

## HAWAII VOCATIONAL REHABILITATION (VR) LONG-TERM OUTCOMES

Daniel Anderson,\* Neil Shim, John Noland, Jerry Wang

### **ABSTRACT**

*Little is known about VR participants who were successfully closed by the Division of Vocational Rehabilitation (DVR) and what happened to them after closure. What percent of persons closed with employment has earned income at 6, 12 and 24 months following closure? What is the quarterly earned income for participants at 6, 12 and 24 months following closure? How does the Department of Labor (DOL) report quarterly earnings compared to quarterly earnings estimated at the time of closure? Who (selected demographic and service variables) among those closed and employed has reported quarterly earnings? Who (selected demographic and service variables) was closed before obtaining employment, yet has reported quarterly earnings and are there demographic differences between those closed with or without obtaining employment through VR? This study will focus on answering these interesting and challenging questions.*

### **INTRODUCTION**

This report includes summary statistics for individuals closed with employment in Federal Fiscal Years 1999 or 2000 (October 1, 1998 through September 30, 2000) and with a record of earned income during at least one quarter between October 1, 1998 and March 31, 2001.

The purpose of this report on long-term VR service outcomes is to provide VR agency administrators and staff with information about the outcomes of service over time. A descriptive approach is used in the study of long-term outcomes.

This report summarises employment and quarterly earning outcomes at 6 months, 12 months and 24 months following closure from VR. The authors compare and contrast selected demographic and service variables for groups of persons closed for different periods of time.

**VR Closure Codes** (26, 28 and 30) are defined as follows:

**Full Service (Status 26):** VR participants who had an Individualised Plan for Employment (IPE), received vocational rehabilitation services and successfully completed their employment goals.

**Partial Service (Status 28):** VR participants who had an IPE, received vocational rehabilitation services, but terminated before reaching their planned employment goals.

**No Service (Status 30):** VR participants who may have received extended evaluation and were eligible for plan development, but terminated before IPE was initiated or completed.

### **METHODS**

#### **G e n e r a l   C o n s i d e r a t i o n s**

It took about a year for this project to progress from conceptualisation to having data in hand. A secondary data analysis was used for general efficiency purposes. The potential weakness and/or limitation of the project were the availability and validity of the data/information. For example, DOL data does not include working hours for the corresponding quarterly earnings.

Pacific Basin Rehabilitation Research and Training Centre (PBRRTC) supplied DOL a list of VR participants' SSN who were closed between FFY 1999 and 2000. DOL matched these SSN against Unemployment Insurance (UI) Wage Database and returned those who matched VR participants to PBRRTC. DOL data was then matched against VR's RSA911 information and a dataset with combined variables was created. This dataset became the study population.

#### **S t u d y   P o p u l a t i o n**

There are 3,040 VR participants who were closed by Hawaii DVR during FFY 1999 and 2000, with or without employment in closure status 26, 28 or 30. Of those, 1,374 had a DOL record of earned income from October 1998 to March 2001. It is encouraging to mention that approximately 78% of 26 closures had earnings reported by DOL. Surprisingly, about 40% of 28 closures and 3% of 30 closures had also reported quarterly earnings (Table 1).

However, the primary focus is on 1,119 individuals closed by VR with employment. Among the 1,119 closed with employment, 875 individuals or 78.2% had at least one record of DOL quarterly earnings. It should be noted, that not all employers are required to report employees' quarterly earnings to DOL, such as federal government employees and those who are self-employed.

Rehabilitated (26)	1,119	875	78.2
Not Rehabilitated (28)	1,193	479	40.2
Eligible, No VR Services (30)	728	20	2.8
All Cases	3,040	1,374	45.2

## **S t a t i s t i c a l   A n a l y s i s**

**D a t a   a n a l y s i s   t o o k   p l a c e   i n   t h e  
f o l l o w i n g   s t a g e s :**

1. Preliminary frequency analysis and correlation analysis (Pearson's r) initiated the data analysis, to determine what variables appear to be related.
2. The Elaboration Model was employed to interpret the relationship between quarterly earnings and closure status through disability.
3. ANOVA (Analysis of Variance) was used to examine the statistical significance of key variables between VR participants with various closure status.

## **P o t e n t i a l   W e a k n e s s**

The quarterly earnings of all employed individuals closed by VR are not necessarily available for analysis. For example, the DOL database does not include individuals who are self-employed or employed by the federal government. During Federal Fiscal Years 1999 and 2000, a total of 1,119 individuals closed with employment. Only 875 or 78.2% had one or more records of quarterly earnings. Thus, 21.8% of persons closed by VR with employment have no DOL record of earned income.

The DOL data used in this study are limited to quarterly earnings. Data on hours worked are not available. Therefore, an analysis of hours worked and hourly wage is not possible. Quarterly earnings can be estimated using VR data that contains weekly earnings at the time of closure. However, caution should be taken when comparing estimated quarterly earnings reported to DOL.

## **R E S U L T S**

### **G e n e r a l   d e s c r i p t i o n   o f   2 6 c l o s u r e   g r o u p**

About sixty-one percent (N=539) are males. Asian and Pacific Islanders constitute the largest ethnic group (68%, N=592) followed by Caucasian (30%, N=261). The majority have never been married (64%, N=557). The top 5 categories of public support received by participants at application are: GA (General Assistance, N=137), SSDI (Social Security Disability Insurance, N=91), SSI-D (Supplemental Security Income-Disabled, N=78), AFDC (Aid to Families with Dependent Children, N=65), and Other Public Support (N=46).

Learning Disabilities (13.6%, N=118), Psychotic Disorders (13.5%, N=117) and Neurotic Disorders (10.3%, N=89) are the three major disabilities for the 875 participants who were closed with employment and had DOL records. About 62% (N=535) were not working at the time of application and 15% (N=130) had competitive employment. However, all 875 participants were employed at closure and 94% (N=818) were competitively employed.

As expected, 41% (N=353) claimed family and friends as their primary source of support at application and 84% (N=731) reported current earnings as their primary source of support at closure.

Comparison of key variables among three closure status groups

Table 2: Comparison of some key service variables

\* Analysis of Variance was employed to test the statistical significance (P) among the three closure status groups.

\*\*Figures in the parentheses represent the number of cases for each category.

\*\*\*A total of 13 services are available for VR participants. They are: Assessment, Restoration, College/University Training, Business/Vocational Training, Adjustment Training, On-the-Job-Training, Miscellaneous Training, Counselling-Substance Abuse, Job-Finding Service, Job Placement, Transportation, Maintenance and Other Services.

**26 Closures:** VR participants closed with employment (status 26) continued to work from 1 quarter to 10 quarters with an average of 6.6 quarters. This closure status group had the highest average earnings of \$2,734 per quarter and the highest average purchased service cost of \$3,274, during their 30 months (average) stay with VR. The participants had an average of 11.9 years of education and received 4.7 services from VR. The average age at application was 33.6 years old.

**28 Closures:** VR participants closed without employment (status 28) worked 3.8 quarters on the average. They had the lowest average quarterly earnings of \$1,570, averaged the youngest (31) in age, stayed longer (34 months) with VR and had the lowest number of years in education (11.6) among three closure status groups.

**30 Closures:** VR participants closed before IPE was initiated or completed. These participants had the second highest quarterly earnings of \$2,085 reported by DOL. As expected, they had the lowest Purchased Service Cost (\$407), received the lowest number of services (1.3) and stayed with VR for the shortest time of 9.2 months only. These participants also averaged 12.4 years of education - the highest and 36.4 years old - the oldest, among the three groups. It should be noted that the results need to be interpreted with caution since only 20 participants were included in the study group.

## C o r r e l a t i o n   A n a l y s i s

Seven variables are included in the correlation analysis: They are Cost of purchased services, Total number of quarters worked, Average quarterly earnings, Total number of services received, Length in VR, Age at application, and Years of education.

Pearson's product-moment correlation coefficient matrix (Table 3) exhibits some similarity and contrasts between the elements examined, thus:

1. As expected, the longer the participants stayed with VR, the more Purchased Service Cost was incurred ( $r = 0.32$ ).
2. Average quarterly earnings is moderately and positively correlated with the Number of quarters worked at  $r = .39$ .
3. Age is negatively correlated with Length in VR ( $r = -.29$ ). This suggests that younger participants tend to stay in VR longer than older participants.
4. Age is also positively correlated with Years of education. A Pearson's correlation coefficient of 0.37 means, older participants tend to have more years of education than younger VR participants.

Table 3: Comparison of correlation matrix for 26 and 28 closures

Variable	1	2	3	4	5	6	7
1 Purchased Service Cost	1.00 (1.00)	0.07* (-0.04)	0.06 (-0.12*)	0.16* (0.23*)	0.32* (0.21*)	0.00 ( 0.04 )	0.12 (0.06)
2 # of Quarters Worked		1.00 (1.00)	0.39* (0.47*)	- 0.03 (-0.07)	0.04 (0.11)	0.02 (-0.04 )	0.07 (0.06)
3 Average Quarters Worked			1.00 (1.00)	- 0.17* (1.00)	0.04 (0.10*)	0.17* (-0.03 )	0.23* (0.09)
4 # of Services Received				1.00 (1.00)	0.09* (0.09*)	- 0.05 ( 0.08 )	- 0.05 (-0.04)
5 Length in VR					1.00 (1.00 )	-0.29* (-0.22*)	-0.15* (-0.18*)
6 Age-Application						1.00 (1.00 )	0.37* (0.35*)
7 Years of Educ							1.00 (1.00)

Pearson's correlation coefficient in parentheses is for participants with 28 closure status and \* denotes  $P < .05$ .

### **A v e r a g e   Q u a r t e r l y   E a r n i n g s**

The "BREAKDOWN" technique (1) provides a simple method for examining the mean and variance of a criterion or dependent variable among various subgroups in a sample or total population. In this case, "BREAKDOWN" was employed to examine the mean and variance of average quarterly earnings (dependent variable) among the three different types of closures in this study.

The average quarterly earnings for all VR participants were \$2,319. When closure status was controlled, it is clear that the 26 closure group had the highest average quarterly earnings (\$2,738) than the other two groups examined (Fig. 1).

It should be noted that NSD (Not Severely Disabled) subgroups had a consistently higher average quarterly earnings throughout all type of closure statuses.

After examining the average quarterly earnings for the three closure status groups, a one-way ANOVA (analysis of variance) was employed to determine whether the difference in group means (average quarterly earnings) was statistically significant. As expected, the closure status does have an impact on quarterly earnings and is significant with  $P < 0.05$ .

All Cases					
X = \$2,319					
SD = \$2,173					
N = 1,366					
26's		28's		30's	
Y		Y		Y	
X = \$2738		X = \$1570		X = \$2035	
SD = \$2199		SD = \$1933		SD = \$1492	
N = 868		N = 473		N = 20	
SD	NSD	SD	NSD	SD	NSD
Y	Y	Y	Y	Y	Y
X = \$2300	X = \$3293	X = \$1385	X = \$1792	X = \$1826	X = \$2401
SD = \$2014	SD = \$2299	SD = \$2093	SD = \$1711	SD = \$1273	SD = \$1748
N = 496	N = 382	N = 261	N = 217	N = 11	N = 5

Figure 1 Comparison of Average Quarterly Earnings for 26, 28 and 30 Closures.  
X: mean; S.D.: Standard Deviation

### 6 , 1 2 a n d 2 4 M o n t h s F o l l o w i n g C l o s u r e f o r 2 6 ' s

The study constructed three groups of individuals closed from VR with employment based upon the number of months following VR employment closure (6, 12 and 24 months) and analysed the percentage with reported earnings. It was found that the percentage with earned income was consistently high. As shown in Table 4, at 6 months following closure, approximately 84% had earned income reported to DOL by employers. The percentage of those closed one or two years with reported earned income, was approximately 77% and 79% respectively.

Individuals closed from VR with employment and reported quarterly earnings had on average, quarterly earnings of approximately \$3,000. The average quarterly earnings for each of our three time delimited groups is shown in Table 4.

Table 4 : Comparison of quarterly earnings for 6, 12 and 24 months after closure (26's)

Weekly earnings are reported at the time of closure. The study estimated quarterly earnings at closure by multiplying weekly earnings by 12 and then compared reported quarterly earnings with estimated earnings.

As shown above, for each group, reported earnings are above estimated earnings. For example, at one year following closures the reported average quarterly earnings are approximately 7% above estimated earnings at the time of closure.

In 1997, Farber examined the trends in long-term employment in the United States from 1979-1996. He concluded that 'workers who were in long-term employment relationships declined significantly between 1979 and 1996' (2). This may explain partially why the length of time has a negative impact on the number (or percentage) of people who remain on the work force.

**S t a t u s 2 8 c l o s u r e s b u t w i t h D O L  
r e p o r t e d q u a r t e r l y e a r n i n g s**

The primary focus is on individuals who have been served by VR and closed after having obtained employment. However, there are a number of individuals who receive services from VR and were closed before obtaining employment that may be credited to VR. In fact, 40% of the individuals who served but closed prior to employment had DOL records of quarterly earnings. Among the 479 participants closed before obtaining employment through VR, but had earned income reported to DOL, 174 or 36% had earned income six months after closure.

Table 5: 28 Closures with reported quarterly earnings

Population	Number of Cases (%)	Quarterly Earnings
6 months	174 (36.3%)	\$ 2,338
12 months	146 (30.5%)	\$ 2,248
24 months	43 ( 9.0%)	\$ 2,330

It seems to be true to conclude that 26 closures are doing better consistently than 28 closures throughout the time periods of 6, 12 and 24 months following closure.

**D I S C U S S I O N**

The primary focus is on individuals who have been served by VR and closed after having obtained employment. A total of 875 participants closed from VR with employment had at least one quarter of reported earnings. Among them, the majority were males (61.3%) and had minority backgrounds (68%). Most had never married (64%). The average time in VR (from eligibility to closure) was 30.4 months. On an average, each participant received 4.7 services (assessment, business-vocational training, on-the-job training, etc.) with service costs averaging \$ 3,274. It should be noted that effective training programmes may account for more outcome variance than demographic factors (3).

There are a number of participants who received VR services but were closed before obtaining employment that might be credited to VR. In fact, 40% (N=479) of the participants closed before obtaining employment through VR but had income reported to DOL, 174 or 36% had earned income six months after closure (Table 1 and 5).

In all, 1,366 participants were included in the examination and comparison of average quarterly earnings. These include 868 of 26 closures, 478 of 28 closures and 20 of 30 closures. The Full Service Group (status 26) recorded the highest average quarterly earnings of \$2,738. The No Service Group (status 30) also averaged \$2,085 quarterly earnings. The Partial Service Group (status 28) reported the lowest \$1,570 average quarterly earnings among the three groups. Participants who were not severely disabled (NSD's), reported higher earnings than their severely disabled (SD's) counterparts throughout the three comparison groups.

It is encouraging to conclude that participants who are closed with status 26 tend to remain on the job after 6 months of closure (83.5%). Approximately seventy-nine percent of the 26 closures hold on to their jobs for at least 24 months.

\*Director  
Pacific Basin Rehabilitation Research and Training Center  
University of Hawaii at Manoa  
1268 Young St. , # 204 Honolulu  
HI 96814, USA

## REFERENCES

- 1 SPSS. *SPSS Base 10.0 Applications Guide*. Chicago, IL: SPSS Inc. 1999
- 2 Farber H S. *Trends in Long term Employment in the United States, 1979-96*. Princeton University, 1997.
- 3 Anthony W. *Recovery-oriented Service Systems: Setting Some System Level Standards*. *Psychiatric Rehabilitation Journal*, 2000; 24: 159-168.