

## 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

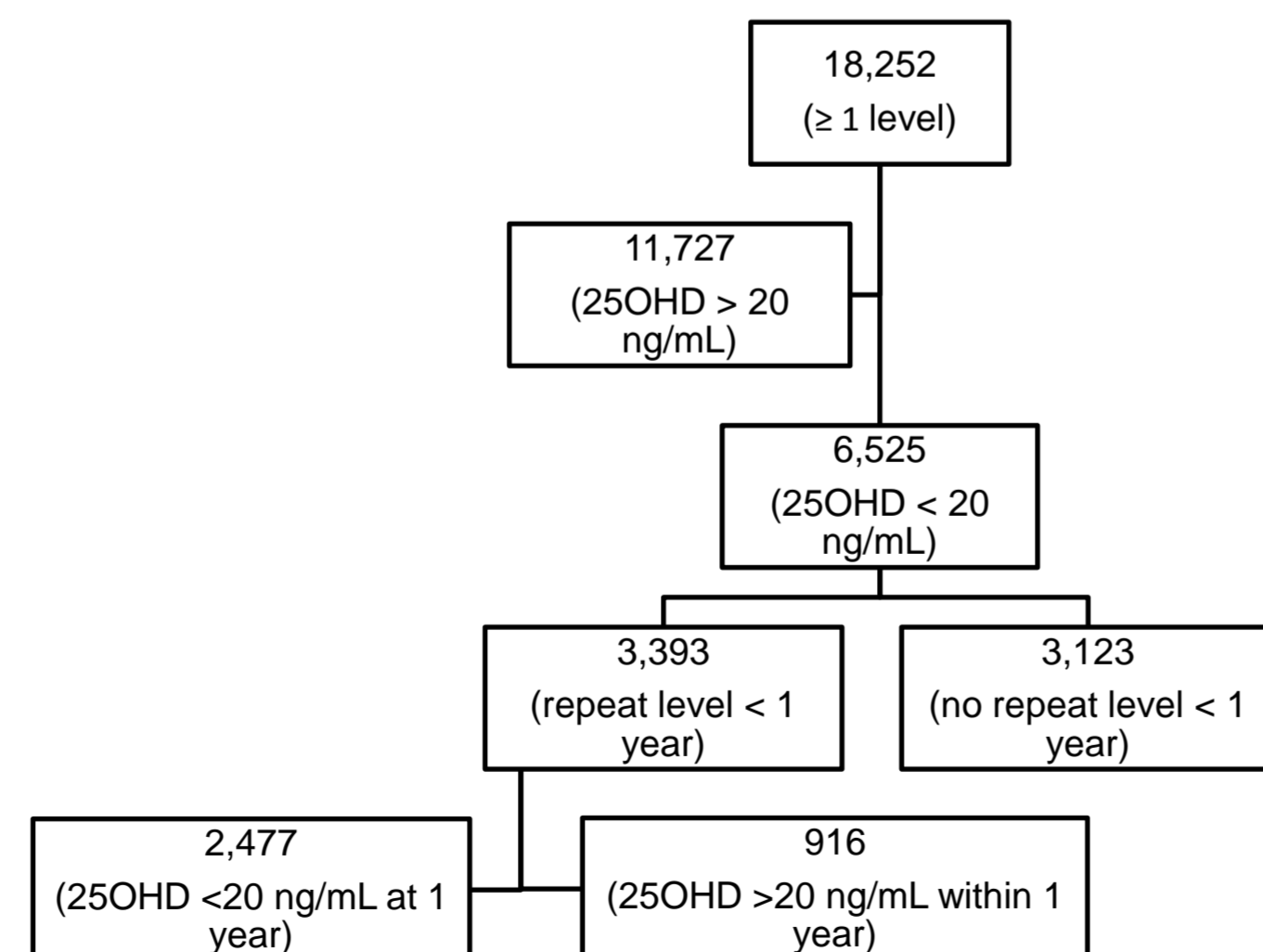


Figure 1. Subject Attrition for Analysis

## Results Continued

Characteristics	N	Percent or Mean (SD)
<b>Age (years)</b>	6525	10.3 (5)
<b>Gender</b>		
Female	3458	53%
Male	3067	47%
<b>BMI (%ile)</b>		
Female		22.3 (11.9)
Male		20.7 (8.7)
<b>Race/Ethnicity</b>		
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

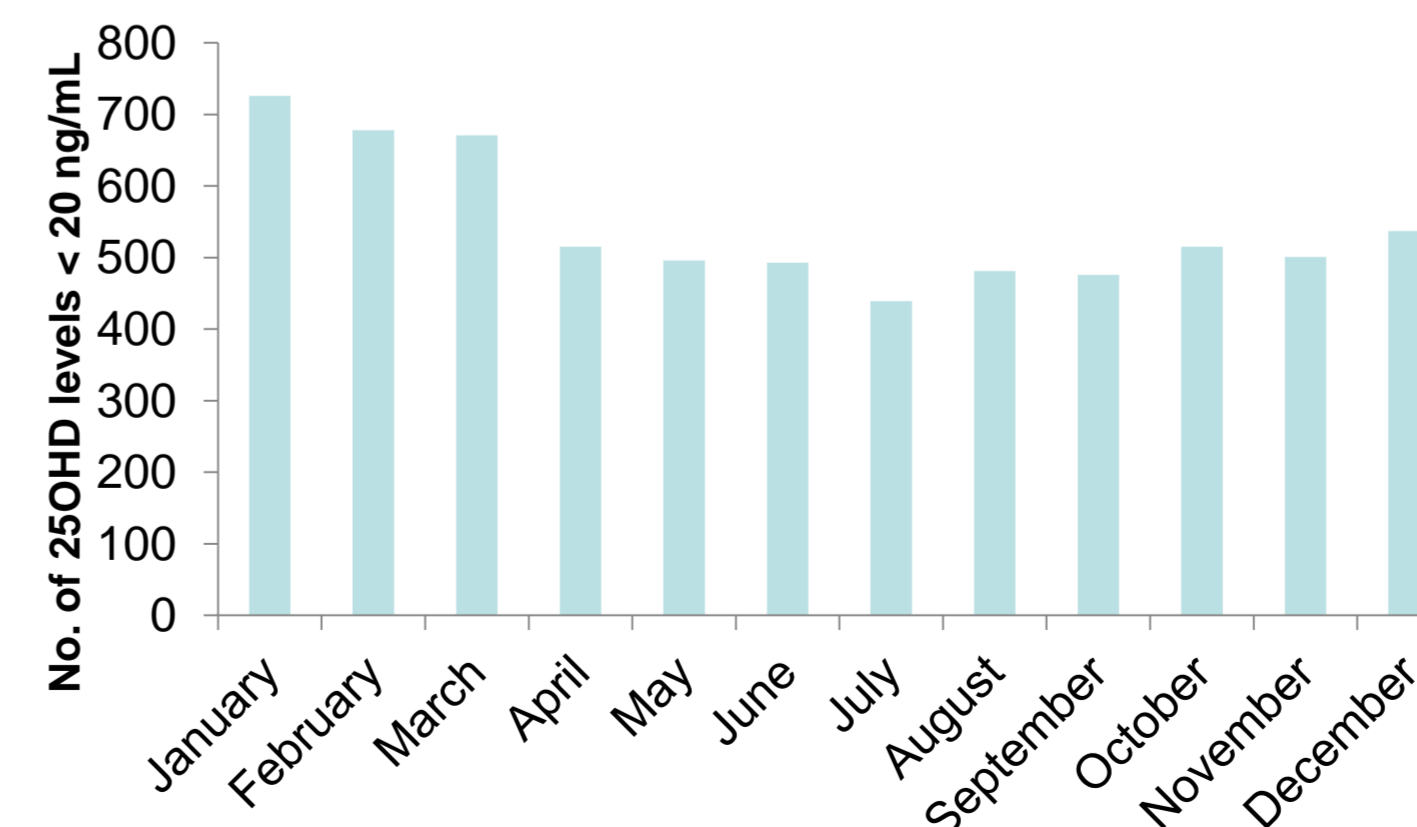


Figure 2. Vitamin D Deficient Patients per Month

## Results Continued

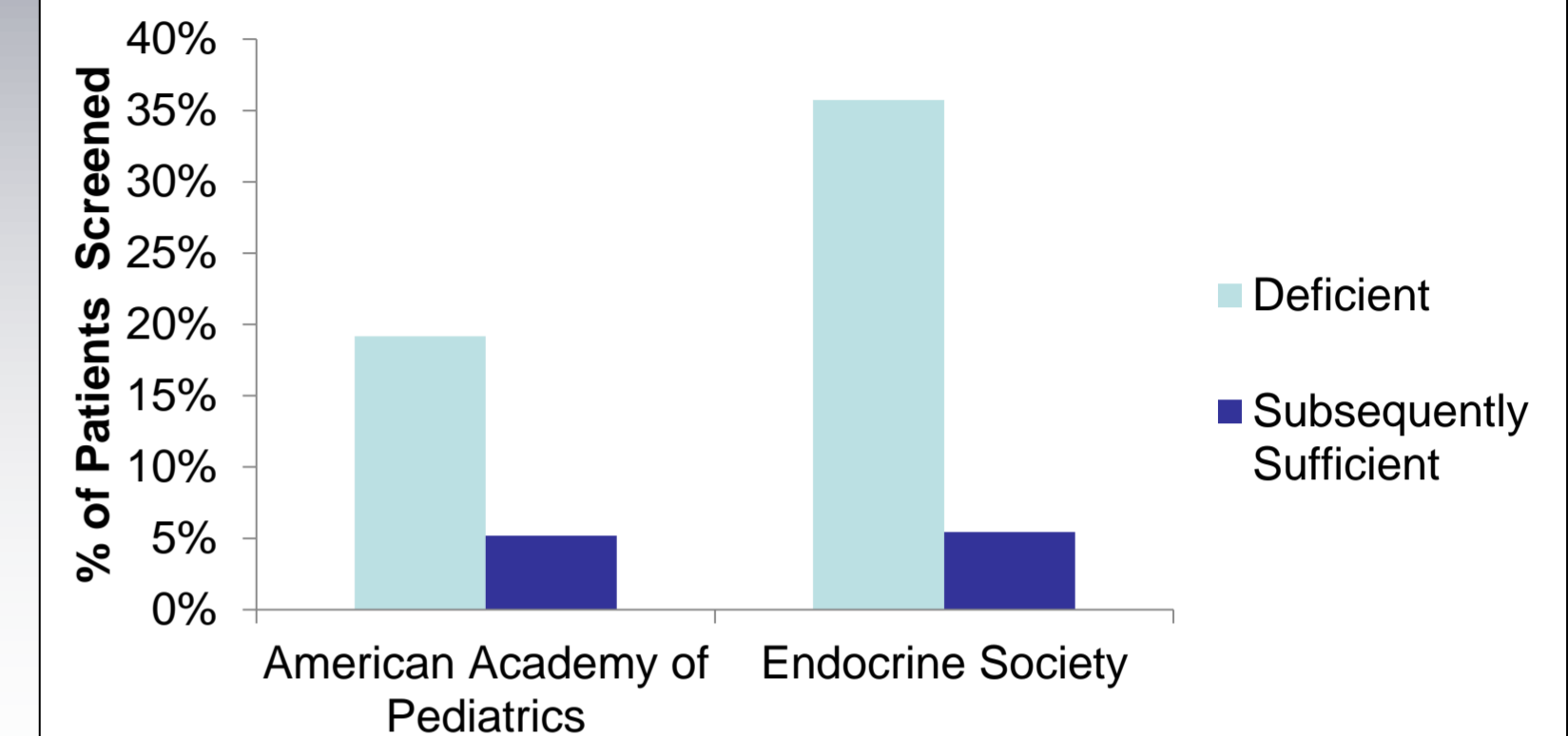


Figure 3. Deficiency and Subsequent Sufficiency per Guideline Definitions

## 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