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This is to certify that the thesis prepared by Latrice Rochaun Foster, D.D.S., M.P.H., entitled ORAL HEALTH STATUS OF CHILDREN IN THE CHILD HEALTH INVESTMENT PARTNERSHIP (CHIP) PROGRAM has been approved by her committee as satisfactory completion of the thesis requirement for the degree of Master of Science in Dentistry

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ORAL HEALTH STATUS OF CHILDREN ENROLLED IN THE CHILD HEALTH
INVESTMENT PARTNERSHIP PROGRAM

A thesis submitted in partial fulfillment of the requirements for the degree of Masters of
Science in Dentistry at Virginia Commonwealth University.

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Abstract

ORAL HEALTH STATUS OF CHILDREN ENROLLED IN THE CHILD HEALTH INVESTMENT PARTNERSHIP PROGRAM

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A thesis submitted in partial fulfillment of the requirements for the degree of Masters of Science in Dentistry at Virginia Commonwealth University.

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Purpose: The purpose of this study is to describe children's dental disease status and functional health literacy of families enrolled in the Child Health Investment Partnership program in Roanoke Valley.

Methods: This was a prospective cohort study of children (n=166) enrolled in the Child Health Investment Partnership of Roanoke Valley, Virginia (CHIP). The parents of the 166 children completed the Life Skills Progression (LSP) survey at enrollment between September 2004 and September 2008 to assess their functional health literacy levels. Their LSP scores were used to determine their subsequent health care literacy (HCL), personal health literacy (PHL), and dental-child utilization (LSP22) scores. Descriptive statistics were recorded and a paired t-test was used to determine a relationship between the three

measures of functional health literacy at baseline and at their most recent literacy assessment. Dental disease status was determined by an epidemiological dental exam and evaluated using $d_1d_{2-3}f$ criteria. This was a visual exam that measured the presence of frank (d_{2-3}) and non-cavitated carious lesions (d_1), as well as filled teeth. **Results:** Descriptive analysis of the cohort reveals: 58% of the children enrolled had no carious teeth at the dental screening exam. The average mean of LSP scores for all three scales: HCL, PHL, and LSP22 were significantly different from baseline: $p < .0001$, $p < .0009$, and $p < .0001$, respectively.

Conclusion: An improvement of parental functional health literacy has been documented in a low-income pediatric dental population when preventative efforts and education is delivered within the context of a home-visitation health program. The population of high-risk children had low levels of dental disease.

INTRODUCTION

Dental caries is the most prevalent chronic disease of childhood. Significant disparities in oral health exist according to race, ethnicity, education, income and geography. Children from low-income families experience more dental disease and have reduced access to dental care resulting in fewer opportunities for prevention and higher levels of unmet dental treatment needs^{1,2}. Health literacy is thought to be an important determinant of oral health that intersects with other factors (e.g., family attitudes, motivation) in numerous ways³. Literacy is not the only pathway to improving oral health outcomes, but is critical to the prevention of early childhood caries (ECC)^{4,5}.

A definition for oral health literacy is “the degrees to which individuals have the capacity to obtain, process, and understand basic oral health decisions”⁶. When applied to improved oral health outcomes, oral health literacy is important and can be included in any efforts aimed at impacting early childhood caries. Oral health literacy is a collection of skills that includes not just the ability to function in the health care system but also to act upon the education being provided from that system or within the family’s culture and community. The family must be able to then 1) visualize (e.g., read, watch, listen), 2) comprehend the material given, and 3) implement the desired actions (e.g., behavior, tooth brushing, feeding habits) as part of the child’s preventative health routine. Poor oral health literacy is associated with poorer perceptions of health, less utilization of services

(particularly prevention related), and poorer understanding of verbal and written instructions for self-care⁷.

The American Academy of Pediatric Dentistry's Clinical Guideline on Infant Oral Health calls for early risk assessment to identify parent-infant groups who are at higher risk for development of ECC⁸. Parental health literacy skills have been shown to have an effect on their child's health⁹. The hypothesis is that higher parental educational levels will translate into increased likelihood of preventive dental care for their child. For this reason, it is important to identify families with low oral health literacy skills as these children are most likely at risk for future decay and these parents are more likely to experience barriers to adequate education. Health care providers are challenged with appropriately and effectively educating families with children at risk for early childhood caries.

Recent studies have highlighted the significance of health literacy in both patient compliance and positive health outcomes^{3,9,10}. Measures of health literacy are fairly new to oral health with only a few recently examined and applied to dental utilization and oral health outcomes. These studies have identified screening tools that can be used effectively in a primary care setting to identify parents of children with low functional literacy skills². Two health literacy instruments used in medicine have been modified for oral health and pilot tested with parents of children receiving oral health services¹¹. These dental literacy instruments appear to measure constructs that are different from the health literacy instruments. The Rapid Estimate of Adult Literacy in Dentistry (REALD) and the Test of Functional Health Literacy in Dentistry (TOFHLiD) have been demonstrated to be valid

constructs and reliable measures of oral health literacy in addition to being correlated with caregivers' perceived oral health quality of life and their child's oral health outcomes ^{12, 13}.

A unique tool that is used to measure functional health literacy is the Life Skills Progression Outcome tool. The Life Skills Progression (LSP) outcome tool goes beyond parental literacy and health outcomes and examines individual parent infant / toddler outcomes over time. It is a utilization-focused outcome evaluation tool for high-risk families with young children. It has been used in home health visitation programs and allows the provider to evaluate data from visits, screening tools, and observations ¹⁴.

Currently, there is limited research on functional oral health literacy and its implications on children's oral health. As a whole the LSP consists of 43 scales that measure different constructs. These constructs are life skills that reflect a variety of basic skills needed to live and parent well. Each question is a likert-scale with numerical values between 1 and 5 (inadequate to competent), reflecting characteristics, development, and /or learning curve of the parent or child. The LSP also tracks the child's developmental and regulatory outcomes. This measurement tool is a useful summary of the functional health literacy in parents of young children ¹⁴.

The LSP tool is being used by Child Health Investment Partnership of Roanoke Valley (CHIP of RV). It is a private-public funded home visitation program that provides social services and care coordination for at-risk children and their families. Home visitation programs became popular in the 1990s as way to bring services to young children of socially/geographically isolated families ¹⁵.

CHIP promotes the health of children in Roanoke, Botetourt and Craig counties

from birth to entry into kindergarten, and who reside in families with income 185-200% below the poverty level of the service area. The program ensures comprehensive health care, strengthens families, and coordinates community resources^{15,16}. To decrease the number of low-income children in the Roanoke Valley with long term dental disease, the Child Health Investment Partnership of Roanoke Valley (CHIP) seeks to address access barriers to early oral health care through the in-home implementation of the Virginia Department of Health's *Bright Smiles for Babies: Early Oral Screening and Fluoride Varnish Program*. CHIP has designated this effort as the **Begin with a Grin** Program. In the context of a home visit, Community Health Nurses (CHNs) and CHIP's Pediatric Nurse Practitioner (PNP) will apply fluoride dental varnish to the teeth of CHIP-enrolled children ages 6 months-36 months who are not currently being seen by a dentist; and educate the primary care giver in good dental hygiene practices. CHIP of Roanoke Valley is the sole CHIP location in Virginia to pilot this program, and the only known program in the Commonwealth to address child dental health indicators in the context of a home visitation program that pairs preventive dental health care with comprehensive care coordination and wrap-around services for the entire family. Providing in-home preventive dental services gives CHIP access to the most vulnerable children: those living in outlying, rural areas, without transportation, and without access to pediatric dental providers. By virtue of the relationship created between a family and their home visitor, CHIP has the unique opportunity to improve the early dental health of children in a traditionally high-risk, high-cost population, reducing costs to the health care system and potentially producing early dental hygiene habits that will continue through to adulthood. All CHIP-

enrolled families with children ages 6 months-36 months are receiving oral health education from CHIP's home visiting staff. The educational component of the program aims to provide information to a child's primary caregiver on proper oral hygiene, nutrition, and oral health literacy in an effort to reduce high risk behaviors that lead to Early Childhood Caries. Educational tools include oversized models of the teeth and gums paired with a large toothbrush which allows CHNs to demonstrate proper brushing and flossing technique after which both parent and child can take turns applying the knowledge they have learned in the home visit ¹⁷. In addition to educational support, CHNs and CHIP's PNP are applying semi-annual fluoride dental varnish to the teeth of CHIP-enrolled children between the ages of 6 months and 36 months who do not presently receive varnish treatments through another health care provider. Fluoride varnishes are applied by brush or cotton tip applicator directly to the teeth and take between 1-4 minutes. Varnish treatments serve as vital preventative oral health care for the many children at-risk for significant early tooth decay.

The purpose of this study is to describe a population of children enrolled in the Children Dental Health Partnership program in Roanoke Valley, Virginia, their dental disease status, and change in functional health literacy scores from baseline enrollment to the dental exam.

METHOD AND MATERIALS

Design

This was a prospective cohort study of children (n=166) enrolled in the Child Health Investment Partnership of Virginia (CHIP) between September 2003 and November 2009. This study was approved for human subjects by the Virginia Commonwealth University Institutional Review Board.

Sample and data collection

This was a secondary data analysis of enrollment data and clinical records of individual children enrolled in CHIP over a four year period (September 2004-September 2008). Dental exams were performed by trained Virginia Commonwealth University pediatric dental residents on “dental days” in September 2008, March 2009, September 2009, March 2010. Dental caries was evaluated using the $d_1d_{2-3}f$ criteria¹⁸. This was a visual examination that recorded both frank (d_{2-3}) and non-cavitated (d_1) carious lesions, as well as filled lesions in the teeth.

Each child was assigned a unique identification number that linked their demographic information, enrollment history, and health literacy measures to the data recorded at the dental screening exam. Parental LSP score was obtained from enrollment data recorded between September 2004 and September 2008.

Health Literacy Measures

The child’s caregiver completed the health literacy measure (LSP) at the time of enrollment into the CHIP program. The Life Skills Progression Outcome tool

(LSP) was then used to create different measures of functional health literacy of the child's caregiver. The score for each item of the LSP tool ranged, on a likert-scale, from 0 and 5. These functional health literacy measures with corresponding item descriptions and numerical values can be found in Table 1. Some values for the LSP items are 0 indicating that the question is not applicable. Two functional health literacy measures have been derived from the LSP. Health Care Literacy (HCL) and the Personal Health Literacy (PHL), have been used to rate a parents ability to function in the healthcare system and gauges the ability to function in health contexts at home, respectively ¹⁷.

Health Care Literacy (HCL) is measured by the mean of 9 LSP items (at least 5 of the 9 items must be answered) that represent a mother's literacy for functioning in the healthcare system. The target range for functional HCL is 4 to 5 and indicates a parent capable of accessing and obtaining health services/benefits for herself and her child. A low functional HCL of 1 identifies a parent that has inadequate or inappropriate utilization of healthcare services. HCL is made up of LSP scales as noted in Table 1.

Level of functioning in health contexts at home is measured by the Personal Health Literacy (PHL). The PHL is a mean of at least four of seven items available (Table 1). A low PHL score indicates an inability to recognize need for healthcare services, benefits, and resources as well as indicating engagement in harmful health behaviors. A high PHL score is indicative of avoidance in harmful health behaviors and strong use of health resources ¹⁷.

The LSP tool contained one item which was specifically related to functional dental literacy (LSP scale 22 child-dental). This item measures whether a child has a dental

home, seeks regular preventative care, seeks treatment for oral disease, and daily oral hygiene practices. Typically, this scale is only utilized after the child is six months of age due to presence of teeth. A score of 0 is given if child under the age of six months. The target range for LSP 22 is 3.5 or higher ¹⁷.

Statistical Analysis

A descriptive analysis was also completed for a number of factors related to health literacy and dental disease status such as: the child's asthma history; very low birth weight, low birth weight, or normal birth weight; race, gender, age in months at enrollment, length of enrollment in CHIP, parents education level, type of insurance, and locality in which child resides: Roanoke City, Craig County, Roanoke Country, or Salem City. Paired t-test was used to test the difference in mean health literacy scores at baseline versus those obtained at the most recent home-health visit. Statistical analysis completed using SAS Version 9.2, 2008.

RESULTS

The descriptive analysis of the patient's race reveals the population to be 23% black, 40% white, 26% Hispanic, and 9% other, with a male:female ratio close to 1:1. The average age for enrollment in CHIP was found to be almost three months. The majority of patients had Medicaid insurance (93%), lived in Roanoke City (76%), had a normal birth weight (88%), and did not have asthma (93%). In analyzing the parent's education, 52% of the parents did not have a High School Diploma or GED. Only 8% of the parents had education beyond a high school diploma or GED. These results are summarized in Tables 1 and 2.

The average baseline LSP scores are summarized in Table 3 and are as follows: HCL was 3.79 ± 0.62 , PHL was 4.00 ± 0.53 , and LSP22 was 1.51 ± 1.85 . The average number of dental visits for any type of treatment was found to be less than one (0.208 ± 0.564). The mean number of fluoride applications was 1.860, the average at enrollment was 2.97 months, and the average length of enrollment was 826.97 days or roughly, 2.27 years. The presence of (d1d2-3f) tooth decay was found in 42% of children compared to 58% of children who were not found to have carious lesions. More than 110 children were found to have less than one decayed, missing (due to caries), or filled teeth (Figure 1). The median interquartile range for the number of decayed, missing, or filled teeth are 0 and 0 to 2.25, respectively. Fifty-two percent of Hispanic children, 41.67% children was Medicaid insurance, 52% of children whose parents had less than a High school diploma or GED, and 63% of children with asthma had carious teeth. The initial

and most recent LSP scores are reported in Figure. LSP22 most recent mean score was found to be 2.61, while the most recent mean for HCL and PHL were found to be 3.90 and 4.14, respectively. A paired t-test was used to compare the difference between the mean LSP score at baseline and most recent exam visit. A statistically significant difference was found for all three LSP measures LSP22, HCL, and PHL: $p < 0.0001$, $p < 0.0009$, and $p < 0.0001$, respectively.

DISCUSSION

The population of children enrolled in this study consisted mostly of white children with almost equal numbers of blacks and hispanic children. Most of the caries in this population was found in the hispanic population, similarly to what the literature reports. Children with a history of asthma have been shown to have increased caries and over sixty percent of the asthmatic children in the CHIP population had carious lesions.

In terms of Health Care Literacy (HCL), which is the parent's ability to function in the healthcare setting, this research shows that caregiver's understanding of healthcare utilization was moderate and approaching an ideal health literacy level. Personal health literacy (PHL) is an indicator of how a mother functions at home in maintaining and promoting child health, and in this study there is a relationship to dental utilization, implying that improved oral health at home has a relationship with dental visits. Hence, competency at home may lead to more dental utilization for maintenance and prevention. The mean PHL score for caregivers enrolled in this program was 4.00, indicating that caregivers were knowledgeable about child health in contexts of the home. There was a statistically significant difference between the HCL and PHL means at baseline and means at the last exam. There was an increase in HCL and PHL means at last exam, indicating that caregivers showed some improvement, although slight. Despite the literature reports that low socioeconomic populations have lower health literacy and poorer oral health outcomes, there are several possible explanations for the high HCL and PHL enrollment scores. CHIP staff workers administered the LSP instruments and read aloud the scale

responses and selected the score (0-5) based upon the caregivers' response. It is unknown if the same staff member or members administered the LSP during the interview or if they probed the caregivers or simply read each question. It is also possible that the caregivers chose responses that made them appear more knowledgeable, introducing some social desirability bias. There is also the possibility that the population of parents enrolled in the study had a higher health literacy score than other rural populations.

The LSP 22 scale is the only LSP scale to relate to functional dental literacy for the child. The target range of over 3.5 is desired which indicates the child has a dental home, has had some preventative care, and seeks timely treatment. Results from this study show that at enrollment, caregivers' mean LSP22 score was 1.51 indicating that the child did not have a dental home and had some existence of early childhood caries. The mean LSP22 score at the last exam was found to be 2.61 and the difference between the means was found to be statistically significant. This indicates that the Begin with a Grin, oral health education program provided by CHIP may be responsible for the increase in LSP22 by 0.78 to 1.40 points. Clinically, this means that a caregiver who enrolled in the program without a dental home could, by the last exam, have begun to understand and actually obtain a dental home, and thus, a dental visit. HCL, PHL, and LSP22 will be more useful when used in future research examining improvements in scores with improvements in function in relationship to dental disease status and utilization.

Dental caries was only found in 41% of the children enrolled in this study and more than 100 of the 166 children included in this study had only one decayed, missing, or filled tooth or less at their most recent exam visit. This distribution of decay is encouraging

given the rates of decay in high-risk populations. Recent national survey data show that among all 2- to 5-year-old U.S. children, 28 percent exhibited evidence of dental caries (tooth decay), an increase from 24 percent 10 years earlier¹⁹. The median interquartile range for the number of decayed, missing, or filled teeth in the CHIP population are 0 and 0 to 2.25, respectively. This means that 75% of the subjects in the data set had fewer than three teeth that were designated as decayed, missing, or filled. This is indicative of the low caries rates observed in the CHIP study population. It is our assumption that the health education and prevention, in addition to the fluoride varnish application could be responsible for the low rate of decay seen in this high-risk population.

A limitation of this study was the use of secondary data. CHIP staff members were responsible for gathering the data regarding the LSP and we are not sure if those staff members were calibrated and whether the same staff member administered the LSP instrument to the CHIP participant each time. The dental screening exams were performed over 2 years, ranging from 6 months to 5 years after initial enrollment. If the exams had been performed at baseline, the information obtained would have been useful as a baseline comparison of initial tooth decay status. We relied on the caregivers' and CHIP reporting with respect to the number of visits to the dentist, however, it would have been more reliable to use Medicaid claims data to record the actual number of dental visits. In the future, a comparable study population that will receive the health education intervention with dental screening exams minus the F- varnish will serve as a comparison group to allow the effect of the health education program to be measured. Ideally, a randomized controlled study evaluating dental disease at time of entry into program or not into a

program would assist in accounting for increased dental utilization due to an access need into the program versus from increased functional health literacy. Future investigations are needed that would encapsulate a time-dependent analysis of dental claims and a comparison of dental utilization to a control group of children that would be a propensity score matched sample of same age Medicaid recipients or children enrolled in CHIP programs without Begin with a Grin.

CONCLUSIONS

The aim of this study is to describe the dental disease status of a population of children enrolled in the Child Health Investment Partnership (CHIP) program of Roanoke Valley, VA. The LSP tool was developed with the intention of measuring functional health literacy over time. Preliminary findings indicate that functional health literacy improved over time with a home visitation program¹⁴. This study demonstrates,

- a low decay rate in a high-risk pediatric population,
- a significant association between the differences in functional health literacy measures at baseline and most recent exam, and
- functional health literacy is improved when education is provided within the context of a home-visitation program.

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Literature Cited

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Table 1: Life Skills Progression Scales and Associated Literacy Measures (N= 166)

LSP #	MEASURE	0	1	2	3	4	5	Mean	
PERSONAL HEALTH LITERACY	LSP 4	Attitudes toward Current Pregnancy	N/A	Unplanned & unwanted. Abortion or adoption plan.	Unplanned; ambivalent, fearful; coerced to keep.	Unplanned & accepted	Planned but unprepared.	Planned, prepared, welcomed.	0.3
	LSP 7	Support of Development	N/A	Poor knowledge of child development; Unrealistic expectations; Ignores or refuses information.	Little knowledge of child development; Limited interest in development; Passive parental role.	Open to child development information. Provides some toys, books & play for age.	Applies child development ideas. Interested in child's development, skills, interests & play.	Anticipates child's developmental changes. Uses appropriate toys & books; Plays / reads with child daily.	3.5
	LSP 8	Safety	N/A	Hospitalized for treatment of unintentional injury; Has permanent damage.	Outpatient / ER treatment of unintentional injury; no permanent damage.	No unintentional injury; Home / car unsafe; Not childproofed.	No unintentional injury, Home partially safe. Uses car seat; Uses information.	Child protected; no injury; Home/car safe; Teaches safety; seeks/uses information for age.	4.0
	LSP 11	Use of Resources	N/A	Resource needs unrecognized; Community resources not used or refused; Hostile	Resource needs unrecognized; Limited use when assisted by others. Misses most appointments.	Accepts help to identify needs; Uses resources when assisted by others; Keeps some appointments.	Identifies needs; Uses resources with little assistance; Keeps most appointments.	Identifies needs; Uses resources independently; Keeps or reschedules appointments.	3.7
	LSP 24	Substance Use or Abuse (Drugs &/or alcohol)	N/A	Chronic history drug &/or alcohol abuse with addiction.	Drug / alcohol binge or intermittent use, without apparent addiction.	Rare or experimental use of drugs or clean; In recovery group or treatment program.	Occasional use of legal substances; Stops if pregnant.	No history or current use / abuse.	4.3
	LSP 25	Tobacco	N/A	Chain smokes; > 2 packs/day; Uses smokeless; Heavy 2nd hand exposure.	Non-chain use or some 2nd hand exposure.	Decreases # when pregnant; Controls 2nd hand exposure.	No use or 2nd hand exposure in past 6 months or this pregnancy.	None or never.	3.9
	LSP 28	Self Esteem	N/A	Poor; Critical of self; Anticipates criticism from others; Rarely initiates; Avoids trying new skills.	Copes sometimes; but with limited confidence & flat affect; Limited initiative for learning new skills.	Irritable/defensive; Makes excuses, blames others; Initiates/starts new skills but gives up easily.	Beginning to actively initiate; Develops skills & recognizes own competence; Emerging confidence visible.	Confident in skill & ability to learn; Expresses pride in achievements & successes.	4.0
HEALTH CARE LITERACY	LSP 10	Use of Information	N/A	Refuses information from home visit or health care.	Uses inaccurate information from informal sources.	Passively accepts some information from home visit and health care.	Accepts / uses most information from home visit or health care.	Actively seeks/ uses information from home visit, health care and other sources.	3.8
	LSP 17	Maternal - Prenatal Care	N/A	No prenatal care.	Care starts 2nd -3rd trimester; Keeps some appointments.	Care starts 2nd -3rd trimester; Keeps most appointments.	Care starts in 1st trimester; Keeps most appointments.	Keeps post-partum appointment.	0.8
	LSP 18	Maternal - Sick Care	N/A	Acute / chronic conditions go without diagnosis / treatment; No medical home.	Seeks care only when very ill; Uses ER for care; No medical home.	Seeks care inconsistently; Inconsistent treatment follow-up; Unstable medical home.	Seeks care appropriately; Follows treatment recommended; Has medical home.	Seeks care appropriately; Cure or control obtained; Has medical home.	2.9
	LSP 19	Maternal - Family Planning	N/A	No family planning method used; Lacks information regarding family planning.	Family planning method use rare; Limited understanding of family planning.	Occasional use of family planning methods; Some understanding of family planning methods.	Regular use of family planning methods; Good understanding of family planning methods.	Regular use of family planning methods; Plans / spaces pregnancies.	3.4
	LSP 33	Medical Health Insurance	N/A	None / unable to afford care or coverage.	Medicaid for pregnant or emergency only.	Medicaid full scope benefits with or without share of cost.	State subsidized or partial pay coverage.	Private insurance with or without co-pay for self / others.	2.4
	LSP 20	Child - Preventive Well Care	N/A	None; No medical home.	Seldom; No medical home.	Occasional appointment; Unstable medical home.	Has annual exam only; Has stable medical home.	Keeps regular CHDP / well child appointments with same provider.	4.4
	LSP 21	Child - Sick Care	N/A	Medical neglect; No diagnosis / treatment for acute or chronic conditions.	Has care only when very ill; Uses ER for care.	Timely care minor illness but inconsistent treatment / follow-up.	Timely care minor illness; Follows treatment recommended.	Obtains optimal care / control for acute or chronic conditions.	4.2
	LSP 22	Child - Dental	N/A	No dental home or care with serious ECC; Poor hygiene.	No dental home or care with some ECC and inadequate treatment / hygiene.	Has dental home & hygiene but late treatment of ECC	Has dental home; Some preventive care / timely treatment.	Has dental home; Regular preventive care & timely treatment.	2.6
	LSP 23	Child - Immunizations	N/A	None or refused.	Immunization history uncertain; Records lost.	Immunizations begun, but no return appointment.	Immunizations delayed, has return appointment.	Complete or up-to-date.	4.6

Table 2: Demographic Characteristics

DESCRIPTORS		%	Frequency	% w/ Decay	N w/ Decay	
Gender	Male	58.43	97	41.11	37	
	Female	41.57	69	42.11	32	
Race	Black	23.49	39	38.24	26	
	White	40.96	44	43.59	17	
	Hispanic	26.51	44	52.27	23	
	Other	9.04	15	20.00	3	
Asthma	No	93.37	155	63.64	7	
	Yes	6.63	11	40.00	62	
Locality	Botetourt County	0	0	0	0	
	Craig County	0.60	1	0	0	
	Roanoke City	76.51	127	42.52	54	
	Roanoke County	14.46	24	50.00	12	
	Salem City	8.43	14	21.43	3	
Birth weight	Normal weight	88.70	102	39.22	40	
	Low (<2500 gm)	6.96	8	37.50	3	
	Very Low (<1500 gm)	4.35	5	20.00	1	
Parents education*	< High school diploma or GED	52.00	78	52.56	78	
	High School diploma or GED	40.00	40.00	35.00	60	
	> High School diploma or GED	8.00	8.00	16.67	12	
Insurance	Medicaid	93.98	156	41.67	65	
	Private	2.41	4	50.00	2	
	none	3.61	6	33.33	2	
		N	MEAN	SD	MIN	MAX
Avg Age at enrollment		162	2.97	2.27	0.099	6.637

*p<0.05

Table 3: Health Literacy Scores

SCORES	N	MEAN	STD DEV	MIN	MAX
Health Care Literacy	159	3.79	0.62	0	5.0
Personal Health Literacy	161	4.00	0.53	2.6	5.0
LSP 22	165	1.51	1.85	0	5.0

Table 4: Cohort Descriptors

COHORT DESCRIPTORS	N	MEAN	STD DEV	MIN	MAX
Total # dental visits	120	0.208	0.564	0	3
Total Number of F Varnish Visits	150	1.860	1.017	1	5
Age at enrollment (months)	162	2.97	2.27	0.098	6.637
Length of enrollment (days)	165	826.97	445.97	130	2104
Total # screenings	120	1.375	0.745	0	3
Age at last screening (months)	111	31.51	16.88	5.093	75.139
		N	%		
Existence of Dental Decay	Yes	69	41.57		
	No	97	58.43		

Table 5: Comparison of Functional Healthy Literacy Means at Baseline and Last Visit

Health Literacy Scores	Initial Mean Score		Most Recent Mean Score		Paired t-test comparing initial and most recent mean scores.				
	Mean	SD	Mean	SD	Est.	SD	95%CI	t (df)	p-value
LSP22 (Dental Health)	1.51	1.85	2.61	2.04	1.09	1.99	[0.78, 1.40]	7.01(164)	<0.0001
HCL	3.79	0.62	3.90	0.56	0.12	0.45	[0.05, 0.19]	3.38(155)	<0.0009
PHL	4.00	0.53	4.14	0.58	0.13	0.38	[0.07, 0.18]	4.32(157)	<0.0001

Figure 1: Quartile Ranges for DMFT

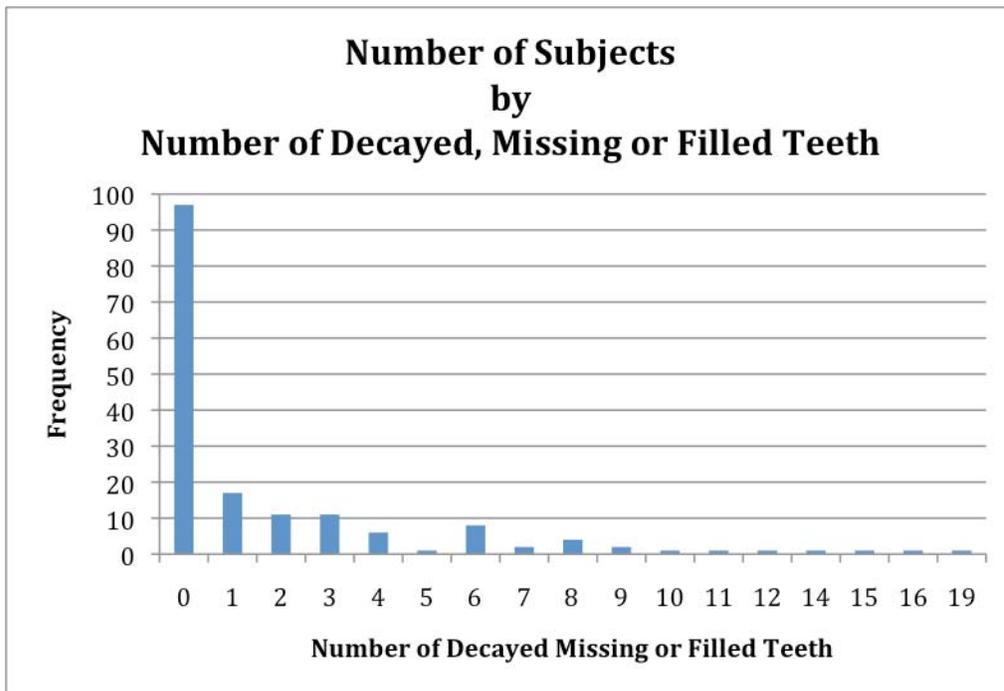
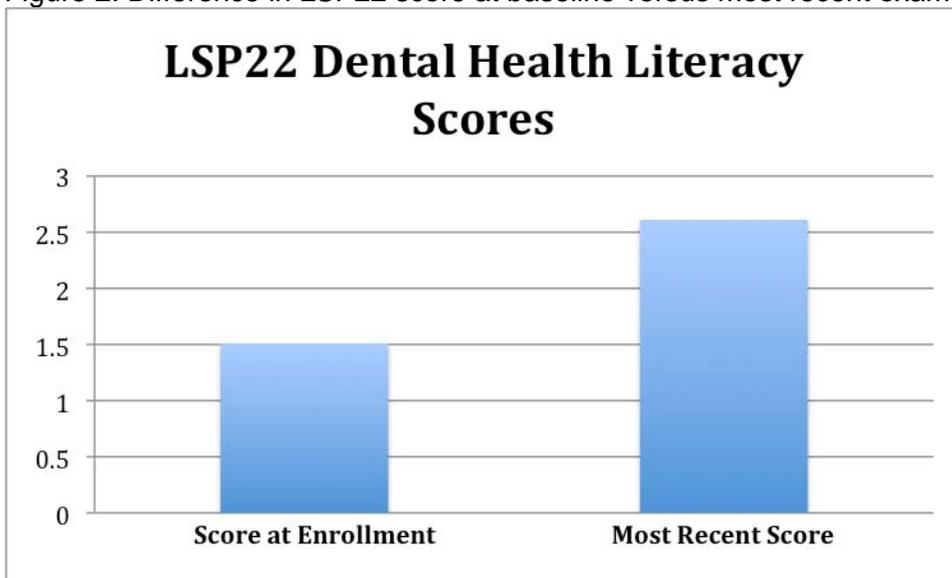


Figure 2: Difference in LSP22 score at baseline versus most recent exam



VITA

Latrice Rochaun Foster was born October 24, 1980 in New Orleans, LA. She graduated from Howard University in 2002, and received her Bachelor of Science in Biology. She was awarded the Master of Public Health Degree from Tulane University School of Public Health and Tropical Medicine in 2004 where her concentration of study was both Health Education and Communication and Epidemiology. Dr. Foster then received her Doctor of Dental Surgery from Howard University in 2008. During the 2007-08 academic year, Dr. Foster was selected as an Academic Dental Careers Fellowship Program (ADCFP) fellow by the American Dental Education Association (ADEA) where she spent her final year in dental school lecturing to dental students, conducting research, preparing and presenting a portfolio of her experience at the 2008 ADEA Annual Session.