

# Precision Behavioral Nutrition: Development of the NutriPCP Inference Engine for Data-driven Diet Goals in Primary Care

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Nutrition Educator Core Competencies: 2.2, 8.1, 9.2

**Background:** The Chronic Care Model posits that synergy between the healthcare system and patient self-management will improve chronic disease outcomes. Improving how diet is addressed in primary care could augment the benefit of dietary self-management. Collaborative goal-setting with primary care providers (PCPs) can facilitate patient behavior change. However, PCPs lack time and training to set effective diet goals with patients. NutriPCP aims to address this gap by presenting PCPs with a set of MyPlate-based behavioral goals prioritized using patient data.

**Objective:** To develop a computational system that uses dietary recall data to prioritize behavioral goals to facilitate efficient, personalized collaborative goal-setting in primary care.

**Evaluation Methods:** Our team of nutrition, technology, and clinical experts confirmed the face validity of our inference engine with test data (n=12) and population-wide estimates from NHANES.

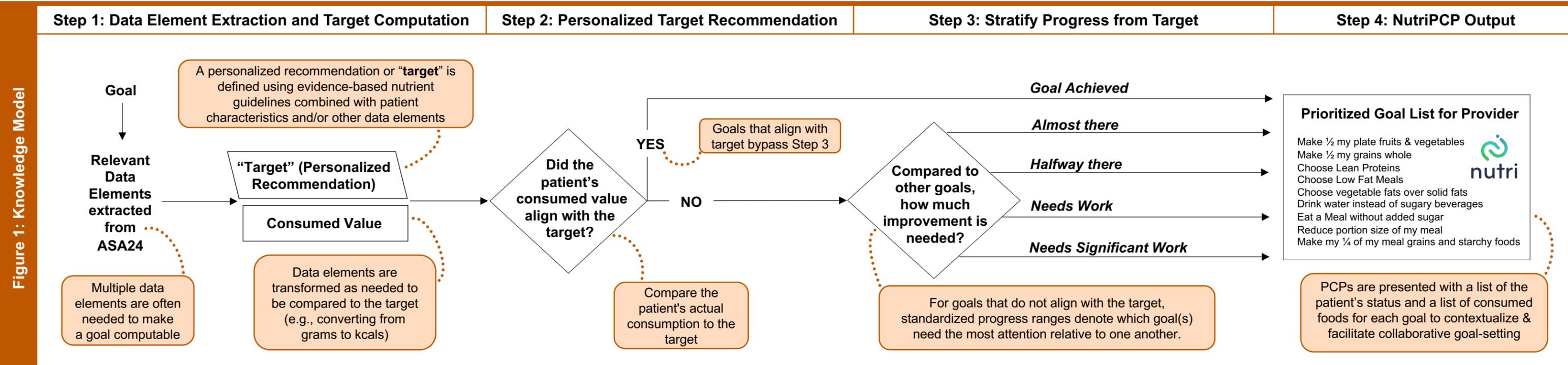


Figure 1: Knowledge Model

Personalized Target Computation

Figure 2: Elements used for Personalized Recommended Targets

Varying types of data and information are used to personalize a patient's target recommendation for each goal.

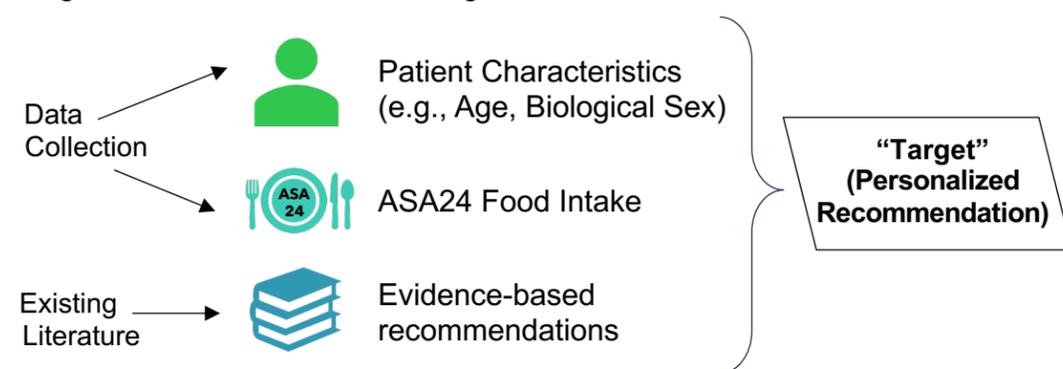


Figure 3: Examples of Personalized Target Recommendations for Two Goals

Example 1: "Reduce Portion Size of my Meal"



Target kcal consumption is calculated based on the estimated energy requirement for patient age and sex. Target is then compared to the patient's reported kcal intake from ASA24.

Example 2: "Choose Low Fat Meals"



Target kcals from fat is calculated based on the patient's reported kcal consumption from ASA24 and the AMDR for total fat. Target is then compared to patient's reported fat intake from ASA24.

**Conclusion:** We demonstrated that computational rules can automatically process recall data into prioritized behavioral goals. To our knowledge, this is the first system that personalizes MyPlate recommendations based on an individual's data. This has implications for nutrition education in primary care. Future research will examine implementation feasibility for PCPs and patients.