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A Diffusible Mobile Dental Services Model for Prevention-Focused Outreach for Underserved Children in Rural Communities

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Mobile Dental Team with Ronald McDonald Care Mobile

Abstract

Background: In 2006 a mobile dental outreach program began operating full-time at the UK North Fork Valley Community Health Center in Hazard, Kentucky, a federally-qualified health center administered by the University of Kentucky and located at the UK Center of Excellence in Rural Health. This program continues to provide preventive dental care to children at forty different elementary schools and Head Start centers in a four county area of southeastern Kentucky located in the heart of rural Appalachia. The counties are Leslie, Knott, Letcher and Perry (LKLP), which are part of the Kentucky River Development District and encompass the LKLP Community Action zone created by the Kentucky General Assembly. The program serves approximately 2,500 children each school year.

Context: Children in eastern Kentucky have the second highest rate of untreated tooth decay in the nation. Over half of the children in Perry County, where the mobile dental program is based, had untreated cavities, and 20 percent had painful dental abscesses when the UK dental outreach team started seeing children in local schools and Head Start centers in 2006.

Objective: Development of a model mobile dental service for children that can be implemented in other rural communities where there are high levels of unmet need.

Design: Comparative analysis of pre/post dental services intervention using data collected by the mobile outreach team.

Setting: Eleven sites in Perry County, a rural Appalachian community.

Participants: Children from underserved families.

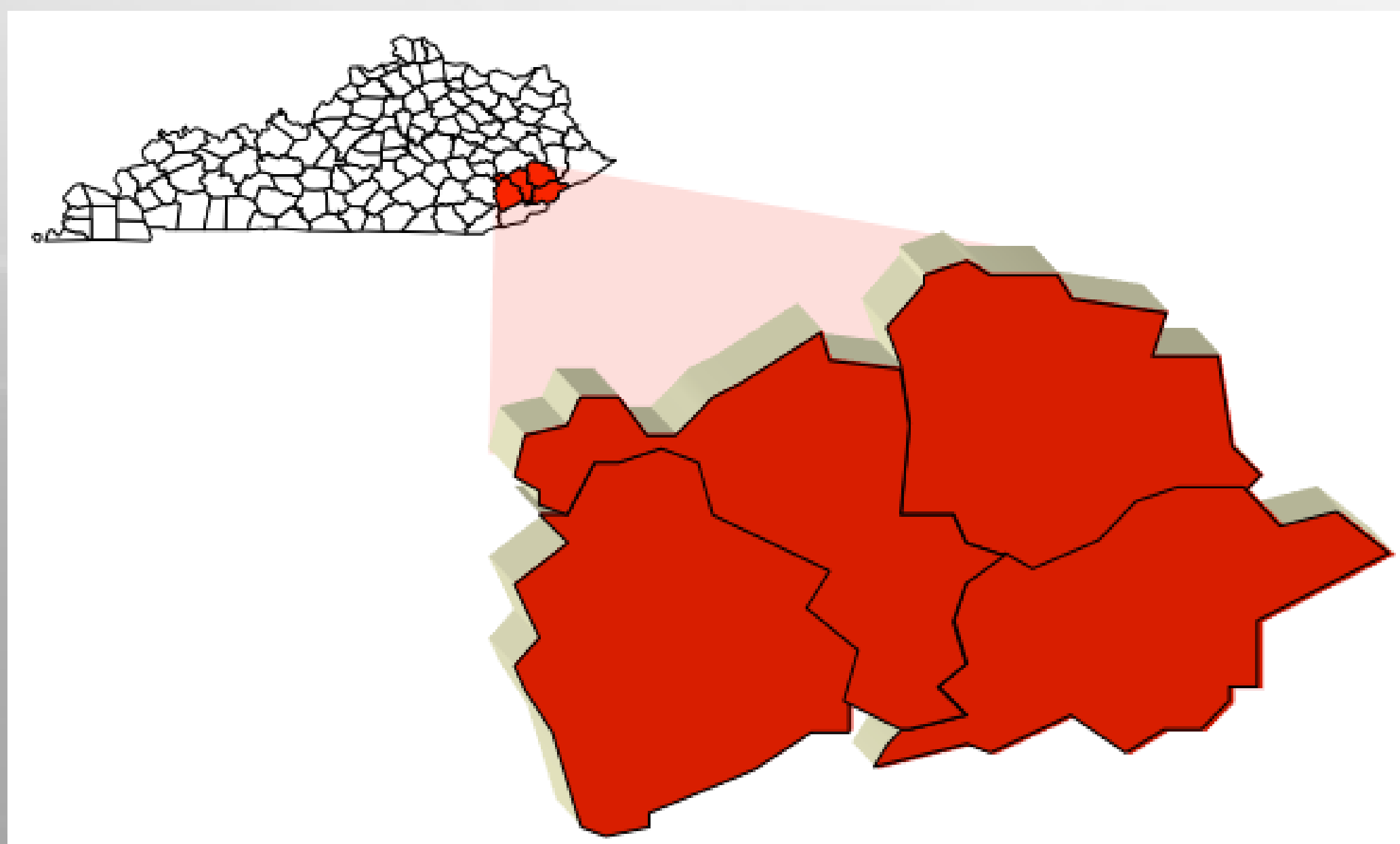
Intervention: Exams, cleanings, fluoride treatments and referrals through the Eastern Kentucky Ronald McDonald Care Mobile.

Main Outcome Measure(s): Improved oral health through the reduction in cavities and abscesses and other other gum disease.

Results: Decay rates reduced by 16 percent and urgent dental needs reduced by 10%.

Conclusions: Mobile dental services can effectively screen and treat children in areas where services are unavailable through public school programs and through private dental practices that are closed to new patients or do not accept Medicaid patients. Mobile dental services are adaptable and can be focused in areas within communities to create access for high risk and underserved families.

Service Counties: Leslie, Knott, Letcher & Perry



Baseline Data

- The first full year of operation was the 2006/2007 school year. Baseline data indicate that these rural Appalachian children in southeastern Kentucky had the second highest untreated tooth decay rates in the nation, second only to the American Indian/Alaskan Native (AI/AN) populations. Of the ten Perry County elementary schools that were visited, some actually had rates as high or higher than those of the AI/AN groups reported nationally from the NHANES (National Health and Nutrition Examination Survey).
- In addition it was found that the urgent dental needs in rural Appalachia were much higher than the previously reported State rate of 4%, averaging 17% for elementary school children and 14% for Head Start children.
- 68% of elementary school children and 58% of Head Start children had untreated tooth decay compared to a national rate of 26%.
- 22% of elementary school children and 19% of Head Start children had urgent dental needs (pain and infection) compared to a state rate of 4%.
- Healthy People 2010 (HP2010) goals for pre-school and elementary school aged children for untreated tooth decay were significantly lower than the baseline data indicated.

The Dental Outreach Model

- All children enrolled in schools and Head Start programs in the service area receive a consent packet at the beginning of the school year. For the children to participate, parents must fill out the packet and return it to the school's family resource directors. Participation rates are typically 40% in elementary schools and 70% in Head Start centers.
- Each participating child receives a comprehensive oral evaluation, a cleaning prophylaxis, a fluoride varnish treatment, and dental sealants if needed. A color-coded dental report card is sent to parents outlining each child's dental needs. A universal red/yellow/green light format is used.
- Case management efforts are focused on children with urgent dental needs (defined as 7+ decayed teeth, pain, or infection). Every child below 3rd grade who has urgent dental needs is scheduled for an evaluation appointment with a local pediatric dentist.
- Three attempts are made to reschedule the appointments. If an appointment cannot be scheduled, the school or Head Start is notified and encouraged to contact the child's parents. Occasionally social services is alerted to the child's needs so that they can assist parents with transportation or in overcoming other barriers that might be preventing the child from receiving needed care.

Typical Treatment Regimen

Every child receives the following:

1. Comprehensive Oral Evaluation (Exam)
2. "Dental Report Card" (for Parents)
3. New Toothbrush Kit
4. Cleaning Prophylaxis
5. Fluoride Varnish
6. Dental Sealants (if needed) on all erupted permanent premolars and molars
7. Referral for Dental Care (if needed)
8. Appointment with a Pediatric Dentist (if urgent)

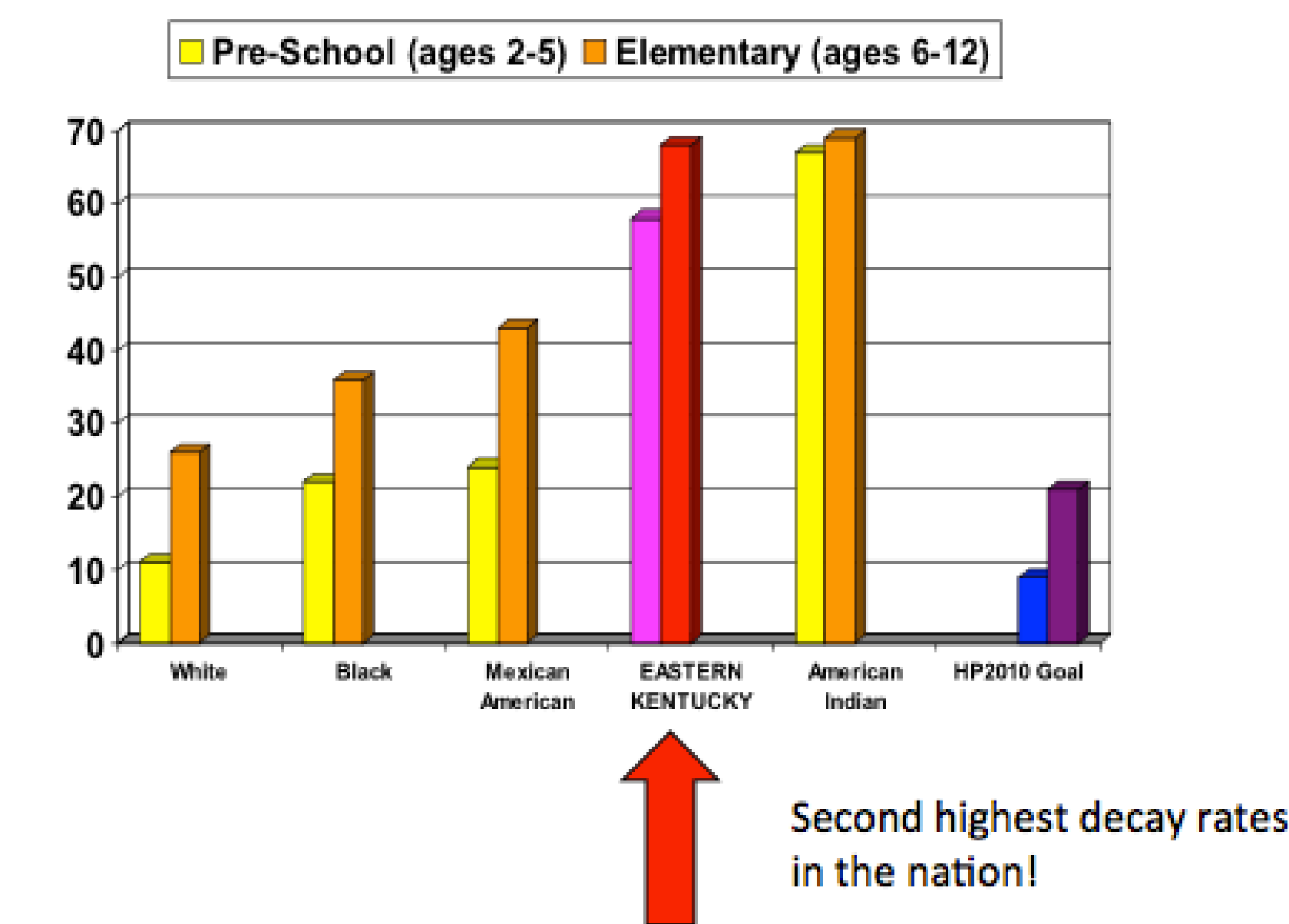
Findings

Untreated tooth decay rates have decreased 16% in Head Start children. Urgent dental needs have decreased 10%.

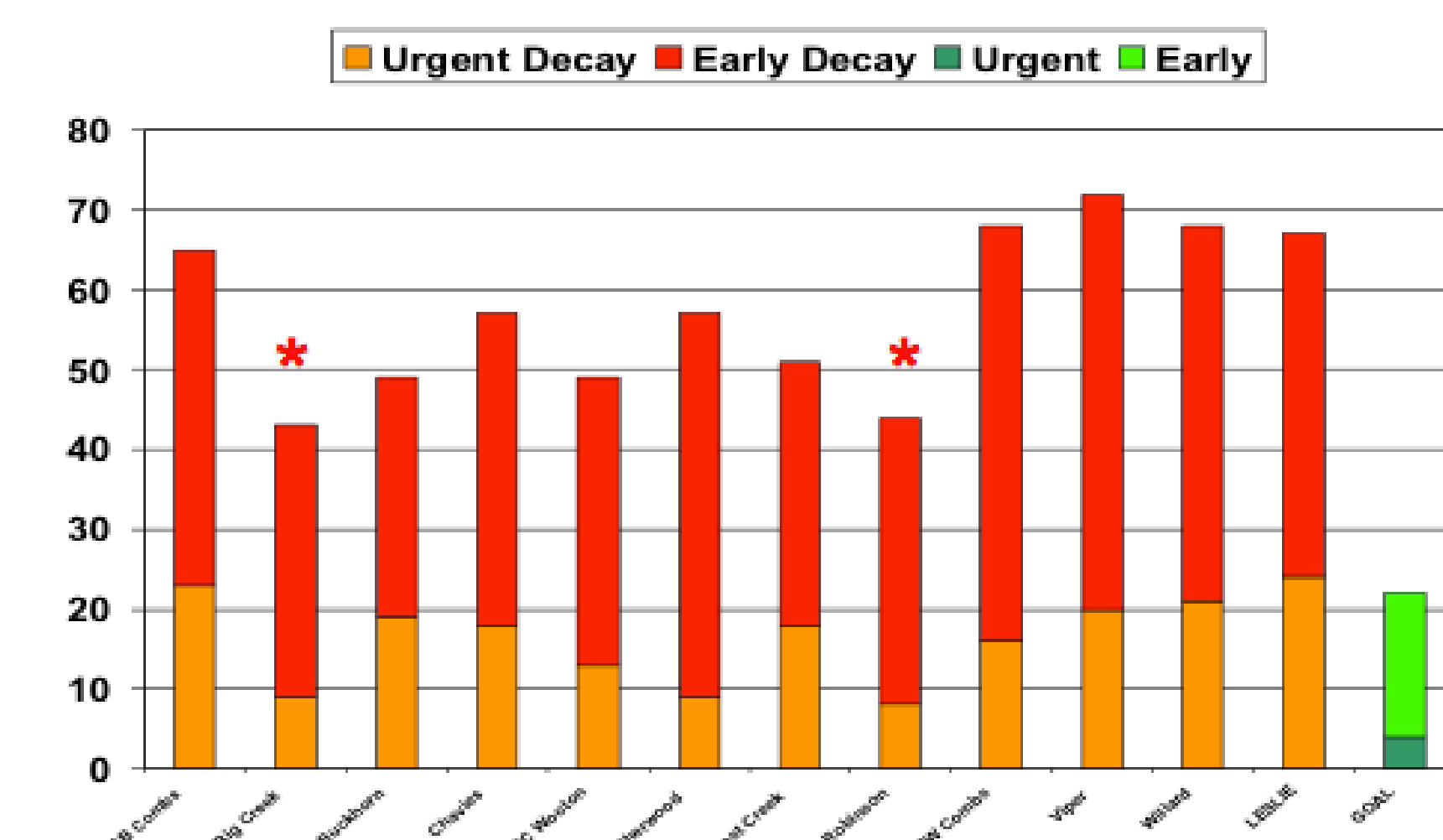
Untreated tooth decay rates have decreased 13% in elementary school children. Urgent dental needs have decreased 8%.

Untreated Tooth Decay

Compared with National Data (NHANES)

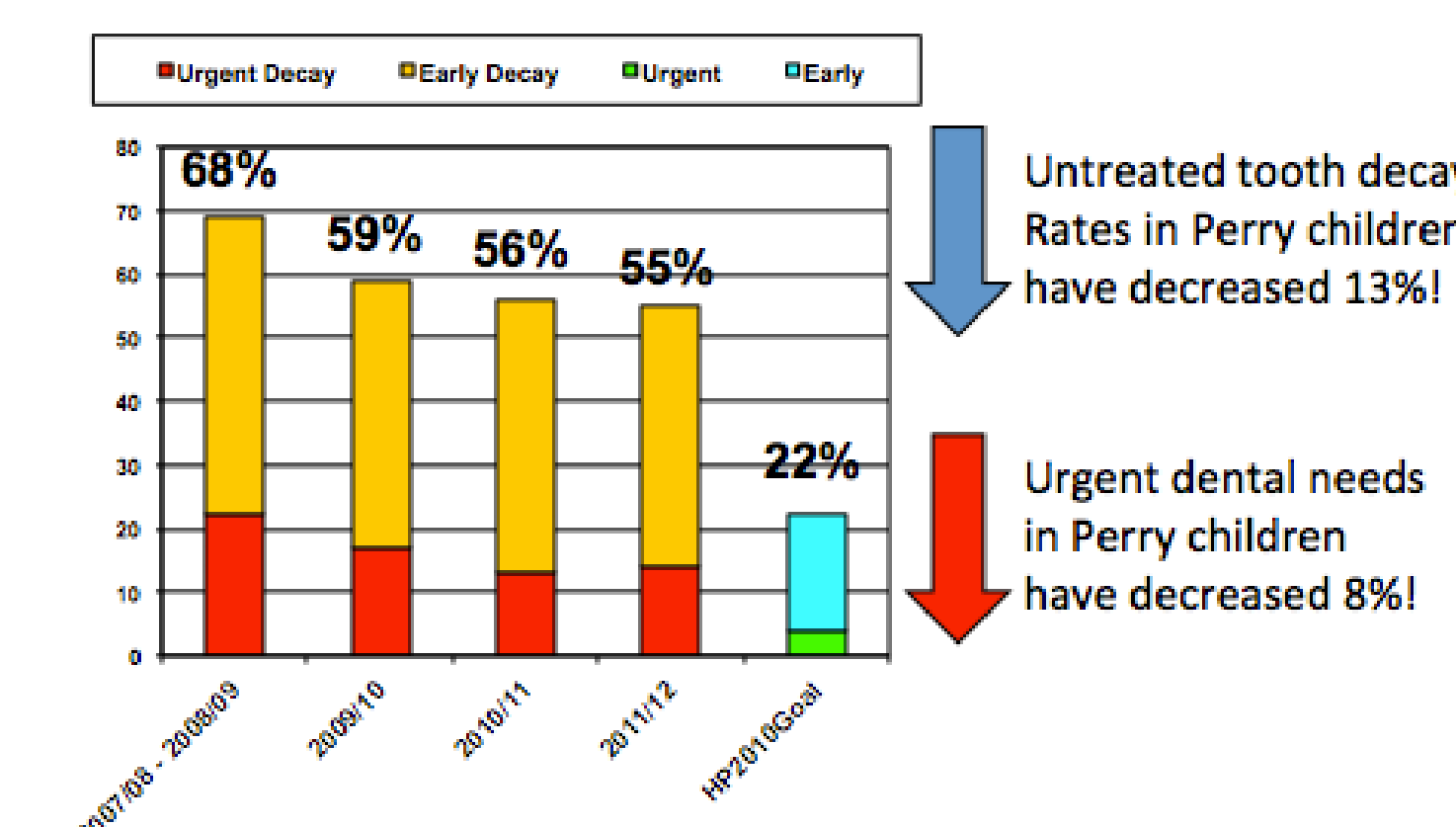


Untreated Tooth Decay and Learning Abilities in Perry & Leslie Counties



* The two schools with LOWEST decay rates have the HIGHEST test scores.

Elementary School Untreated Tooth Decay Rates



Successful Partnerships

- About 20% of Head Start children had urgent dental needs during the first year of operation. Parents were sent a color-coded dental report card telling them about their child's status and encouraging them to make an appointment with a pediatric dentist for care as soon as possible.

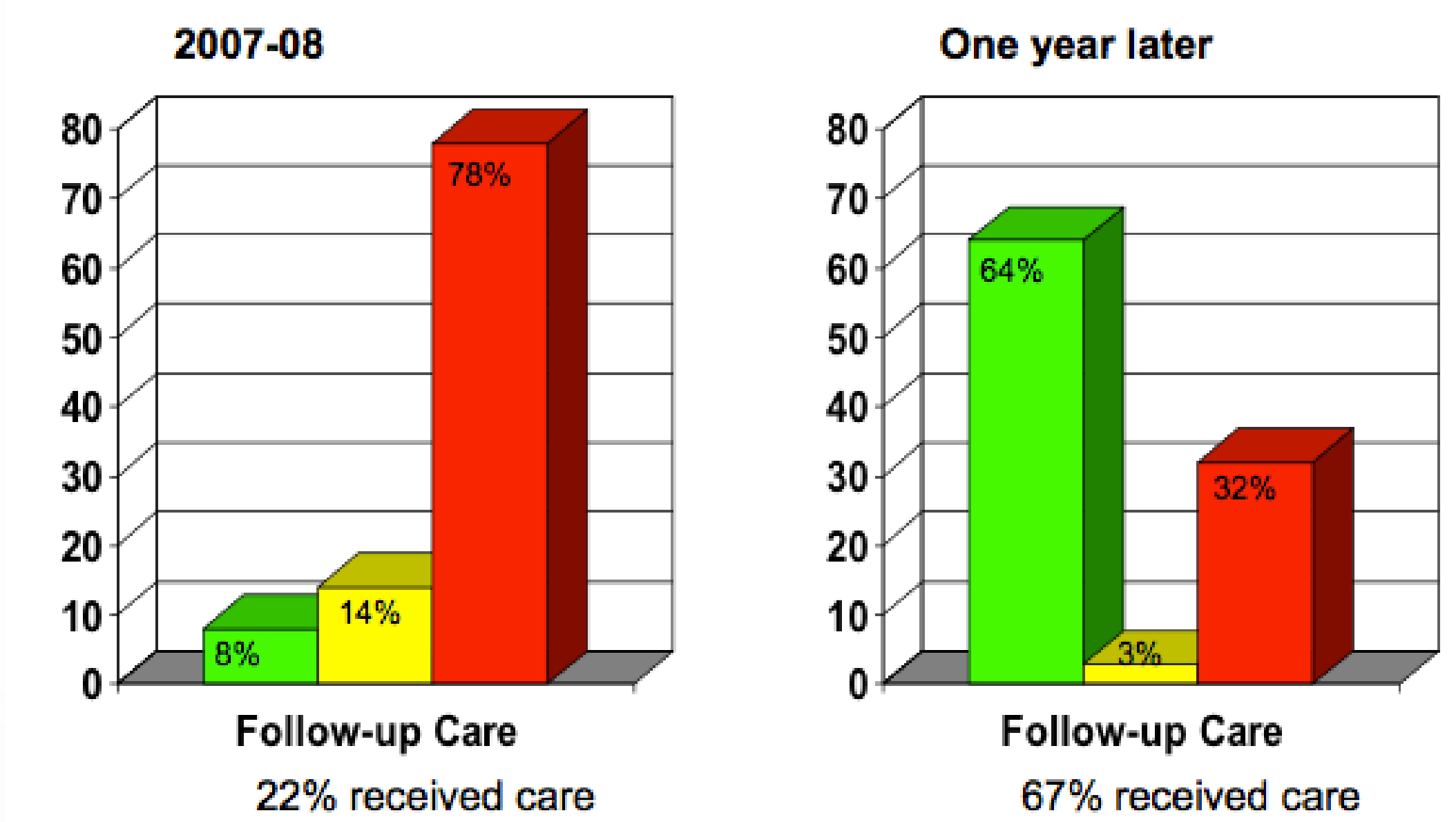
At the end of the first year of operation, only 8% of children with urgent dental needs had completed dental treatment!

- The following year a four-way partnership was formed between the mobile dental outreach team, the Head Start program, a regional pediatric dentist, and the local hospital for children to receive care in the hospital operating room.

At the end of the second year, after the partnership was implemented, treatment completion rates increased from 8% to 67%!

Treatment Completion

Specialty Dental Care Provided to Children with Urgent Dental Needs



Treatment completed (green), treatment partially completed (yellow), treatment incomplete (red).

Conclusions

PREVENTION + PARTNERSHIPS = LESS DENTAL PAIN FOR CHILDREN

- In the future this program will continue to provide population-focused prevention efforts.
- We will continue to work on more partnerships to improve treatment completion rates.
- In addition classroom education, efforts will continue and every opportunity will be taken to provide education to parents and other adults at community events.

DEVELOPING MOBILE DENTAL SERVICES FOR OTHER RURAL COMMUNITIES

We have several years of experience with a mobile outreach model that is economically viable and effective in reaching most children with dental screenings and treatments that reduce tooth decay. Listed below are some key activities required for a mobile dental outreach program:

- Linkage with a Federally Qualified Health Center (FQHC) has proved crucial for administrative support and sustainability. Other organizations might also offer needed support for personnel management, billing Medicaid and data management.
- Establishing support with schools and Head Start programs and parents is crucial.
- Staffing includes a pediatric dentist, a dental technician, and one support staff.
- Equipment required includes a mobile van appropriately equipped to meet dental licensure requirements and portable equipment for use in classroom settings and lap-to-lap dental care.