A data-driven approach to designing and implementing oral health interventions in children

Christopher Tung, M.A.
Research Administrator, Office of Global Outreach
NYU Dentistry

Unite For Sight: Global Health & Innovation Conference, New Haven, CT
April 22nd, 2017
• Henry Schein Cares, the global social responsibility arm of Henry Schein, Inc. is a named sponsor
  • New York University College of Dentistry Henry Schein Cares Global Student Outreach Program

• No personal holdings or other conflicts of interest (financial or otherwise)
Our programs

Service

Education

Research

[Image of two people working on a tablet and taking notes]
Our data-driven cycle

Data: Collection & Monitoring

Application & Implementation

Analysis

Follow-up & Engagement

Evaluation
Where to begin?
Statistical significance set at:

- $p < 0.001^{***}$
- $p < 0.05^{**}$
- $p < 0.1^*$

**Prevalence of dental caries: Selected sites (2012-2016)**

- **Machias, ME**
  - NIDCR NHNES 2-11 Yrs (1999-2004): 42%
  - NIDCR NHNES 2-5 Yrs (2011-2012): 23%

- **Poughkeepsie, NY**
  - 2012-2016: Star rating
  - 2013-2015: Star rating
Prevalence of dental caries: Maine (2012-2016)

- Machias: 1.61
- Untreated surfaces
- Passamaquoddy: 4.38
- Untreated surfaces

IHS 2014: 54% (3-5 Yrs)

Passamaquoddy: 4.38
Untreated surfaces

Machias: 1.61
Untreated surfaces
2012-2016: Statistically significant reduction in caries prevalence

Prevalence of dental caries in returnees:
La Preciosita, Mexico (2012-2016)
Statistical significance set at:
- $p < 0.001^{***}$
- $p < 0.05^{**}$
- $p < 0.1^*$


- **2013**: SDF, Boarders (80%), Scholars (85%)
- **2014**: SDF, Boarders (70%), Scholars (75%)
- **2015**: SDF (60%), Scholars (65%)
- **2016**: SDF 2x? (70%), Scholars (75%)

Legend:
- Boarders
- Scholars
Lessons Learned & Takeaways

• Constant evolution and improvement

• Data vs. literature
### International agencies and institutions

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50% of 5-6 year olds to be caries free over baseline</td>
<td></td>
</tr>
<tr>
<td>Increase proportion of caries free 6-year olds by X%</td>
<td></td>
</tr>
<tr>
<td>Reduce DMFT (part. D) at 12 years old by X%, especially in high-risk populations (using distribution/means)</td>
<td></td>
</tr>
<tr>
<td>12 year olds: DMFT=3</td>
<td></td>
</tr>
</tbody>
</table>

### U.S. agencies and institutions at the national and local level

<table>
<thead>
<tr>
<th>Agency/Institution:</th>
<th>CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caries experience in children aged 2-8 years (CDC, 2015) was 37%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agency/Institution:</th>
<th>USDHHS/NIH/CDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 2020: Caries experience in at least one primary tooth in children aged 6-9 years target of 49% (10% increments)</td>
<td></td>
</tr>
<tr>
<td>HP 2020: Reduce proportion of children aged 3-5 with dental caries experience in one primary tooth (33% in ‘99-’04). Target: 30% (10% increments)</td>
<td></td>
</tr>
<tr>
<td>HP 2020: Reduce proportion of 3-5 year olds with untreated dental decay in at least one primary tooth to 21.4% (10% increments)</td>
<td></td>
</tr>
<tr>
<td>HP 2020: Reduce proportion of children 6-9 years with untreated dental decay in at least one primary tooth to 25.9% (10% increments)</td>
<td></td>
</tr>
<tr>
<td>HP 2020: Increase proportion of children and adolescents who have had a dental visit in the past year to 49% (baseline: 44.5%)</td>
<td></td>
</tr>
<tr>
<td>HP 2020 target of 26% caries prevalence in 6-8 year olds (CDC)</td>
<td></td>
</tr>
<tr>
<td>NIDCR caries prevalence target figure of 42% (2-11 year olds)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agency/Institution:</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease proportion of 3rd graders (8-9 year olds) with caries below baseline figure of X% (Dutchess County DOH)</td>
<td></td>
</tr>
</tbody>
</table>

### Agency/Institution: Local

### Agency/Institution: CDC

Caries experience in children aged 2-8 years (CDC, 2015) was 37%
Lessons Learned & Takeaways

• Constant evolution and improvement

• Data vs. literature

• How do these numbers influence the big picture?

• What determines whether we are successful or not?
Thank you!

• For more information:
  
  • **Ms. Rachel Hill**, MPH, Senior Director, Global Outreach & International Initiatives
    • rachel.hill@nyu.edu
  
  • **Mr. Christopher Tung**, MA, Research Administrator, Global Outreach
    • christopher.tung@nyu.edu
  
  • **Facebook**: nyucdhscglobaloutreach