



Introduction

- Vitamin D deficiency is a common concern worldwide.
- Approximately 50% of pediatric patients in the U.S. have vitamin D deficiency.
- Vitamin D deficiency is associated with vitamin D-dependent rickets, developmental delay, hypertension, diabetes, obesity, depression, autism, asthma, multiple cancers, and autoimmune diseases among other conditions.
- Controversies exist regarding definitions and monitoring of various vitamin D states:

American Academy of Pediatrics Vitamin D Status in Relation to 25(OH)-D Levels	
Vitamin D Status	25(OH)-D Level (ng/mL)
Deficiency	≤ 15
Insufficiency	15-20
Sufficiency	> 20
Monitoring	Timing
Initial	3 months
Repeat	Annual

Endocrine Society Vitamin D Status in Relation to 25(OH)-D Levels	
Vitamin D Status	25(OH)-D Level (ng/mL)
Deficiency	< 20
Insufficiency	21-29
Sufficiency	> 30
Monitoring	Timing
Initial	6-8 weeks
Repeat	Per Physician

Tables 1 and 2. Vitamin D Guidelines

Methods

- **Study Span:** Retrospective, observational chart analysis of charts from 2009 to 2020 at all Texas Children's Hospitals and Clinics that had 25(OH)-D level < 20 ng/mL.
- **Inclusion Criteria:** Children age 18 years or younger with at least one 25(OH)-D level.
- **Definition:** Children without vitamin D deficiency were defined as having 25(OH)-D level > 20 ng/mL.
- **Data Collection:** age at initial screen, gender, race/ethnicity, BMI data available at the time of testing, initial deficient 25(OH)D level, and all subsequent 25(OH)D levels within one year of the initial abnormal value.

Results

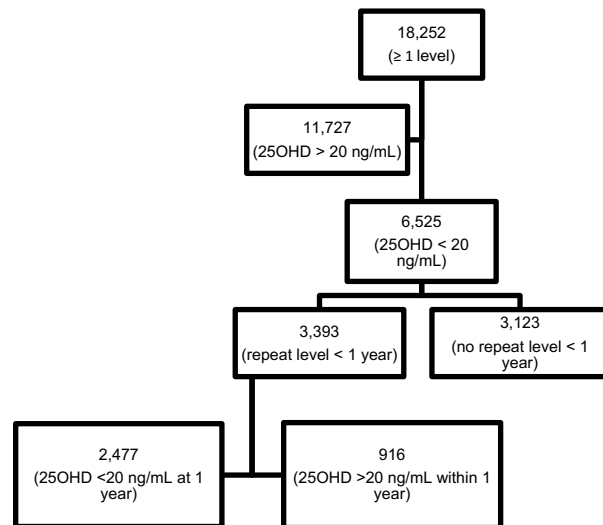


Figure 1. Subject Attrition for Analysis

Results Continued

Characteristics	N	Percent or Mean (SD)
Age (years)	6525	10.3 (5)
Gender		
Female	3458	53%
Male	3067	47%
BMI (%ile)		
Female		22.3 (11.9)
Male		20.7 (8.7)
Race/Ethnicity		
Hispanic	2933	45%
African-American	1667	26%
Non-Hispanic		
White	1363	21%
Asian	366	6%
American Native or Pacific Islander	22	0.4%
Unknown	174	3%

Table 3. Population Characteristics

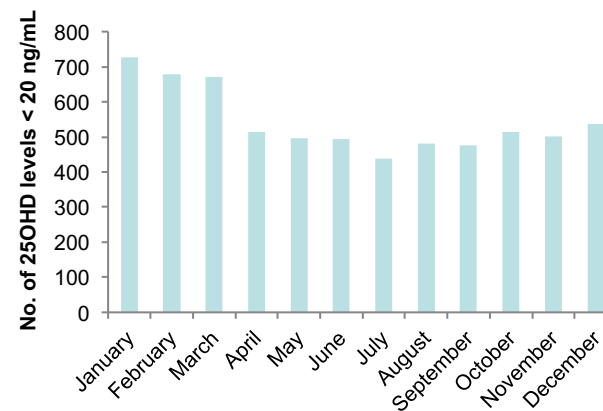


Figure 2. Vitamin D Deficient Patients per Month

Results Continued

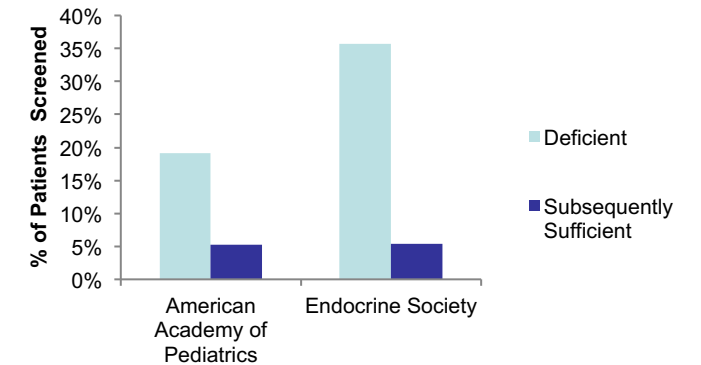


Figure 3. Deficiency and Subsequent Sufficiency per Guideline Definitions

Conclusions

- About half of pediatric patients with 25(OH)-D levels of < 20 ng/mL did not have repeat levels drawn within 1 year
- Majority did not achieve 25(OH)-D levels > 20 ng/mL within one year
- More pediatric patients were identified as having vitamin D deficiency using Endocrine Society Guidelines
- Regardless of guideline, majority of patients with vitamin D deficiency did not achieve sufficiency
- Future studies should implement and evaluate the use of a standardized protocol in screening and monitoring treatment efficacy of vitamin D deficiency in pediatric patients

