

Institution: Queen Mary University of London		
Unit of Assessment: 3		
Title of case study: Developing Interventions to Improve the Oral Health of Vulnerable Children		
Period when the underpinning research was undertaken: 2013 - 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
1) Vanessa Muirhead	1) Lead Researcher, Clinical Senior Lecturer in Dental Public Health	1) 04/2010 - present
2) Donatella D' Antoni	2) Lecturer in Public Health	2) 10/2018 - present
3) Wagner Marcenes	3) Professor of Oral Epidemiology	3) 01/2002 - 03/2015
4) Cynthia Pine	4) Professor in Dental Public Health	4) 09/2013 - present
5) Zahidul Quayyum	5) Health Economist	5) 10/2016 - 05/2018
6) Sally Weston-Price	6) National Institute of Health Research Academic Clinical Fellow in Dental Public Health	6) 03/2016 - 11/2019
7) Ferranti Wong	7) Professor of Paediatric Dentistry	7) 05/1989 - present
Period when the claimed impact occurred: September 2013 - November 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words) Research led by Dr. Vanessa Muirhead at Queen Mary showed there is a significant oral health problem in vulnerable children, both in socially excluded groups such as looked-after children (LAC) and also children with significantly unmet dental needs. In 2017, NHS England incorporated the recommendations of Muirhead's report 'Let's Talk about Teeth' into its new paediatric dentistry pathway for London, covering all 33 boroughs and nearly 10,000 LAC. Muirhead co-produced a tailored oral health resource for foster carers based on this report in 2015. This booklet was distributed by Tower Hamlets Council to 130 carers within the borough caring for more than 300 LAC, with over 10 other local authorities around England also accessing this booklet. Muirhead's research has been recognised and cited in local oral health improvement plans by Public Health England and the Local Government Association. Muirhead's Community Pharmacy project, assessing the role pharmacies play in the oral health of vulnerable children, was replicated and extended nationally by NHS England in 2019.		
2. Underpinning research Poor oral health in children is a public health problem in the UK. In 2019, one-in-four 5-year-olds had had a dental decay. When not cared for properly, poor oral health negatively affects children's quality of life, causing pain, impaired speaking and eating and sleeping disruptions. The consequences can be long-lasting, restricting body weight and children's growth as well creating school absences and work disruptions for parents and carers. Despite these problems, few studies exist on the poor oral health of vulnerable children, including looked-after children (LAC) and children with unmet oral needs. Based at Queen Mary's Centre for Dental Public Health and Primary Care, Dr. Vanessa Muirhead and her team use qualitative and quantitative research, surveys and data analysis to identify key areas in unaddressed oral health and subsequently develop interventions. From 2008 to 2013, Muirhead and colleagues carried out 10 local oral health surveys in East London commissioned by Primary Care Trusts to explore the oral health needs of the local population. Findings showed significant disparities in dental caries between children from particular ethnic backgrounds [3.1], but also that LAC are consistently overlooked in oral health studies.		

LAC are children placed under the care of a local authority for their own protection. Approximately two-thirds of LAC in Tower Hamlets were placed in care because of physical abuse, neglect or family dysfunction, rendering them socially excluded and vulnerable on multiple fronts. Although LAC are more frequently affected by physical, mental and sexual health problems than other children, very few studies have explored whether they also suffer from poor oral health. Most LAC live in foster homes, with little known about the foster carers' experiences of supporting the oral health of children in their care. In 2014-15, working with the public health team at Tower Hamlets, Muirhead led the 'Let's Talk about Teeth' research project to address these omissions.

'Let's Talk about Teeth' consisted of an oral health survey of LAC and a qualitative study of foster carers. In the past, one of the barriers to involving LAC in public health research has been negotiating complicated issues of parental responsibility and consent. In response, the researchers developed a unique dual-informed consent-assent process, designed to protect children's rights throughout the project [3.2].

The oral health survey included the most vulnerable children: five to 15-year-olds placed under the care of a local authority for their protection. The survey found that LAC had high levels of tooth decay, gum disease and unmet dental treatment needs [3.2]. A significantly higher percentage of teenage LAC (54%) had decayed, extracted and filled permanent teeth than children of the same age who were not in care in Tower Hamlets (21%), London (28%) and England (34%). Of 12-15-year-old girls under the care of the local authority, 37% had a tooth fracture compared to only 6% of 12-15-year-old boys who were LAC [3.2], a figure that was also higher than the percentages reported for 12 and 15-year-olds in the 2013 UK children's dental health survey (12% and 10% respectively). This is important because previous research has shown that traumatic injuries to teeth are a potential sign of domestic violence, which can be picked up at a dental appointment.

The qualitative study of foster carers explored their attitudes and knowledge about dental health, and experiences of overseeing the oral health care management of LAC [3.3]. Foster carers described the poor oral health of LAC, particularly when children first entered the care system. Some LAC had no tooth brushing habits. In addition, it was common for LAC to have unhealthy diets, including high-sugar snacks, fizzy drinks and sweets. Foster carers were unsure about what key preventive dental health messages to give to LAC, having received inconsistent guidance from dentists. In addition, some foster carers reported that dentists were reluctant to see younger children [3.3].

Muirhead also investigated the scale and costs of parents and carers seeking urgent dental care for children with unmet oral health needs. In 2016, Muirhead led the Oral Health in Community Pharmacy project, a collaboration between Queen Mary, the Healthy London Partnership, NHS England and the 1,861 community pharmacies in London. Between November 2016 and January 2017, the study collected data from half of London's community pharmacies (951) and 6,915 parents and carers. The researchers revealed that 65% of parents in London who sought pain medications from community pharmacies for their children did so to relieve oral pain [3.4]. Despite all children under 18 having free access to dental services, only 30% of children with oral pain had seen a dentist before their parent visited the pharmacy. Instead, their parents or carers had made multiple contacts with health professionals outside dentistry, including GPs, health visitors, school nurses, and hospital A&E departments. The researchers showed that these inappropriate contacts with health services could cost the NHS an estimated GBP2,300,000 each year [3.4].

The project also included a survey between January and February 2017 of 891 community pharmacy staff working in London's 1,861 pharmacies, including pharmacists, technicians and counter staff (usually the first point of contact for patients). The survey showed that counter staff receive minimal training on giving parents advice about managing children's oral pain; that they do not feel confident about giving parents advice; and that they would like more training in this area [3.5].

Muirhead's findings in both community pharmacies and LAC have become a platform to develop effective interventions to improve the oral health of vulnerable children in London and the UK.

3. References to the research

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- [3.3] Muirhead, V., Subramanian, S. K., Wright, D. & Wong, F. S. L. (2017). How do foster carers manage the oral health of children in foster care? A qualitative study. *Community Dentistry and Oral Epidemiology*, 45 (6), 529-537. <https://doi.org/10.1111/cdoe.12316>
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- [3.5] Muirhead, V., D’Antoni, D. & Auyeung, V. (2020). Community pharmacy staff oral health training, training needs and professional self-efficacy related to managing children’s dental problems. *International Journal of Pharmacy Practice*, 28 (5), 449-457. <https://doi.org/10.1111/ijpp.12626>

4. Details of the impact

Dr. Muirhead’s applied research has resulted in the oral health needs of socially vulnerable children being recognised in local oral health improvement plans and by Public Health England and the Local Government Association. In addition, NHS England used the research to inform a new paediatric dentistry pathway for London.

Informing the redesign of health services to address the oral health needs of looked after children (LAC)

The ‘Let’s Talk about Teeth’ project revealed a high level of unmet oral needs in LAC, with many children reporting wider social and psychological impact on their daily lives, including pain, embarrassment and difficulty eating. Based on these findings, the researchers made a series of recommendations to commissioners of NHS dental services in London to redesign services to meet the oral health needs of the capital’s 9,900 LAC [5.1]. Recommendations included:

- A dental check-up for LAC as part of their initial health assessment under local authority care
- Specialist support for LAC who are anxious about visiting the dentist
- Tailored oral health resources and support for foster carers.

These recommendations were incorporated into the service specification for a new paediatric dentistry pathway for London, which was implemented in all 33 London boroughs in April 2017 [5.2]. As a result of Muirhead’s research, all LAC in London now have a dental check-up when they enter care, helping to identify problems and develop plans for oral care. Furthermore, the local authorities of the Isle of Wight and Barking and Dagenham now recognise LAC as a vulnerable group in their oral health improvement plans and have developed targeted programmes to support these children as a result [5.3, 5.4]. According to Public Health England in 2018, integration of targeted home visits by health and social care workers in oral health was reported by 44% (64/145) of local authorities, with the scheme now including LAC, providing LAC access to treatment from local dentists [5.5].

Providing public policymakers with new evidence on LAC

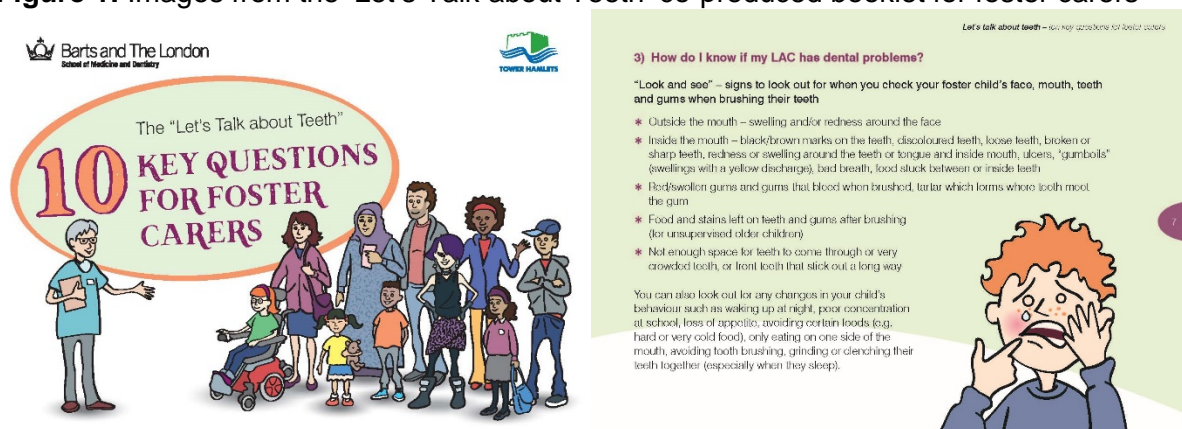
Public Health England cited ‘Let’s Talk about Teeth’ in *Health Matters*, a set of resources for local authorities and health professionals bringing together the latest data, evidence, and case studies for effective public health interventions. The child dental health resource in *Health Matters* [5.6], which cites Muirhead’s research, has been viewed more than 65,000 times online since its publication in 2017 by users across the UK, Europe and USA, as well as in Indonesia, Pakistan, Singapore, and Sudan [5.7]. Dr. Jenny Godson, the National Lead for Child Improvement at Public Health England and Chair of the Child Oral Health Improvement Programme (COHIPB), corroborated the influence ‘Let’s Talk about Teeth’ has had: “[it] has been disseminated by the COHIPB members through their networks and is also informing the COHIPB vulnerable children action plan which is currently being developed” [5.8]. The ‘Let’s Talk about Teeth’ research was

included as a case study of good practice in the Local Government Association publication *Healthy futures: Supporting and promoting the health needs of looked after children* [5.9], shared with 335 member councils across England.

Developing new resources to help foster carers to support oral health

As part of the 'Let's Talk about Teeth' project, the researchers established close collaborations with social workers, managers and foster carers in Tower Hamlets, as well as nationally with organisations such as the British Association for Adoption and Fostering (BAAF). This combination of local engagement in east London and strategic engagement with key professional bodies, meant that the project's findings were swiftly taken up across different health and social care organisations in the UK. Geraldine O'Donnell, Group Manager for Child Protection, Education, Social Care and Wellbeing in Tower Hamlets, said that the project: "highlighted an important area for the Independent Reviewing Officers (IRO)'s [qualified staff who oversee the care plans of children in care] to take away a different approach to dealing with dental issues through the looked after review process" [5.10].

Figure 1: Images from the 'Let's Talk about Teeth' co-produced booklet for foster carers



The researchers recommended that a tailored oral health resource should be developed for foster carers providing evidence-based oral health messages. This led to the co-produced *Ten key questions for foster carers* booklet in 2015 (Figure 1). A range of stakeholders and contributors prepared responses to the key questions that foster carers raised in the qualitative study [5.11]. Tower Hamlets Council distributed the booklet to, and it is currently used by, 130 foster carers in Tower Hamlets caring for more than 300 LAC in 2017. The resource was also taken up by more than 10 local authorities across England, including in London, Leeds, Newcastle, Hampshire, Kent, Surrey and Sussex.

Addressing unmet oral health needs through community pharmacies

The findings from the Community Pharmacy project generated wide publicity and the research paper was included as an evidence document for a public policy conference on the future of dentistry in England, organised by the cross-party Westminster Health Forum in March 2018 [5.12]. The project demonstrated the important role that community pharmacy staff play in the oral health of vulnerable children, and subsequently provided an evidence-based template for community pharmacies to use in identifying and signposting children with acute dental problems. The template contained the ASK flowchart (Assess, Signpost and use your Knowledge), which was uniquely made for this project to:

- Support children's oral health and provide an intervention to identify children with acute dental problems
- Signpost dental services
- Give parents and carers oral health advice [5.13].

In May 2019, NHS England replicated this intervention across England as a national community pharmacy oral health campaign for one month [5.14]. 1,560 out of 2,689 pharmacies from NHS

South completed the evaluation form, up from 39% in the previous pharmacy campaign, and 1,618 parents and carers were advised by pharmacists to seek appropriate medical care [5.15].

5. Sources to corroborate the impact

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- [5.15] NHS England. (2019). *Prevention at scale: Pharmacy Campaigns South of England Evaluation Report*. <https://www.england.nhs.uk/south/wp-content/uploads/sites/6/2019/09/2019-childrens-oral-health-campaign.pptx>