

Career and Technical Education and Career Readiness Certificate Study Findings: FY2018 Releases

Prepared by the Research - Evaluation Unit
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VIRGINIA DEPARTMENT OF CORRECTIONS

Presentation Outline

- Overview of Career and Technical Education (CTE) programs and Career Readiness Certificate (CRC) program
- Purpose and background of the two programs
- Characteristics of CTE & CRC Participants and Non-Participants
- CTE Participants
 - CTE completions
 - CTE course type participation and recidivism
 - CTE career clusters and recidivism
- CRC Participants
 - CRC certificate levels
 - Recidivism rates by certificate level
- Recidivism of program participants versus a comparison group
- Comparison to FY2016 Education Evaluation
- Summary

Overview of Correctional Education Programs at DOC Facilities

- Workforce Correctional Education programs
 - Focus on helping inmates successfully re-enter the community
 - Improve skills: workplace readiness, technical competence, and employability
 - Offered to all eligible inmates and eligibility is determined by various factors
 - Factors: possession of High School/Special Education diploma (HSD); High School Equivalency (HSE)/General Education Development Program (GED®) credential, or meets specified minimum required TABE reading and math scores; length of stay; release-related situations (work-release and pre-release)*

Note:

* [VADOC Operating Procedure 601.6](#).

Career and Technical Education Program (CTE)

- Purpose: Provide students with courses that emphasize cultivating career information, technical skills, and industry-based certification and licensing
 - Outcomes: improve employability and workplace readiness
- CTE Course Program
 - Courses are diverse (47 types, with ~293 courses offered): Automotive Repair, Food Services, Pipefitting, CAD, Masonry, HVAC, Optical, Electricity and Welding, and many others
 - Courses are offered statewide and wait lists are common
 - Prerequisites vary depending on the CTE Course
 - Minimum TABE scores; GED[®]/HSE; HSD
 - Sufficient time left in sentence to complete course (or a substantial component)
 - Challenges
 - Students transferred prior to class completion; limitations of space and resources; lack of qualified instructors; competing programming needs

The Virginia Career Readiness Certificate Program

- Purpose: To illustrate an individual's job behavior and potential success in the workplace
- Virginia CRC program consists of three WorkKeys* assessments in work-related skills:
 - Applied Math; Reading for Information; Locating Information
- CRC Credentials Awarded**:
 - CRC proficiency levels correspond to skill requirements of profiled jobs specified at the state level
 - **Bronze** – at least 16% of profiled jobs
 - **Silver** – at least 67% of profiled jobs
 - **Gold** – at least 93% of profiled jobs

Note:

* A job skills assessment system that helps employers select, hire, train, develop, and retain a high-performance workforce

** CRC program participants not qualifying for a Bronze level do not receive any certificate.

Source:

<https://www.vccs.edu/job-training-certificates/#career-readiness-certificate>

<https://law.lis.virginia.gov/vacode/title2.2/chapter24/section2.2-2477/>

The VADOC Career Readiness Certificate (CRC) Program

- Eligibility Qualifications for CRC Program ([OP 601.4](#)):
 - Inmates within one year of release
 - Academic level requirements:
 - Minimum of an 8th grade equivalency on TABE for reading and mathematics -or-
 - Earned a verifiable HSD/GED® -or-
 - Successfully completed one or more college courses with a grade of C or higher
- Transitioned from Virginia-specific to National CRC in 2018*
 - Three WorkKeys assessments in work-related skills:
 - Applied Math; Graphic Literacy; Workplace Documents
 - Credential Levels: Proficiency levels correspond to the skill requirements of profiled jobs from ACT's** national database
 - Bronze- 17%; Silver- 69%; Gold- 93%; Platinum- 99%

Note:

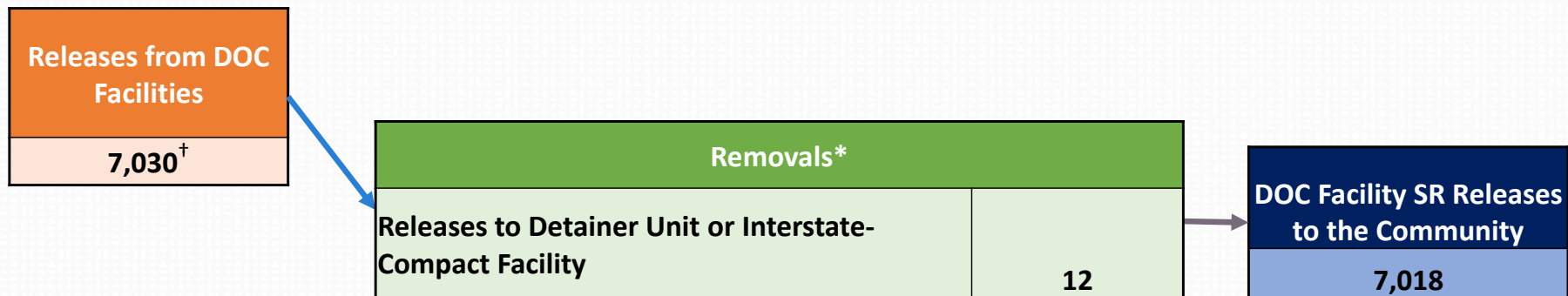
* Due to the switch from Virginia-specific CRC to National CRC in early CY2018, few inmates would have been able to take the National CRC version.

**ACT is an organization that provides assessments, research, and solutions in educational and workforce development.

Source:

<https://www.act.org/content/dam/act/unsecured/documents/NCRC-InformationFlyer.pdf>

FY2018 State Responsible (SR) Releases from DOC Facilities: Correctional Education Program Eligible



- FY2018 SR Releases from DOC facilities included **7,030** inmates
- After reviewing the overall release group, we removed **12** inmates*
- The resulting group used for analysis has **7,018** inmates
 - Eligible inmates had the potential to participate in Correctional Education programs

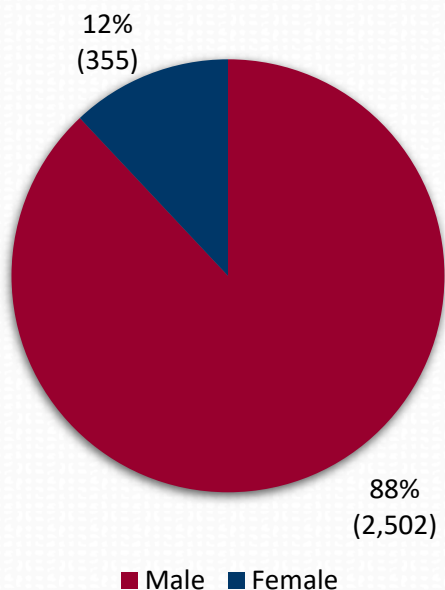
Notes:

[†]Deaths in Custody (n=101) were already removed from the original release file. Additionally, inmates that spent one day or less in a DOC facility (n=33) were removed. Two inmates who escaped from a local/regional jail prior to transfer to a DOC facility were excluded from the analysis.

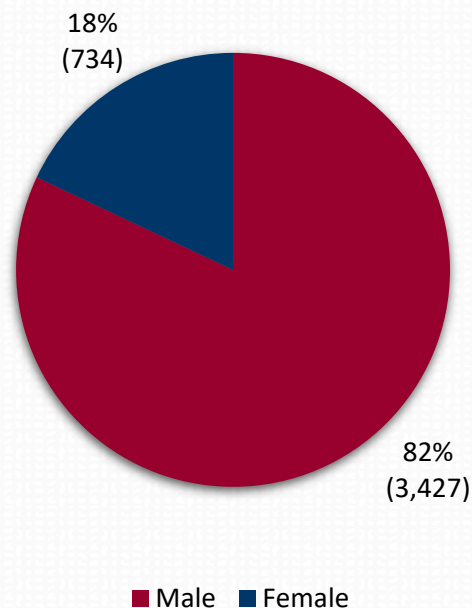
*6 inmates were released to the Detainer Unit and 6 to Interstate-Compact Facilities. These inmates were excluded because we do not have the ability to track their recidivism information.

Characteristics of Workforce Participants* (N = 2,857) vs. Non-Participants† (N = 4,161): Gender

Workforce* Correctional Program Participants: Gender



Program Non-Participants: Gender



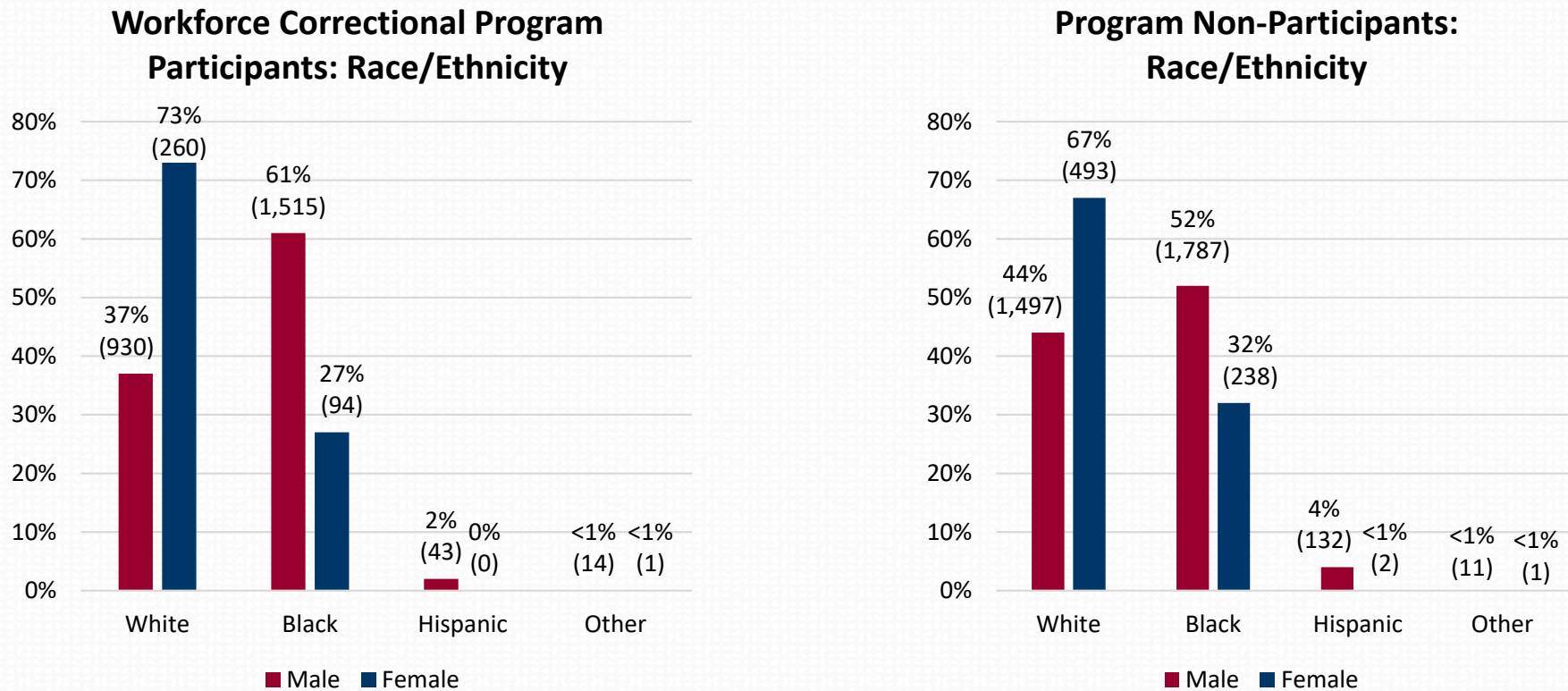
- A majority of the program participants and non-participants were male (88% and 82%, respectively) versus female (12% and 18%, respectively)

Notes:

* Workforce correctional program participants include inmates that participated in CTE and/or CRC testing during the release term of incarceration.

† Non-participants are inmates that did not participate in a CTE course or CRC testing.

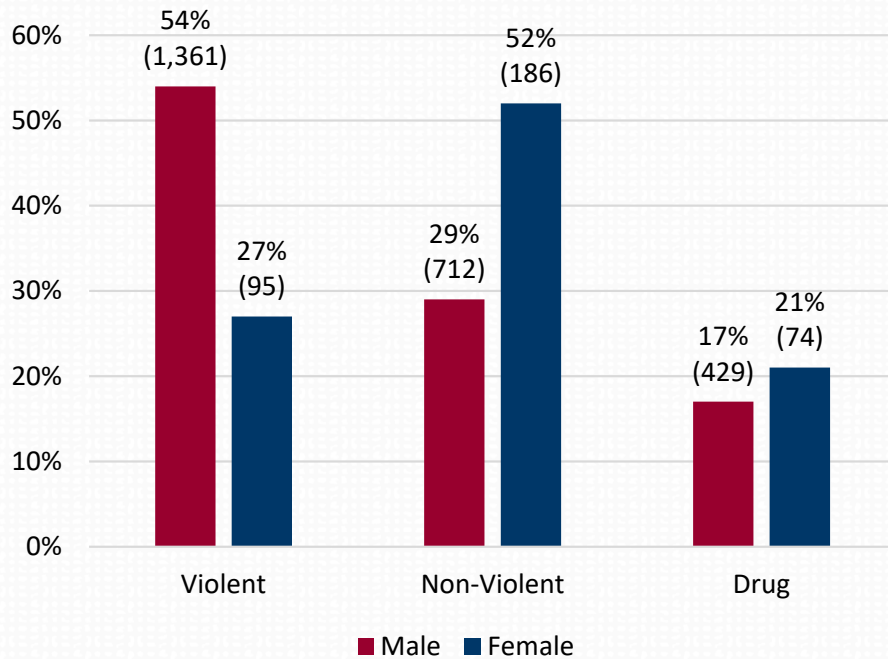
Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): Race and Ethnicity



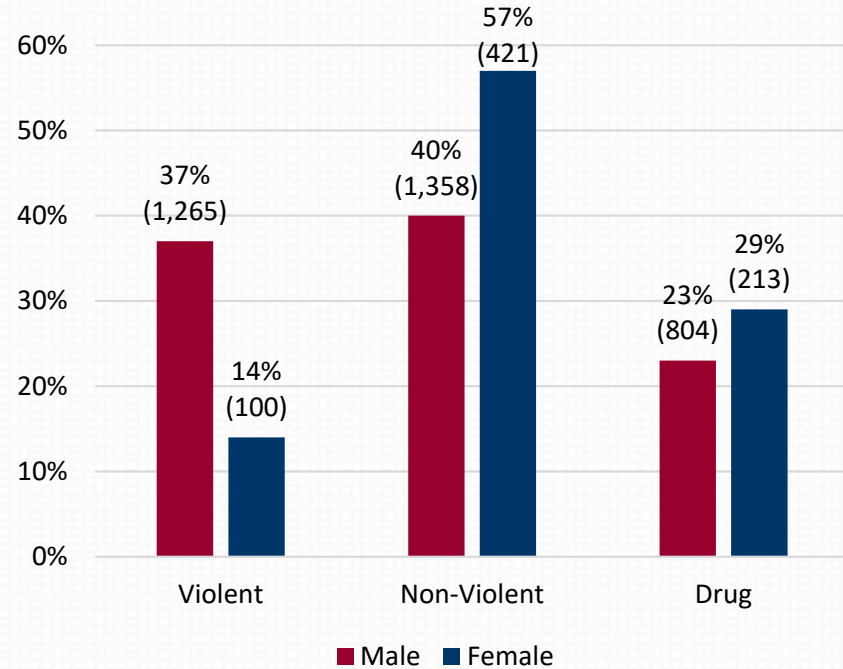
- Most male participants and non-participants were Black (61% and 52%, respectively)
- Over two-thirds of female participants and non-participants were White (73% and 67%, respectively)

Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): Crime Type

Workforce Correctional Program
Participants: Crime Type

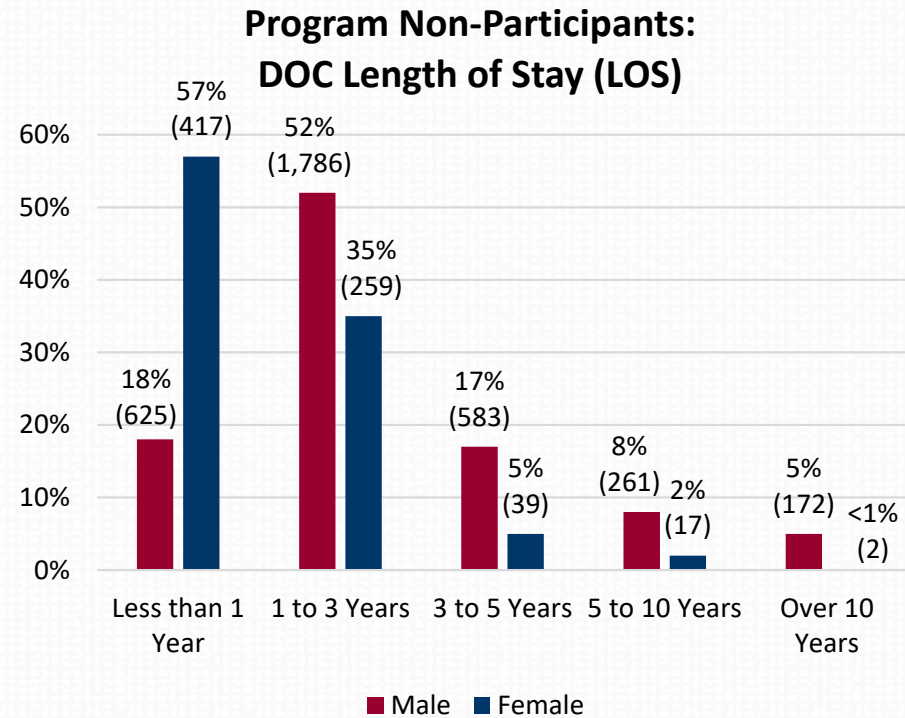
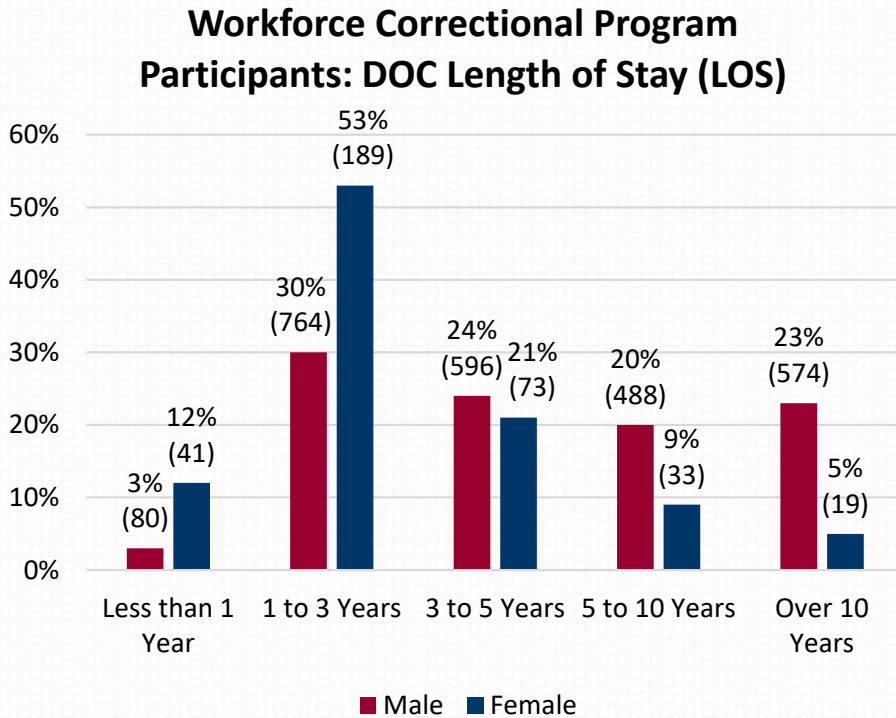


Program Non-Participants:
Crime Type



- The majority of male program participants committed violent offenses (54%), while the majority of female participants committed non-violent offenses (52%)
- A similar percentage of male non-participants committed violent offenses (37%) and non-violent offenses (40%). The largest percentage of female non-participants committed non-violent offenses (57%)

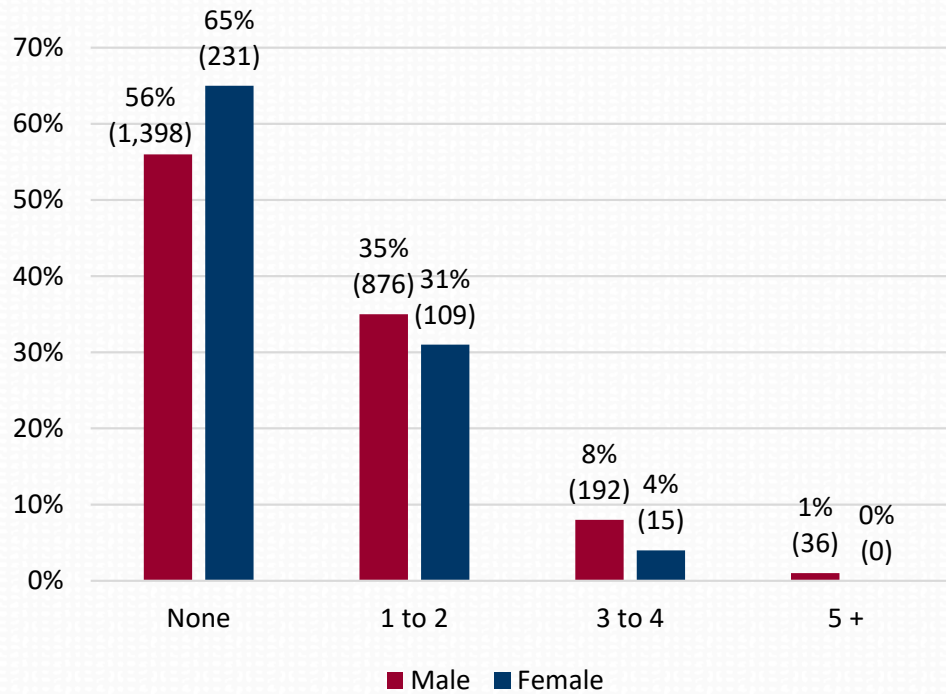
Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): DOC Length of Stay



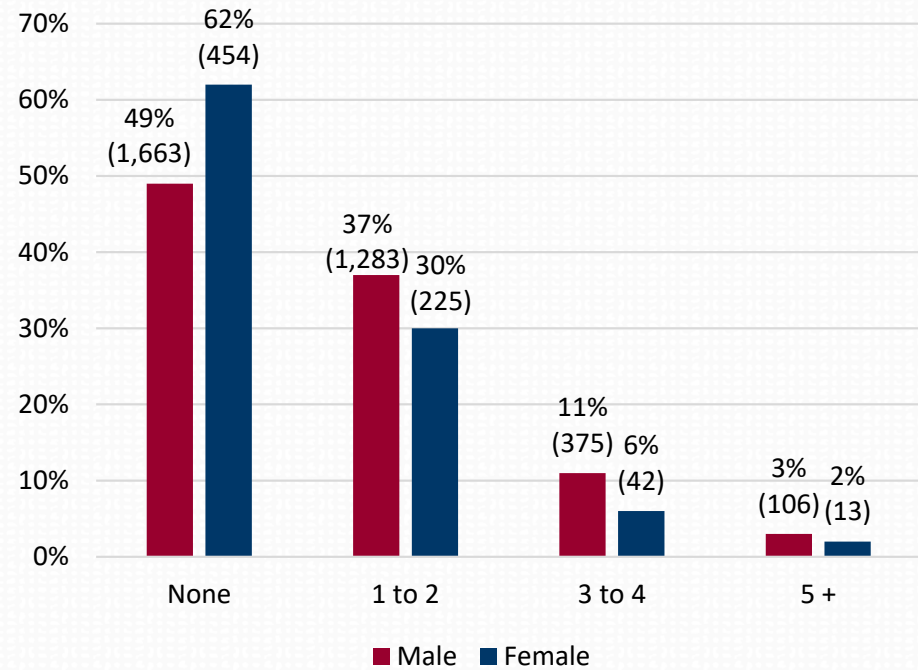
- DOC Length of Stay (LOS) is the total amount of time spent in DOC facilities
 - The largest percentage of male and female program participants were incarcerated for 1 to 3 years before release (30% and 53%, respectively)
 - Most male non-participants were incarcerated for 1 to 3 years before release (52%) while most female non-participants were incarcerated for less than 1 year before release (57%)
 - Most CTE programs have program length requirements which may explain why there is a higher percentage of non-participants with an LOS of less than 1 year (25%) than participants with an LOS of less than 1 year (4%)

Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): Prior State Responsible Terms

**Workforce Correctional Program Participants:
Prior State Responsible (SR) Terms**



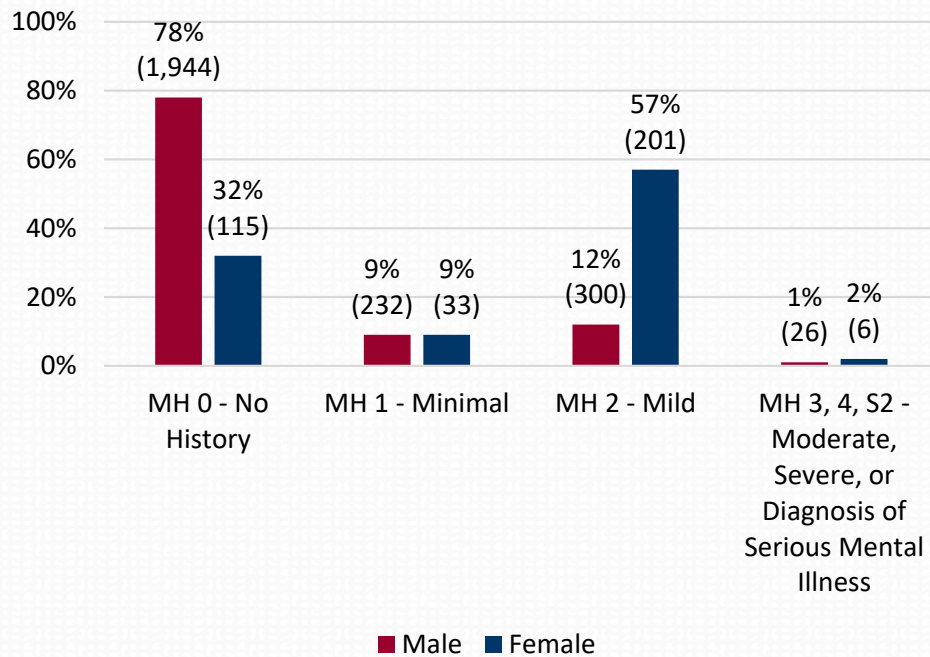
**Program Non-Participants:
Prior State Responsible (SR) Terms**



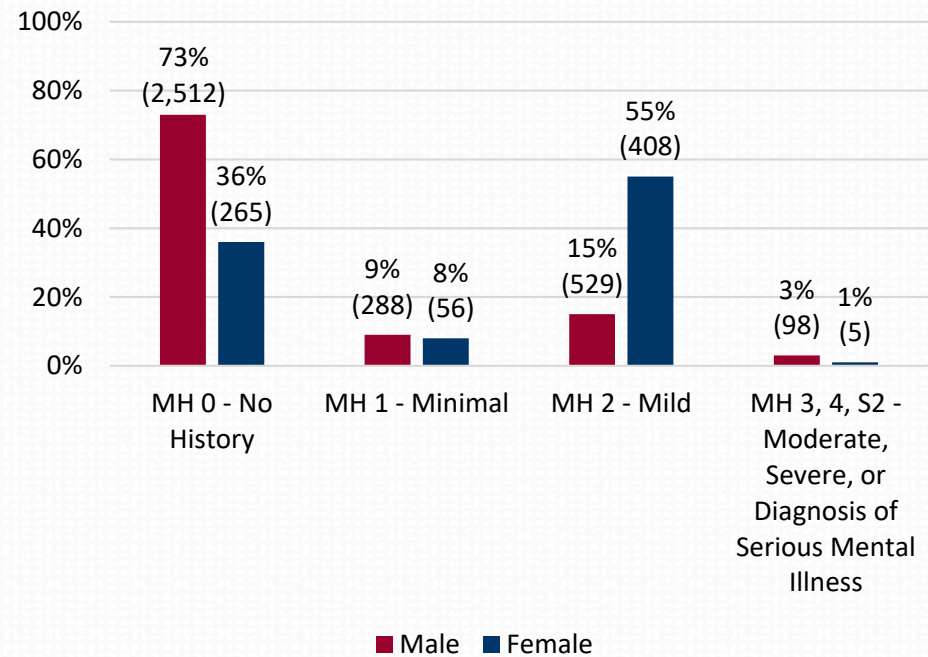
- Over one-half of both male (56%) and female (65%) program participants had no Prior SR terms
- The largest percentage of male (49%) and female (62%) non-participants had no Prior SR terms

Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): Mental Health Status

Workforce Correctional Program Participants: Mental Health (MH) Status



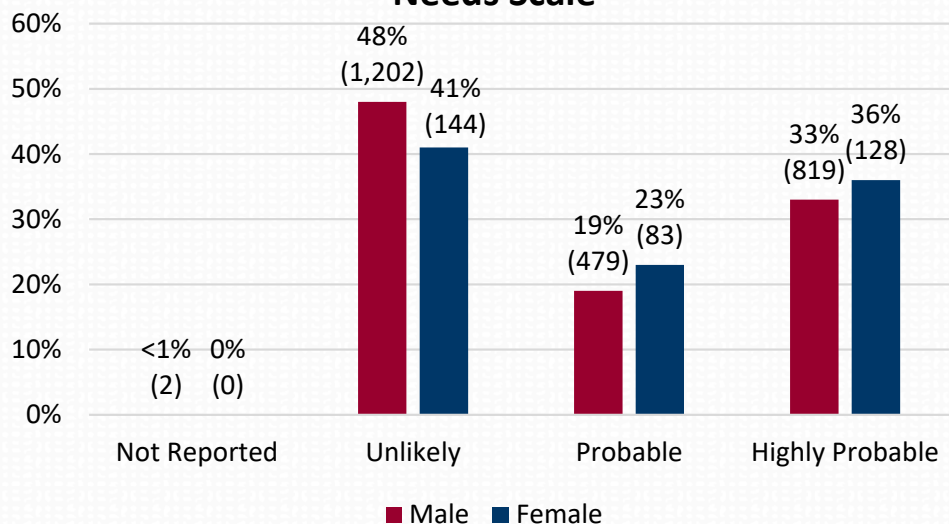
Program Non-Participants: Mental Health (MH) Status



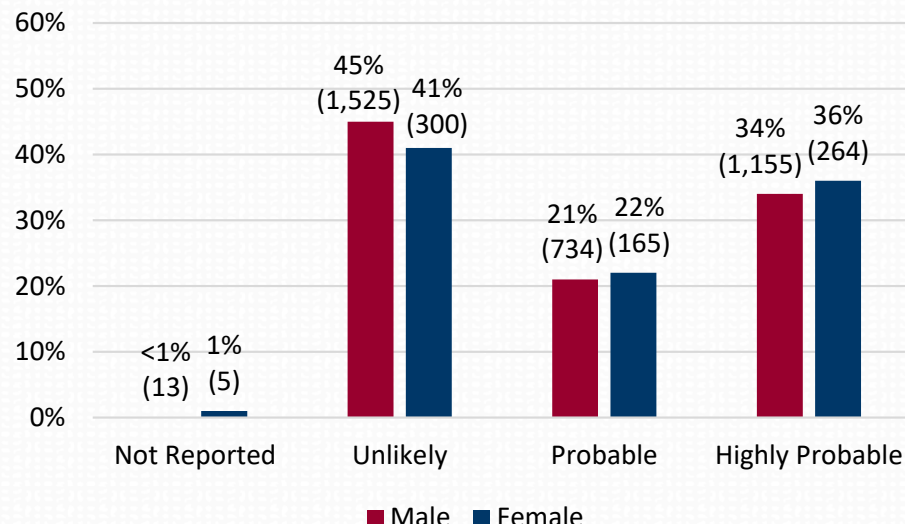
- The majority of male participants (78%) and non-participants (73%) had no evidence of impairment (MH 0)
- Over one-half of female participants (57%) and non-participants (55%) had mild levels of impairment (MH 2)

Characteristics of Workforce Participants (N = 2,857) vs. Non-Participants (N = 4,161): COMPAS Vocational and Education Needs Scale

**Workforce Correctional Program Participants:
COMPAS Vocational and Education
Needs Scale**



**Program Non-Participants: COMPAS
Vocational and Education Needs Scale**

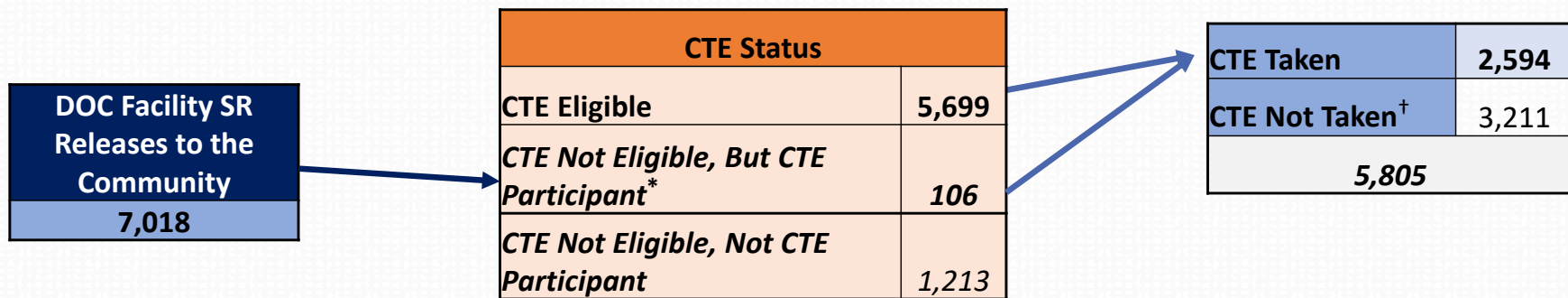


- Over one-half of both participants and non-participants scored ‘Probable’ or ‘Highly Probable’ on the COMPAS Vocational and Education Needs Scale
- Over one-third of participants and non-participants scored ‘Highly Probable’ on the COMPAS Vocational and Education Needs Scale

Note:

* The initial COMPAS Vocational and Education Needs Scale scores during the current release term of incarceration were used in order to determine if inmates received services for vocational and education needs before being released.

FY2018 State Responsible (SR) Releases from DOC Facilities: CTE Status



- FY2018 SR Releases from DOC facilities included **7,018** inmates who were potentially eligible for Correctional Education programs
- Eligibility Criteria: Sentence length of 24 months or longer and has GED[®]/HSD
- We identified **1,213** inmates who were not CTE Eligible and did not participate in a CTE course
- The resulting group used for analysis has **5,805** inmates
 - 45% (2,594) met requirements and participated in at least one CTE course

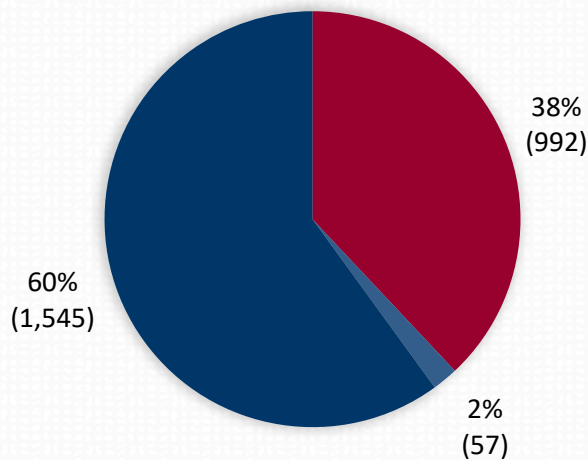
Notes:

* Since the current study looked at TABE Battery Average scores, Math and Reading TABE score minimum level requirements could not be examined and may explain these individuals not being identified as CTE Eligible.

† The Correctional Education group does not have the capacity to enroll all interested inmates, so wait lists occur for every CTE program. In addition, those who have shorter sentences have priority based on current policy ([Operating Procedure 601.6](#)).

CTE Program Completion for Current Term

CTE Completions



	Removed	Partial	Complete	Total
Male	880 (38%)	56 (3%)	1,364 (59%)	2,300
Female	112 (38%)	1 (<1%)	181 (62%)	294
Total	992 (38%)	57 (2%)	1,545 (60%)	2,594

■ Removed from CTE ■ CTE Partially Completed ■ CTE Completed

- Of the CTE Program participants, 89% (2,300) were male and 11% (294) were female
- 38% (992) of inmates had been enrolled in CTE courses, but were removed for various reasons and were unable to complete these courses prior to release
- Overall, 60% (1,545) of the inmates who took CTE courses in their current term completed them
 - Female completion rate (62%) was slightly higher than males (59%)

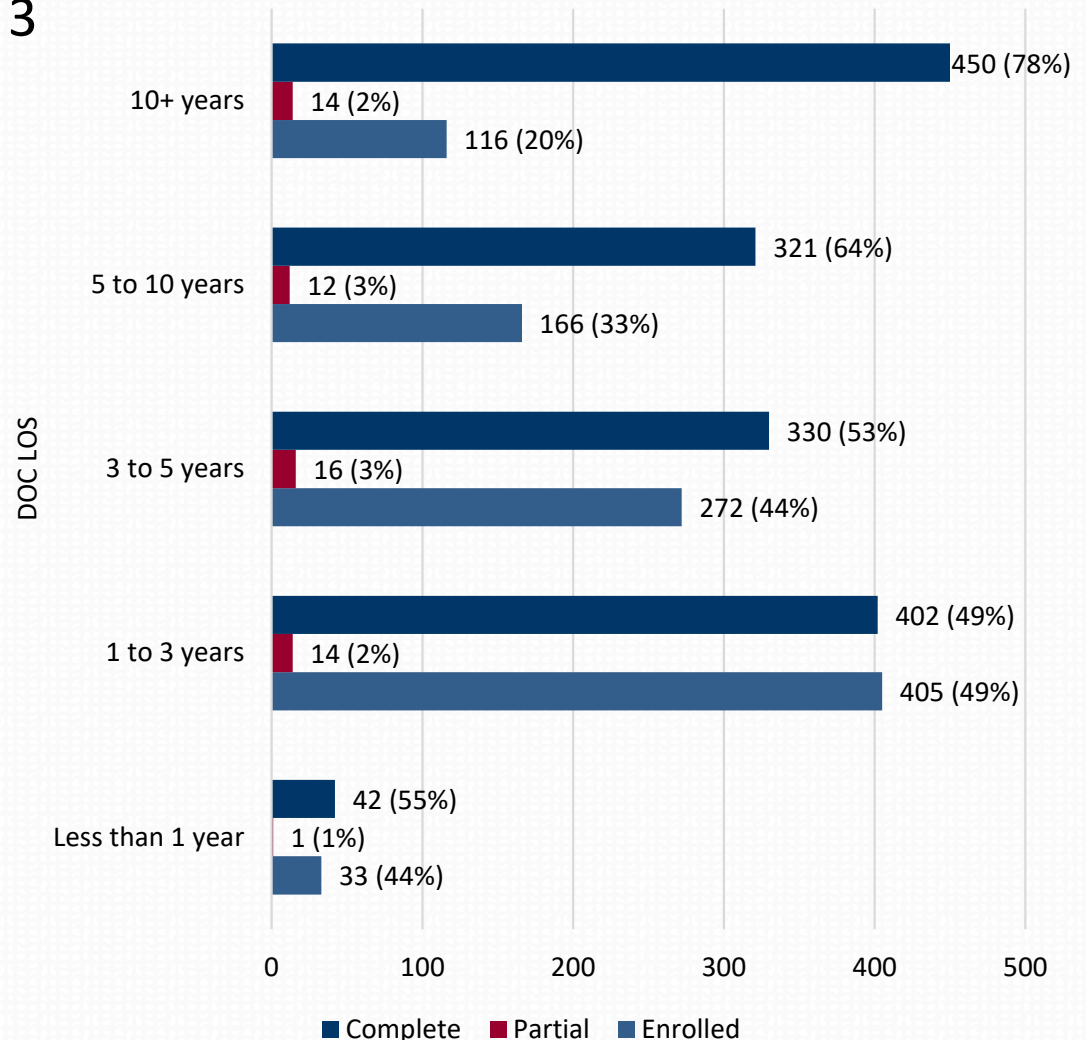
CTE Course Completion and LOS for Current Term

- In the current study group of CTE students, 65% had a DOC LOS of 3 years or greater, regardless of their CTE course outcomes

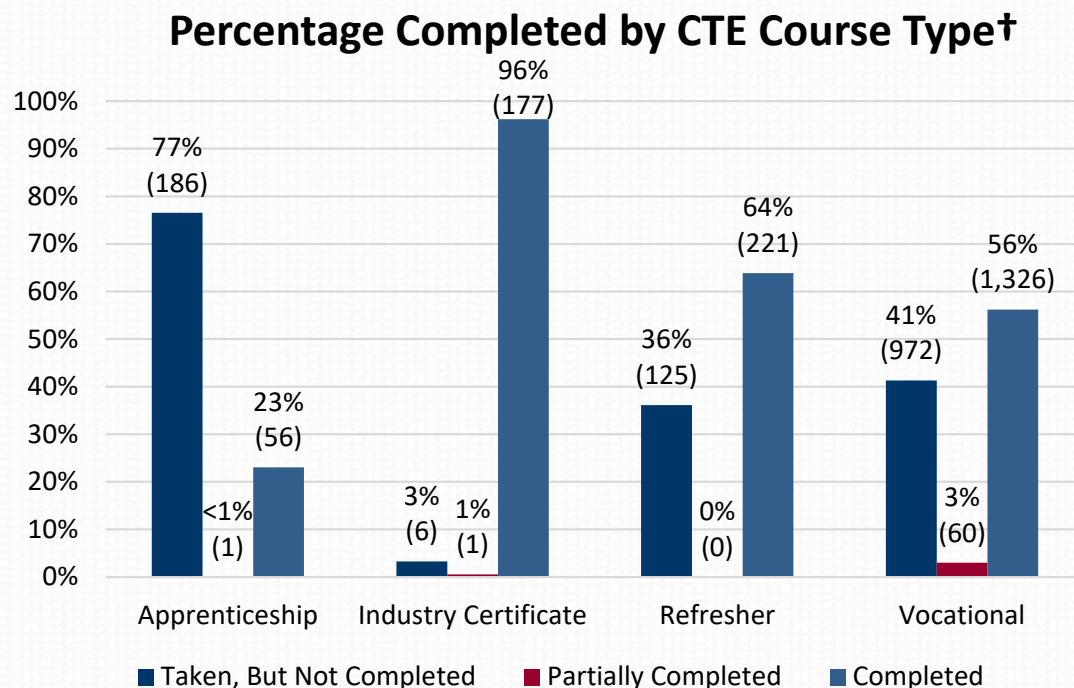
DOC LOS	CTE Students
Less than 1 year	76 (3%)
1 to 3 years	821 (32%)
3 to 5 years	618 (24%)
5 to 10 years	499 (19%)
10+ years	580 (22%)

- CTE completion rates improved as DOC LOS increased:
 - Less than 1 year: 55%
 - 1 to 3 years: 49%
 - 3 to 5 years: 53%
 - 5 to 10 years: 64%
 - 10+ years: 78%

CTE Course Outcomes By DOC Length of Stay (LOS)



Types of CTE Courses Taken



- Of the four CTE course types, Vocational programs had the highest number of completions (1,326), but only had a 56% course completion rate
- Industry Certificate courses had the highest completion rate (96%)
 - Completion of an industry certificate course does not result in earning an industry certificate
 - Future correctional education evaluations will include analysis on inmates that earn Industry Certificates once data quality has improved
- Apprenticeship courses had the lowest completion rate (23%). The lower rate may be related to having fewer participants and lengthier program durations compared to other courses

Note

† Students can participate in more than one course type but will only be counted once per course type where the highest completion status was kept.

Recidivism* By CTE Course Type Completion

CTE Course Type	Number of Completers†	Recidivism Rate
Apprenticeship	56‡	1.8%
Industry Certificate	177	15.3%
Refresher	221	11.3%
Vocational	1,326	12.4%

- Completers of all course types had lower recidivism rates than all FY2018 VADOC facility SR releases (18.2%)**
- Inmates that completed Apprenticeship courses had the lowest recidivism rate (1.8%) of the four CTE course types‡
- Industry Certificate course completers had the highest recidivism rate (15.3%)

Notes:

* Recidivism for this study is defined as a new state responsible term of re-incarceration occurring within three years of an individual's release.

† Students can participate in more than one course type but will only be counted once per course type where the highest completion status was kept.

‡ Due to the small sample size, results should be interpreted with caution.

**[VADOC Research - Evaluation Unit \(2023\): FY2018 State Responsible Releases.](#)

CTE Career Clusters*

- CTE career clusters are CTE courses that are grouped together based on the type of career those courses fall under
- The eight career clusters examined, and their composition are:
 - Agriculture, Food, Natural Resources, and Hospitality
 - Courses in Horticulture, Commercial Foods, and Dog Training
 - Architecture and Construction
 - Courses in Building Maintenance, Carpentry, Electricity, HVAC, Masonry, Plumbing, Fiber Optics, etc.
 - Arts, Audio/Video Technology, and Communications
 - Courses in Communication, Arts, Design, and Print Production
 - Human Services
 - Courses in Barbering, Cosmetology, and Teacher's Assistant
 - Information Technology and Finance
 - Courses in Business Software Applications, Computer Literacy, Economics, Personal Finance, Office Machine Repair, and Entrepreneurship
 - Manufacturing
 - Courses in Sheet Metal, Upholstery, and Welding
 - Science, Technology, Engineering, and Mathematics
 - Courses in Small Engine Repair, Computer-Aided Design, Optical Lens Technology, and Water Treatment
 - Transportation, Distribution, and Logistics
 - Courses in Automotive Technology, Auto Body, Motorcycle Repair, and Commercial Drivers Licensure

Note:

* Career cluster categories were provided by VADOC Correctional Education.

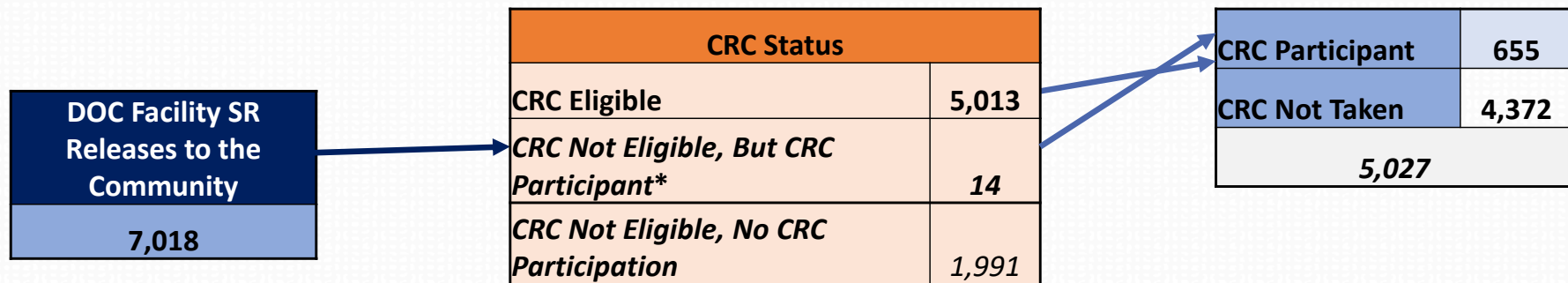
Recidivism* By CTE Career Cluster

Career Cluster**	Number of Completers†	Recidivism Rate
Agriculture, Food, Natural Resources, and Hospitality	131	9.9%
Architecture and Construction	954	13.2%
Arts, Audio/Video Technology and Communications	49‡	2.0%
Human Services	30‡	6.7%
Information Technology and Finance	419	10.0%
Manufacturing	99‡	16.2%
Science, Technology, Engineering, and Mathematics	110	9.1%
Transportation, Distribution, and Logistics	24‡	16.7%

- Of the eight CTE career clusters examined, Arts, Audio/Video Technology and Communications cluster had the lowest recidivism rate (2.0%)‡
- The Architecture and Construction career cluster had the most completions (954)
- All career clusters had lower recidivism rates than all FY2018 VADOC facility SR releases (18.2%)* **

Notes:
 * Recidivism for this study is defined as a new state responsible term of re-incarceration occurring within three-years of an individual's release.
 ** Career cluster categories were provided by VADOC Correctional Education.
 ‡ Due to the small sample size, results should be interpreted with caution.
 † Students can participate in more than one career cluster type but will only be counted once per course type.
 *** [VADOC Research - Evaluation Unit \(2023\): FY2018 State Responsible Releases.](#)

FY2018 State Responsible (SR) Releases from DOC Facilities: CRC Status

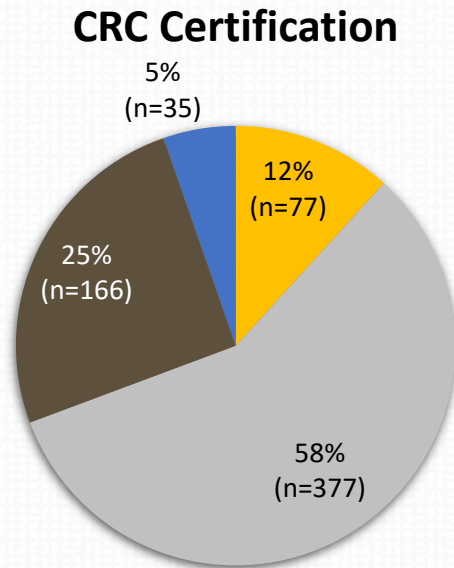


- FY2018 SR Releases from DOC facilities included **5,027** inmates potentially eligible for CRC testing
- We identified **1,991** inmates who were not CRC Eligible and did not take the CRC exam
- The resulting group used for analysis has **5,027** inmates
 - 13% (655) met requirements and participated in CRC testing

Note:

* Since the current study looked at TABE Battery Average scores, Math and Reading TABE score minimum level requirements could not be examined and may explain these individuals not being identified as CRC Eligible.

CRC Certification for Current Term



	Platinum	Gold	Silver	Bronze	No Certificate Earned	Total
Male	1 (<1%)	58 (11%)	285 (56%)	136 (27%)	28 (6%)	508
Female	0 (0%)	18 (12%)	92 (63%)	30 (20%)	7 (5%)	147
Total	1 (<1%)	76 (12%)	377 (58%)	166 (25%)	35 (5%)	655

■ Gold* ■ Silver ■ Bronze ■ No Certificate

- Of the CRC students, 78% (n=508) were male and 22% (n=147) were female
- Overall, 95% (n=620) of the inmates who took the CRC exams during their SR term earned a certificate
 - Female and male completion rates were very similar (95% and 94%, respectively)
 - The majority of inmates who earned a certificate earned a Silver certificate (61%)

Note:

* One male inmate that received a Platinum certificate is included with the 76 inmates that received Gold certificates (58 male and 18 female).

Recidivism* Rates by Certificate Level Earned

CRC Level	N	Recidivism Rate
None	35 [†]	17.1%
Bronze	166	15.7%
Silver	377	17.2%
Gold	76 [†]	15.8%
Platinum	1 [†]	0.0%
Overall	655	16.6%

- Overall, 109 (16.6%) inmates who took the CRC test were re-incarcerated within three years of release
- 16.6% of CRC Certificate earners were re-incarcerated within three years compared to 17.1% for inmates who took the CRC exam and did not earn a certificate

Notes:

* Recidivism for this study is defined as a new state responsible term of re-incarceration occurring within three years of an individual's release.

† Due to the small sample size, results should be interpreted with caution.

Overall Recidivism[†] Rates Three Years After Release

Correctional Education Status for Current Term	N	Recidivism Rate
Overall CTE Completers:*		
Male	1,364	12.3%
Female	181	13.3%
Overall	1,545	12.4%
Overall CRC Earned:*		
Male	480	17.1%
Female	140	15.0%
Overall	620	16.6%
Overall CTE Completers and CRC Earned:		
Male	211	14.2%
Female	56	17.9%
Overall	267	15.0%

- The overall three-year recidivism rate for CTE Completers (12.4%) was lower than that observed for CRC Earners (16.6%) and individuals that completed a CTE and earned a CRC (15.0%)
 - The lowest rate was seen for Male CTE Completers (12.3%)

Notes:

* The Overall CTE Complete and Overall CRC Earned rates include the individuals who completed or earned more than one of these in their current term.

† Recidivism for this study is defined as a new state responsible term of re-incarceration occurring within three years of an individual's release.

Case-Control Matching Process

- Since all eligible individuals have the opportunity to participate in workforce programming, case-control matching is used
- The existing study group is matched with a case-control created comparison group with user-defined tolerances for each matching variable
- The variables the study and comparison group were matched on include:
 - Gender
 - Age at release (± 2 years)
 - Crime type
 - Number of prior SR terms (± 1 SR term)
 - Mental health status
 - Confirmed gang status at release
- The matches between the study and comparison groups are random and are as close to a randomized control trial as possible
- Individuals in the study group that are unable to be matched with the comparison group are removed from the study
 - 47 inmates that completed a CTE course were removed
 - 16 inmates that earned a CRC were removed
 - 9 inmates that completed a CTE course and earned a CRC were removed
- Outcomes of the comparison are analyzed for significant group differences

Recidivism Rates Three Years After Release: Matched* Cases and Comparison Groups – CTE and CRC

Correctional Education Status for Current Term	N	Study	Comparison
CTE Completers:[†]			
Male	1,321	12.6%[‡]	16.9%
Female	177	13.6%	19.8%
Overall	1,498	12.7%^{‡‡}	17.2%
CRC Earned:[†]			
Male	469	16.8%	17.7%
Female	135	15.6%	20.7%
Overall	604	16.6%	18.4%
CTE Completers and CRC Earned:[†]			
Male	204	13.7%	15.7%
Female	54	18.5%	20.4%
Overall	258	14.7%	16.7%

- Significant differences in recidivism rates between study and comparison groups were observed for male CTE Completers and Overall CTE Completers
- While all CRC study groups had lower recidivism rates than the comparison groups, there were no significant findings

Notes:

*Case and Comparison individuals were matched on the following: gender, age at release (± 2 yrs.), crime type, prior SR terms (± 1 SR term), mental health status, and confirmed gang status at release.

[†] 47 CTE Complete cases, 16 CRC Earned cases, and nine CTE Complete and CRC Earned cases have been removed due to difficulty in identifying an appropriate match.

[‡] Chi-Square Test was significant ($p = 0.001$).

^{‡‡} Chi-Square Test was significant ($p < 0.001$).

Recidivism Rates Three Years After Release: Matched* Cases and Comparison Groups – CTE Career Clusters

Career Cluster	N	Study	Comparison
Agriculture, Food, Natural Resources, and Hospitality [†]	126	9.5%	15.1%
Architecture and Construction [†]	923	13.5%[‡]	17.1%
Arts, Audio/Video Technology and Communications [†]	47**	2.1%[‡]	17.0%
Human Services [†]	29**	6.9%	13.8%
Information Technology and Finance [†]	395	10.4%^{‡‡}	17.0%
Manufacturing [†]	97**	15.5%	13.4%
Science, Technology, Engineering, and Mathematics [†]	104	8.7%	15.4%
Transportation, Distribution, and Logistics	24**	16.7%	12.5%

- Significant differences in recidivism rates between study and comparison groups were observed for the Architecture and Construction, Arts, Audio/Video Technology and Communications, and Information Technology and Finance career clusters
- Having a smaller number of completers in many of the career clusters is likely the reason why some differences were not significant

Notes:

* Case and Comparison individuals were matched on the following: gender, age at release (± 2 yrs.), crime type, prior SR terms (± 1 SR term), mental health status, and confirmed gang status at release.

[†] 5 Agriculture, Food, Natural Resource, and Hospitality cases, 31 Architecture and Construction cases, 2 Arts/Communications cases, 1 Human Services case, 24 Information Technology and Finance cases, 2 Manufacturing cases, and 6 Science, Technology, Engineering, and Math cases have been removed due to difficulty in identifying an appropriate match.

** Due to the small sample size, results should be interpreted with caution.

[‡] Chi-Square Test was significant ($p < .05$).

^{‡‡} Chi-Square Test was significant ($p < .01$).

Recidivism Rate Comparison of FY2016 and FY2018 Releases

Current Study (FY2018 Releases)	Full Release Group	CTE Completers	CRC Certificate Earners	CTE & CRC
	(n = 7,018)	(n = 1,545)	(n = 620)	(n = 267)
	18.2%	12.4%	16.6%	15.0%

Previous Study (FY2016 Releases)	Full Release Group	CTE Completers	CRC Certificate Earners	CTE & CRC
	(n = 6,352)	(n = 1,328)	(n = 1,069)	(n = 470)
	21.0%	14.4%	16.7%	13.8%

- The overall recidivism rate for FY2018 was 2.8 percentage points lower than FY2016 VADOC facility releases
- Inmates released from a VADOC facility in FY2018 who completed a CTE course had a lower recidivism rate (12.4%) than their FY2016 counterparts (14.4%)
- FY2018 VADOC facility releases who earned a CRC certificate had similar recidivism rates to FY2016 releases (16.6% and 16.7%, respectively)
- FY2018 VADOC facility releases who completed a CTE course and earned a CRC certificate had slightly higher recidivism rates than FY2016 releases (15.0% and 13.8%, respectively)

Summary

- CTE programs had higher completion rates for individuals with a DOC LOS of 3+ years
 - CTE Complete: <3 years = 49% versus 3+ years = 65%
- CTE Course completion appears to be a strong factor in reducing recidivism
 - Male CTE Completers = 12.3% (n = 1,364)
 - Female CTE Completers = 13.3% (n = 181)
 - Overall CTE Completers = 12.4% (n = 1,545)
- Significant differences in recidivism rates between study and comparison groups were observed for male CTE Completers and Overall CTE Completers
 - Completing a CTE course resulted in significantly lower recidivism rates than the comparison group (12.7% and 17.2%, respectively)
- The Architecture and Construction, Arts, Audio/Video Technology and Communications, and Information Technology and Finance career clusters had significantly lower recidivism rates than the comparison groups
- Of the FY2018 DOC Facility Releases, 9% (655) participated in the CRC Program
 - 95% of participants received a Bronze, Silver, Gold, or Platinum certificate
 - There were no significant findings for CRC Earners. This may be due to a low number of earners compared to previous fiscal years
- Future correctional education evaluations will include analysis on inmates that earn Industry Certificates once data quality has improved

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