The more we know, the more we grow: A pediatric hospital’s developmental progression with the IDDSI

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Bios of presenters

• Kamie has worked at both Connecticut Children's Medical Center and Saint Francis Hospital and Medical Center in Hartford, Connecticut. She has spent the past 5 years building her experience, knowledge and passion about dysphagia across the lifespan.

• Jodi started working at Connecticut Children's Medical Center in June of 2016, where she completed her Clinical Fellowship Year. She is currently treating a variety of populations with dysphagia and feeding difficulties, and expanding her experience, knowledge, and passion about dysphagia within the pediatric setting.

• Marni has worked at CT Children's Medical Center for almost 15 years. She has been a Board Certified Specialist in Swallowing and Swallowing disorders since 2012. Marni previously served as the American Speech Language Hearing Associations Special Interest Group 13 (Swallowing and Swallowing Disorders) Perspectives Editor.

• Virginia is the clinical manager of speech-language pathology at Connecticut Children's Medical Center. Virginia has worked at Connecticut Children's for 9 years, where she oversees 4 sites and 20 SLPs. Virginia has been in the field for close to 20 years. She previously worked at Dartmouth-Hitchcock Medical Center and Yale- New Haven Hospital, where she specialized in pediatrics and worked on the craniofacial and cochlear implant teams. She is also a certified lactation counselor.
Disclosures

• Kamie Sylvester receives a salary from Connecticut Children’s Medical Center and has no nonfinancial relationships to disclose.
• Marni Simon receives a salary from Connecticut Children’s Medical Center and has no nonfinancial relationships to disclose.
• Jodi Cegelka receives a salary from Connecticut Children’s Medical Center and has no nonfinancial relationships to disclose.
• Virginia Van Epps receives a salary from Connecticut Children’s Medical Center and has no nonfinancial relationships to disclose.
About CT Children’s Medical Center

• 187-bed, free-standing children’s hospital with services throughout CT
• Primary pediatric teaching hospital for the UCONN medical school
• Approximately 1100 medical staff in 30 specialties
• Level 4 NICU at Hartford Hospital and level 3 NICU at UCONN with additional NICUs in the state coming under our direction this summer
• The speech department has 20 SLPs across locations, with 3 primary outpatient sites and inpatient coverage provided on main campus and at the current NICUs
• The speech department provided over 20,000 visits in 2017
The search for change

- We are continuously striving to improve the way we provide care to children who have dysphagia
- We are continuously striving to improve the way we educate caregivers on caring for their child with dysphagia
What we did before IDDSI

- Home grown system of modified National Dysphagia Diet
  - Struggles specific to our facility
    - The categories in the NDD did not meet the needs of many of our pediatric patients
    - Subjective measurements of consistency leading to variability at meals (food services, SLP, PCA, RN)
What we did before IDDSI: Thickening infant liquids

• What we knew at the time:
  – Subjective judgment of consistency is not a valid
  – Barium consistencies are not representative of formulas given at feeds
  – Thickened liquids vary based on both liquid and thickener composition, serving temperature and over time (duration of feed)
  – Nutritional concerns can arise for infants given thickened formula
  – Line spread test was found to be useful as a screening test of fluid viscosity and training

• Our solution
  – Creation of a recipe database for formula and thickener type

• The continued struggle
  – Obtaining testing materials for families
  – Not able to be used at bedside due to infection control issues
  – Expense and amount of wasted formula
How the IDDSI helped us even before it was released
Why we were excited about the IDDSI

Slightly thick (1/2 strength nectars)!

Incorporated transitional solids!

Easy, reliable testing methods!

Pediatric norms for particle and bite sizes!

What is IDDSI?

International Dysphagia Diet Standardisation Initiative
The International Dysphagia Diet Standardisation Initiative (IDDSI) is a global standard with terminology and definitions to describe texture-modified foods and thickened liquids used to individuate with dysphagia of all ages, in all care settings, and for all cultures. The IDDSI framework consists of a continuum of 8 levels (0-7). Levels are identified by test labels, numbers, and colour codes to improve safety and identification. The standardised descriptors and testing methods will allow for more consistent production and easy testing of all texture-modified foods.

(IDDSI, July 2017)
Making the Departmental Decision

- Management review, approval, and navigation through the steps
- Reading through materials and determining what we needed
- Core group of clinicians to beta new IDDSI consistencies and testing methods
- Departmental education

<table>
<thead>
<tr>
<th>Thickened formula recipes</th>
<th>1 packet NTL (5g)</th>
<th>1 packet NTL (5g)</th>
<th>1 packet HTL (7g)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>½ nectar*</td>
<td>Nectar-thick (NTL)</td>
<td>Honey-thick (HTL)</td>
</tr>
<tr>
<td>Similac Advance</td>
<td>7 oz</td>
<td>6 oz</td>
<td>4 oz</td>
</tr>
<tr>
<td>Similac Alimentum</td>
<td>6 oz</td>
<td></td>
<td>4 oz</td>
</tr>
<tr>
<td>Enfamil Gentlease</td>
<td>5 oz</td>
<td>4 oz</td>
<td>3 oz</td>
</tr>
<tr>
<td>Neocate</td>
<td>5.5 oz</td>
<td>4 oz</td>
<td>4 oz</td>
</tr>
<tr>
<td>Elecare</td>
<td>5.5 oz</td>
<td>4 oz</td>
<td>3.5 oz</td>
</tr>
<tr>
<td>Enfamil Enfacare</td>
<td>8 oz</td>
<td>6 oz</td>
<td>4 oz</td>
</tr>
<tr>
<td>(22kcal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enfamil Prosobee</td>
<td>7 oz</td>
<td>4 oz</td>
<td>3 oz</td>
</tr>
<tr>
<td>Pregestimil</td>
<td>7 oz</td>
<td>6 oz</td>
<td>4 oz</td>
</tr>
</tbody>
</table>

* variable; should be tested prior to consumption

All recipes (unless otherwise indicated) were made with 20kcal formulas at room temperature; tested with both hospital and spring water. Temperature, as well as water/fat/nutrient content will impact how each liquid thickens; all of the above recipes were tested with room temperature liquids

(IDCDSI, 2018)
Obtained from: http://iddsi.org/resources/
Gaining Organizational Support

- Getting buy-in outside the department
  - Building the interdisciplinary team
  - Financial support from facility
  - Changes to processes
  - Leadership presentation for global understanding of safety and quality
  - Staff and parent video testimonials
  - Research base
  - Endorsement from the Academy of Nutrition and Dietetics (AND)
Obtaining Necessary Materials

IDDSI Flow Test

The IDDSI Flow test uses a 10 ml slip tip hypodermic syringe, as shown in the image below.

Although 10 ml syringes were initially thought to be identical throughout the world based on reference to an ISO standard (ISO 7886-1), it has subsequently been determined that the ISO document refers only to the nozzle of the syringe and that variability in barrel length and dimensions may exist between brands. Specifically the IDDSI Flow test uses a reference syringe with a measured length of 61.5 mm from the zero line to the 10 ml line (BD™ syringes were used for the development of the tests – manufacturer code 301694). IDDSI is aware that there are some syringes that are labeled as 10 ml, but in fact have a 32 ml capacity. Results using a 12 ml syringe will be different to those from a true 10 ml syringe. As a result it is important to check the barrel length as shown on the diagram below. Details for conducting the test are shown below.

Videos showing the IDDSI Flow Test can also be viewed at: http://iddsi.org/framework/drink-testing-methods/

Drinks and liquids such as gravy, sauces and nutritional supplements are best assessed using the IDDSI Flow Test (Levels 0-3). For extremely thick drinks (Level 4), that do not flow through a 10 ml syringe in 10 seconds and are best consumed with a spoon, the IDDSI Fork Test and/or Spoon Tilt Test are recommended as methods for determining consistency.
Implementation - liquids

- Provide flow test instructions and hands-on education to caregivers
- Hang feeding plans at bedside, with thickened liquid recipes
- Instructions and recipe in the medical chart

(IDDSI, 2018)
Obtained from: http://iddsi.org/framework/drink-testing-methods/
Providing Education

RN rating of usefulness of Syringe Test after education

- NOT APPLICABLE: 4.03%
- STRONGLY DISAGREE: 4.4%
- DISAGREE: 0.00%
- NEUTRAL: 4.56%
- AGREE: 27.27%
- STRONGLY AGREE: 63.64%

International Dysphagia Diet Standardization Initiative
Implementation - Liquids
Original image from: www.iddsi.org/resources/framework
This image was modified to reflect the liquid terminology being used in this presentation.
Implementation - Solids

<table>
<thead>
<tr>
<th>Food</th>
<th>Puree Recipe (blended)</th>
<th>Minced and Moist (pulsed)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac and cheese</td>
<td>7 oz + ¾c water</td>
<td>7 oz + ¾c water</td>
<td></td>
</tr>
<tr>
<td>Green beans</td>
<td>4.3 oz + ¾c water</td>
<td></td>
<td>Puree has minimal particulate pieces/strings</td>
</tr>
<tr>
<td>Corn</td>
<td>1/3c corn + 1/8c water *&lt;br&gt;1/8c corn + 1/8c water (too thin)</td>
<td></td>
<td>*retest with less water</td>
</tr>
<tr>
<td>Pancakes</td>
<td>1 medium sized pancake + ½c milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrambled eggs</td>
<td>1c scrambled eggs with cheese + 2 tbsp water</td>
<td>1c scrambled eggs with cheese + 1 tbsp water</td>
<td></td>
</tr>
<tr>
<td>Tuna</td>
<td>1 can (drained) + 2 tbsp water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oatmeal</td>
<td>Made by directions + blended; too thin*</td>
<td></td>
<td>*retest w less water used to make oatmeal</td>
</tr>
<tr>
<td>Sausage link</td>
<td>Did not puree</td>
<td>1 frozen link*</td>
<td>*May have to add &lt;1 tbsp water depending on sausage</td>
</tr>
<tr>
<td>Black beans</td>
<td>1 can undrained (too thin), skins*</td>
<td></td>
<td>*retest drained, although skins may still be a problem</td>
</tr>
</tbody>
</table>

Growing pains: questions from our dietitians regarding the specifics of food preparation
### Implementation - Solids

<table>
<thead>
<tr>
<th>Pasta elbows</th>
<th>¾ c elbows + 5 tbsp marinara sauce</th>
<th>¾ c elbows + ¾ c marinara sauce</th>
<th>45-60 seconds pulsing/blending, frequent breaks for stirring</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>may be easier with penne</em></td>
<td>15 pulses or ~45 seconds total with breaks for stirring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meatballs with tomato sauce</td>
<td>8 meatballs + 4 tbsp sauce + 1 tbsp water</td>
<td>puree</td>
<td>8 meatballs + 1 tbsp sauce (stirred in after)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quick pulse of dry meatballs, stir in sauce</td>
</tr>
</tbody>
</table>

Growing pains from dietitians: making sure added condiments to meals had nutritional value, without adding too much sodium or sugar.

Growing pains from kitchen: labor intensive process, staff training with turnover, lack of storage space since meals need to be prepped in large batches.
Growing pains: limited freezer storage space, limit the variety of products we can keep in stock
Implementation - Solids

Growing pain: over-restrictive menus
Quality Assessment (test trays, looking into thickening formulas in different ways)

Percentage of Passing test Trays for Specified Texture

- Soft: 62%
- Minced and moist: 13%
- Puree: 67%
Quality Assessment (test trays, looking into thickening formulas in different ways)

Growing pains: appropriate particle/bite size, appropriate amount of moisture per each diet criteria, cold hormel products not passing IDDSI tests
Future plans

• Create less restrictive menus, with more home-made items
• Create a better protocol for thickening liquids on the floors
  – Formula room
  – Milk room and milk techs
• Ongoing quality assessment
  – Test trays
  – Use of audit sheets from IDDSI website
  – Searching for tools for our kitchen to use to meal prep
  – Begin keeping data on if liquids are being consistently thickened on the floors
• Continue advocacy
  – Need to fully transition to IDDSI labels for liquid consistencies
  – Color coding materials to correlate with IDDSI
Questions?

*If you think of another question after the webinar is over, Feel free to contact us (or simply check us out) at: https://www.connecticutchildrens.org/search-specialties/speech-language-pathology/speech-language-pathology-our-team/
References
