The Pediatric Blue Book

# Project Overview

The Pediatric Blue Book (PBB) is envisioned as a comprehensive web application designed to support pediatric clinical dietitians. Primarily web-based, with potential for mobile access, the platform will be available throughout UNC Health’s clinical environments, serving both inpatient and outpatient settings and also by users outside UNC. Notably, PBB operates as a standalone system; it does not store patient data nor interface with other systems (Though potential for interaction with Epic in the future is an aspiration). Both user and administrative interfaces are required.

# Challenges in Pediatric Nutrition Practice

Currently, pediatric dietitians face significant challenges due to fragmented resources, including outdated print manuals and dispersed online references. This fragmentation makes it difficult for clinicians to quickly locate and apply accurate information to patient care planning. Moreover, calculating nutritional needs is a crucial but often burdensome task typically relying on hand calculations rough estimations and generic formulas. These shortcuts may not sufficiently account for the unique requirements of individual patients, resulting in possible delays or inaccuracies in care. Such limitations can impact the quality, safety, and recovery of nutritionally vulnerable infants and children.

# Proposed Solution

The Pediatric Blue Book aims to streamline information access and improve the precision of nutritional assessments by integrating evidence-based calculators and digital tools into a single, user-friendly system. By consolidating essential resources, PBB will enable dietitians to work more efficiently, minimize errors, reduce documentation fatigue, and personalize nutrition plans. Ultimately, this automation enhances care for pediatric patients with complex health needs, helping them to thrive and grow.

# User Interface Features

The application’s user interface comprises two main sections:

* First, dietitians can quickly calculate nutritional needs based on patient age, length, and height (metric units) and view the Dietary Reference Intakes (DRI) for the child. DRIs will include approximately 33 nutrients, covering patients from preterm infants to age 21. Key growth measures, including ideal body weight and catch-up growth are also calculated.
* Second, users can generate custom formula feeding plans utilizing up to three different formulas (powder or liquid), water or breastmilk, and two modular additives (powder or liquid). The nutrient content is instantly calculated as changes are made to the recipe. Age- and sex-specific DRIs are displayed allowing the dietitian to evaluation the appropriateness of the recipe. Visual alerts are provided if any single DRI is less than 67%. The feeding plan recipe displays the volume of each product, total recipe volume, and calories per milliliter. These plans, excluding patient information, can be easily printed.
* Third, users can look up ingredients and key nutrition information about any formula or product in the database. This feature will help with clinical decision making.

This streamlined workflow empowers dietitians to confidently refine and optimize nutrition plans, leading to improved patient outcomes.

# Administrative Interface Features

The administrative interface functions as a secure database for formula management, quality control, and auditing. It requires password protection and supports up to five administrators. Building on previous formula databases, this component will house roughly 300 formula products and 100 data fields, serving as a robust foundation. Products will be updated regularly, including adding new products and retiring those no longer on the market.

A note about the project name. The project title is a bit of an inside dietitian joke. Pediatric dietitians have used Texas Children’s Hospital’s The Pediatric Nutrition Reference Guide, known as the “Pink Book” as their clinical reference for over 25 years. A web-based application from UNC, has to be the “Blue Book”