 new in 2012. Similarly, there were 83 new sponsors (the employers training the apprentice) in 2017 compared with 34 new in 2012. **Figure 1** shows new apprenticeships and sponsors over the last five years.

Part of the accelerated growth of apprenticeship is explained by the generally consistent job growth in Montana over the past several years. Sponsors are hiring more apprentices because employers are hiring more workers in general. But part of this growth is due to employer demand for new and creative training methods. Montana's tight labor market and worker shortage make it difficult for employers to find qualified applicants. The apprenticeship program allows businesses a way to hire workers who aren't currently qualified for the job, and then train those workers based on a training schedule that meets the employer's needs.

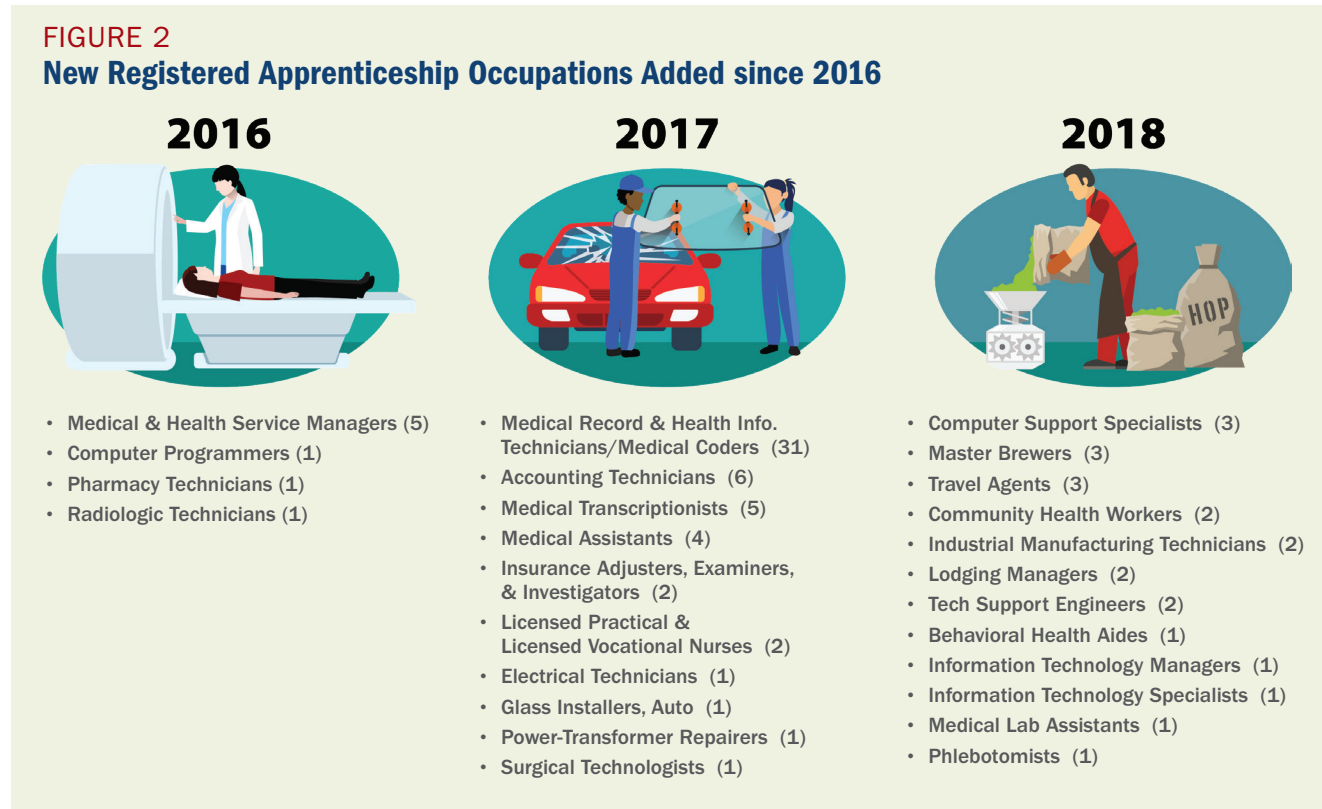
Another explanation for the growth in Montana's Registered Apprenticeship program is due to the expansion into new occupations. Twenty-six new occupations have been added

**FIGURE 1**  
**New Apprenticeships and New Sponsors**  
2012-2018



Source: Montana's Registered Apprenticeship Program \*Through September 30, 2018

since 2016, including medical coders, community health workers, lodging managers, information technology specialists, and master brewers. Apprenticeship expansion into these occupations has created an opportunity for a different set of workers to participate in apprenticeship and receive the benefits that work-based learning provides, such as earning wages while earning a credential. One of the most successful new occupations in recent years is the certified nursing assistant (CNA). The first program started in 2015 with just two apprentices. By 2017 there were 120 apprentices training to be certified nursing assistants. **Figure 2** lists new occupations and the total number of apprenticeships since 2016.



Despite the growth into new occupations, registered apprenticeship is still dominated by apprentices working in the trades. In 2017, over half of all apprentices trained as either electricians (38 percent of apprenticeships in 2017) or plumbers (21 percent of apprenticeships in 2017). The remaining 41 percent of apprenticeships trained in one of the other available occupations. Part of the reason for the disproportionate share of electricians and plumbers is that an apprentice certificate is required for licensing in Montana. Over one-third of all electricians employed

in Montana in 2017 were apprentices being trained through the Registered Apprentice Program. **Figure 3** shows the most common occupations for apprenticeship (those with 30 or more apprenticeships in 2017), along with the employment level in Montana.

## Demographics

Apprentices are typically younger, male workers. Ninety percent of apprentices over the past 18 years are men. Part of the reason for low enrollment of female apprentices is

**FIGURE 3**  
**Number of Active Apprenticeships in 2017**

ONET	Occupation Title	Active Apprenticeships	Total Employment	Apprentices as a % of Employment
47-2111.00	Electricians	791	2,170	36.5%
47-2152.02	Plumbers	438	1,890	23.2%
31-1014.00	Nurse Assistant, Certified	120	6,170	1.9%
47-2152.01	Pipe Fitters	118	1,890	6.2%
47-2031.01	Carpenters	93	4,300	2.2%
47-2211.00	Sheet Metal Workers	83	520	16.0%
49-9051.00	Electrical Power-line Installers and Repairers	43	680	6.3%
47-2011.00	Boilermaker	37	150	24.7%
49-9021.01	Heating & Air Conditioning Mechanic & Installer	36	950	3.8%
47-2221.00	Structural Iron & Steel Workers	35	130	26.9%
Total of Listed Apprenticeships		1,884	16,960	11.1%
Total of all Apprenticeable Occupations		2,030	64,820	3.1%

Source: MT DLI Registered Apprenticeship Program. Data from 2000 to September 30, 2018. Employment data from the May 2017 Bureau of Labor Statistics Occupational Employment Survey, Montana.

that the most popular apprenticeship programs are typically male-dominated occupations. According to the U.S. Census Bureau, 4.3 percent of Montana's construction and extraction workers are women.<sup>1</sup> Construction and extraction workers include plumbers and electricians. Since 2000, there have been 73 women in the electrician apprenticeship program (2.8 percent of participants), and 27 women (1.8 percent) in the plumbing program.

The traditionally low rate of female participation has helped drive the idea that there is an opportunity for apprenticeship expansion directed towards women. Some of the new apprenticeship programs, particularly in the healthcare field, have attracted more women apprentices. The certified nurse assistant apprenticeship programs have been particularly popular with 162 total apprentices since the first program began in 2015. One hundred fifty-one of these apprentices are women. Medical coder apprenticeships, which started in 2017, already has had 31 apprentices, 30 of whom are women. These apprenticeship

expansion efforts have helped increase female apprenticeship so that 19 percent of new apprentices in 2017 were women.

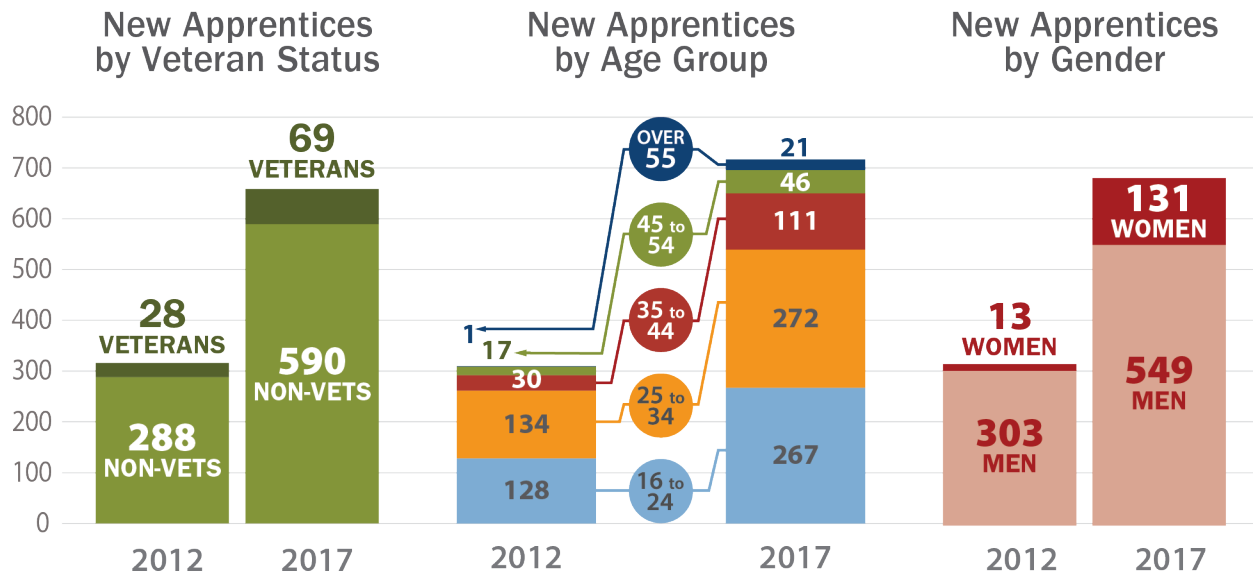
Apprentices are generally between the ages of 16 and 34 as many workers seek apprenticeships at the start of their careers. A large number of apprentices in this age group signals that work-based learning in the form of apprenticeship is becoming a well-known option for young adults to pursue directly after high school. In 2017, 39% of new apprentices were between 16 and 24 years old.

There has been an increase in participation in apprenticeship by veterans in recent years. Sixty-nine veterans were hired as apprentices in 2017 compared with 28 in 2012. This number may increase with the recent passage of the apprenticeship tax credit. Starting in 2018, employers may receive a state income tax credit for hiring an apprentice, with an increased credit if that apprentice is a veteran. The number of apprentices by gender, age, and veteran status is shown in **Figure 4**.

<sup>1</sup> 2017 American Community Survey 1-Year Estimates, U.S. Census Bureau.



**FIGURE 4**  
**New Apprentice Demographics**



Source: MT DLI Registered Apprenticeship Program.

## Wage and Retention Rates of Apprentices

The growth and expansion of Montana's Registered Apprenticeship program would not be possible without the interest of Montana's employers. The fast growth of apprenticeship programs indicates that there is significant business interest, and this interest is driven by the many benefits of apprenticeship. One major benefit for employers is that apprenticeship helps keep Montana workers in Montana. Among apprenticeship graduates from 2012 and later, 86.7 percent were employed and working for a Montana employer in 2017. In times of a tight labor market and worker shortage, employee retention becomes particularly important for employers. Apprenticeships are one way that Montana's employers can provide cost-effective training and help keep these skilled workers in Montana's labor force.

One of the biggest advantages of being an apprentice is that they earn wages while getting their certification. The average wage for Montanans currently in registered apprenticeship training in 2017 was about \$39,290, which is higher than the typical income potential of a college student working around a class schedule. The higher income earned during training years may allow apprentices to continue to support their families while receiving training, or rely less on student loans, placing them in a better financial position for the rest of their careers.

After graduation, Montana apprentices who successfully completed their training earned wages of \$63,635 in 2017, \$20,000 higher than the statewide average wage. However, the wage premium for apprentices depends on the occupation. In some occupations,

**FIGURE 5**  
**Average Wages of Recent Apprenticeship Graduates**  
*Compared with Occupational Entry-Level and Average Wages*

Occupation	Apprentices	Graduated Apprentice Average Wage	Entry Level Wage (25th Percentile)	State Average Wage
Electrical Power-Line Installers and Repairers	31	\$111,127	\$70,700	\$80,670
Industrial Machinery Mechanics	8	\$89,646	\$43,680	\$54,880
Municipal Fire Fighters	5	\$83,096	\$38,710	\$48,790
Pipe Fitters	27	\$81,327	\$52,400	\$63,860
Electricians	127	\$58,888	\$49,460	\$60,400
Plumbers	105	\$57,989	\$52,400	\$63,860
Construction Laborers	3	\$54,006	\$30,560	\$37,430
Sheet Metal Workers	9	\$53,757	\$38,120	\$52,370
Boilermakers	13	\$51,312	\$54,730	\$64,040
Structural Iron and Steel Workers	8	\$45,458	\$34,700	\$48,620
Construction Carpenters	7	\$40,208	\$34,440	\$43,900
Child Care Workers	4	\$34,576	\$18,930	\$22,360

Source: MT DLI Registered Apprenticeship Program and UI wage match, 2017. Wage data is from the May 2017 Bureau of Labor Statistics Occupational Employment Survey, Montana. Note: Occupations with fewer than three graduates are not shown.

apprentices tend to earn higher than the average occupational wages in Montana, and in other occupations, apprentices earn lower wages. **Figure 5** illustrates the wages earned by recent graduates from the apprentice program by occupation compared to Montana wages at the 25th-percentile wage and at the state average wages. The 25th percentile represents the expected entry-level wages for workers just starting out in their careers, while the average wage includes all workers, including those with extensive training and experience.

For roughly half of the occupations, the recent apprenticeship graduates were earning significantly higher wages than the statewide average. In 11 out of the 12 occupations shown, the apprentice graduates were earning wages above the entry-level occupational wage. Given that apprentices are just starting out in their chosen careers, apprenticeship appears to give workers a leg up over other workers,

bringing them to average or above average wages even though they are recent graduates and just starting out in their careers.

## Conclusion

There are many advantages to participating in registered apprenticeship such as earning wages while learning and helping to retain skilled workers in the state. Montana's workers and employers are taking advantage of these opportunities and their increased interest has helped drive the current growth and expansion of Montana's Registered Apprenticeship program. However, there is potential to expand even further. There are over 1,000 occupations on the national list of apprenticeable occupations, and Montana's registered apprentices have trained in just over 80 of them since 2000.<sup>2</sup> For further information on creating a new program, please contact the Montana Department of Labor & Industry's Registered Apprenticeship Program.

<sup>2</sup> For a list of apprenticeable occupations on the national list please see <https://www.doleta.gov/OA/occupations.cfm>.