Nutrition Intake FHIR Resource Proposal

- **Owning work group name:** Orders & Observations WG

- **Committee Approval Date:** May 21, 2020

- **Contributing or Reviewing Work Groups:**
  - Patient Care (for review)
  - Pharmacy (for review)

- **FHIR Resource Development Project Insight ID:** 1081

**Scope of coverage:**
The needed nutrition related resource(s) cover 2 scopes:

1. The ordering/delivery/purchasing of food
2. The actual intake/ingestion/consumption of foods, fluids, enteral nutrition, and infant feeding (breastmilk, infant formula)

This resource proposal is focused on the second point, Nutrition Intake. Planned work on the Domain Analysis Model will determine if another resource is necessary for point 1.

The Nutrition Intake resource in conjunction with the Nutrition Product resource will be utilized to capture details about the consumption of foods, fluids, enteral nutrition, and infant feeding. It can be used across multiple disciplines that nutrition spans, such as public health, research, healthcare. Nutrition Intake can be utilized in many environments where food is served, consumed or purchased: hospitals/acute care, meal tracking systems, school districts, grocery stores, outpatient settings, LTC, etc. Nutrition Intake should be general enough to capture intake regardless of country or region.

Parenteral nutrition is out of scope as this ordering is handled through MedicationRequest, thus administration should also be captured through Medication Administration.

**RIM scope:**
Substance administration where the product is nutrition
Resource appropriateness:

As a dietitian, it is important to be able to know what a person is consuming and assess the adequacy of the patient’s diet. Capturing a patient’s intake is important to establish a baseline, determine care, track trends, and see improvement of that patient. Dietitians might use intake data to see patterns, such as when a diabetic patient’s blood glucose is consistently high due to over consumption of carbohydrates. Other clinicians have the need to monitor intake as well; for example, a nurse might need to know intake for administering insulin prior to meals or a physician may need to ensure a patient on a fluid restriction is following orders.

Having intake documented within its own resource allows for consistency in documentation across multiple disciplines and settings. In some instances, the Observation resource has been extended to capture intake; while this allows for a quick way to document intake, the Observation resource does not provide all the detail necessary, such as capturing all the nutrients (including calories, vitamins, minerals, carbohydrates, etc.). Previous implementation attempts of using the Observation resource have noted this is cumbersome and has required too many extensions without being able to document all the necessary details tied to ingredients in food and fluid products.

The nutrition WG did meet with the pharmacy WG to determine if the medication resources could be generalized and used for nutrition intake. After discussions, it was determined that there were significant differences, thus nutrition intake should be its own resource.

Expected implementations:

Can be expected to be implemented in acute care settings, outpatient/clinic settings, independent practices, and long-term care facilities. Other potential settings would be school districts, grocery stores, patient-facing apps, and sports nutrition to name a few.

Content sources:

- Diet and Nutrition Domain Analysis Model, R2
- Nutrition Order resource
- MedicationAdministration and MedicationUsage resources

Example Scenarios:

1. A patient in an acute care or long-term care setting is on a ‘General Healthy’ diet
   - Patient has been unintentionally losing weight and not eating
   - The system captures what the patient orders for a meal
   - The consumption of the meal is recorded
   - The dietitian reviews the documented intake to determine if additional interventions (i.e. nutritional supplements) are necessary
2. A patient in an acute care or long-term setting is on enteral feeding and consuming some oral intake
   - The amount and rate of the enteral feeding is recorded
   - The additional fluid through the tube flush is recorded
   - The oral intake is recorded
   - The dietitian reviews the documented intake to ensure adequacy
3. A person using a food tracking app or a manual log, records their meals daily
4. A diabetic patient on a consistent carbohydrate diet
   - The patient records the details about their meal, including timing, blood glucose level, and any insulin taken
   - The patient shares the meal log with a dietitian
   - The dietitian reviews the log for diet compliance and/or any patterns when blood glucose levels are high due to the food consumed
5. A person who receives SNAP purchase groceries and uses their benefits card to pay for the groceries (future scope)
   - The system scans in the bar codes of the groceries and records all the food items purchased
6. Hospital A has created a month of cycle menus and recipes and shares the menus and recipes with Hospital B
7. Nutrition Intake resource could be used for public health/research needs, similar to NHANES (National Health and Nutrition Examination Survey).
   - US Realm example

Resource Relationships:

- NutritionOrder
- CarePlan
- ServiceRequest
- Procedure
- Patient
- Encounter
- Practitioner
- RelatedPerson
- Organization

Resource Boundaries:
Oral intake of food, fluids, oral nutritional supplements (i.e. Ensure), or enteral nutrition should be recorded using the NutritionIntake resource.
Supplements, such as vitamins, minerals, herbals, should be recorded using the medication resources.
Parenteral nutrition should be recorded using the medication resources.
The medication administration and usage resources were reviewed as patterns to develop the NutritionIntake resource.

Timelines:
Connectathon September 2020 and balloting with R5

GitHub Users:
Jean Duteau

When Resource Proposal Is Complete:

When you have completed your proposal, please send an email to FMGcontact@HL7.org

FMG Notes