



LANGSTON UNIVERSITY

**Rehabilitation Research and Training Center (RRTC)
on Research and Capacity Building for Minority Entities**

Vocational Rehabilitation Outcomes for Native American and Alaskan Native Individuals with Traumatic Brain Injury

Presenters:

Franklin J. Elliott (LU-Fellow)

Dr. Priscilla R Sanderson (Mentor) & Dr. Myra Rosen Reynoso (Mentor)

**September 28-29, 2017
Atlanta Georgia**



Yá'át'ééh
Abini!
GOOD MORNING!



Tó'aheedlínii *nishli*
Ma'ii Deeshgiizhnii *báshishchín*
Táchii'nii *dashicheii*
Bit'ahnii *dashinali*

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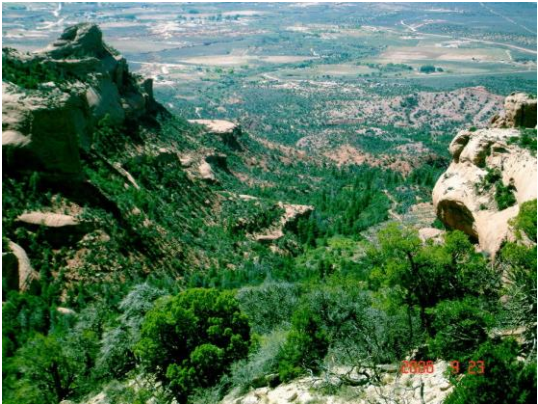


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Franklin J. Elliott
Associate Professor: ECME (AS & BS)
Navajo Technical University: Chinle Instructional Site
Faculty Chair

Presentation Objectives

- + Establish a greater understanding of what is Traumatic Brain Injury (TBI).
- + Identify services, education, and training provided for Native Americans & Alaskan Natives.
- + Present historical data of TBI



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BACKGROUND



No brain injury is too mild to ignore or too severe to lose hope.

Help raise Traumatic Brain Injury Awareness



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Research Questions

1. Is there a difference in reasons for unsuccessful closures for American Indian/Alaska Natives with TBI?
2. Is there a difference in acceptance rates for VR services among American Indian/Alaska Natives with TBI?
3. What are the obstacles in providing an effective VR?



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NATIONAL INSTITUTE ON DISABILITY,
INDEPENDENT LIVING, AND
REHABILITATION RESEARCH

NIDILRR

METHOD

- + The focus of this analysis is on the Native American and Alaskan Native population with TBI.
- + A literature review was conducted in examining the breath of what is TBI.
- + A literature review was conducted to understand the process of neuroplasticity in relations to TBI.
- + Examination of Historical Data and Trends
- + An analysis of the RS-911 data to determine the Amount of VR Services Provided by Race/Ethnicity and Cross-tabulation of Race/Ethnicity by Reason of Closure



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KEY INFORMANT CHARACTERISTICS

Amount of VR Services Provided by Race/Ethnicity

Amount of VR Services Provided by Race/Ethnicity

VR Service	White Latino	Black Latino	Black, non-Latino	AI/AN	Asian	NH/PI	Total
Assessment	479	26	781	142	89	22	1,539
% within service	31.1%	1.7%	50.7%	9.2%	5.8%	1.4%	100%
% within race/ethnicity	66.5%	61.9%	56.8%	68.9%	68.5%	66.7%	61.4%
% of total	19.1%	1%	31.2%	5.7%	3.6%	.9%	61.4%
Diagnosis & Treatment	233	13	329	40	34	8	657
% within service	35.5%	2%	50.1%	6.1%	5.2%	1.2%	100%
% within race/ethnicity	32.4%	31%	23.9%	19.4%	26.2%	24.2%	26.2%
% of total	9.3%	.5%	13.1%	1.6%	1.4%	.3%	26.2%
Counseling/Guidance	421	16	666	122	74	18	1,317
% within service	32%	1.2%	50.6%	9.3%	5.6%	1.4%	100%
% within race/ethnicity	58.5%	38.1%	48.5%	59.2%	56.9%	54.5%	52.6%
% of total	16.8%	.6%	26.6%	4.9%	3%	.7%	52.6%
College/University Training	78	3	74	20	10	2	187
% within service	41.7%	1.6%	39.6%	10.7%	5.3%	1.1%	100%
% within race/ethnicity	10.8%	7.1%	5.4%	9.7%	7.7%	6.1%	7.5%
% of total	3.1%	.1%	3%	.8%	.4%	.1%	7.5%
Occupational/Voc Training	56	3	94	11	6	2	172
% within service	32.6%	1.7%	54.7%	6.4%	3.5%	1.2%	100%
% within race/ethnicity	7.8%	7.1%	6.8%	5.3%	4.6%	6.1%	6.9%
% of total	2.2%	.1%	3.8%	.4%	.2%	.1%	6.9%
On-the-Job Training	21	0	26	3	3	1	54
% within service	38.9%	0%	48.1%	5.6%	5.6%	1.9%	100%
% within race/ethnicity	2.9%	0%	1.9%	1.5%	2.3%	3%	2.2%
% of total	.8%	0%	1%	.1%	.1%	0%	2.2%
Remedial Education	12	1	14	2	0	1	30
% within service	40%	3.3%	46.7%	6.7%	0%	3.3%	100%
% within race/ethnicity	1.7%	2.4%	1%	1%	0%	3%	1.2%
% of total	.5%	0%	.6%	.1%	0%	0%	1.2%

Job Readiness	76	7	162	21	14	3	283
% within service	26.9%	2.5%	57.2%	7.4%	4.9%	1.1%	100%
% within race/ethnicity	10.6%	16.7%	11.8%	10.2%	10.8%	9.1%	11.3%
% of total	3%	.3%	6.5%	.8%	.6%	.1%	11.3%
Disability Related Augmented Skills	27	1	27	4	6	0	65
% within service	41.5%	1.5%	41.5%	6.2%	9.2%	0%	100%
% within race/ethnicity	3.8%	2.4%	2%	1.9%	4.6%	0%	2.6%
% of total	1.1%	0%	1.1%	.2%	.2%	0%	2.6%
Miscellaneous Training	42	4	99	16	10	0	171
% within service	24.6%	2.3%	57.9%	9.4%	5.8%	0%	100%
% within race/ethnicity	5.8%	9.5%	7.2%	7.8%	7.7%	0%	6.8%
% of total	1.7%	.2%	4%	.6%	.4%	0%	6.8%
Job Search Assistance	142	6	209	34	24	9	424
% within service	33.5%	1.4%	49.3%	8%	5.7%	2.1%	100%
% within race/ethnicity	19.7%	14.3%	15.2%	16.5%	18.5%	27.3%	16.9%
% of total	5.7%	.2%	8.3%	1.4%	1%	.4%	16.9%
Job Placement	157	8	280	48	30	10	533
% within service	29.5%	1.5%	52.5%	9%	5.6%	1.9%	100%
% within race/ethnicity	21.8%	19%	20.4%	23.3%	23.1%	30.3%	21.3%
% of total	6.3%	.3%	11.2%	1.9%	1.2%	.4%	21.3%
On-the-Job Supports	80	3	143	28	10	4	268
% within service	29.9%	1.1%	53.4%	10.4%	3.7%	1.5%	100%
% within race/ethnicity	11.1%	7.1%	10.4%	13.6%	7.7%	12.1%	10.7%
% of total	3.2%	.1%	5.7%	1.1%	.4%	.2%	10.7%
Transportation	178	14	305	48	34	8	587
% within service	30.3%	2.4%	52%	8.2%	5.8%	1.4%	100%
% within race/ethnicity	24.7%	33.3%	22.2%	23.3%	26.2%	24.2%	23.4%
% of total	7.1%	.6%	12.2%	1.9%	1.4%	.3%	23.4%
Maintenance	64	5	113	30	10	2	224
% within service	28.6%	2.2%	50.4%	13.4%	4.5%	.9%	100%
% within race/ethnicity	8.9%	11.9%	8.2%	14.6%	7.7%	6.1%	8.9%
% of total	2.6%	.2%	4.5%	1.2%	.4%	.1%	8.9%

Funding Agency:

KEY INFORMANT CHARACTERISTICS

Amount of VR Services Provided by Race/Ethnicity)

Rehabilitation Technology	30	2	60	10	10	1	113
% within service	26.5%	1.8%	53.1%	8.8%	8.8%	.9%	100%
% within race/ethnicity	4.2%	4.8%	4.4%	4.9%	7.7%	3%	4.5%
% of total	1.2%	.1%	2.4%	.4%	.4%	0%	4.5%
Reader Services	1	0	3	0	0	0	4
% within service	25%	0%	75%	0%	0%	0%	.2%
% within race/ethnicity	.1%	0%	.2%	0%	0%	0%	.2%
% of total	0%	0%	.1%	0%	0%	0%	.2%
Interpreter Services	2	0	3	1	1	0	7
% within service	28.6%	0%	42.9%	14.3%	14.3%	0%	100%
% within race/ethnicity	.3%	0%	.2%	.5%	.8%	0%	.3%
% of total	.1%	0%	.1%	0%	0%	0%	.3%
Personal Attendant	4	0	2	1	1	0	8
% within service	50%	0%	25%	12.5%	12.5%	0%	100%
% within race/ethnicity	.6%	0%	.1%	.5%	.8%	0%	.3%
% of total	.2%	0%	.1%	0%	0%	0%	.3%
Technical Assistance	8	1	15	2	2	0	28
% within service	28.6%	3.6%	53.6%	7.1%	7.1%	0%	100%
% within race/ethnicity	1.1%	2.4%	1.1%	1%	1.5%	0%	1.1%
% of total	.3%	0%	.6%	.1%	.1%	0%	1.1%

Fuentes, M. M., Jimenez, N., Apkon, S. D., & Ravara, F. P. (2016). Functional outcomes during inpatient rehabilitation of American Indian and Alaska Native children with traumatic brain injury. *Journal of Pediatric Rehabilitation Medicine*. DOI: 10.3223/PRM-160376.



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KEY INFORMANT CHARACTERISTICS

Cross-tabulation of Race/Ethnicity by Reason of Closure

Cross-tabulation of Race/Ethnicity by Reason for Closure

Reason for Closure	White Latino	Black Latino	Black, non-Latino	AI/AN	Asian	NH/PI	Total
Unable to Locate	60	6	120	15	10	3	214
% within closure reason	28%	2.8%	56.1%	7%	4.7%	1.4%	100%
% of total	7.9	.8%	15.7%	2%	1.3%	.4%	28%
Disability too Significant	10	1	20	1	2	0	34
% within closure reason	29.4%	2.9%	58.8%	2.9%	5.9%	.0%	100%
% of total	1.3%	.1%	2.6%	.1%	.3%	.0%	24%
Refused Services	55	1	103	13	8	3	183
% within closure reason	30.1%	.5%	56.3%	7.1%	4.4%	1.6%	100%
% of total	7.2%	.1%	13.5%	1.7%	1%	.4%	24%
Death	3	0	5	0	1	0	9
% within closure reason	33.3%	.0%	55.6%	.0%	11.1%	.0%	100%
% of total	.4%	.0%	.7%	.0%	.1%	.0%	1.2%
Individual in Institution	2	0	9	4	1	0	16
% within closure reason	12.5%	.0%	56.3%	25%	6.3%	.0%	100%
% of total	.3%	.0%	1.2%	.5%	.1%	.0%	2.1%
Transfer to Different Agency	4	0	11	0	3	0	18
% within closure reason	22.2%	.0%	61.1%	.0%	16.7%	.0%	100%
% of total	.5%	.0%	1.4%	.0%	.4%	.0%	2.4%
Failure to Cooperate	43	4	88	11	5	2	153
% within closure reason	28.1%	2.6%	57.5%	7.2%	3.3%	1.3%	100%
% of total	5.6%	.5%	11.5%	1.4%	.7%	.3%	20.1%
Transportation NA	0	0	0	1	0	0	1
% within closure reason	.0%	.0%	100%	.0%	.0%	.0%	100%
% of total	.0%	.0%	.0%	.1%	.0%	.0%	.1%
Extended Services NA	1	0	0	0	0	0	1
% within closure reason	100%	.0%	.0%	.0%	.0%	.0%	100%
% of total	.1%	.0%	.0%	.0%	.0%	.0%	.1%

All Other Reasons	40	1	66	10	13	3	133
% within closure reason	28.6%	1.7%	55.4%	7.2%	5.6%	1.4%	100%
% of total	5.2%	.1%	8.7%	1.3%	1.7%	.4%	17.5%
Total	218	13	422	55	43	11	762
% within closure reason	28.6%	1.7%	55.4%	7.2%	5.6%	1.4%	100%
% of total	28.6%	1.7%	55.4%	7.2%	5.6%	1.4%	100%

Fuentes, M. M., Jimenez, N., Apkon, S. D., & Ravara, F. P. (2016). Functional outcomes during inpatient rehabilitation of American Indian and Alaska Native children with traumatic brain injury. *Journal of Pediatric Rehabilitation Medicine*. DOI: 10.3223/PRM-160376.

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KEY INFORMANT CHARACTERISTICS

Demographic Information

Dillahunt-Aspillaga, C., Smith, T. J., Hanson, A., Ehlke, S., Stergiou-Kita, M., Dixon, C. G., & Quichocho, D. (2015). Exploring vocational evaluation practices following traumatic brain injury. *Behavioural Neurology*, doi:10.1155/2015/924027

TABLE 1: Demographic information (N = 74).

Variable	N (%)
Gender	
Female	59 (79.7)
Male	14 (18.9)
Did not answer	1 (1.4)
Age group	
18–30	13 (17.6)
31–40	19 (25.7)
41–50	14 (18.9)
51–60	16 (21.6)
>61	9 (12.1)
Did not provide a response	3 (4.1)
Race	
White	53 (71.6)
Black/African American	9 (12.2)
Hispanic	7 (9.5)
Other*	5 (6.7)
Highest education	
Bachelor's degree	13 (17.6)
Master's degree	55 (74.3)
Doctoral degree	6 (8.1)

Note. * Other includes respondents that were either biracial (2), Asian/Pacific Islander (1), or Native American (2).

TABLE 2: Employment information: credentials, years of experience, and occupation (N = 74).

Variable	N (%)
Credentials*	
CAP	3 (4.1)
CCM	4 (5.4)
CDMS	1 (1.4)
CLCP	2 (2.7)
CRC	50 (67.6)
CVE	14 (18.9)
LMFT	2 (2.7)
LMHC	7 (9.5)
ABVE	3 (4.1)
PVE	6 (8.1)
Other**	9 (12.2)
Years of vocational rehabilitation experience	
<1 years	3 (4.1)
1–5 years	16 (21.6)
5–10 years	23 (31.1)
10+ years	32 (43.2)
Occupation*	
State VR counselor	42 (56.8)
Rehabilitation educator	3 (4.1)
Independent rehabilitation Provider, public sector	3 (4.1)
Independent rehabilitation Provider, private sector	11 (14.9)
Rehabilitation service provider, nonprofit	6 (8.1)
Rehabilitation service provider, for profit	3 (4.1)
Other***	21 (28.4)

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KEY INFORMANT CHARACTERISTICS

Demographic Information

Traumatic Brain Injury Among American Indians/Alaska Natives — United States, 1992–1996. (2002). *Morbidity and Mortality Weekly Report*, (14), 303.

TABLE 1. Number of nonfatal traumatic brain injury hospitalizations and rates* among American Indians/Alaska Natives, by selected characteristics — United States[†], 1992–1996

Characteristics	Number	Rate	(95% CI) [§]
Year			
1992	944	90.3	(83.8– 96.7)
1993	820	76.9	(71.1– 82.6)
1994	959	85.9	(79.9– 92.0)
1995	881	78.4	(72.7– 84.2)
1996	887	77.7	(72.1– 83.4)
Total	4,491	81.7	(79.1– 84.4)
Sex			
Female	1,287	46.7	(46.2– 49.3)
Male	3,204	119.9	(115.8–124.1)
Age (yrs)			
0–14	994	54.4	(51.0– 57.8)
15–24	1,085	112.9	(106.2–119.6)
25–34	1,023	111.7	(104.8–118.5)
35–44	645	93.9	(86.7–101.2)
≥45	744	71.8	(66.6– 77.0)
External cause			
Motor Vehicles	1,062	19.6	(18.4– 20.8)
Assaults	757	14.0	(13.0– 15.0)
Falls	736	13.6	(12.6– 14.6)
Other	518	9.5	(8.7– 10.4)
Unspecified	1,418	26.1	(24.8– 27.5)
Region[¶]			
Alaska	585	117.1	(106.8–127.4)
East	94	27.8	(21.3– 34.2)
Northern Plains	1,348	122.6	(115.5–129.8)
Oklahoma	456	32.9	(29.5– 36.3)
Southwest	2,008	93.9	(89.3– 98.6)

* Per 100,000 population; rates adjusted to the 2000 U.S. standard population.

[†] Excludes data from the California and Portland Indian Health Service regions.

[§] Confidence interval.

[¶] Alaska, East (Nashville), Northern Plains (Aberdeen, Bemidji, and Billings), Oklahoma, and Southwest (Albuquerque, Navajo, Phoenix, and Tucson)

External Cause:

Unspecified: Recreational, at home incidents,
Others: unreported but later referred/reported

Regions:

Indian Health Services Provided: Southwest Region

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RESULTS

Research Question	Identified Challenges
<p>1. Is there a difference in reasons for unsuccessful closures for American Indian/Alaska Natives with TBI?</p>	<ul style="list-style-type: none">▪ Return to work is identified as a complex and challenging process due to injury.▪ Although individuals are given support for rehabilitation<ul style="list-style-type: none">• Employment rates are lower• Need to understand the key processes and relevant factors important for a thorough and rigorous vocational evaluations.• Further research is needed to formally examine the success for the framework among a diverse group of vocational rehabilitation providers.• Place on Physical Therapy appointments and end after or partial visits completed.• Referred by medical providers to SSDI



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RESULTS (continued)

Research Question	Identified Facilitators
<p>2. Is there a difference in acceptance rates for VR services among American Indian/Alaska Natives with TBI?</p>	<p>Lack of Funding Individual and Family</p> <p>Lack of Prevention By local, State, Federal agencies</p> <p>Lack of IHS services rehabilitation & treatment</p> <p>Lack of Agency Visibility state, Federal, National agencies</p> <p>Lack of Culture and Spiritual Care for Brain Injury</p>

RESULTS (continued)

Research Question	Identified Facilitators
<p>3. What are the obstacles in providing an effective VR?</p>	<ul style="list-style-type: none"> ▪ TBIs among AI/NA have serious consequences for patients, their family, and health-care delivery systems. <ul style="list-style-type: none"> ▪ Number of hospital days with TBI ▪ Lost of quality of life ▪ Physical, cognitive, and psychosocial impairments that require long-term rehabilitation therapy. ▪ Local medical services and rehabilitation service are limited/distance ▪ Transportation to and from treatment centers are limited ▪ Lack of TBI knowledge of the people and providers ▪ TBI hospitalizations among AI/AN might be underreported because of use of non-IHS or tribal facilities ▪ Medicare, Medicaid, or private insurance might not cover ▪ Access to advanced emergency medical care due to rural areas – limit the chances of survival ▪ Risk taking behaviors (not all is seen or reported) ▪ Alcohol and Drug/substance abuse (meth) ▪ Suicide

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Translations/Recommendations for Future Research Leaders

Strategies	Translations/Recommendations
<ul style="list-style-type: none">Understand of Neuroplasticity	<ul style="list-style-type: none">The influence with sensory development and learning to reformat and reestablish neural pathways. Learn alternative functions & operations.
<ul style="list-style-type: none">Education of family and friends on TBI and recovery procedures.	<ul style="list-style-type: none">Provide training to understand what TBI is and how to cope with training and rehabilitation at home on a daily basis.



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Translations/Recommendations for Future Research Leaders

Strategies	Translations/Recommendations
▪ Understand of TBI	•Further research is needed to formally examine the success
▪Preventive Measures	•Alcohol /Substance Abuse •Suicide
▪Examine sensory development processes	•Central nervous system compensation linked to improved rehabilitation •(triggers compensatory neural plasticity)



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Knowledge Translation Resources & Deliverables

+ TBI Research

- + Catroppa, C., Anderson, V. A., Morse, S. A., Haritou, F., & Rosenfeld, J. V. (2008). Outcome and Predictors of Functional Recovery 5 Years Following Pediatric Traumatic Brain Injury (TBI). *Journal Of Pediatric Psychology*, 33(7), 707-718. doi:10.1093/jpepsy/jsn006
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References (continued)

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Contact Information

Rehabilitation Research and Training Center (RRTC)

On Research and Capacity Building for Minority Entities

6700 N. Martin Luther King Ave.

Oklahoma City, Ok. 73111

Phone: (855) 497-5598

Fax: (405)962-1638

RRTC email: capacitybuildingrrtc@langston.edu

RRTC Website: www.langston.edu/capacitybuilding-rrtc