

PURPOSE: INVESTIGATE THE NUMBER OF TEENS COMPLETING CIC

- Spina Bifida occurs in approximately 3.65 per 10,000 births (CDC, 2015).
- Completing clean intermittent catheterization (CIC) in children who have Spina Bifida can be important both medically and socially.
- CIC is important in the management of neurogenic bladder to prevent urinary tract infections and preserve kidney function (Clayton et al, 2010).
- The Spina Bifida Association recommends children begin participating in CIC activities as early as age 3 with simple activities such as gathering materials (Spina Bifida Association, 2006) and possess the fine motor skills for completing CIC activities at age 6 (Mickelson et al, 2009).
- Able children should be independently completing CIC activities by the elementary school years (Spina Bifida Association, 2006).
- Research shows that most children become independent with CIC activities between the ages of 8-12 years.
- CIC is generally completed approximately ever 4-6 hours when awake (Katrancha, 2008).
- Previous research has shown that there are pre-teens and teens with Spina Bifida who do not complete CIC activities independently.
- In order to inform a quality improvement project to be conducted in the nurse run CIC clinic at the CHLA Spina Bifida Clinic, analysis of current data was completed to act as a pre-intervention baseline.
- The data was extracted from currently enrolled participants of the the National Spina Bifida Registry at Children's Hospital of Los Angeles.

METHODS

- Recruitment:** The participants were selected from the CHLA Spina Bifida Registry survey version 2.
- Inclusion/Exclusion:** 168 children were included ranging in age from 3-21 years old. 21 years old is the maximum age for continued care at CHLA. Any patient who was missing data was excluded from analysis. Only patients who perform CIC were included.
- Measures:** Our outcome variable was the party, labeled as caregiver or patient, performing CIC. Independent variables of interest included Patient Age, Gender, Race/Ethnicity, the Age CIC activities began, and location of spinal lesion.
- Statistical Analysis:** Analysis was conducted using STATA 12. Descriptive statistics and chi-square tests were used to evaluate for associations. Linear Regression was completed to evaluate for confounding.

RESULTS

Table 1. Demographics

	Total Population (n=168)		CIC Performed by Caregiver (n=110)		CIC Performed by Patient (n=57)	
	Mean	SD (range)	Mean	SD (range)	Mean	SD (range)
age, years	11.01	5.00 (3-21)	8.9	4.28 (3-21)	15.44	3.14 (9-21)
Gender M/F, n	84/84		49/61		35/22	
Ethnicity, n						
Hispanic/Latino	152		99		53	
Non-Hispanic/Latino	15		11		4	
Race, n						
White	140		93		46	
African American	4		2		2	
Multi-racial	5		4		1	
Asian	5		3		2	
American Indian/Alaskan Native	1		1		0	
Other	9		5		4	
Unknown	4		2		2	

Table 2. Chi-Square comparison of age categories and person who performs clean intermittent catheterization (CIC)

Age Category, n		Total Population (n=167)	CIC Performed by Caregiver (n=110)	CIC Performed by Patient (n=57)
1: <5 years	Count	17	17	0
	Expected Count		11.2	5.8
2: ≥5 years and <8 years	Count	30	30	0
	Expected Count		19.8	10.2
3: ≥8 years and <10 years	Count	24	23	1
	Expected Count		15.8	8.2
4: ≥10 years and <13 years	Count	28	18	10
	Expected Count		18.4	9.6
5: ≥13 years and ≤21 years	Count	68	22	46
	Expected Count		44.8	23.2
			Pearson Chi square (4) = 67.94	P<0.0001
			Fisher's Exact	P<0.0001

Table 3. Breakdown of patient's who complete CIC independently by age

Age	Number of Patients Who Complete CIC Independently	Total Patients
3	0	7
4	0	10
5	0	8
6	0	13
7	0	9
8	0	10
9	1	14
10	2	9
11	3	7
12	5	12
13	8	15
14	3	7
15	6	10
16	9	10
17	3	3
18	7	9
19	2	2
20	5	6
21	3	6
Total	57	168

SPINA BIFIDA CLINIC & REGISTRY AT CHLA

USC University Centers for Excellence in Developmental Disabilities (UCEDD)

- Contracts with Los Angeles County Department of Mental Health to assess children and provide services to children with developmental disabilities and severe emotional disturbances.
- Clinical staff: Occupational Therapists, Psychologists, Psychiatrists, Nurse Manager, Social Workers, Registered Dietitians, Developmental Behavioral Pediatricians

DISCUSSION

Key findings included:

- The mean age of patient's independently completing CIC is higher than the recommended age of 6-8 years old at 15.44 years old.
- There is a statistically significant difference between the age when CIC activities began and whether the caregiver or patient completes CIC
- There was no significant association between the three spinal lesion locations and the children independently completing CIC
- Significant difference between gender and whether the caregiver or patient completes CIC. This does not confound the relationship between Age and CIC performer.



REFERENCES

- Center for Disease Control (2015, February 6). Spina Bifida Homepage. Retrieved from <http://www.cdc.gov/ncbddd/spinabifida/index.html>
- Clayton, D.B, Brock III, J.W., Joseph, D.B. (2010). Urologic management of Spina Bifida. Developmental Disabilities Research Reviews, 16, 88-95.
- Katrancha RN, BSN, E.D. (2008). Clean intermittent catheterization in the school setting. The Journal of School Nursing, 24, 197-204.
- Spina Bifida Association (2006). Guidelines for Spina Bifida Health Care Services Throughout the Lifespan. Pg. 41-46
- Spina Bifida Association (2006). Living Well with Spina Bifida: Ages 3-5. Pg. 11-13
- Mickelson, J., Cheng, E., Yerkes, E. (2009). Urological issues of the pediatric spina bifida patient: A review of the genitourinary concerns and urologic care during childhood and adolescence. Journal of Pediatric Rehabilitation Medicine, 2(1), 51-59