DQA Quality Innovators Spotlight: *The Inside Story*

Early Childhood Caries Collaborative Project

Level of Implementation

-- Dental practices

-- Clinical care providers

-- Electronic dental records

Target Population

-- Children age 0-60 months

Improvement Goal

-- Facilitate adoption of disease management approaches into clinical practice

Essential Partners

-- Dental practices
-- Hospitals, Clinics, private practices, Dental schools
-- Dental providers
-- Parents

Key Measures

-- Reduce percentage of children with newly cavitated lesions

-- Reduce percentage of children with pain

-- Reduce percentage of children with referral to the operating room

Measurement Data Source

-- Separate database (Phases 1 & 2)

-- Electronic dental records (Phase 3)

More Information

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How did this project start?

In 2008, a risk-based disease management approach to address children with early childhood caries (ECC) was developed, tested and implemented as a quality improvement (QI) demonstration project at Boston Children's Hospital in Boston, MA, and St. Joseph Health Services of Rhode Island in Providence, RI. (ECC Collaborative Phase 1). After achieving promising results, ECC Phase 2 was begun in 2010 as an 18-month QI Learning Collaborative, which included five additional teams in the US. A Phase 3 was launched in 2012 with over 30 teams across the US.

What were the key strategies to achieve the improvement goal?

Using a Learning Collaborative model (following the Institute for Healthcare Improvement's Breakthrough Series) and established QI methods, dental care teams attended three learning sessions, where they received didactic education and training on QI concepts and activities. The teams focused on logic models, measurement plans, "Plan-Do-Study-Act" cycles, disease management (DM) of ECC such as caries risk assessment, effective patient-provider communication, self-management goal setting, fluoride use and risk-based return visits. The teams also participated on monthly calls and received guidance from Expert Faculty and QI consultant.

The DM clinical protocol was implemented at the sites and the teams collected process and outcome measurement data for the purpose of evaluating improvement trends in the care processes and patient outcomes over time.

What improvements were achieved?

40+ dental practices improved their knowledge and confidence with use of QI strategies and DM protocols.

Phase 1 Outcomes
Boston Children's Hospital: 65.3% reduction in patients with new cavitation, 38.2% reduction in pain, 47.8% reduction in referrals to the operating room.

St. Joseph Health Services; 57.5%reduction in patients with new cavitation, 23.3% reduction in pain, 67.8%reduction in referrals to the operating room.

Phase 2, Aggregate Outcomes: 28% reduction in patients with new cavitation, 27% reduction in pain, 36% reduction in referrals to the OR.

Phase 3: Teams tracked process and outcome measures via their EDRs using ADACDT caries risk and SMART codes. Promising results show younger children and those with more DM visits with reduced risk of new cavitation. Results are not yet published.

What were the main challenges that needed to be overcome?

Time constraints, appointment no shows, data collection burden, staff & leadership buy-in and lack of reimbursement.

What was the overall impact of this program?

Since 2008, the DentaQuest Institute and Foundation have invested close to $1m and continue to invest. Educational tools were developed with funding support from the US DHHS/ Health Resources and Services Administration.

Additional Resources

- Ng MW, Ramos-Gomez F, Lieberman M, et al. Disease management of early childhood caries: ECC collaborative project. Int J Dent. **2014**;**2014**:327801. doi: 10.1155/**2014**/327801. Epub **2014** Mar 3
- Samnaliev M, Wijeratne R, Kwon EG, Ohiomoba H, Ng MW. Cost-effectiveness of a disease management program for early childhood caries. J of Public Health Dentistry. 2015 Winter;75(1):24-33. doi: 10.1111/jphd.12067. Epub 2014 Jul 12.

DQA OPINION: What would it take to spread this change?

The ECC Collaborative is a perfect example of a small quality improvement project that has spread on its own through collaboration with other clinics and organizations. The Collaborative follows QI models and tracks progress in a way that is easily shared and replicated.

The opinions expressed in this section are those of the DQA's Implementation and Evaluation Committee based on their individual expertise and experiences.

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