



Designed to Smile

Beliefs and attitudes of the Community Dental Service staff to the Designed to Smile Programme

Evaluation Stage 2 Part III

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1. Executive summary

This report describes the results of a questionnaire survey of all Community Dental Service (CDS) staff in Wales, working in a clinical or public health capacity. Conducted between April and June 2015, the questionnaire was sent to 482 staff of whom 348 returned the questionnaire – a 72% response rate.

The aims of the survey were to determine:

- the attitudes and opinions to the Designed to Smile (D2S) Programme of Community Dental Service Staff in Wales
- attitudes to the relative merits of oral health improvement and treatment services within the CDS

The respondents stated that they had confidence in the evidence base on which the D2S programme is based. Staff believe in the general aims of the D2S programme, namely getting the teeth of the children in Wales most at risk of developing dental caries in contact with fluoride and of instilling toothbrushing habits in children who would otherwise not brush their teeth regularly.

Over 80% of respondents thought that the programme would achieve the objectives of preventing dental caries and reducing oral health inequalities, these staff being equally divided between those who thought the objective would be met or somewhat met. Seven percent thought that the programme would not work and a similar percentage said they did not know if D2S would achieve its goals.

The D2S programme has not been running sufficiently long to observe an impact on the prevalence of decay at a national level, these findings from epidemiological studies being expected in 2016 and 2017. However, the responses to this survey suggest that the majority of CDS staff are confident that D2S has had a positive impact on children's oral hygiene and CDS staff were of the view that the programme was impacting on levels of dental decay and cooperation in the clinical setting. CDS staff were however much less confident that D2S was impacting on dietary choices that would be likely to result in a reduction in dental decay.

A key issue for the D2S programme is the extent to which toothbrushing in school will impact on oral health behaviours at home. Over half of the CDS staff responding agreed that the programme would encourage toothbrushing at home, with one in five uncertain that this would be the case. A further one in five disagreed that the programme would result in increased toothbrushing at home. There was a clear difference in the levels of confidence on the wider impact of D2S between those CDS staff working on the programme and those working only in clinics.

Staff were asked about their view on the provision of fissure sealants and in particular whether fissure sealants would encourage 'hidden caries'. More than 50% of respondents had concerns about this issue, 10% being very concerned and 45% slightly concerned. A recent systematic review has shown that if properly applied, there is no evidence of caries progression underneath sealants. This long standing concern amongst CDS staff would it appears persists and needs addressing.

There were mixed views on the degree to which parents were adequately informed about the D2S programme. Over 80% of the CDS staff disagreed, at least to some extent that the

responsibility for toothbrushing should be left completely to parents – only 12% agree that toothbrushing should be left totally to parents.

The great majority of CDS staff did not view the D2S programme as overly burdensome for school staff.

The majority of respondents were of the view that materials designed to support the D2S programme have had a wider impact on the CDS as a whole. About one in five of the respondents were of the view that too many resources have been devoted to the D2S programme. This view was more prevalent in CDS staff not having any direct link to D2S. Only 17 staff were of the view that oral health promotion activities had completely compromised CDS resources.

There were a range of views on the degree to which D2S had become an integral component of CDS activity. However, CDS staff are of the opinion that consistent messages are being promulgated by both the D2S and clinical teams and that clinical teams are perceived to retain responsibility for the dissemination of appropriate oral health education messages.

Just over 40% of CDS staff have never visited the D2S website and a further 37% claim to do so only a few times a year. The data suggest that the D2S website is underutilised, particularly by clinic based staff.

Survey respondents were of the view that links between the General Dental Service and the D2S programme are not particularly strong. Based as it is in areas of high dental need, it is clearly important that dental attendance is encouraged. While many of the children

participating in D2S will have treatment provided by the CDS, consideration should be given as to whether and how integration of the D2S programme with primary care treatment services can be best achieved.

There were a range of views on the degree to which the D2S programme links with non-dental health and other professionals. Engagement was thought to be highest with teachers and nursery staff, followed by health visitors, 'healthy schools' representatives and school nurses. Links with general medical practitioners was thought to be low.

The great majority of CDS staff were of the view that the D2S programme was reaching its intended target demographic. Seventy four percent thought that the D2S programme should be extended to all children in Wales.

In conclusion, the view of the majority of CDS staff is that the D2S programme is working and is achieving its objectives.

2. Introduction

2.1. BACKGROUND

In their Eradicating Child Poverty in Wales strategy first published in 2005, the Welsh Government set a target that by 2020 the dental health of 5 and 12 year olds in the most deprived fifth of the Welsh population will improve to that then found in the middle fifth. In March 2008, the Welsh Government laid out plans for the commissioning and implementation of a school-based fluoride supplementation programme called Designed to Smile (D2S), aimed at meeting these targets. The programme is one of the principle initiatives of the National Oral Health Action Plan for Wales (NOHAP).¹

The Designed to Smile programme comprises three core elements: (i) supervised in-school/nursery toothbrushing for 3-5 year olds; (ii) oral health promotion for 6-11 year olds; and (iii) promoting oral health from birth.

The Community Dental Service in Wales (CDS) has been responsible for organising, coordinating and delivering the programme, including the production and translation of resources, the sourcing of materials and recruitment of new staff members to deliver the D2S programme.

By April 2014, 92,948 children were taking part in the supervised toothbrushing programme across 1,452 schools and nursery schools.

The Welsh Government has commissioned a series of research studies^{2,3} and reports to examine the implementation and impact of the programme.⁴⁻⁸ The work presented here is the final report in the series.

2.2. THE CURRENT EVALUATION STUDY

The initial evaluation study of the D2S programme, examined the attitudes to staff working on the D2S programme.⁴ Now that the D2S programme has matured, it was thought prudent to revisit the role, attitudes and beliefs of CDS staff to the programme. Clearly, there is the potential for the D2S programme to be seen as isolated and distinct from the everyday ‘clinical function’ of the CDS. For the D2S programme to be maximally effective, it is important that there is a common approach and clear lines of communication between the clinic-based and D2S staff. Furthermore, given the general direction of primary care dental services from a restorative to a preventive-led service, knowledge and attitudes to prevention versus treatment in the CDS in general is of interest.

This evaluation therefore comprised a postal questionnaire survey of all CDS staff working in Wales in a clinical or public health capacity.

Study aims

The specific aims of the survey were:

1. To determine the attitudes and opinions to the Designed to Smile Programme of Community Dental Service Staff in Wales
2. To determine attitudes to the relative merits of oral health improvement and treatment services within the CDS

3. Methods

3.1. QUESTIONNAIRE SURVEY DEVELOPMENT

Suggestions of questions and topics to include in the questionnaire were encouraged from a range of CDS staff and consultants in Dental Public Health. Information-gathering interviews were also undertaken with D2S and CDS managers and with officials from the Office of the Chief Dental Officer. Pertinent issues and major themes from the interviews were then formulated into the questions and statements used in the questionnaire.

The questionnaire was piloted with five CDS staff using ‘Think Aloud’ testing⁹ to examine the usability of the questionnaire and to ensure the validity of the questions and ease of interpretation by participants. Those questions which were not interpreted as intended or which provided ambiguity in responses were amended to improve their utility.

3.2. PROCEDURE

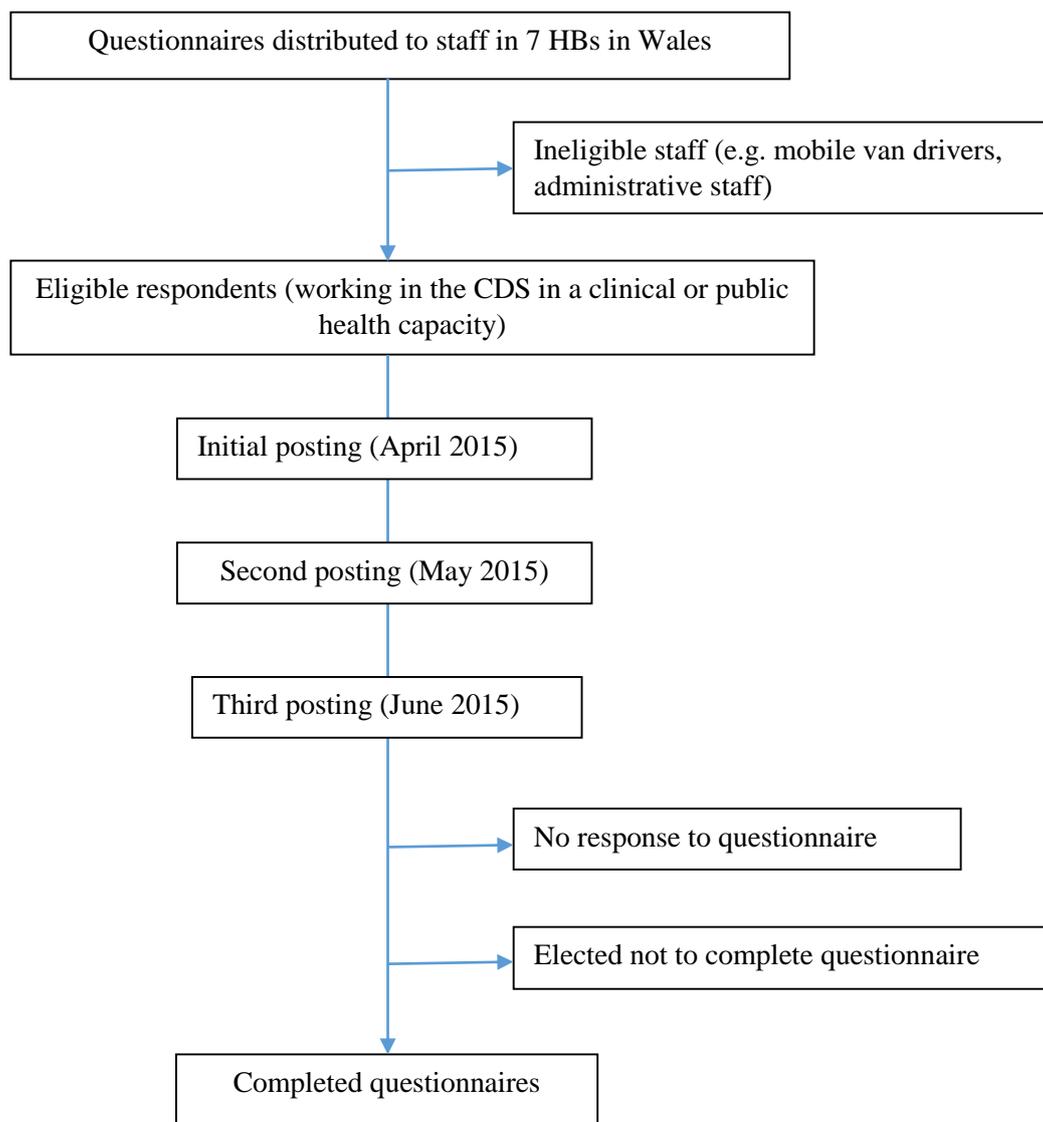
Research ethics approval was granted by the Cardiff University Dental School Research Ethics Committee (Reference: 15/03).

Permission to conduct the survey and agreement to the distribution of the questionnaires was provided by the Clinical Director of the CDS from each Health Board.

Intended respondents were NHS staff working in a clinical and/or public health capacity for the CDS within the 7 Health Boards across Wales. CDS staff working in an administrative or clerical role were excluded.

Study participants were contacted up to three times (Figure 1). The questionnaires (Appendix 1) were initially mailed with an accompanying covering letter describing the aims of the questionnaire and a pre-paid, self-addressed envelope for return. After six weeks, those who had not responded to the initial mailing were sent a further second copy of the questionnaire. Staff who had not responded within four weeks of the second posting were sent a letter reminding them of the questionnaire.

Figure 1: Questionnaire flow diagram



3.3. DATA HANDLING AND ANALYSIS

Questionnaires were distributed via the CDS administration offices. Codes were used to anonymise returned questionnaires and staff were assured of anonymity in the reporting of their responses.

The data were checked and cleaned. Analysis was undertaken using SPSS.

Using NVivo 10, responses from the two open questions were examined to identify common topics.

4. Findings

4.1. STAFF RESPONSE

Response rate

Of the 482 eligible staff members who were sent questionnaires, 348 responded providing a 72% response rate (Appendix 2: Respondent flow diagram).

Table 1 illustrates response by Health Board. Cardiff and Vale UHB and Cwm Taf HB have been combined as both areas are served by the Community Dental Service based in Cardiff and Vale UHB.

Table 1: Survey response by health board

Health Board	Eligible staff (n)	Responses (n)	Response rate by HB (%)
Abertawe Bro Morgannwg	49	39	79.6
Aneurin Bevan	86	48	55.8
Betsi Cadwaladr	156	120	76.9
Cardiff and Vale and Cwm Taf	115	84	73.0
Hywel Dda	46	29	63.0
Powys	30	28	93.3
TOTAL	482	348	72.2

Response to the questionnaire varied across Health Boards. Powys, with the smallest number of eligible CDS employees (30), had the highest response rate at 93.3%. Betsi Cadwaladr UHB, with the largest number of eligible CDS employees had a response rate of 76.9%, making up over a third of questionnaire responses (34.5%). Cardiff and Vale and Cwm Taf

HBs had a response rate of 73% making up just under quarter of the total questionnaire responses.

Table 2 illustrates the number of respondents by staff role. The largest proportion of responses came from dentists and dental nurses

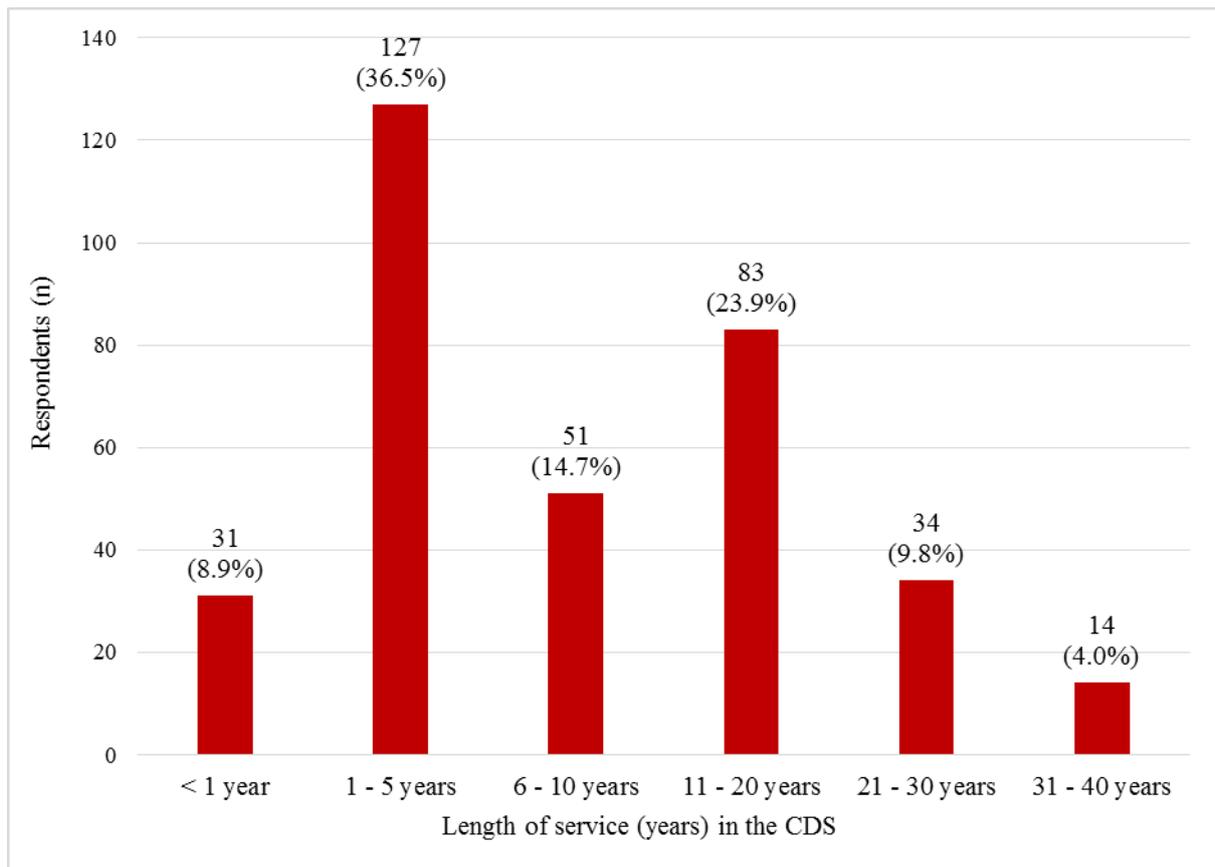
Table 2: Survey responses by staff role

Staff role	Responses (n)	Proportion of overall response (%)
Dentist	99	28.4
Dental Hygienist	7	2.0
Dental Therapist	23	6.6
Dental Nurse	128	36.8
OHE	32	9.2
Support Worker	35	10.1
Other	2	0.6
Manager	9	2.6
Unknown (missing data)	13	3.7
TOTAL	348	100

Responder characteristics

Figure 2 describes respondents' length of service in the CDS.

Figure 2: Survey response by length of service in the CDS (n = 340)



The mean length of time working in the CDS across all HBs was 10 years and 8 months and ranged from 2 months to 44 years' service.

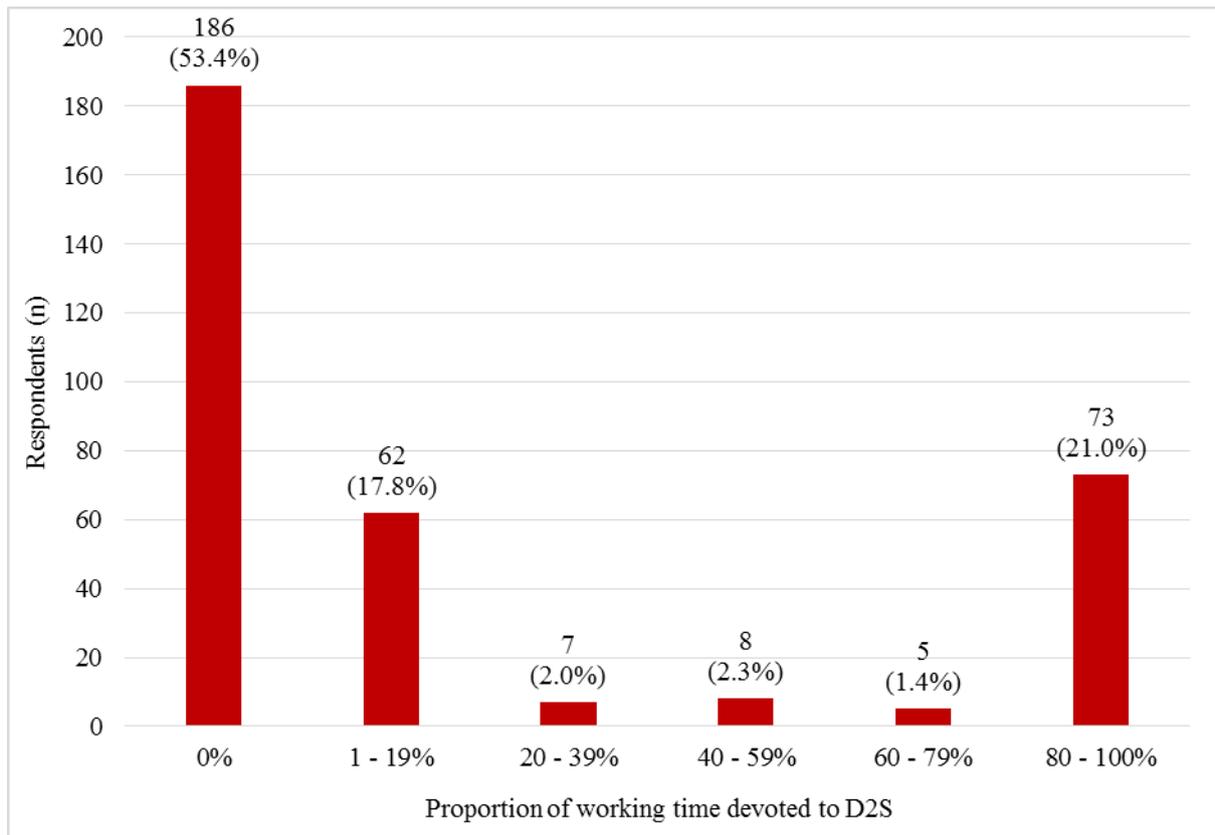
Staff roles were generally equally distributed across length of service categories. Dental therapists (60.9%) and dental nurses (52.3%) had more than 11 years' service. In keeping with the length of time D2S has been running, most of the Support Workers (77.1%) and Oral Health Educators (59.4%) responding stated they had 5 or less years' service.

In total, 41.7% respondents declared that they worked full time while 37.6% worked part time. School term-time contracts, either full time or part time were held by 17% of those taking part in the survey.

Time devoted to the D2S programme

Figure 3 shows the distribution of respondents across percentage categories in relation to the proportion of work time they dedicate to the D2S programme.

Figure 3: Proportion of respondents' time working on D2S (n = 341)



Just over half (53.4%) of respondents indicated that they did not devote any of their working time to D2S. The remaining respondents were mostly made up of those spending between 1 and 20% on D2S and those spending most or all of their time on D2S.

Proportion of working time on D2S by staff role

Figure 4 shows the percentage of respondents working on D2S compared to those who do not devote any of their working time to D2S within each of the staff categories.

For the purposes of the analysis for the report, the D2S working time percentage categories of 1 – 19%, 20 – 39%, 40 – 59%, 60 – 79% and 80 – 100% were collapsed into a single category to describe those spending part, or all of their working time on the programme. Figure 4 also excludes respondents who categorised themselves as ‘other’ as their numbers were so few (n = 2), and because their role was not known and could not therefore be re-categorised into a dental/managerial role or excluded on the basis of ineligibility.

Figure 4: Proportion of staff within each role working on D2S (partly or completely) (n = 330)

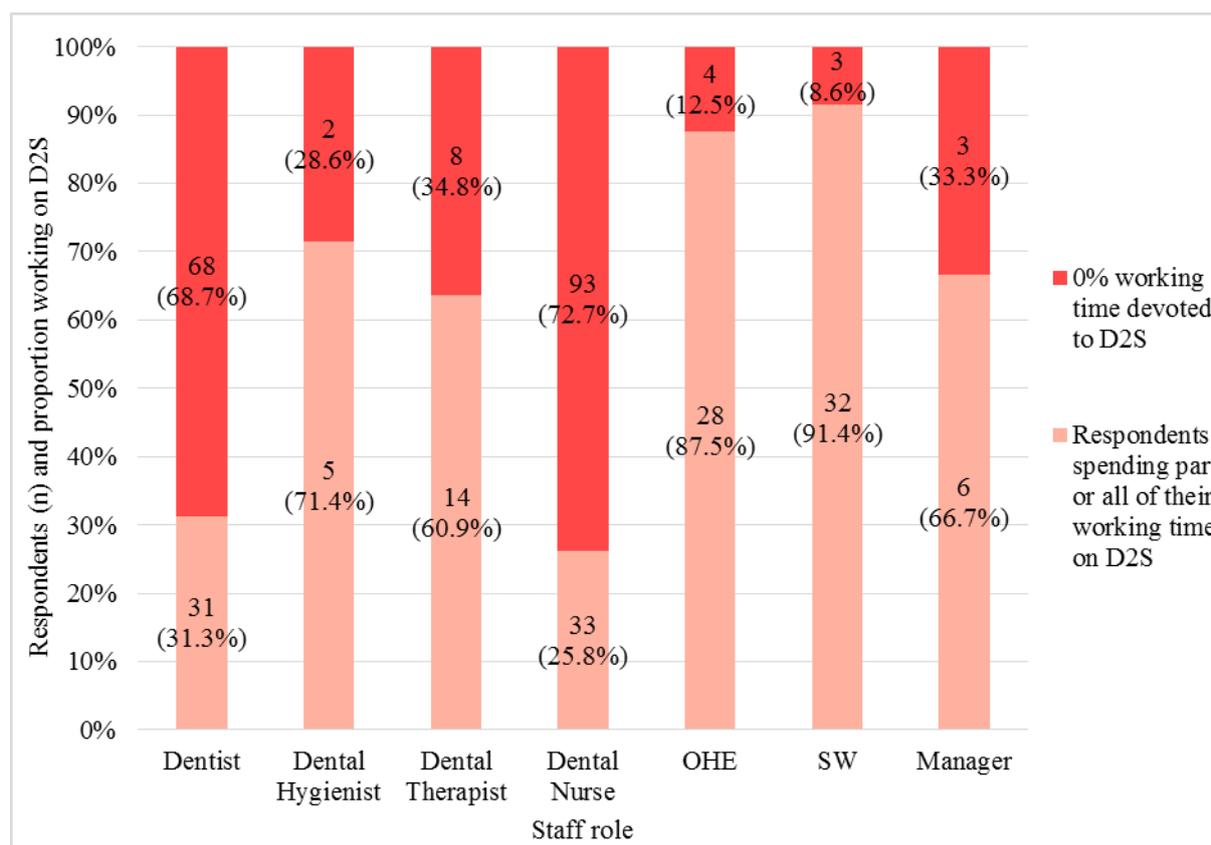


Figure 4 demonstrates that the majority of OHE, SW and dental therapists devote some or all of their working time to D2S whereas a higher proportion of dentists and dental nurses work

away from the programme. Although the numbers of dental hygienists and managers are few, the data suggests that a larger percentage devote some or all of their working time to the D2S programme.

COMMENTARY

There was evidence of good staff engagement with the questionnaire as demonstrated by the response rate of 72.2%.

Powys had the highest response rate by HB. However responses from C&V with Cwm Taf and Betsi Cadwaladr made up large proportions of the overall data set due to their size and population density. Aneurin Bevan HB had the lowest response rate at 55%.

The respondents reflect the overall staff profile of the CDS with the highest proportions of questionnaire returns being from dental nurses and dentists.

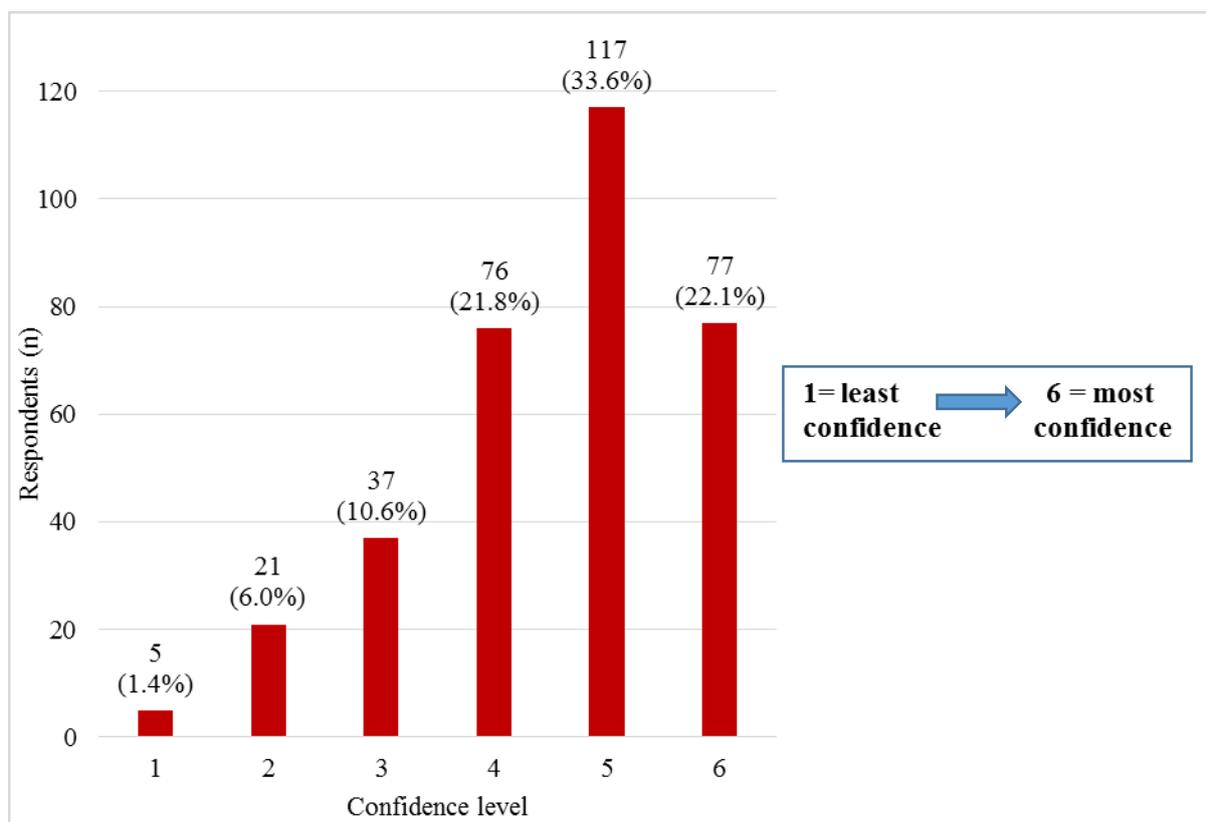
Almost half of the respondents (45.4%) reported working in the CDS for 5 years or less indicating that a substantial proportion of respondents are relatively new to their dental careers in the CDS. Although there was also substantial representation in the questionnaire responses of staff who have been committed to the CDS longer term.

4.2. ATTITUDES TO D2S EVIDENCE BASE AND THE INTENDED OUTCOMES OF D2S

The evidence behind the D2S programme

Using a six-point scale, staff were asked how confident they felt about the evidence base used to design and implement the D2S programme (Figure 5).

Figure 5: Confidence in D2S evidence base (n = 333)



COMMENTARY

As illustrated in Figure 5 the majority of CDS staff have confidence in the evidence base on which D2S is based. This is reassuring and demonstrates that staff believe in the general ethos of the programme of getting the teeth of the most at risk children in Wales in contact with fluoride and of instilling toothbrushing habits in children who would otherwise not brush their teeth regularly.

D2S targets

CDS staff were asked two questions about the overall targets of the D2S programme Figure

6).

Figure 6: D2S programme outcomes

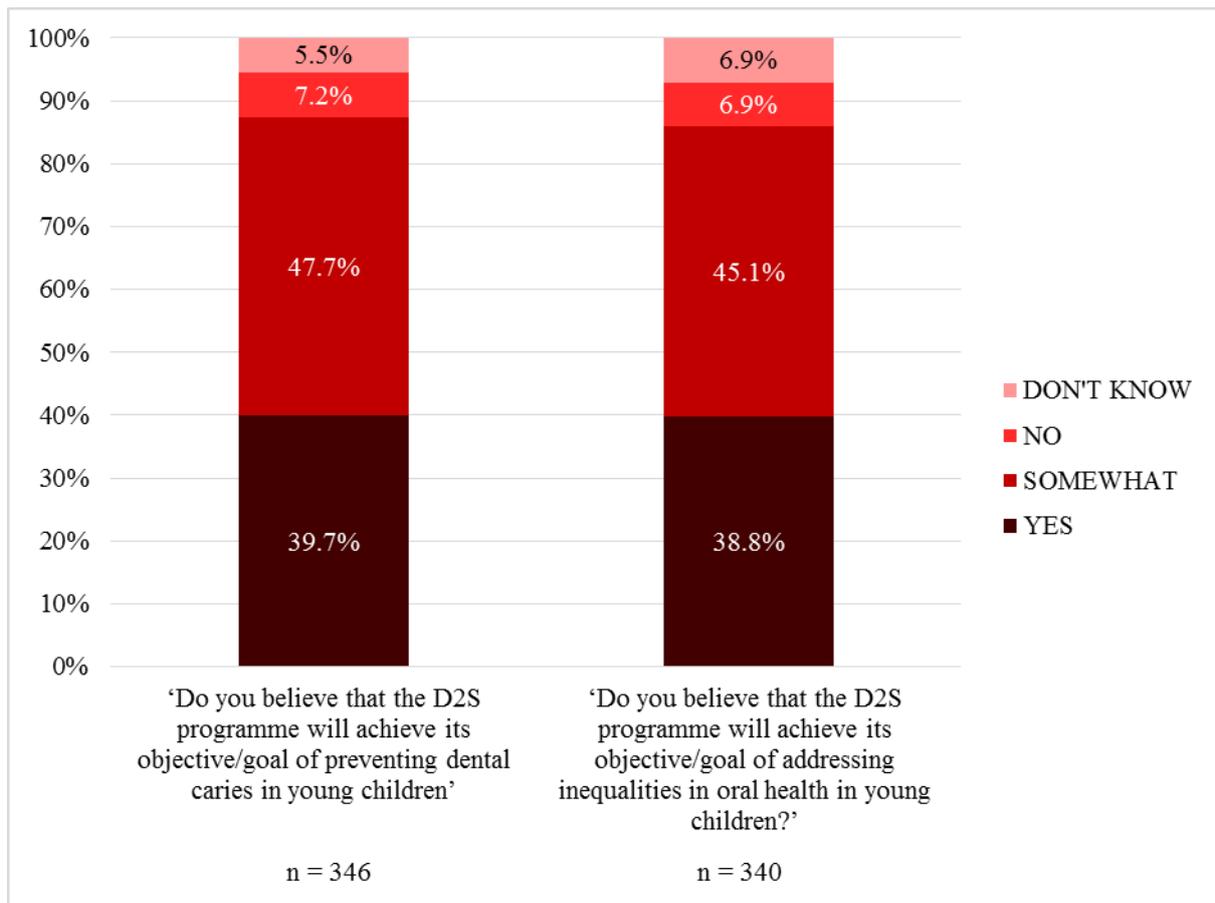


Figure 6 indicates that around 40% of staff believe outright that the D2S programme has achieved its set objectives. A further 45% of staff believe the programme has achieved this in part.

D2S programme focus

In order to explore whether staff felt that the focus and delivery of D2S was enabling programme outcomes to be achieved, staff were asked if they thought toothbrushing as a preventative behaviour, had been encouraged at the expense of other oral health education messages (Figure 7).

Figure 7: The D2S programme has focused on toothbrushing at the expense of oral health education (n = 344)

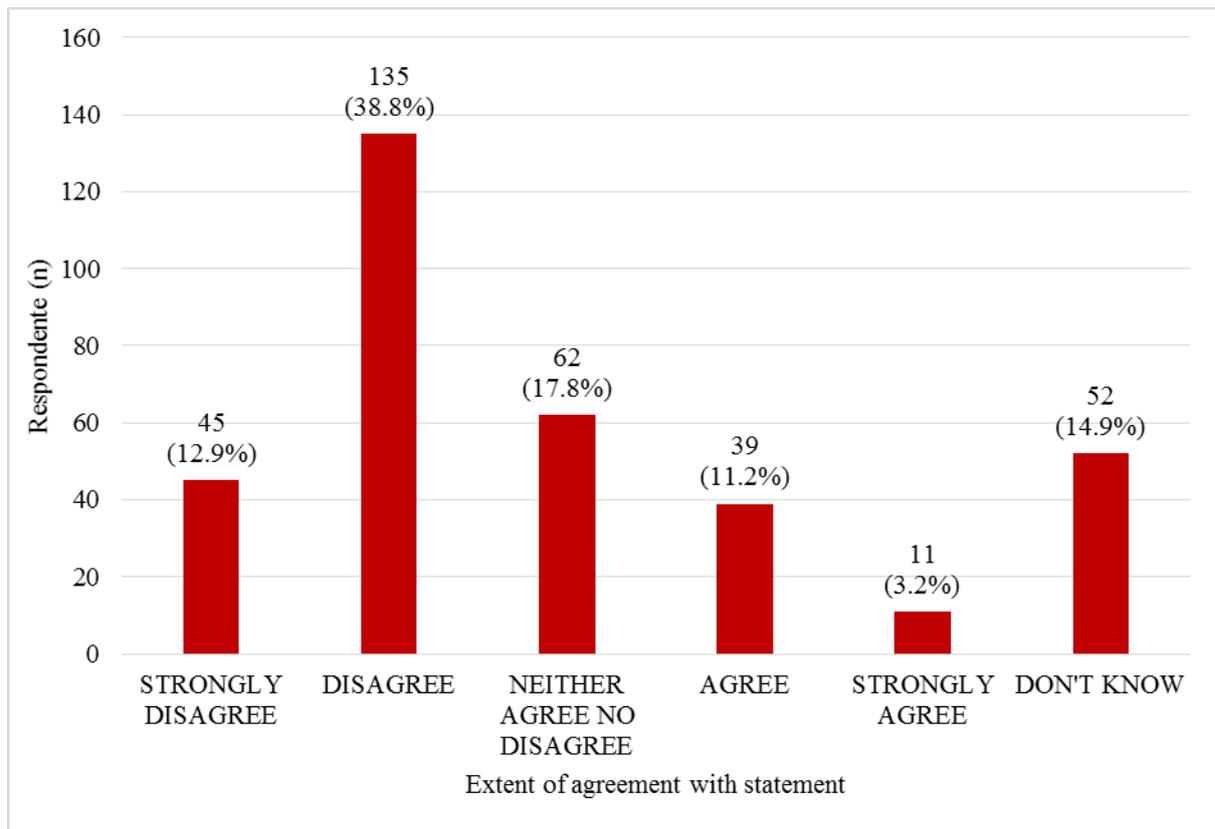


Figure 7: illustrates that just over half of staff (n = 180) disagreed that the programme has focused too heavily on toothbrushing at the expense of other oral health messages. Those agreeing with the statement made up 14.5% of responding staff.

Almost a third (32.7%) indicated they didn't know or had no opinion one way or the other. A cross tabs analysis showed that the majority of those selecting these options did not devote any of their working time to D2S.

COMMENTARY

These results show that more than 80% of CDS staff believe that the D2S programme will achieve its overall objectives of preventing caries and reducing oral health inequalities in young children. However, the most frequent level of agreement to the statements was ‘somewhat’ demonstrating that the degree of effectiveness of the programme has still to be demonstrated. Given that the programme has not been running sufficiently long for its full clinical potential to be evident this is understandable.

The majority of staff disagree that D2S has focused too heavily on toothbrushing at the expense of other oral health education messages, which demonstrate the correct belief that instilling regular toothbrushing is of primacy in the prevention of tooth decay.

4.3. D2S IMPACT ON CHILD DENTAL HEALTH AND HEALTH BEHAVIOURS

Oral health outcomes and behaviour change

CDS staff were asked whether they believed the D2S programme had improved oral health and preventive health behaviours relating to maintaining optimum oral health (Table 3).

Table 3: Perceived impact of D2S on oral health and preventative health behaviours

	Yes n (%)	Somewhat n (%)	No n (%)	Don't know n (%)
<i>Oral hygiene (n = 342)</i>	172 (49.4%)	123 (35.3%)	12 (3.4%)	35 (10.1%)
<i>Levels of dental decay (n = 344)</i>	129 (37.1%)	140 (40.2%)	31 (8.9%)	44 (12.6%)
<i>Cooperation when attending for dental care in clinic (n = 346)</i>	124 (35.6%)	126 (36.2%)	47 (13.5%)	49 (14.1%)
<i>Choosing a diet less likely to result in dental caries (n = 345)</i>	63 (18.1%)	161 (46.3%)	75 (21.6%)	46 (13.2%)

Generally, the pattern of responses varied across the four statements. The majority of respondents agreed that D2S had improved oral hygiene in those participating in the programme. The level of D2S impact on levels of dental decay and clinic cooperation was less clear, as evidenced by greater responses of ‘somewhat’ over responses of ‘yes’. The results indicate there was considerably less certainty in the belief that D2S had made an impact on children’s diet choices.

The distribution of responses varied across the HBs. Within each HB the lowest frequency of negative responses and the highest frequency of positive responses (i.e. ‘yes’ and ‘somewhat’) were from respondents based in Powys HB. Abertawe Bro Morgannwg University HB consistently provided the highest proportion of ‘no’ responses per statement. Those devoting a proportion of their time to D2S consistently gave higher frequencies of positive responses and lower frequencies of ‘no’ responses.

COMMENTARY

The findings reported here suggest that the majority of CDS staff are confident that D2S has had a positive impact on participating children's oral hygiene. Similarly, staff generally appear to agree with the notion that D2S does have an impact on the levels of dental decay and treatment cooperation.

However, the findings indicate that staff may be less sure about the extent to which D2S has affected participating children's diet choices. In the case of diet it is particularly difficult to have anything other than an impression without specifically recording food and drink intake.

The results indicate that those who devote some or all of their working time to D2S tended to agree or agree in part that D2S had a positive impact on children's oral health and preventative dental behaviour.

The distribution of responses varied across HBs. Staff within Powys HB appear more confident of the impact D2S has had on dental health and related behaviours. The HB appearing least assured of the impact of D2S on these parameters was Abertawe Bro Morgannwg University HB.

Implementing D2S education and programme 'spill-over'

Staff were asked to what extent they agreed that the information and behaviours encouraged by the D2S programme had been successfully implemented away from the classroom, and whether these had a knock on effect on those not participating in the programme.

Table 4: Implementing information and adopting behaviour promoted by the D2S programme

	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Don't know n (%)
<i>Children will brush their teeth more frequently at home as a result of taking part in school toothbrushing (n = 346)</i>	6 (1.7%)	59 (17.0%)	76 (21.8%)	142 (40.8%)	49 (14.1%)	14 (4.0%)
<i>The knowledge provided by the D2S programme will be of lifelong benefit (n = 346)</i>	7 (2.0%)	19 (5.5%)	51 (14.7%)	175 (50.3%)	81 (23.3%)	13 (3.7%)
<i>The D2S programme has positive knock-on effects on the oral health of siblings not participating in the programme (n = 346)</i>	5 (1.4%)	31 (8.9%)	88 (25.3%)	149 (42.8%)	48 (13.8%)	25 (7.2%)

The response given most frequently to these statements was 'agree'.

There was over 50% agreement or strong agreement with the statement that D2S promotes more frequent home toothbrushing and just over 55% agreement or strong agreement that D2S has a positive impact on the dental health of siblings not participating in the programme. With almost three quarters of staff selecting 'agree' and 'strongly agree' the level of agreement was considerably higher to the statement suggesting that knowledge provided by the D2S programme would be of future benefit to the children participating in the programme.

Of the three statements above, the level of disagreement was highest (18.7%) in response to the statement concerning D2S's role in promoting more frequent home toothbrushing.

The statement that the D2S programme had positive knock-on effects for siblings not participating in the programme gleaned more frequent responses of ‘neither agree nor disagree’ and ‘don’t know’ than the other statements.

Staff who declared they did not devote any time to D2S provided more frequent responses of ‘disagree’ and agreed less frequently with the statements in comparison to the cohort of staff who devote some of their working time to the D2S programme.

The distribution of responses varied across considerably among the HBs. Within each HB the lowest frequency of negative responses and the highest frequency of positive responses (i.e. ‘yes’ and ‘somewhat’) were from respondents based in Powys HB. Abertawe Bro Morgannwg University HB consistency provided the highest proportion of ‘no’ responses per statement.

Of the surveyed HBs, staff in Abertawe Bro Morgannwg University HB were least likely to agree and most likely to disagree with the statements.

COMMENTARY

A key issue for the D2S programme is the extent to which the initiation of toothbrushing in school will impact on oral health behaviours at home and other possible “knock-on” effects. In total 55% of respondents agreed that the programme would encourage toothbrushing at home with a further 21% uncertain as to whether this would be the case. With only 19% disagreeing that the D2S programme will have positive effects on home toothbrushing, it appears that there is a general belief amongst CDS staff of the positive effect of the programme on home-brushing.

The vast majority of surveyed staff indicated they are confident that the knowledge imparted by D2S will be of lifelong benefit to participating children. There was also majority support for the idea that the programme may have knock on effects for siblings.

The impact of in-school toothbrushing on home habits

One of the aims of D2S is to normalise the habit of toothbrushing. Toothbrushing in the classroom as part of the D2S programme is not only undertaken to improve day-to-day oral health but to instil toothbrushing habits in the children. In theory, the repetitive nature of in-school toothbrushing through the programme should promote the habit at home. However, as toothbrushing via the D2S programme is conducted in a school context the success in the transference of this habit to the home is known to have been debated by CDS staff (amongst others). In order to explore this more systematically staff were asked whether they thought in-school toothbrushing had improved the frequency of brushing in the home (Figure 8).

Figure 8: Partaking in school toothbrushing encourages brushing at home (n = 346)

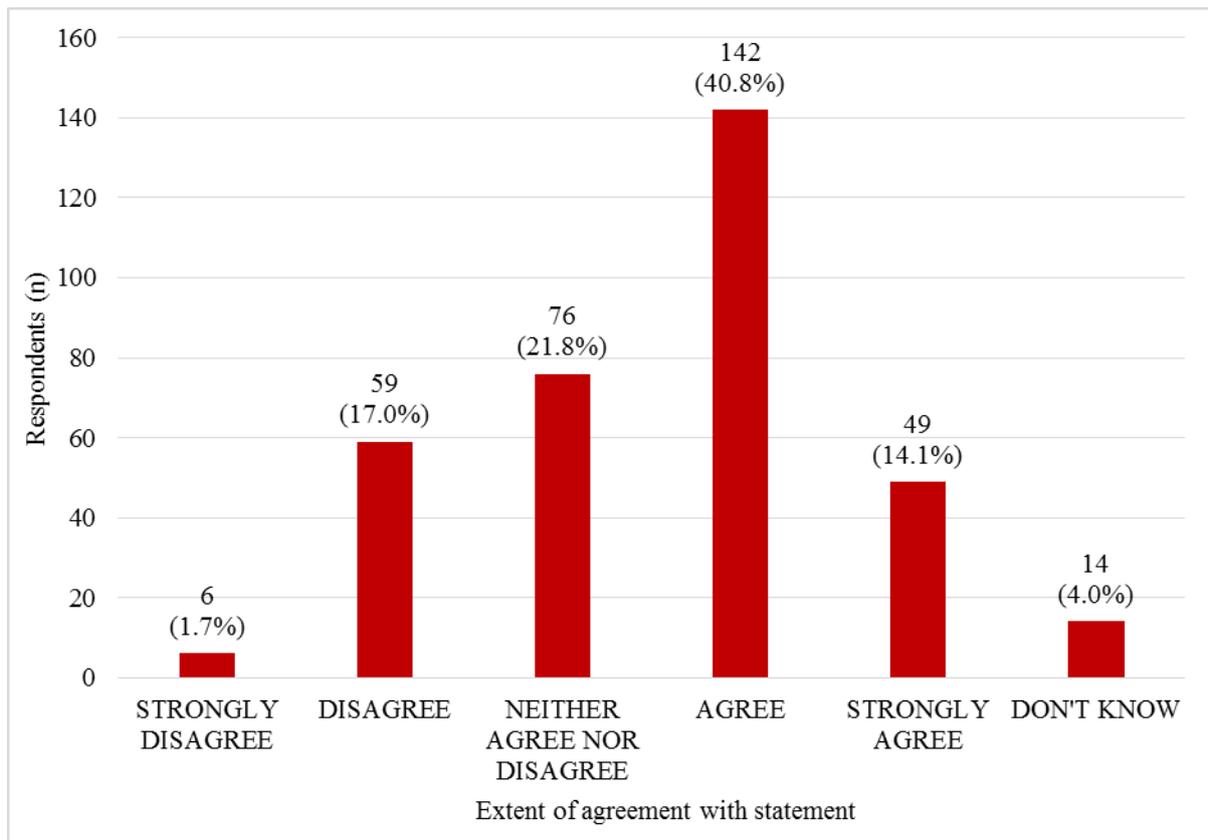


Figure 8 shows that over half of staff agree or strongly agree that brushing in school through the D2S programme has increase brushing frequency in the home. Almost a fifth of staff disagreed or strongly disagreed with this and a further fifth responded by neither agreeing nor disagreeing with the statement.

A crosstabs analysis indicated that staff not working on D2S gave more frequent responses of disagreement with the assertion that children will brush their teeth more frequently at home as a result of school toothbrushing. This cohort of staff were also twice as likely as those working on D2S to state they neither agreed nor disagreed with the statement.

COMMENTARY

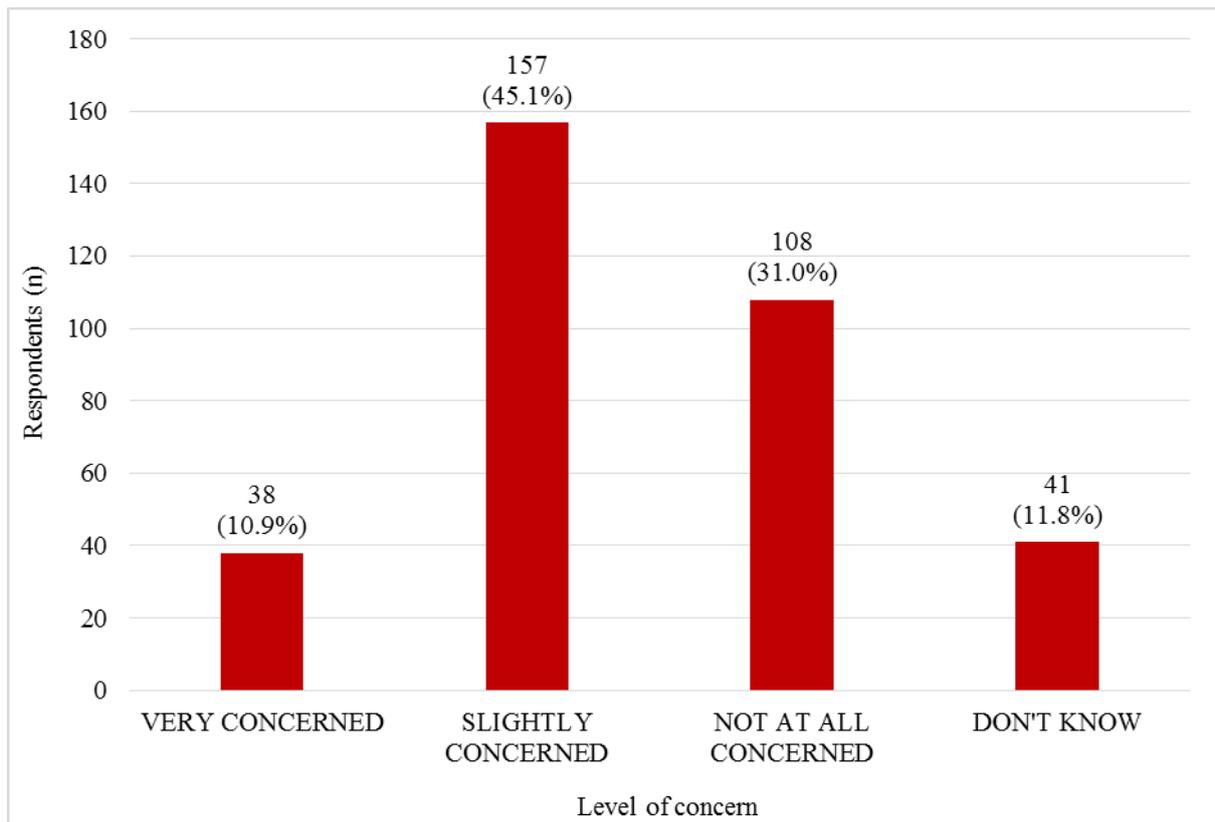
The proportion of staff in agreement with the statement that school toothbrushing has increased the frequency of home toothbrushing is higher than those disagreeing or giving no opinion in response to this statement. However, the proportion of staff disagreeing (18.7%) or neither agreeing nor disagreeing with the statement (21.8%) is not negligible and indicates that some staff are not confident that children's home toothbrushing habits have improved.

There is a clear difference in the levels of confidence regarding the impact of D2S on toothbrushing habits between D2S staff and those not working on the programme. The majority of those disagreeing with the statement were staff not working on the programme.

Clinical concerns about the D2S treatment programme

There have been some anecdotal concerns that fissure sealants applied through the D2S treatment programme may encourage hidden caries. In order to explore whether this was a concern for those working across the CDS, staff were asked how concerned they were that pit and fissure sealants applied under the D2S programme might promote the development of hidden caries (Figure 9).

Figure 9: Level of staff concern that fissure sealants encourage hidden caries (n = 344)



The results show that over half of respondents (56%) indicated that they were at least slightly concerned that hidden caries can develop under fissure sealants.

The distribution of responses was different between those working (at least in part) on the D2S programme and those that do not devote any working time to D2S.

The most commonly held response from those not working at all on D2S was 'slightly concerned' (n = 94) and proportionately, twice as many staff from this cohort stated they were 'very concerned' in response to the question. The distribution of responses was different

from those working (at least in part) on the D2S programme with almost equal numbers stating they were not at all concerned (n = 67) and slightly concerned (n = 59).

COMMENTARY

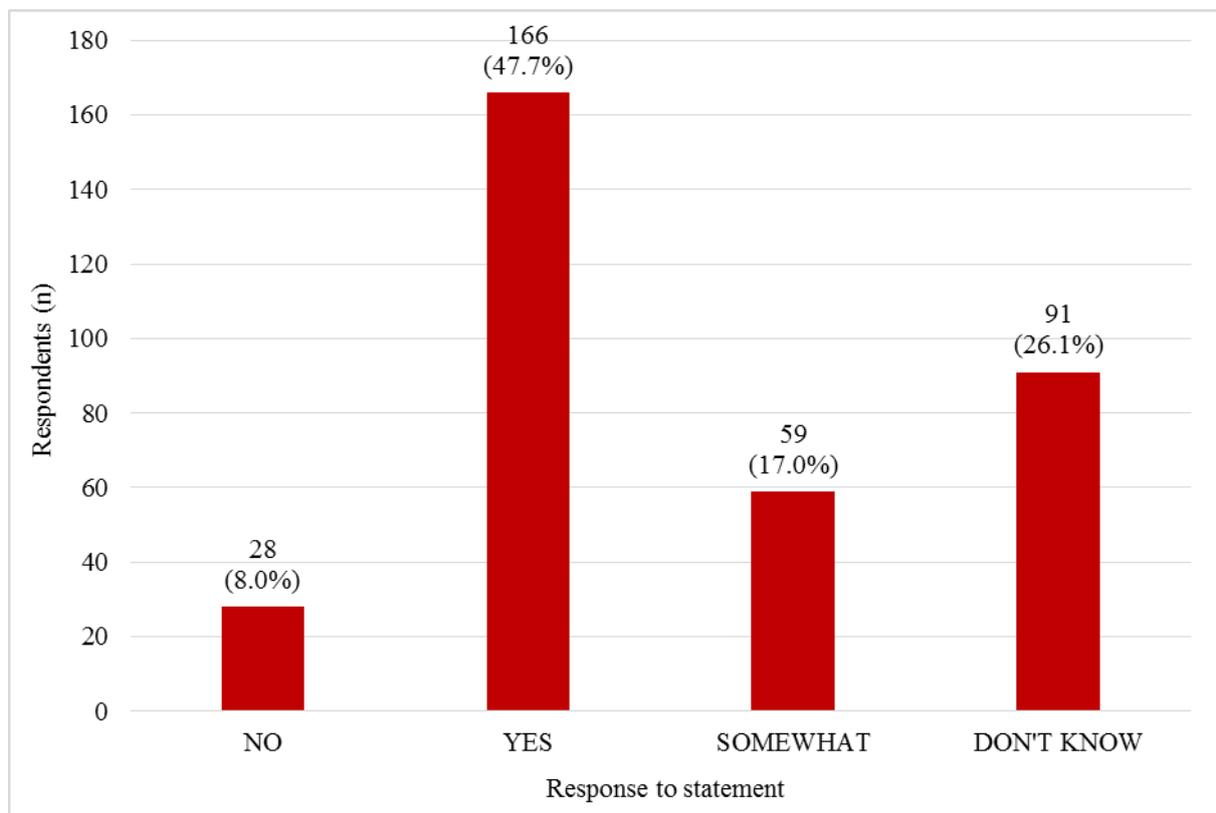
There is obviously some concern from CDS staff that fissure sealants may mask hidden caries. A recent systematic review¹⁰ has shown that if properly applied, there is no evidence of caries progression underneath sealants. That this long standing concern persists amongst CDS staff needs to be addressed.

4.4. PARENTS AND THE D2S PROGRAMME

Parental awareness of D2S

When the D2S programme was initially rolled out across Wales there were some anecdotal reports that parents were unsure what the programme was about. In order to explore whether parents are now better informed about the components of the programme staff were asked if they thought parents were receiving adequate information about D2S (Figure 10).

Figure 10: Parents are adequately informed about the D2S programme (n = 344)



The results show that just under half of staff (47.7%) agreed that parents understood the aims and objectives of the programme, and were aware of the OHE (and treatment) their child would be receiving as part of the programme. A further 17% agreed that parents were somewhat informed on the elements of D2S.

Attending the dentist

The data in Figure 11 illustrates the extent to which staff agree that parents of D2S children are aware of what is expected from them with regards to their child's dental health.

Figure 11: Parents of D2S children are clear that they need to continue to attend their usual source of dental care (n = 345)

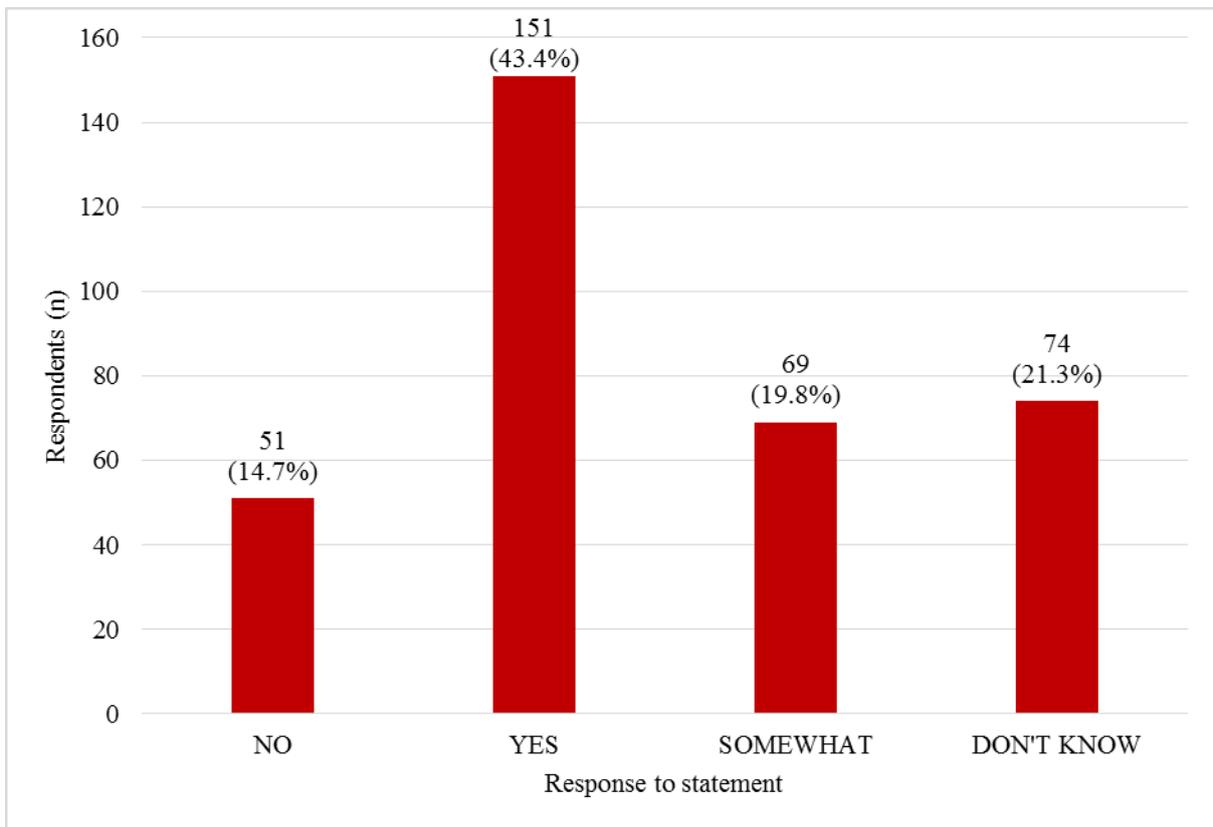
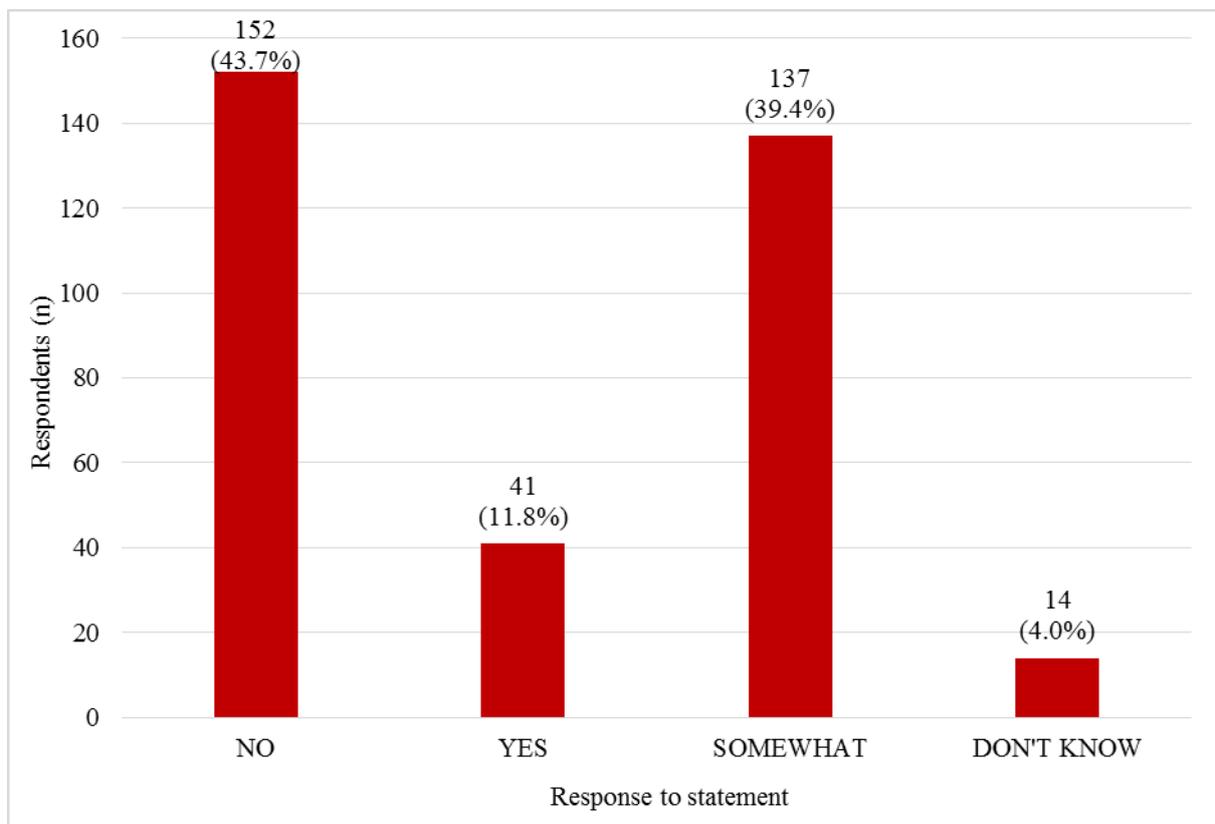


Figure 11 shows that just over two fifths (43.4%) of staff agreed that parents of D2S children are aware that they still need to bring their children to visit their usual dentist. A further fifth agreed with this statement to some extent.

Responsibility for child dental health

Staff were asked whether they agreed that parents should take full ownership for their child's toothbrushing habits (Figure 12).

Figure 12: Toothbrushing is a parental responsibility and should be left totally to parents (n = 344)



Over 80% disagreed at least to some extent that the responsibility of toothbrushing should be left completely to parents. Only 4% of staff felt they did not know whether toothbrushing should be totally left to parents.

There was very little difference in the distribution of responses from those working on D2S compared to non-D2S staff.

COMMENTARY

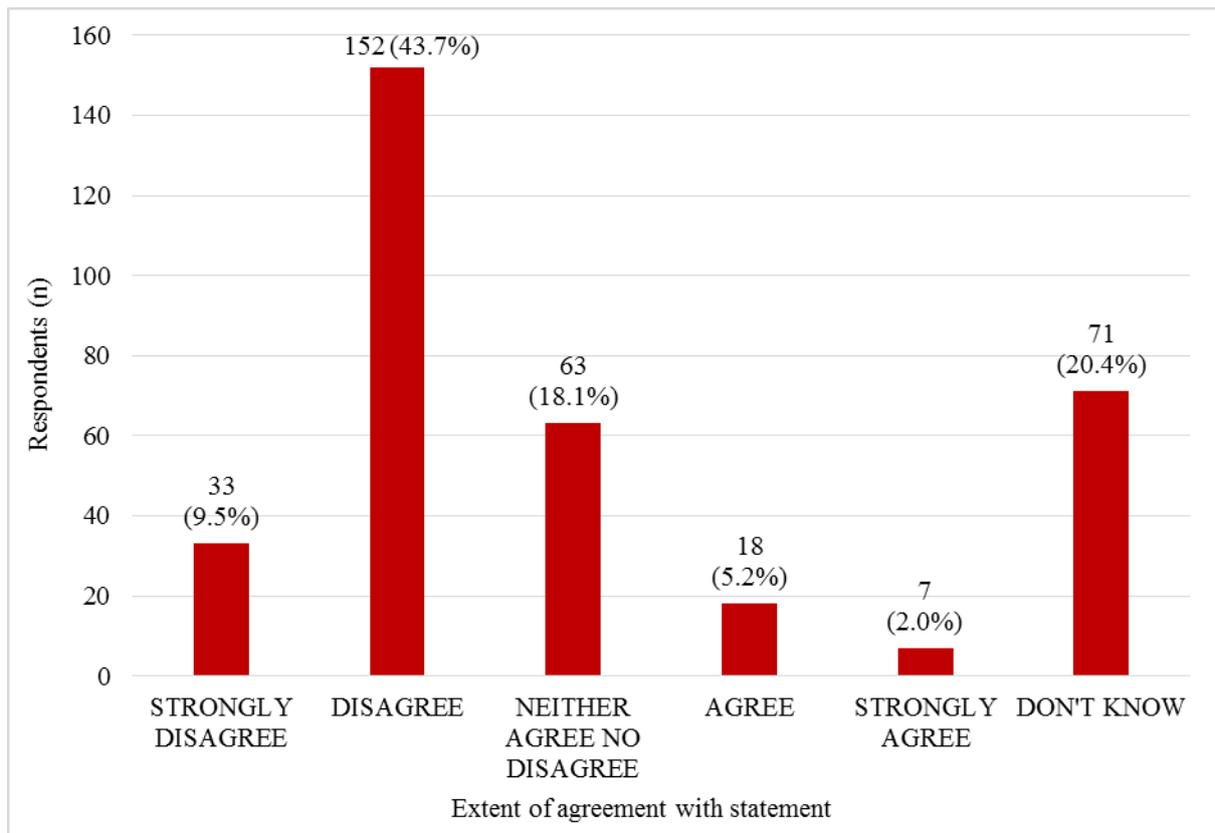
In light of the efforts made to increase parental engagement it is encouraging that only a very small proportion (8%) of staff felt that parents were not informed with regards to the programmes purpose and content.

Over 80% disagreed at least to some extent that the responsibility of toothbrushing should be left completely to parents. Only 4% of staff felt they did not know whether toothbrushing should be totally left to parents. The low level of uncertainty in response to this question sets it apart from the other patterns of response in the questionnaire. However, the fact that the overwhelming majority replied with an opinion on this matter is unsurprising: CDS staff see the outcome of inadequate toothbrushing in their patients every day and recognise that in the most at risk children leaving toothbrushing totally to parents will result in inadequate adoption of a sufficiently frequent toothbrushing habit.

Perceived impact of D2S treatment on toothbrushing habits

The data in Figure 13 describes the extent to which staff perceive that parents view preventative treatment (such as fluoride varnish application) in itself to be a substitute for daily oral care.

Figure 13: Do parents view fluoride varnish as an alternative to toothbrushing? (n = 344)



The majority of staff (53.2%) disagreed that parents of D2S children view fluoride varnish treatment as an effective alternative to brushing their child's teeth. A very small proportion (7.2%) of staff agreed with the notion that parents view fluoride varnish application on their child's teeth as a substitute for toothbrushing. A fifth of staff felt they did not know whether this was the case and almost a fifth believed they could not agree with the statement one way or the other.

COMMENTARY

It is reassuring that less than a tenth of staff believe parents view fluoride varnish as an alternative to toothbrushing. As fluoride varnish treatment is generally supported by dental professionals as an effective method of maximising fluoride contact with children's teeth, hence helping to prevent caries, the majority opinion that it does not compromise habitual oral health practices is encouraging.

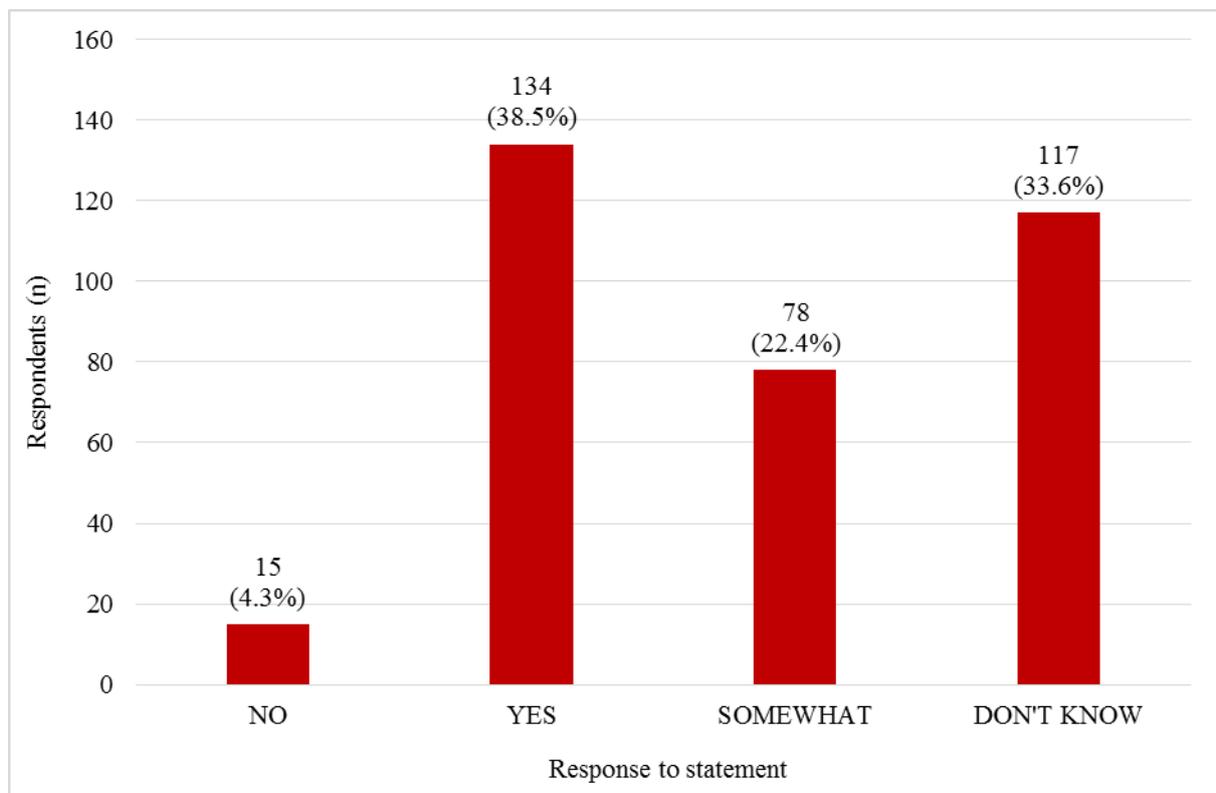
However, almost 40% of staff either felt they did not know how to respond or felt could not respond with a decisive view on the matter, or indicated that they did not have an opinion either way. Although CDS and D2S staff often see inadequate oral hygiene as a result of poor toothbrushing habits, they may not have enough direct evidence of parental attitudes to fluoride varnish to respond with an opinion to this statement.

4.5. THE IMPACT OF D2S ON SCHOOLS

The impact of D2S on the school environment

Staff were asked whether they believed the D2S has had a wider positive impact on the school environment.

Figure 14: Staff opinion on whether the D2S programme has impacted positively on the school environment (n = 344)



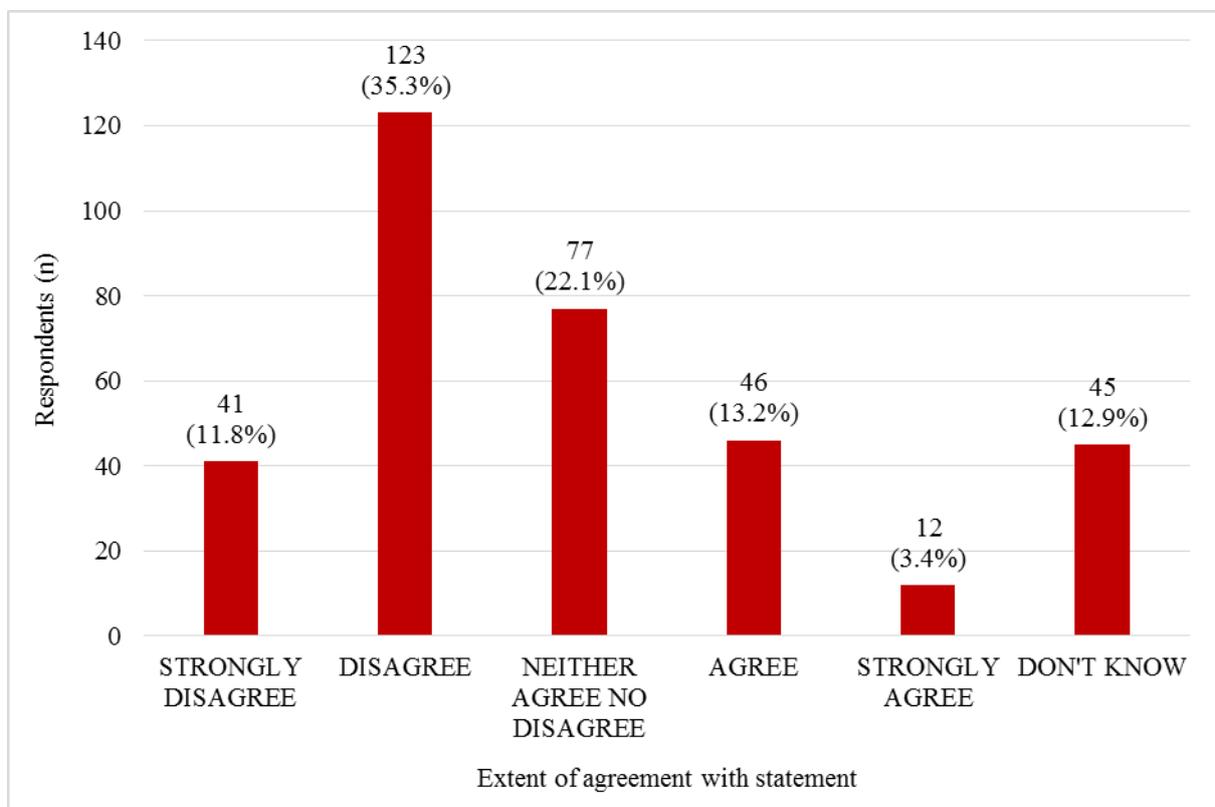
The data presented in Figure 14 shows that the majority (60.9%) of staff agree at least in part, that the D2S programme has benefited the school environment. A third of staff indicated they did not know whether this has been the case.

Over half (51.1%) of the cohort of staff who do not work on D2S indicated that they were unsure whether the D2S has had a positive impact on the school environment. Two fifths of this cohort agreed that participation in D2S had a positive impact or at least a partially positive impact on the school environment.

Over 80% of those working partly or completely on D2S indicated that they believed participation in D2S had a positive impact (60.6%) or at a partially positive impact (21.3%) on the school environment.

The impact of D2S on school staff

Figure 15: The extent to which staff agree that the D2S programme has been burdensome on teaching staff (n = 344)



Almost half of respondents either disagreed or strongly disagreed that the D2S programme had a burdensome impact upon teaching staff. Just under a fifth of respondents stated they agreed or strongly agreed that the D2S programme poses too much of a burden on teaching staff. A fifth of staff did not agree one way or the other.

The majority (66.5%) of staff who declared some or all of their working hours are committed to D2S disagreed or strongly disagreed that the programme imposed a burden on teaching staff. Within this cohort 13.5% agreed with the statement compared with 19.4% of those who stated they did not work on D2S.

The frequency of responses was more spread out in those not working on D2S. The most frequent responses from those not working on D2S was ‘neither agree nor disagree’ (n = 54) and ‘disagree’ (n = 49).

COMMENTARY

The question of whether the D2S programme imposes a burden on school staff arises frequently. From this it is clear that the majority of the CDS staff do not view this to be the case. This complements earlier work on the evaluation of D2S where a survey of school staff was supportive of the programme.⁷

4.6. CDS RESOURCES

Allocation of CDS resources

Table 5 shows the extent to which staff agree that resources have been suitably allocated within the CDS.

Table 5: Distribution of CDS resources and perceived impact of resource allocation

	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Don't know n (%)
<i>Promotional materials designed to support D2S have had a wider benefit for the CDS as a whole (n = 345)</i>	7 (2.0%)	18 (5.2%)	72 (20.7%)	166 (47.7%)	64 (18.4%)	18 (5.2%)
<i>Too many resources have been devoted to the D2S programme (n = 344)</i>	55 (15.8%)	107 (30.7%)	92 (26.4%)	50 (14.4%)	15 (4.3%)	25 (7.2%)

The table above shows that two thirds of respondents agreed or strongly agreed with the proposition that D2S promotional materials have had a wider benefit for the CDS as a whole.

Of those surveyed, just under half (46.6%) disagreed or strongly disagreed that too many CDS resources had been devoted to D2S. Just over a quarter of respondents stated they neither agreed nor disagreed with this statement.

Examining the data within the HBs, Powys HB agreed most frequently to the first two statements and disagreed most frequently to the third statement. The percentage of agreement with the first two statements, and disagreement with the third statement was highest from Abertawe Bro Morgannwg University HB respondents.

Staff who declared they spent part or all of their working time on the programme agreed with the first two statements slightly more frequently than those who declared they did not devote any of their working time to D2S. Proportionally, those working part or all of their time to D2S were twice as likely to disagree with the statement that too many resources had been devoted to D2S.

COMMENTARY

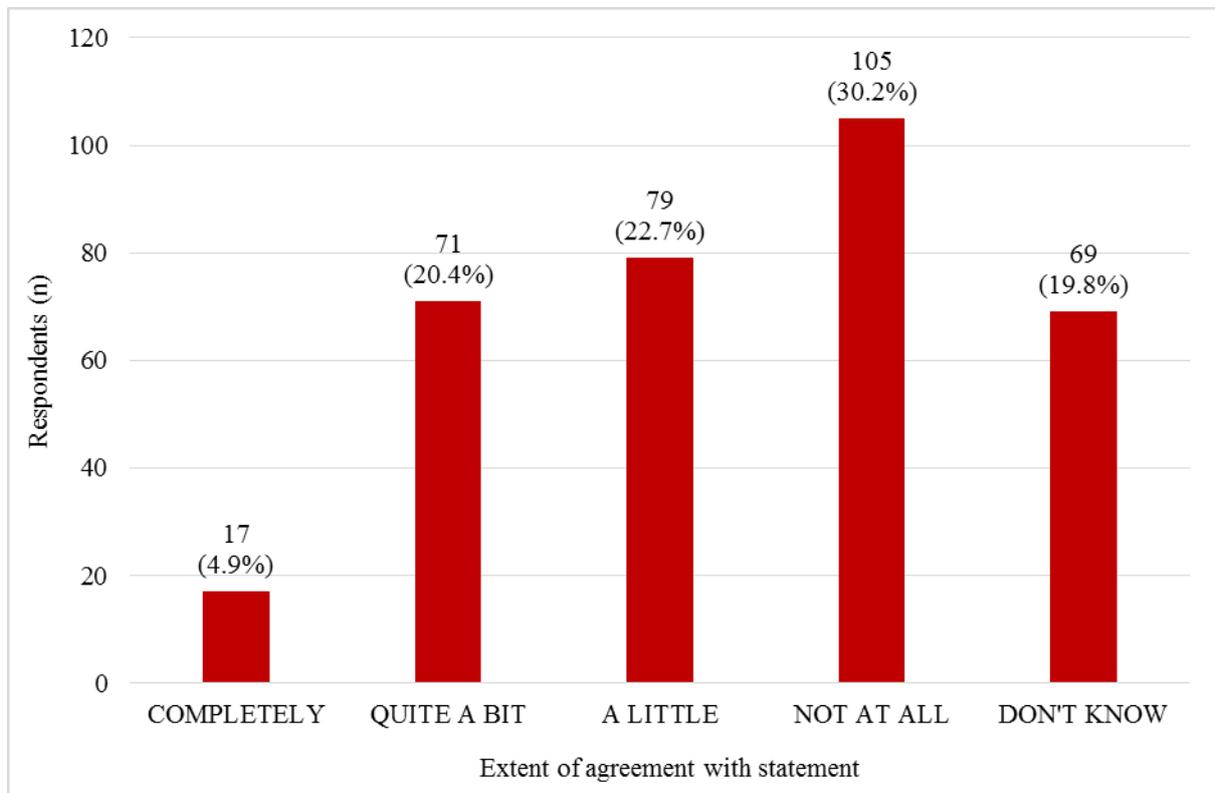
The responses to these questions demonstrate that the majority of CDS staff are of the view that materials designed to support the D2S programme have had a wider impact on the CDS as a whole.

About one in five of the respondents are of the view that too many resources have been devoted to the D2S programme, and unsurprisingly this view was more prevalent in CDS staff not having any direct link to D2S.

The impact of oral health promotion

In keeping with the theme of the question outlined in Table 5 staff were asked about the extent to which they believed health promotion programmes such as D2S had been supported at the expense of CDS clinical resources (Figure 16).

Figure 16: The extent to which staff believe that CDS resources have been compromised by child dental health promotion (n = 341)



The most frequent response to the suggestion that health promotion activities such as D2S had compromised CDS clinical resources was ‘not at all’. However, the data was generally more uniform in distribution, with the exception of those responding ‘completely’, who made up only 5% of the responses to this question.

Almost half of respondents (48.0%) believed that CDS resource allocation had been compromised at least a little by health promotion activities.

Within the HBs the HB with the highest proportion of those responding ‘not at all’ was Betsi Cadwaladr. Hwyl Dda HB had the highest percentage of ‘completely’ and ‘quite a bit’ responses.

With the exception of those responding ‘completely’, the numbers of responses were quite evenly distributed for those not working on D2S. The most frequent response from those working partly or completely on D2S was ‘not at all’ (n = 66) which made up 40% of the responses from this cohort.

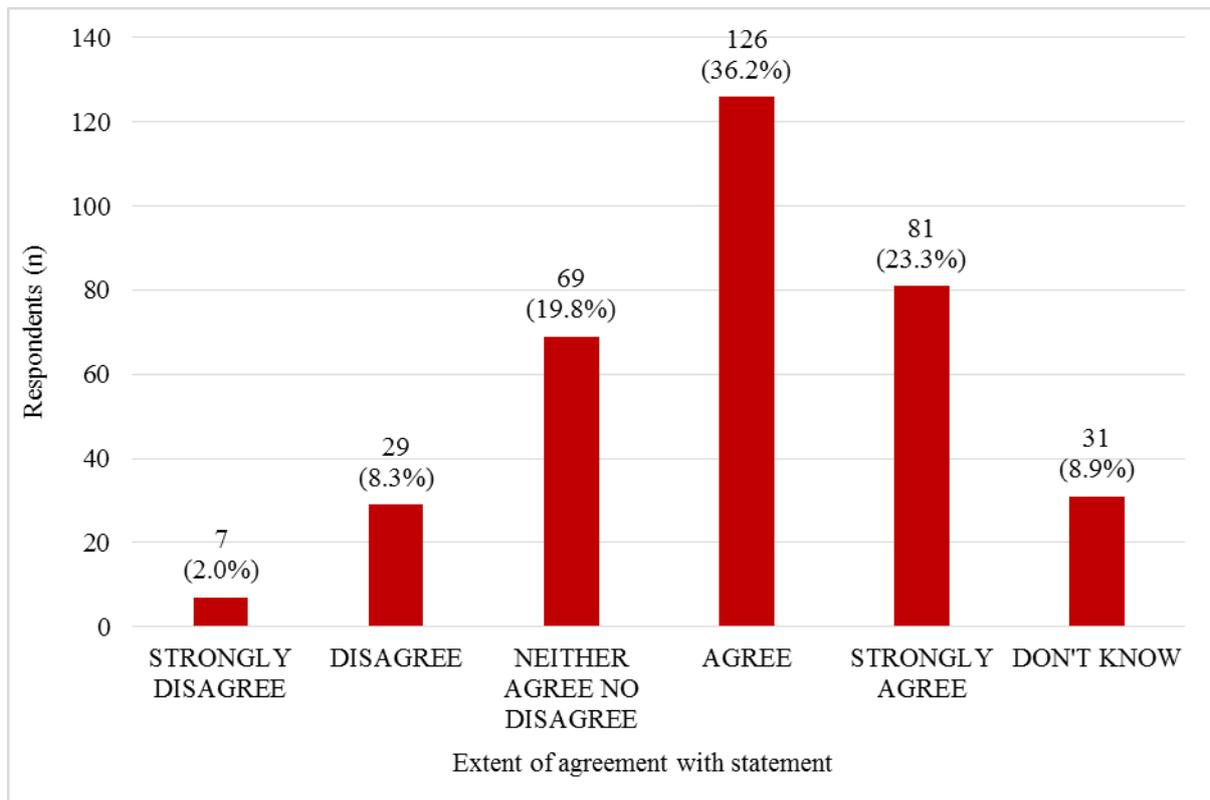
COMMENTARY

A potential tension in the CDS is the perception that a disproportionate amount of resources have been devoted to the D2S programme. The responses to this question demonstrate that there is quite a degree of equivocation on this subject amongst CDS staff, with responses predictably being divided between staff working on D2S and other CDS staff. However only 17 staff were of the view that oral health promotion activities had completely compromised CDS resources.

Is D2S a good use of public money?

Figure 17 shows the extent to which staff believe the D2S programme is a good use of tax payers’ money.

Figure 17: The extent to which staff agree that D2S is an effective use of tax revenue (n = 343)



The bar chart above shows that the majority (59.5%) of those responding agreed or strongly agreed that the D2S programme was a good use of taxpayers' money. A tenth of those responding disagreed that D2S was a good use of public money. A fifth (n = 69) of those responding felt they could neither agree nor disagree with the statement.

4.7. SERVICE INTEGRATION

Community dental service integration

Staff were asked whether they consider the D2S programme to be integrated with the CDS.

Table 6: Do staff agree that D2S is well integrated with the CDS

	Yes n (%)	No n (%)	Don't know n (%)
<i>The D2S programme is well integrated with CDS treatment services (n = 342)</i>	184 (52.9%)	108 (31.0%)	50 (14.4%)
<i>There are clear pathways for communication between the D2S programme and the CDS treatment services (n = 342)</i>	171 (49.1%)	106 (30.5%)	63 (18.1%)

Half of those questioned agreed with the statements outlined in Table 6. Almost a third of respondents disagreed with the statements.

Looking at the results by D2S working patterns, the distribution of responses for each cohort were remarkably similar. Of those who declared they did not spend any of their working time on D2S, responses of yes and no made up over three quarters of this cohort's response and were equally distributed in response to both of the statements. This cohort also gave responses of 'don't know' twice as frequently as those working all or part of their time on D2S.

The pattern of responses was different in those who spend part or all of their working time on D2S. Around 70% of responses from this cohort were 'yes' and around a quarter of respondents responded 'no'.

Support Workers and Oral Health Educators agreed with the statements more frequently than other staff types. Dentists and dental therapists disagreed with the statements more frequently than respondents in other roles.

Powys and Betsi Cadwaladr HBs had the highest levels of agreement to these statements.

Staff at Aneurin Bevan HB were more likely to disagree with the pathways statement than

agree. Hwyl Dda and Abertawe Bro Morgannwg University HB gave more responses of

‘no’ than ‘yes’ to the integration statement.

COMMENTARY

These data suggest that there is scope to improve the lines of communication between D2S and CDS treatment services.

The staff were also asked the extent to which they thought the D2S programme and the CDS treatment services work as a unified service and whether those working on D2S have the opportunity to maintain their clinical skills (Table 7).

Table 7: The extent to which staff believe that the D2S programme and the CDS are a unified service

	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Don't know n (%)
<i>The D2S programme is now an integral part of the CDS activity (n = 343)</i>	17 (4.9%)	54 (15.5%)	58 (16.7%)	140 (40.2%)	56 (16.1%)	18 (5.2%)
<i>The CDS and D2S teams are closely integrated (n = 342)</i>	16 (4.6%)	90 (25.9%)	83 (23.9%)	104 (29.9%)	32 (9.2%)	17 (4.9%)
<i>Nursing staff working on D2S have sufficient opportunity to maintain their clinical competencies (n = 341)</i>	23 (6.6%)	57 (16.4%)	72 (20.7%)	78 (22.4%)	23 (6.6%)	88 (25.3%)

The pattern of responses were different across the three statements.

Generally, staff agreed more with the notion that the D2S programme was an integral part of CDS activity than with the assertion that CDS and D2S teams are closely integrated, which received fewer responses of agreement and higher levels of disagreement.

The most frequent response to the statement concerning opportunities for D2S dental nurses to maintain their clinical skills was 'don't know'. This statement also gleaned lower levels of agreement compared with the other two statements.

COMMENTARY

These data suggest a range of views on the degree to which D2S is viewed as an integral component of the CDS.

Links with non-dental health professionals

Staff were asked if they knew of non-dental health professionals linking with D2S in their area.

Table 8: D2S links with non-dental health professionals

	Yes n (%)	Somewhat n (%)	No n (%)	Don't know n (%)
Health visitors (n = 345)	136 (39.1%)	40 (11.5%)	6 (1.7%)	163 (46.8%)
Midwives (n = 344)	32 (9.2%)	39 (11.2%)	52 (14.9%)	221 (63.5%)
Teachers (n = 344)	198 (56.9%)	55 (15.8%)	4 (1.1%)	87 (25.0%)
Nursery staff (n = 344)	187 (53.7%)	42 (12.1%)	5 (1.4%)	110 (31.6%)
GPs (n = 341)	8 (2.3%)	34 (9.8%)	86 (24.7%)	213 (61.2%)
School nurses (n = 344)	120 (34.5%)	66 (19.0%)	13 (3.7%)	145 (41.7%)
'Healthy Schools' representatives (n = 343)	127 (36.5%)	40 (11.5%)	7 (2.0%)	169 (48.6%)
Dietitians (n = 345)	57 (16.4%)	47 (13.5%)	29 (8.3%)	212 (60.9%)

Table 8: summarises the responses amassed from a question where staff were asked whether they believed non-dental HPs link with the D2S programme in the areas within the HBs across Wales.

The most frequent response to whether teachers and nursery staff link with the D2S programme was 'yes'. The most frequent response to the other health professionals in Table 8: was 'don't know'.

COMMENTARY

Clearly it is desirable that health promotion activities are linked with other health professionals and health improving activities. The degree to which the D2S programmes is perceived to link with other health care professionals varies. However, in interpreting these results it should be remembered that many CDS staff may not be in a position to know of the degree of such links and probably accounts for the relatively high 'don't know' responses to this question.

D2S programme integration with the General Dental Service

Figure 18 shows how staff responded to a statement suggesting the D2S programme is well integrated with GDS treatment services in their area.

Figure 18: Do staff believe that the D2S programme in their area is well integrated with the GDS (n = 343)

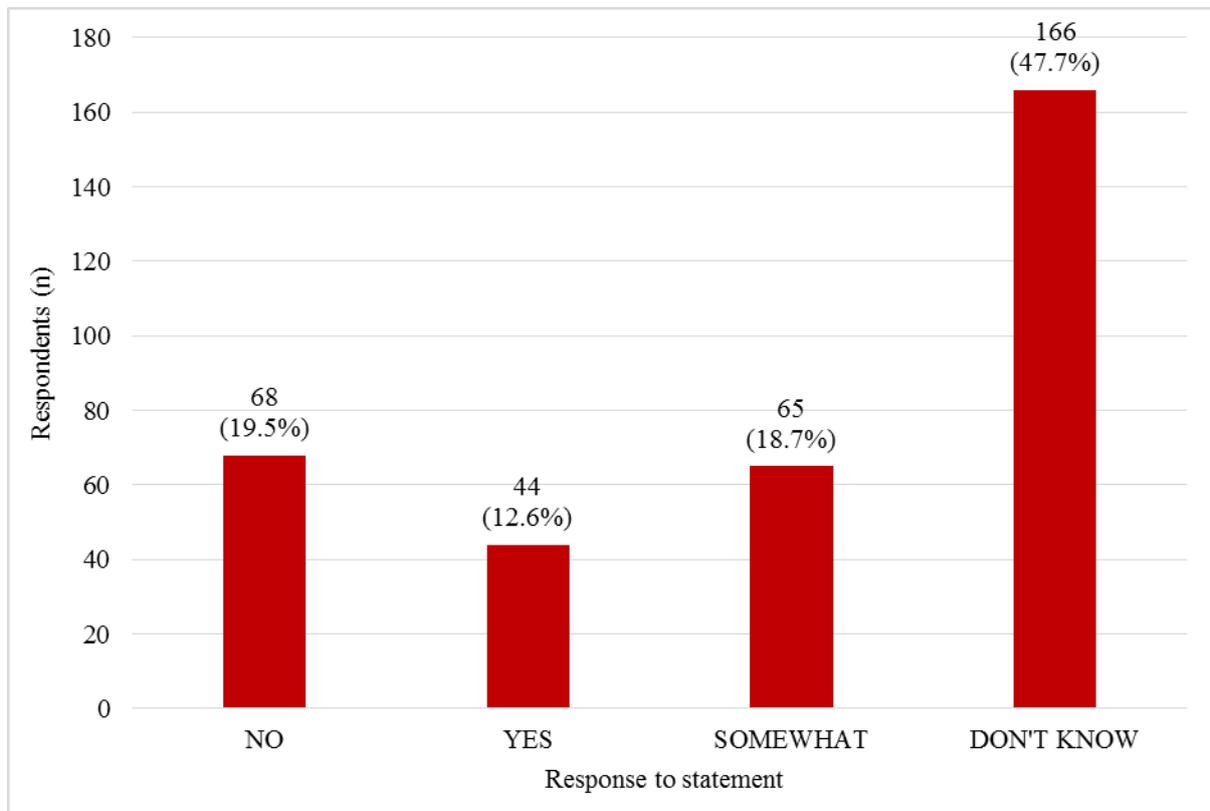


Figure 18 indicates that almost half of staff didn't know whether the D2S programme is integrated with the GDS in their area. Almost a third of respondents agreed that the services are integrated to some extent.

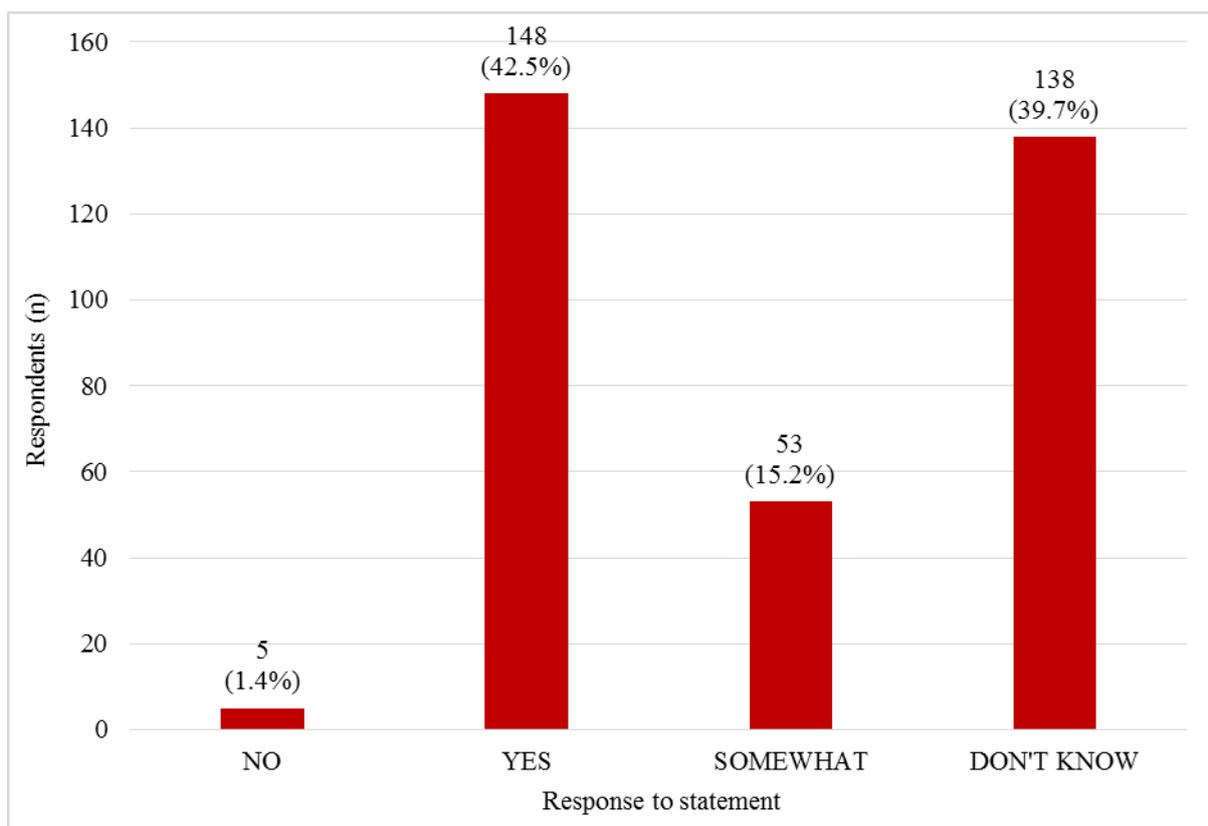
COMMENTARY

These responses suggest that links between the General Dental Service and the D2S programme are not particularly strong. Based as it is in areas of high dental need, it is clearly important that dental attendance is encouraged. While many of the children participating in D2S will have treatment provided by the CDS, consideration should be given as to how integration of the D2S programme with primary care treatment services can be best achieved.

D2S programme integration with other health promotion initiatives

Staff were asked whether the D2S programme was integrated with other health promotion activities for example the 'Healthy Schools' initiative (Figure 19).

Figure 19: D2S programme integration with other health promotion activities (n = 344)



The bar chart in Figure 19 shows that almost 60% of staff agreed (at least to some extent) that the D2S programme is integrated with other activities which promote child health. However, two fifths of respondents stated they did not know whether this was the case.

COMMENTARY

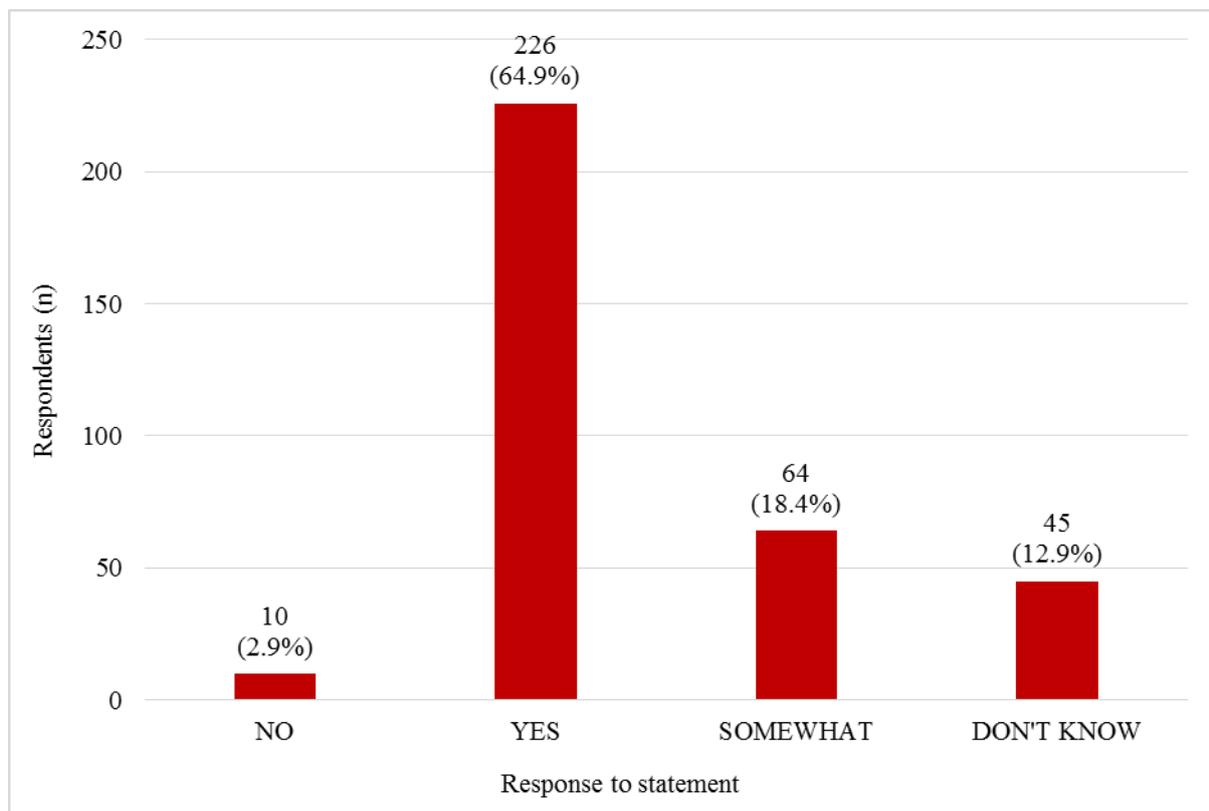
Of the staff who were in a position to express an opinion, the majority feel that the D2S programme is integrated with other health promoting activities. Clearly a common risk factor approach to promoting oral health is necessary and should be encouraged.

4.8. DELIVERING ORAL HEALTH EDUCATION ACROSS THE CDS

Communicating a consistent oral health message

To explore whether the key tenets of good oral health are communicated consistently to children from the CDS as a whole, staff were asked if they believed the oral health messages and advice given to children visiting the CDS for treatment are consistent with those promoted by D2S staff.

Figure 20: The health promotion message delivered by clinical staff and D2S staff is consistent (n = 345)

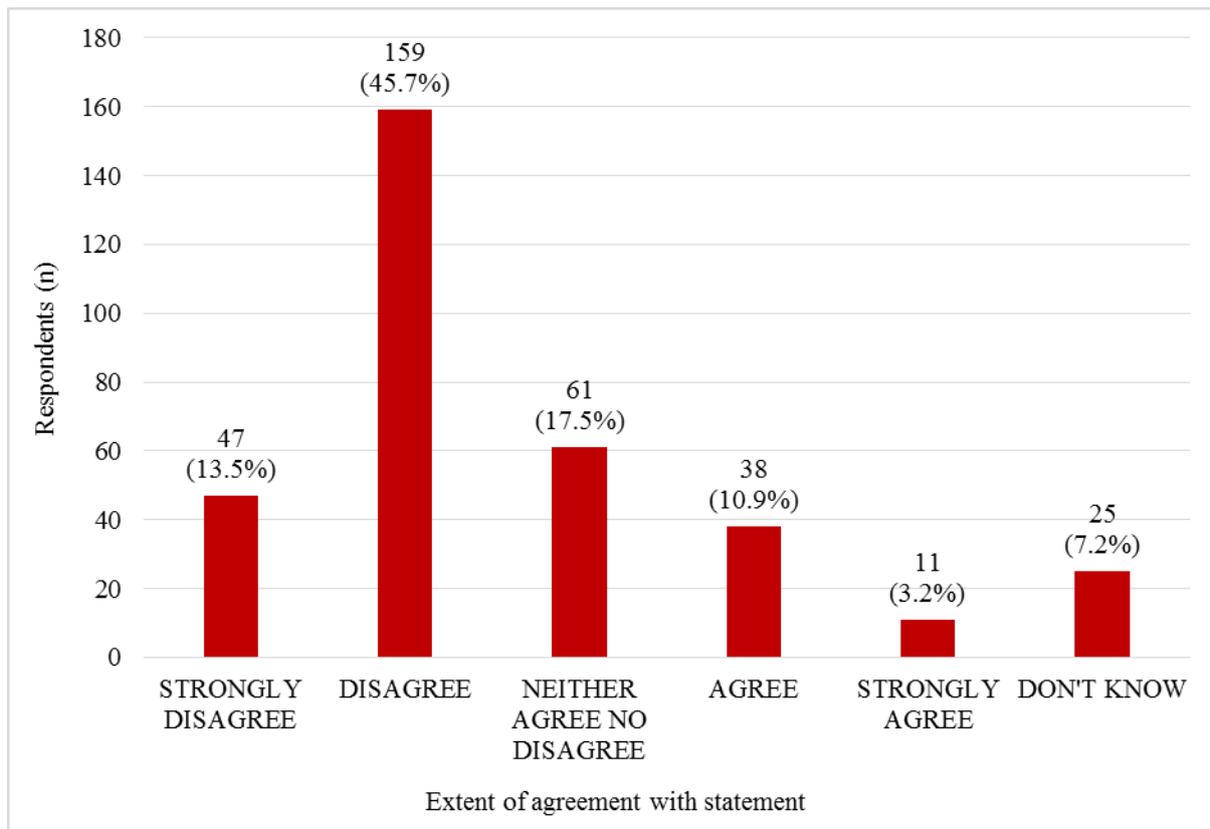


Almost two thirds of staff agreed that the health promotion message is consistent between CDS teams. A further fifth (18.4%) believed it was somewhat the oral health messages communicated by clinical teams and D2S staff was somewhat uniform. Very few staff (n = 10) disagreed with the statement.

Responsibility for oral health education

The notion that clinic-based CDS staff tend to defer responsibility for oral health education to the D2S team was explored (Figure 21).

Figure 21: Clinical teams leave oral health education to the D2S programme (n = 341)



The data above shows that the majority (59.5%) of staff disagreed with the assertion that responsibility for OHE is passed from clinic-based teams to D2S teams. Almost a fifth of staff indicated that they could not agree one way or the other. Those who agreed or strongly agreed made up less than 15% of the total responses.

COMMENTARY

It is encouraging that CDS staff are of the opinion that consistent messages are being promulgated by both the D2S and clinical teams, and that clinical teams are perceived to retain responsibility for the dissemination of appropriate oral health education messages.

4.9. MONITORING D2S FOR EFFICACY AND FIDELITY TO PROTOCOL

Staff were asked to give their opinion on the data monitoring undertaken on the D2S programme.

Monitoring the efficacy of D2S

Staff were asked whether the data needed to monitor the D2S programme is being adequately collected (Figure 22).

Figure 22: Level of staff agreement that D2S clinical outcomes are being adequately measured (n = 345)

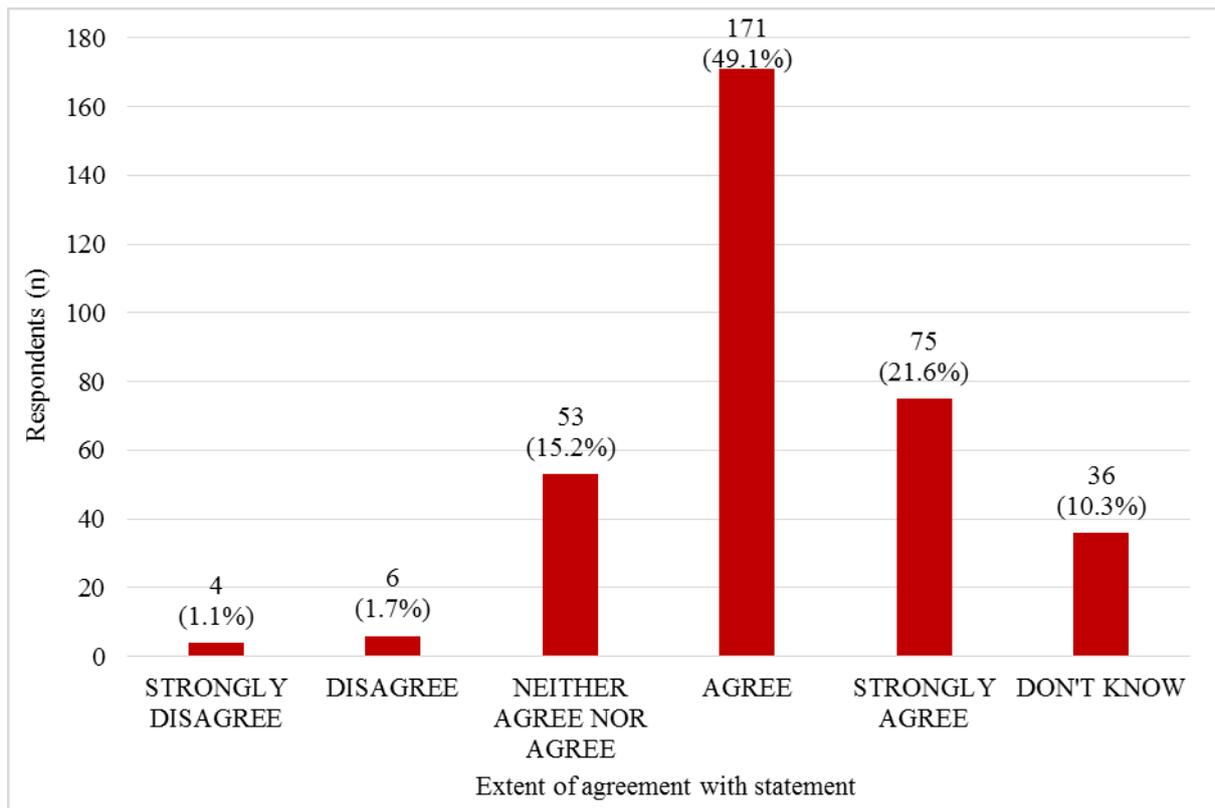


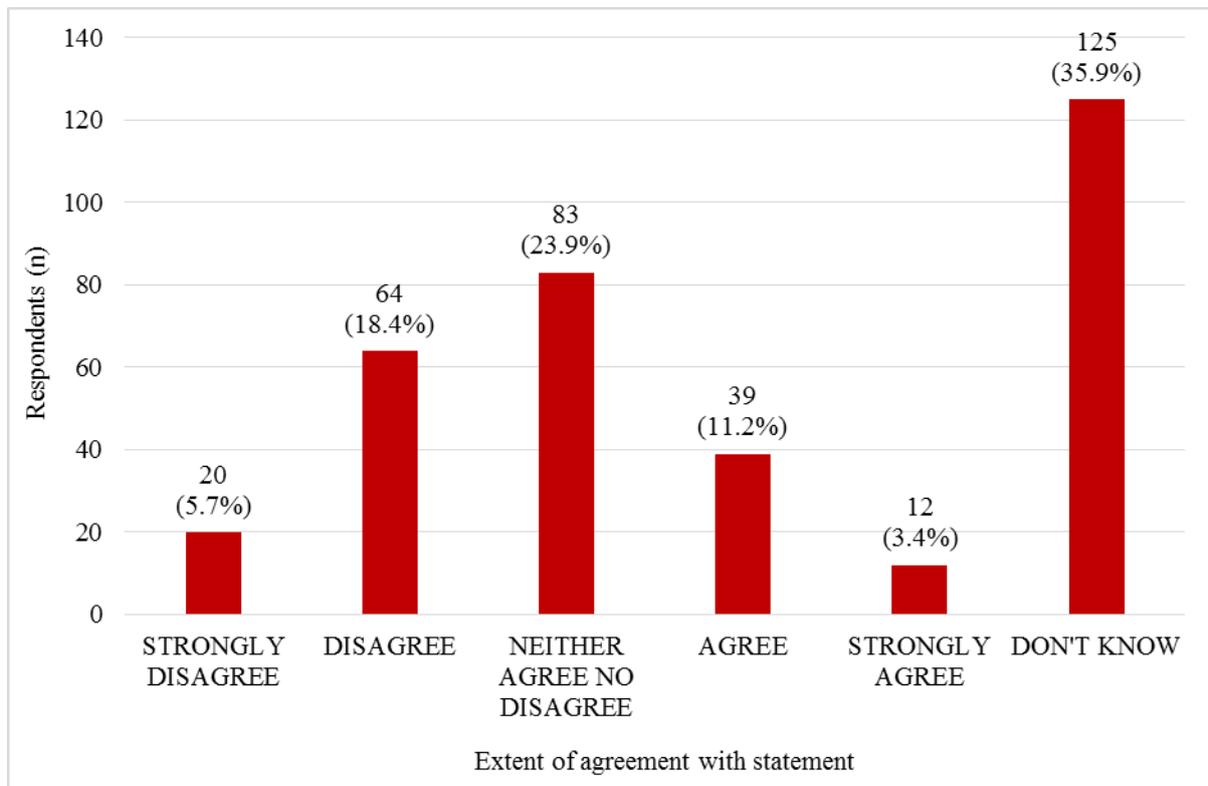
Figure 22 indicates that over 70% of staff agreed that D2S outcomes are being monitored.

Less than 3% of staff disagreed with this statement

Attitudes to data monitoring requirements

Staff were asked whether data needed to assess the reach, efficacy and adherence to the D2S is excessive. The term ‘data monitoring’ in this question encompasses the recording of epidemiological data needed to assess the efficacy of the programme, as well as auditing the programme for fidelity to the D2S ‘How to guide’.

Figure 23: The data required for process monitoring of D2S is excessive (n = 343)



The distribution of the data shown in Figure 23 indicates that the majority of staff felt they either didn't know (n = 125) enough about the data required to monitor D2S to respond to the statement, or felt they could neither agree nor disagree (n = 83) that the data needed to monitor the programme is excessive. Almost a quarter (24.1%) of the staff who responded disagreed that too much data is needed to examine the outcomes of D2S.

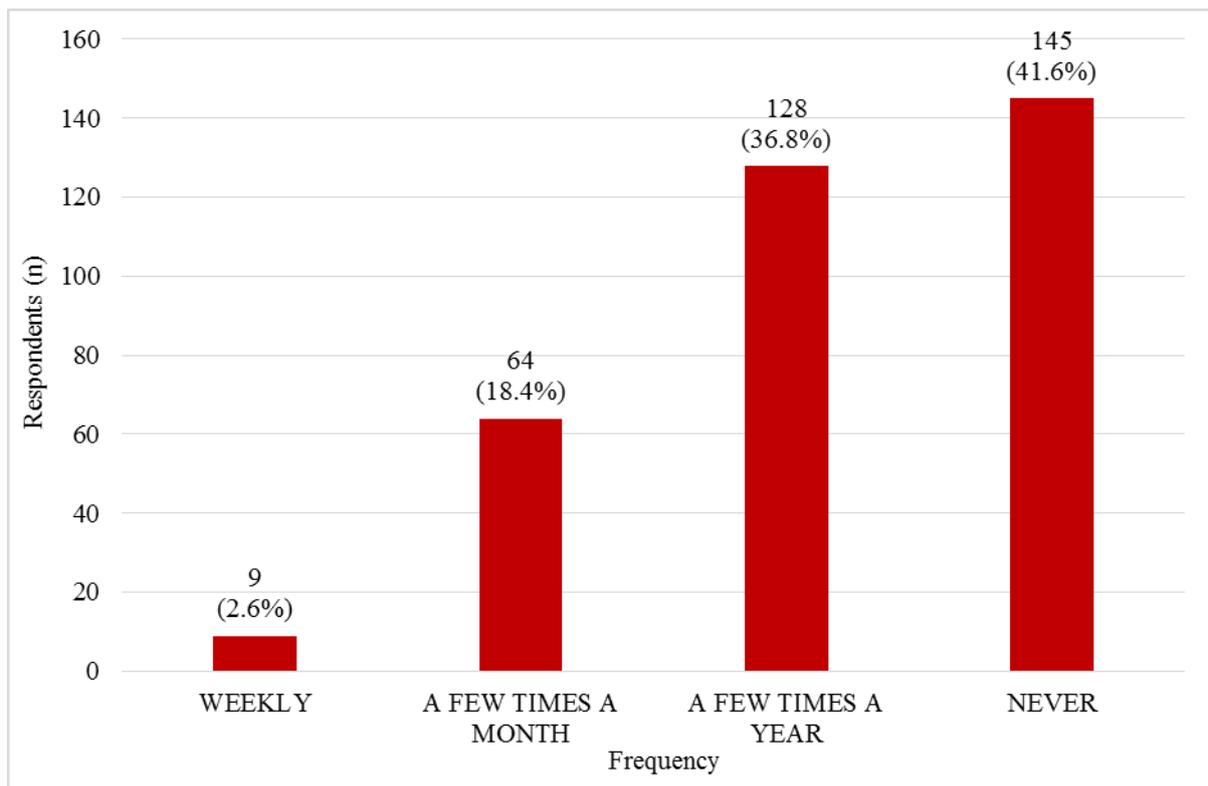
4.10. D2S ONLINE RESOURCES

Staff were asked about their awareness and use of the D2S information available on the internet.

The D2S website

Staff were asked to select the response that best described the frequency in which they visit the D2S website (Figure 24).

Figure 24: The frequency in which CDS visit the D2S website (n = 346)



When staff were asked how often they visited the D2S website the most frequent response was 'never'. Of those who indicated that they did visit the website 55% of staff stated they accessed the website at least a few times a year.

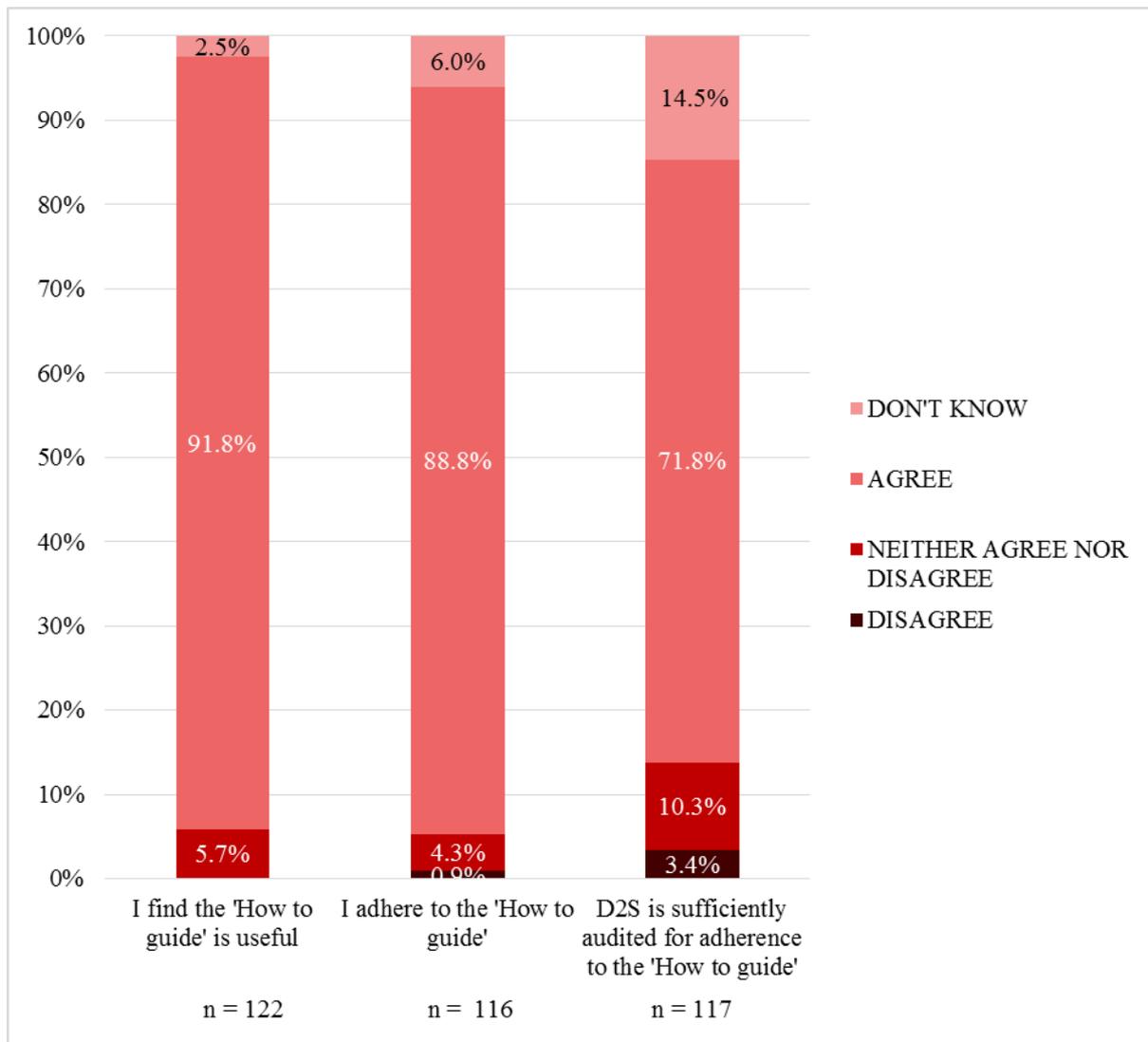
The D2S ‘How to guide’

Staff were asked if they were aware of the D2S ‘How to guide’. The majority of staff (n = 218) responded ‘no’ and 121 (34.8%) staff stated that they were aware of the D2S ‘How to guide’.

Staff who stated that they were aware of the D2S ‘How to guide’ were asked to respond to statements on the usefulness of the guide, their fidelity to the guide and the quality control monitoring of the guide (Figure 25).

In light of the smaller numbers of those responding to the statements about the D2S ‘How to guide’ (n = 121) the ‘strongly agree’ answer option was incorporated into the numbers of those agreeing with the statements, and the ‘strongly disagree’ answer option was incorporated in to the ‘disagree’ category.

Figure 25: Percentage of staff agreement to statements regarding the D2S 'How to guide'



The overwhelming majority of staff aware of the D2S 'How to guide' agreed that the guide is useful (91.8%) and that they adhere to the guide when carrying out their duties (88.8%). While the majority of those aware of the guide agreed that D2S is sufficiently audited for adherence to the D2S 'How to guide', there was less agreement than the other two statements with almost a quarter of staff responding that they were unsure or they neither agreed nor disagreed with the statement.

The how too guide is a relatively new innovation. It is not surprising that a large proportion of staff were unable to answer questions on this resource other than by saying don't know. As an operational manual for the D2S programme many staff will not need to access this guide. However, of the staff who were aware of the guide, the great majority found it useful, suggesting that it is fulfilling its intended purpose.

COMMENTARY

These data suggest that there are a considerable number of CDS staff who have never visited the D2S website – suggesting that this resource is probably underutilised, particularly by clinic-based staff.

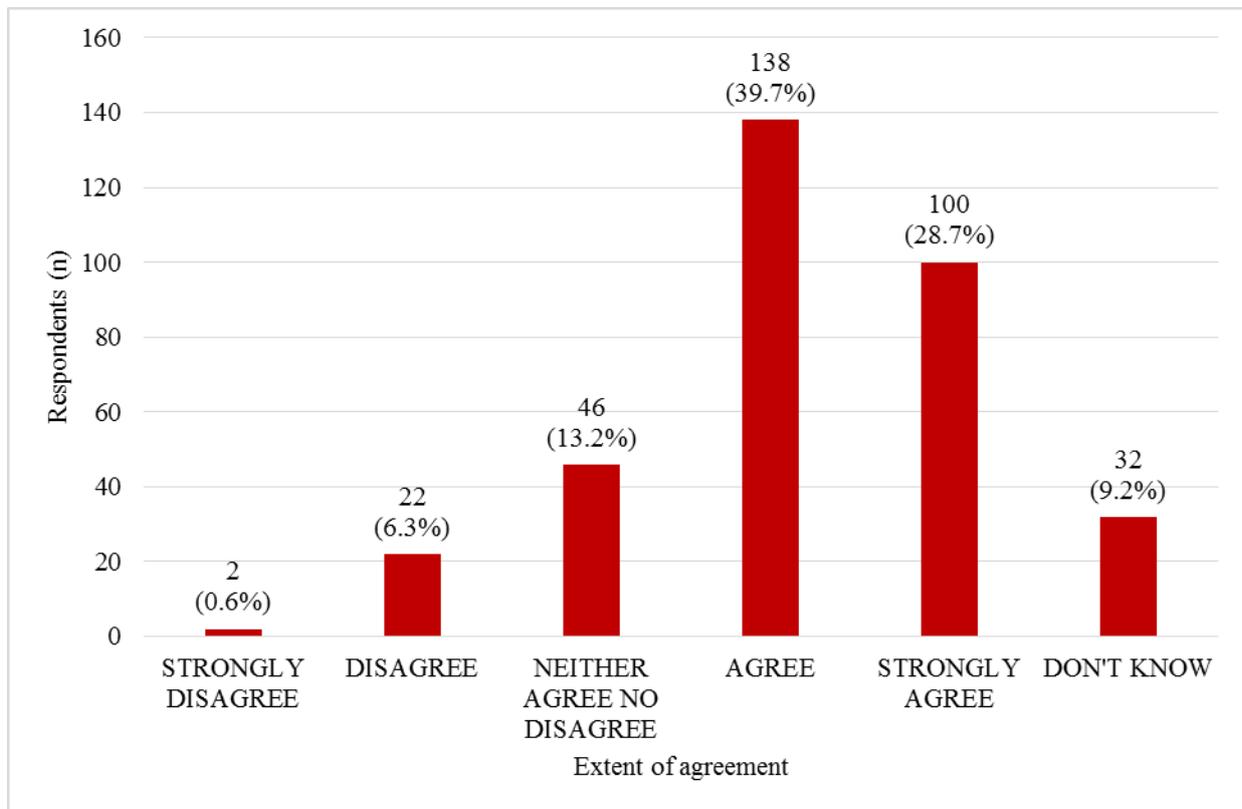
4.11. THE REACH OF D2S

Staff were asked to respond to questions about the reach of the D2S programme.

D2S target population

Figure 26 describes the extent to which respondents agree that D2S is targeting children most in need of in-school toothbrushing, as offered by the programme.

Figure 26: The extent to which staff agree that D2S is targeting the population most likely to benefit from in-school toothbrushing (n = 340)



The figures show that the majority of staff (68.4%) agreed or strongly agreed that D2S is reaching those children who would most benefit from toothbrushing in the school setting. Very few staff (6.9%) disagreed with this assertion.

Expansion of D2S

Staff were asked whether they agreed that the reach of the D2S programme should be broadened to include all children across Wales (Figure 27).

Figure 27: Should the D2S programme be delivered to all children in Wales (n = 346)

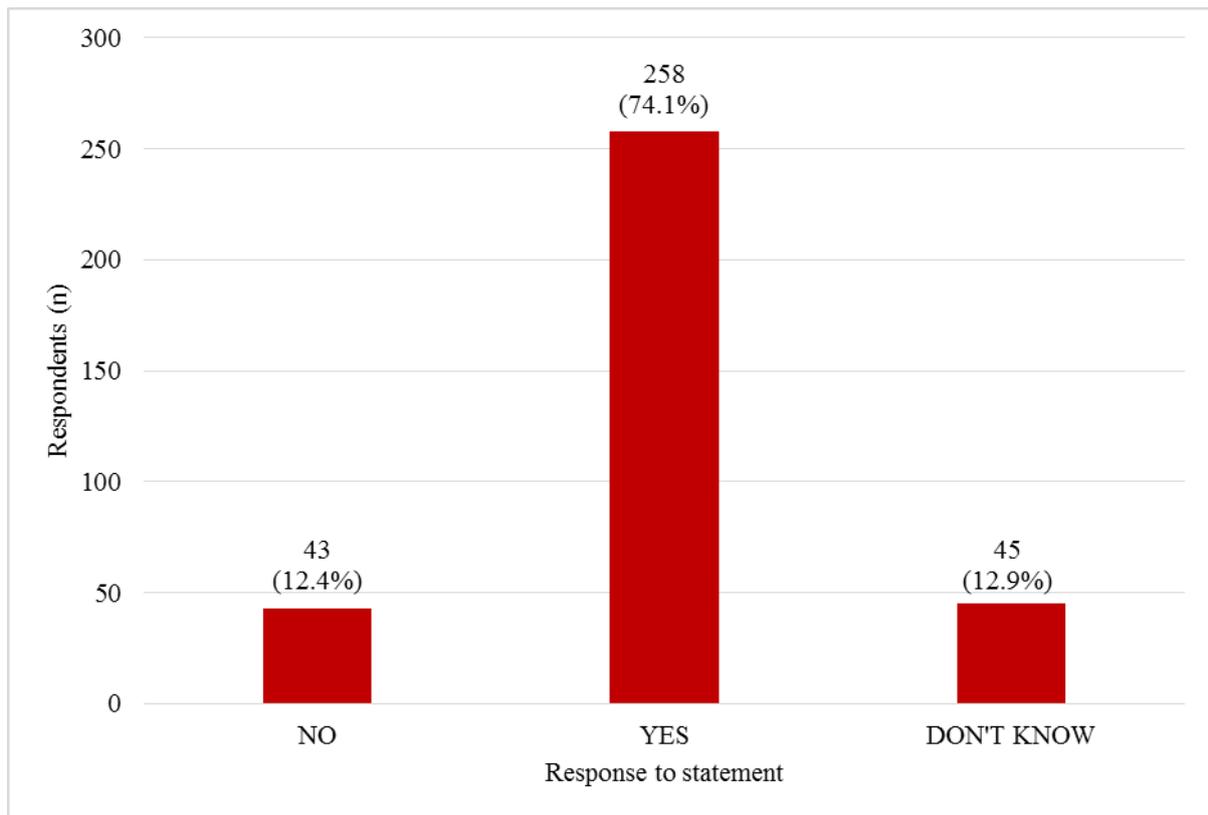


Figure 27 indicates that the majority of CDS staff agree that the D2S programme should be expanded to cover all children in Wales.

COMMENTARY

It is reassuring that the majority of CDS staff are in agreement that the programme is reaching its intended target. There was also mainstream agreement that the programme should be extended to cover all of Wales rather than the current targeted approach.

4.12. PRIORITIES IN THE CDS

Staff were asked to complete two rank order questions within the questionnaire to explore which dental services staff believe to be most important in maximising the oral health of children in Wales. The twenty statements in the first task were paraphrased in the second task

and a Spearman's rank correlation was conducted to explore the internal validity of the statements.

The statements were also framed within each of the central tenets of The Tannahill model of health promotion: health education, health protection and prevention¹¹ with the additional construct of 'access' to represent the reach and uptake of child dental services.

Of those responding to the questionnaire, 287 respondents correctly completed the first ranking task and 278 correctly completed the second task. A total of 264 staff correctly completed both tasks (75.9% of respondents).

The rankings were ordered first by lowest median ranking and then by lowest ranking within the lower quartile. All correlations were significant at the 1% level.

The findings (Appendices 3 – 5) demonstrated that, of the statements provided to staff, those deemed the most important in preventing poor dental health were (in order of most important):

- 'Fluoridating the water supply'/'Increasing contact with fluoride through drinking water' ($r_s = .924$);
- 'Toothbrushing in schools'/'Brushing teeth in schools' ($r_s = .709$)
- 'Fluoride varnish application in schools'/'Preventing caries through the application of fluoride varnish in the school setting' ($r_s = .747$).

Those statements considered least important were (in order of least important):

- ‘Providing reward vouchers to encourage frequent non-attenders to keep CDS appointments’/ ‘Incentivising parents and children to keep scheduled clinic visits through a reward system’ ($r_s = .668$);
- ‘Adding tax to cariogenic foods and drinks’/ ‘Increasing the price of foods and drinks high in added sugar’ ($r_s = .766$);
- ‘Visiting ‘hard to reach’ families at home’/ ‘Extending the reach of the dental service by giving ‘underserved’ families the option of a home check-up’ ($r_s = .479$);
- ‘Provision of generic leaflets on maintaining good oral health’/ Distribution of pamphlets which focus on keeping the teeth and mouth in a healthy condition ($r_s = .533$).

COMMENTARY

Despite many staff commenting on the onerousness of the two ranking tasks in the questionnaire, 75.9% of those who responded to the questionnaire provided valid responses to both ranking tasks. This indicates that the majority of those completing the questionnaire were well engaged with the task focus (prioritisation of services) and were keen to provide their opinion on how they believe certain aspects of the dental service should be prioritised to give children the best chance of maintaining and maximising optimum oral health.

Two out of the three most highly prioritised statements are preventative treatments rolled out through the D2S. This indicates that many of those completing the ranking questions were supporters of the programme, believing that toothbrushing in schools and applying fluoride varnish in schools are among the most important activities that can be undertaken by the dental service to maximise children's oral health. It also implies that many staff are committed to the notion of primary prevention (as opposed to secondary or tertiary prevention) through regular contact with fluoride.

While water fluoridation was prioritised over all other statements (as categorised by the median and lower quartile ranks) the rankings for these statements also showed the greatest spread. Within the model of health promotion this statement represents a change in health policy. Considering that the other health policy change statement (taxing cariogenic food and drinks) was ranked as a low priority it would be interesting to determine whether top priority rankings were linked to a particular staff type or other demographic variable.

4.13. QUALITATIVE FINDINGS

Respondents were given an opportunity to provide free text responses to two open questions at the end of the questionnaire and a further space for additional comments. The responses from the two questions were examined for repeating themes and common topics.

Of those who returned a questionnaire just over a third (n = 124; 35.6%) provided a response to the first of these two open questions: *‘What do you perceive as the main challenges for the D2S project in the next two years?’*

Of those who returned a questionnaire just over a third (n = 216; 62.1%) provided a response to the first of these open questions: *‘How could the D2S programme be improved?’*

Open question 1: What do you perceive as the main challenges for the D2S project in the next two years?

Seven overarching topics were identified following examination of the data:

- The reach and expansion of D2S;
- D2S and dental care across Wales: funding and fiscal issues;
- Challenges to D2S implementation;
- Parental understanding and involvement;
- Perceived impact of school toothbrushing;
- Service integration and partnership working;
- The challenges of implementing the programme in the school setting.

These predominant topics are discussed in more detail below:

1) The reach and expansion of D2S

Staff felt that a major challenge for the programme was the need to improve engagement with D2S parents. Many felt that educating and engaging parents was paramount if D2S was to succeed in reducing oral health inequalities:

'I feel the D2S team need more work now to involve the parents of the children.

Feedback from some staff in school /nursery settings has been that as children now brush their teeth in school, parents often allow children to 'skip' this routine before school.'

'People incl children know what they should be doing (i.e. diet/oral hygiene instruction) but actually changing habits is not likely to happen without direct conversation between parents and health professionals.'

There were also many responses advising that the programme was not reaching enough pupils and should be extended to cover more schools:

'All schools should be involved in the toothbrushing programme'

'Increase the contacts i.e. schools.'

Some commented that the programme should cover schools in affluent areas, as well as more deprived areas:

'The programme should be extended to all schools starting with most deprived areas first and then working to the 'leafy suburbs'.'

'Getting into all schools in Wales both deprived areas and affluent schools.'

Some staff also believed that elements of the programme should be extended to reach older age groups:

'High school children need dental health. While learning about the body and health maybe part of science and P.E.'

'High schools would benefit from education giving talks.'

A few staff members responded that one of the main challenges of D2S was engaging with those most in need of the programme:

'I think the main challenges for the D2S programme is still trying to target the children who need help the most.'

'Reaching underserved children and changing family perceptions of dental care.'

2) D2S and dental care across Wales: funding and fiscal issues

Almost half of those responding to this question (n = 55) stated that one of the main challenges faced by the D2S programme was the loss of funding to sustain the programme:

'Continued money from Welsh Government.'

'To keep receiving financial support from the government to ensure D2S can run.'

In light of the financial strain the NHS is currently under some stated that the major challenge was to secure long term funding without undercutting other CDS services for the programme

'With current pressures on NHS/CDS spending, it is difficult to see how this kind of spending on D2S can be maintained, without affecting other CDS services.'

'The main challenge will be to keep going in a time of austerity.'

Five respondents stated that a major challenge facing the programme was justifying the money spent on D2S if this was not offset by a fall in caries:

'Proving the results justify the funding.'

'Justifying having so much branded uniforms, kit and materials e.g. scarves, hoodies, fleeces and bags. The small reduction in dental caries does not justify the millions spent.'

3) Challenges to D2S implementation

Staff indicated that schools' compliance with the toothbrushing programme can wane. They suggested that an ongoing challenge faced by D2S was the ongoing need to encourage school staff to maintain the toothbrushing programme and supervise toothbrushing sessions every day:

'The main challenge for D2S in the next two years is ongoing compliance from schools already on board with the programme, particularly with toothbrushing daily, as many teaching staff do not understand why brushing is needed in school and as it is not compulsory many teachers do not do it daily.'

'I have heard that classes do not brush every day and this worries me because I thought that one of the aims of the scheme was to engender the habit of daily toothbrushing that would continue into adult life.'

Several respondents implied that when particular resources are not available, rendering effective delivery of the programme can be a challenge. These resources ranged from staff numbers/manpower, equipment and mobile units and even included time in the school day:

'More mobile dental units needed. More staff needed if programme is extended to more schools/children.'

'I also think we face staffing challenges as the areas we cover grow and the amount of children we see grows, we are stretching and unable to give the oral health education side of the programme enough time.'

Acquiring continued parental consent was another challenge faced by staff:

'Positive consent is always a challenge in certain schools to actually get consent back to allow us to put children onto the programme.'

'It is an ongoing challenge to encourage parents to consent for fluoride varnish to be applied in the school, and when the child is older to have fissure sealants.'

4) Parental understanding and involvement

There were several comments stating that one of the main challenges for the D2S programme is a lack of parental involvement in their child's dental health, and subsequently a lack of motivation and responsibility to maintain twice daily toothbrushing in order to maximise optimum levels of oral health in their child:

'Minority of parents who still do not improve oral health at home despite this service.'

'I also feel parental responsibility (lack of it) plays a large part.'

Some of these comments were associated with a desire to educate parents on the importance of maintaining good oral health in their children (see point 1). A challenge perceived by a few members of staff was that rather than instilling good toothbrushing habits in young children, the D2S programme in some cases could further erode parental responsibility for children's dental health:

That parents will fully rely on schools to brush their child's teeth, lessening the responsibility of the 'high need' family parents even further. My concern is, will those children who only brush their teeth at school carry on at home once school brushing has finished?

Parents and their lack of motivation. Get parents to become responsible for their health and their children's health. Emphasis must be on education and not taking responsibility away from individuals by schools having to supervise dental hygiene. Health professionals and tax payers are taking parental responsibility and footing the bill.

There was also some concern that changing parental approaches to diet were a challenge to the future of the programme:

'Changing the attitudes and behaviour of parents towards sugary drinks and snacks.'

'Children know not to drink Coke but if it is at home of course they will drink it. Leaflets home to parents are frequently ignored.'

5) Perceived impact of school toothbrushing

In line with some of the comments described in the previous point five respondents stated they were concerned that some parents had deemed home toothbrushing unnecessary for their child as a direct consequence of in-school toothbrushing through the D2S programme:

'Feedback from some staff in school /nursery settings has been that as children now brush their teeth in school, parents often allow children to 'skip' this routine before school.'

'Children not brushing at home as they brush their teeth in school.'

Some staff commented that they were sometimes faced with school staff who felt that the school toothbrushing programme negatively impacted on school routines:

'Keeping schools involved with the programme, constant time issues increasing workloads for teachers make toothbrushing difficult to fit into an already busy day.'

'Motivating school staff where there is resistance to the programme due to disruption of school routine and timetables.'

Some felt that teachers did not credit time spent supervising toothbrushing with as much educational value as time spent on other areas of the school curriculum, presenting an ongoing challenge for D2S:

'There are some teachers reluctant to take the programme on board after a few months - the excuse is too much time taken from the curriculum.'

'Challenging school opting of the programme because the government are putting increasing pressures on them to do well at all costs, this means that even though they do the toothbrushing regularly if something has to go it will be that.'

6) Service integration and partnership working

The comments provided by staff in response to this question support anecdotal accounts of a lack of integration between the D2S programme and other areas of the CDS. Over 10% of comments alluded to a lack of communication and collaboration with clinical areas of the CDS for children:

'I really don't know as I feel they are a completely separate entity from CDS. I personally have never contact or integration with D2S'

'Coordinating the D2S services with community dental services as a lot of patients/parents assume that as they have been seen in school by dentist then they don't need to attend examinations in clinic.'

Other comments mentioned that more communication with the GDS could strengthen the overall aims of the D2S programme:

'Local dentists could be involved in school visits to improve continuity.'

'Also to improve links with the GDS - the GDS have all been informed about D2S but few practitioners seem to have read the information.'

There were a few suggestions that with input and support from non-dental professionals, improvements could be made to the implementation of the programme:

'To provide their interventions with increased efficiency, and to liaise with other providers of oral healthcare advice to ensure consistent messages, and other healthcare providers regarding timing of interventions.'

'Having support from non-dental professionals to promote good oral hygiene and diet and integrating with D2S, working closer with CDS'

Some suggested that further adoption by teachers and the educational system might result in more efficacious implementation of the programme:

'Keeping current schools on board and motivated with the toothbrushing programme, until more links with education are established, or the programme being made mandatory within schools.'

'To get D2S into the educational curriculum along with healthy eating.'

'To make toothbrushing part of education boards in school to enable staff to allocate 10 minutes of time for heads to tell inspectors. Inspectors maybe aware of programme if programme in schools they could inspect therefore reinforcing our programme.'

7) Challenges of implementing the programme in the school setting

One of the major challenges facing D2S according to a third of those responding to this question, was trying to maintain staff commitment and school participation in the programme:

'The main challenge is to keep up the momentum and commitment within the settings.'

'Keeping schools interested/motivated.'

'Keeping teaching assistants and teachers on board and keen in supporting the programme in school classes.'

More specifically, some staff linked this directly to maintaining the momentum of the toothbrushing element of the programme:

'To continue to engage schools in the toothbrushing project.'

'Convincing schools that it is working. Keeping them brushing 5 times a week not just once or twice.'

A few staff commented that some teachers could also be less than enthusiastic regarding the programme:

'Whilst most schools are happy with the programme it can be difficult to keep the school staff positive in schools that have an indifferent or negative view, keeping them interested and focused in continuing can be challenge'

'Dealing with individual teachers who see no value in the programme and refuse to carry out the brushing sessions in schools.'

Some indicated that getting schools and teachers to participate, and continue to implement can be a challenge as it can be seen to compromise other areas of education:

'Teachers are under pressure and the first sacrifice made would more than likely be the toothbrushing.'

'Keeping schools involved with the programme, constant time issues increasing workloads for teachers make toothbrushing difficult to fit into an already busy day.'

'Challenging school opting out of the programme because the government are putting increasing pressures on them to do well at all costs, this means that even though they do the toothbrushing regularly if something has to go it will be that. If it was compulsory it would work fine and teachers would accept it.'

Open question 2: How could the D2S programme be improved?

Seven overarching topic areas were identified following examination of the responses to the question:

- Implementation and operationalisation;
- Involving parents;
- Reach and expansion of programme;
- Promoting D2S in the school environment;
- Resources;
- Service communication and collaboration;
- Strategy changes or improvements.

The topics that emerged from the data are discussed in more detail below:

1) Implementation and operationalisation:

There were several references to the way the programme is put into effect, and how successful implementation of the programme is measured and monitored. A few staff highlighted that the scheme could be improved by setting up a care pathway for those who might need treatment or extra input:

‘Following up those children who have had to have a general anaesthetic and positively encouraging their families to change and improve diet and oral health regime’

'Following up patients who require dental treatments other than varnish or sealants and arranging treatment options/times.'

There were also some concerns that staff were struggling to strike an optimum balance in relation to the focus of the programme. Some stated that toothbrushing and treatment had been prioritised over OHE relating to diet:

'Less focus on toothbrushing and more on diet. Esp hidden sugars in 'no added sugar' drinks.'

'In our area this toothbrushing scheme has taken precedence over all other dental health education for children and these redundant initiatives need to be re-introduced, especially engagement with the parents.'

'More focus on oral health by improving hygiene and diet. Fissure sealants and varnish are a useful aid but cannot stop decay if oral hygiene and diet is still poor.'

There were also suggestions as to how staff could be more effective in implementing the aims and objectives of the programme.

Some staff felt that it would be beneficial for staff within the CDS to rotate between clinical work and D2S work in order to make best use of a skills pool:

'Utilise existing staff. Sharing of roles. Employ staff to support educators to free up their time allowing educators to concentrate on behavioural change as opposed to data collection etc.'

'Use of resources in appropriate manner such as rotation of staff in CDS to be part of D2S at regular intervals so they can get understanding of D2S.'

'Training opportunities for CDS staff to move to and from CDS to D2S'

A few staff suggested that the aims of the programme could be better achieved if D2S oral health educators could also attend clinics to reinforce oral health messages:

'I feel the D2S oral health educators could be utilised more in the clinical setting or GDP setting where the opportunity to discuss oral health messages with the parents/siblings could be achieved.'

'Attending clinics in these areas I feel would achieve what is already being delivered in schools. D2S support staff could continue to carry out quality assessments etc. which would give the oral health educators time to be able to attend clinics.'

Staff also suggested ways to improve ways to more validly record D2S implementation and child dental health programme outcomes.

In terms of monitoring and measuring D2S outcomes, one member of staff stated this was difficult to operationalise:

'At present there is still too much emphasis on numbers seen rather than the quality of the work.'

'I do feel that D2S has had many positive effects but these are difficult to measure - teeth of children in D2S schools are definitely cleaner than they used to be but I am not convinced that there is a benefit on tooth decay as there are so many other factors involved in this that are outside our control'

It was suggested that the paperwork should be adapted to suit the local area and the timing of data reporting:

'Ability to alter national paperwork slightly to suit area.'

'Reporting figures in academic years, not financial.'

'Reporting figures in academic year would give more accurate data.'

2) Involving parents:

Many members of staff alluded to the parents of D2S children in their responses.

Over 30 members of staff indicated that the D2S programme could be improved by engaging with parents more. They suggested that parental education is a must in order to maximise the oral health of the children involved in the programme:

'It could be improved by getting the messages to the parents rather than just the children.'

'Involve family - programme should be family based, so parents receive diet and toothbrushing advice and can then implement the changes at home.'

Although seemingly linking with D2S aims, rather than the programme itself, several staff emphasised that oral health education should begin earlier in the child's life through engaging with new and expectant parents before poor habits are formed:

'More input at antenatal and postnatal appointments as waiting until a child is preschool is too late and poor habits formed.'

'I feel that the programme is started too late, it would maybe be more beneficial to target new mums with dental education and diet information to help prevent caries occurring.'

A few staff believed it would be beneficial to promote the dental service as a whole to parents to raise awareness of the other services provided to NHS patients:

'Make parents and families more aware of the local community dental clinic addresses etc.'

'Making sure parents register their children with a GDP or in the CDS once out of the D2S programme.'

With reference to parents, some staff stated that simplifying the consent process may improve uptake of the programme in schools:

'Making the consent forms all-in-one as I've struggled to get them back so one form and this should be given on day the child starts school.'

'Consent forms to be on one sheet'

'To provide 1 consent only to parents for all our programmes we offer.'

There were also several suggestions that parents should be better informed of the purpose, remit and limitations of D2S:

'Also, parents often are not as aware as they should be that school brushing doesn't replace home brushing and that D2S doesn't compensate for clinic check-ups. D2S could improve the info given to parents re: this.'

'Making it clear to parents that the child does not have a check-up in the D2S van, many of our CDS children don't attend the clinic for examinations as they think this is carried out in the van at school.'

3) Promoting D2S in the school environment:

There were many responses indicating that more could be done in schools to highlight the reasons why D2S is a valuable programme in minimising dental health inequalities.

Staff suggested that teachers need to be made more aware of the implications of poor dental health in young children, and the benefits that preventative treatment and school toothbrushing can bring about:

'Education to teachers re: programme, its achievements and its benefits - scare stories re: number of dental general anaesthetics in kids would help show firmly why we are running this programme'

'Finding ways to highlight importance of programme. Teachers and teaching assistants should be able to have access to cost treatment general anaesthetics for children. Distress caused. A short film maybe?'

'I feel that more information and more training for teaching staff and support staff is needed. I feel sometimes the staff are unsure of the aims and goals of D2S.'

Some suggested that teachers might be more engaged and supportive of the programme if they received tailored feedback about the progress being made through D2S in their school:

'More information given to schools regarding where they are in terms of decay and improvement.'

'Integrating screening info into feedback on how D2S is improving oral health of years beyond 5 years old surveys.'

The introduction of new incentives were amongst some of the ideas were put forward by staff as ways of garnering school commitment and enthusiasm for the programme:

'Recognition from education for participating in the programme. More information given to schools regarding where they are in terms of decay and improvement. Best school 'award''

'There could be a Designed to Smile competition for all schools taking part alongside 'Healthy Schools' re benefits of brushing teeth or show brushing teeth with prize Ipad for equipment for school.'

'More rewards for schools (other than gold award).'

4) D2S reach, and expansion of the programme:

There were over 60 references in favour of expanding the programme to more schools with the intention of serving more children.

'To increase the amount of schools taking part.'

'Roll the programme to more schools.'

'Expand further into more schools.'

Some asserted that the programme should be extended to older primary school age children, particularly the toothbrushing and OHE elements of D2S:

'Toothbrushing in school - some schools don't have large number of pupils. D2S is only directed at certain age group in this except the whole school should be brushing especially if one sibling will be affected and not the other.'

'Extend the fluoride varnish programme to all of primary school children to receive oral health talks each year. Information on the sugar content in foods and drinks to be more available and promoted in high school on a regular basis.'

'More brushing for older children. Dental education for older children in junior schools - then onto senior schools.'

Several respondents suggested that D2S should be delivered in secondary schools. Some staff emphasised the need to provide OHE to the 11 – 16 age group:

'Oral health education to be delivered to teenagers as this is a groups that is likely to develop caries as once they go to secondary school parents lose control of their eating habits during the day.'

'Need to extend into high schools particularly with education programmes as this is the time children begin to make choices for themselves.'

'Oral health education into high schools at the age they start buying food and drink for themselves and personal hygiene becomes more important.'

There were several suggestions that D2S should be extended into schools not covered by the criteria specified at the outset of the programme. Staff indicated that this was because pockets of high dental need exist within schools in more 'affluent' postcodes:

'Looking at extending the programme to Lower Super Output Areas (LSOA) rather than the vast areas the postcodes cover. (Name) Health Board has 323 LSOAs- 88 of these are amongst the most deprived in Wales. A school in an affluent area with a 'good' postcode can be including children from deprived areas/families (very few have a majority of affluent families only attending).'

'I also feel that there are some very needy children in non-targeted schools that are missing out, however I appreciate that this will be the case unless every school comes on board.'

'More schools involved. Some not allowed to join the programme even though they are 'needy schools'. Local knowledge sometimes much more helpful.'

An 'All Wales' approach was proposed by some, stating that it would be the only way of reaching those most in need:

'Maybe the programme could cover all children in Wales not just the children in deprived areas?!'

'Extending it to include all state schools, all pupils'

'Cover all schools, including those considered 'low need''

There were several comments calling for the fluoride varnish programme to be extended, and for the frequency of applications to be increase from two, to four times per year:

'Higher fluoride varnish application per year from 2 to 4 times a year.'

'Applying fluoride varnish to all age groups in school nursery to year 6 four times per year.'

Aside from delivering D2S (or preventative treatment) to more children, staff were concerned generally about the reach of the overall programme with particular reference to the most underserved and high need families. Staff commented that more needs to be done to include the children in greatest need of the programme:

'Its principles should work, it is valuable in promoting good oral health but I'm not sure if this reaches those 'high need' families who may not have the capacity to care/ understand fully its importance.'

'I also feel that there are some very needy children in non-targeted schools that are missing out, however I appreciate that this will be the case unless every school comes on board.'

Two staff indicated that the programme must recognise that areas of Wales are very culturally diverse. They suggested that the programme could be improved with more engagement with non-British born families:

'Many schools now have children from various cultures. It's noted that polish children in particular have a high caries rate. We need to spend more resources on this and similar groups.'

'Reach out to the ethnic, and eastern European families who are 1st or 2nd generation new to the UK/Wales. Educate and support these families with healthy diet choices and fluoride toothpaste application'

5) Increasing CDS resources:

In response to this question there were almost 50 references suggesting that the D2S programme could be improved if more resources were available.

Several respondents proposed that more staff employed on the programme would help to maintain the school toothbrushing element of D2S:

'More staff then schools could receive more help which might help schools continue with the programme.'

'More staff to implement toothbrushing etc. in schools as staff complain time taken.'

'Providing more support for teaching staff to implement the programme and thus making it more popular. With ever increasing pressures on classrooms it is getting more and more difficult to persuade schools to continue with brushing 5 days per week.'

There was also a call for more trained staff, including OHEs and more support staff:

'Employ staff to support educators to free up their time allowing educators to concentrate on behavioural change as opposed to data collection etc.'

'More support staff and educators.'

'More staff. More mobile dental units/drivers.'

Further recommendations to improve the programme included extra equipment, or help with equipment. Provision of these types of resources (e.g. props) would, according to staff, aid successful engagement with D2S, or free up staff time to implement the programme.

'Provide new resources e.g. Welsh story books, costumes'

'Educators uniform - blouse/blazer. Give extra confidence and professionalism.'

'Using companies that can supply us with the stock we need i.e. toothpaste and brushes. Using prepacked homepacks, instead of packing them ourselves. Having suitable light, height adjustable seating to apply fluoride varnish to avoid injuries.'

Staff also recommended extra resources with the specific intention of promoting uptake of the programme, increasing engagement with the children and supplementing the OHE part of D2S:

'Consent and information leaflets available in different languages or at least available to download from D2S website.'

'I think more merchandise should be given to CDS clinics to promote D2S, I find we have limited stickers and activity sheets for children, and diet advice sheets to give parents'

'We need better computer programme for schools to use. It should be interactive and aimed at different age groups. This could be used in clinics too. Game levels for children at home? If this was a business model the educators would have the same story bag/message per age group/same puppets etc.'

There were also suggestions that more resources were needed to improve the programme by reaching the neediest of families through home visits if necessary:

'Involving Dental Therapists for domiciliary visit to underserved families and children with high risk caries to assess and treat if possible.'

'More home visits for vulnerable families and young families.'

6) Service communication and collaboration:

Many staff recommended that closer integration between other areas of the dental service and other professionals would improve the D2S programme.

There were 37 references in relation to communication between the clinical faction of the CDS and D2S.

A few staff felt that the lack of integration between clinical CDS staff and D2S resulted in a lack of understanding of the programme and a lack of familiarity with those who run it:

'Being more involved with CDS as we don't know who they are or what they do??'

'Better integration with CDS. I've worked here more than 2 years but know very little about D2S programme. In theory I think it's a very good use of time/money but without knowing more I can't comment.'

There were calls for D2S to provide clinical staff with information about when they are making school visits and which schools which schools are participating in the programme:

'Better communication between D2S and CDS clinics - which schools are involved in toothbrushing in our area - when are they doing screening/fissure sealants/fluoride application'

'Letting the CDS clinics in a particular area know which schools are taking part and to what extent. Letting the clinics know if a school decides not to take part/drop out.'

Some staff commented that the lack of communication between clinical staff and D2S wastes time and resources within the clinical setting, and hinders the communication of consistent information to children and parents:

'More integration of D2S team with CDS. At the moment I have no idea when D2S staff have been seeing children locally, what they are saying to the children and how often they are seeing them. It is very difficult to reinforce the D2S advice as I have no idea what they are advising patients. Similarly I have no idea of whom is actually seeing the patients. Much more communication needed.'

'Better communication via CDS and GDPs so that all the key messages are the same. Working to increase integration with CDS to ensure we work simultaneously and not overlap causing confusion.'

There were recommendations on ways to update clinical staff as to D2S activities:

'CDS clinics should get lists of school with class mentioning who have received fluoride and fissure sealant.'

'More joint working with CDS please - meetings together, not just at a senior level. Also for them to speak regularly with CDS dentists especially regarding vulnerable patients or just to let them know when they're going into a local school.'

'Possible pop up note on file with details of when patients seen and treatment given.'

Some staff felt that staff skills could be better exploited if D2S staff and clinical staff became a more fluid workforce:

'I feel the D2S oral health educators could be utilised more in the clinical setting or GDP setting where the opportunity to discuss oral health messages with the parents/siblings could be achieved.'

'Work alongside clinical staff in areas of schools rather than segregate themselves from community dental staff.'

'Integrate CDS and D2Smile clinically so D2Smile can offer dental treatment - could be just wearing a D2S uniform in clinic.'

There were also a significant number of references suggesting that the aims and objectives of the D2S programme could be improved if there were better links between D2S staff and the GDS.

'Emphasising prevention referring back to GDPs for sealants etc. A lot of GDPs don't really understand what D2S do as do many CDS clinicians.'

'Engagement with individual practices would be useful as I know many GDPs do not really take the programme/oral health promotion seriously.'

'More communication regarding the programmes between D2S staff and CDS, GDS staff. Encourage access to the D2S website.'

The idea of working alongside allied health professionals to promote and reinforce the oral health messages endorsed by D2S was referenced by several staff:

'Integration within a multi-disciplinary team focused towards overall child health. Working with healthy eating teams, health visitors etc.'

'Try to get other health professionals to give oral health messages to pregnant mums and new mums.'

'Approval for educators to perform home visits with a Health Visitor in order to promote oral health.'

7) Strategy changes or improvements:

A significant number of staff responses focused on the long term aims of D2S and how these might better be achieved.

There were a number of suggestions stating that there should be 'top down' support for the programme whereby D2S is advocated and promoted via the Welsh Government's Department of Education and Skills:

'More input from Welsh Government on teacher training days to create the importance to the teachers on D2S in school so they are aware we are trying our best to make a difference.'

'Support from education at highest level to encourage/require schools in target areas to participate'

'Director of education support'

Some suggested that adding the programme (or elements of the programme) to the school curriculum would demonstrate the Department of Education and Skills' endorsement of D2S:

'Consult with education ministers to encourage linking the importance of oral health with education, therefore adding toothbrushing to the curriculum.'

'Adding D2S on the curriculum.'

'Toothbrushing to be included as part of the national curriculum.'

Several staff indicated that the programme would be improved by returning to negative consent. The majority of these suggestions centred on the concern that the most vulnerable children were not being seen as their consent forms were not being returned by parents:

'Going back to negative consents for school dental inspections, the children who need to be seen are not being seen, as parents are not signing and sending back consent'

forms. Therefore figures cannot be correct, as usually the most vulnerable, who need treatment haven't been seen'

'Formal national guidance regarding priorities using negative consent for toothbrushing'

'If it was a negative consent then more children in need of the programme would benefit. I'm sure we are missing children because parents don't return forms and these children are probably the most in need'

Finally, a few staff suggested that the only way to reduce oral health inequalities in Wales was to introduce water fluoridation:

'Water fluoridation although extremely expensive would decrease decay rates'

'As a pioneer programme to achieve more dental health equality via water fluoridation, this is proven to be the most cost effective and safe way to expose as to the benefits of fluoridation in reducing dental disease.'

COMMENTARY

Although the findings were summarised using the framework of the questions posed to staff in the questionnaire, the analysis was very much data driven (i.e. the researcher did not try to use the question focus to guide the analysis). The researcher who examined the data felt that while many staff appeared to respond directly to the question, a significant proportion of the respondents used these questions as an opportunity to reflect on the running of the programme in their area. Furthermore, the researcher perceived that many of the responses were framed within the overall aims and objectives of the D2S programme (and indeed of children's dental health as a whole), rather than focusing their comments within the model of the programme as it currently stands. This impression of the data may have affected the themes that were subsequently identified.

Nevertheless, the researcher felt that the vast majority of the responses were positive, progressive and forward thinking, and centred on improving the oral health of children through various means.

5. Discussion

The current report is based on findings from a questionnaire survey of CDS staff who work in a clinical and/or public health capacity in Wales.

Toothbrushing

Generally there was a high level of support for the primary focus of the programme, i.e. the prevention of dental caries development through contact with fluoride through toothbrushing. The fact that staff ranked toothbrushing in schools as the second most important service to maximise oral health shows that staff uphold the D2S programme as making a real difference to oral health and toothbrushing habits. The results also suggest that staff viewed the D2S 'How to Guide' as a useful tool in implementing toothbrushing protocol in schools.

The results also indicate that the majority of staff view the act of toothbrushing, and the implementation of toothbrushing as a twice-daily habit as the collective responsibility of parents, schools, and the NHS dental service. There was a feeling from some staff that without more parental education and contact, school toothbrushing could only deal with the matter of poor oral hygiene and caries development to a limited extent.

Preventative treatments

A small majority of staff reported concerns that caries can progress under fissure sealants. Despite scientific evidence that this is unlikely when a sealant is adequately placed.¹¹

Generally there was high support for fluoride treatment. The ranking task indicated that staff view fluoride treatment in schools as one of the most important services in preventing poor oral health in children. This, coupled with the majority agreement that fluoride varnish is not

viewed as an alternative to toothbrushing by parents, indicates that staff are confident that fluoride varnish applied through the D2S programme is an effective adjunct to toothbrushing in preventing caries.

The school environment

There was general agreement that D2S has had a positive impact on the school environment. However, the data suggests that implementing the programme within the school environment is not without its challenges. Although staff most frequently disagreed that the programme has been burdensome on teachers, there were many references from the open response data to the contrary. Staff felt that the value placed on implementing school toothbrushing is generally seen as less important than many other areas of the curriculum. Staff sympathised with teachers indicating they are under a significant amount of pressure to fit toothbrushing into an already extremely busy day. Suggestions ranging from extra help from D2S staff in implement the toothbrushing, to adding the intervention to the curriculum were proposed to alleviate this strain on the day-to-day time pressures. However, without top down instruction (or enforcement) to brush, or extra staff embedded within the school to implement brushing it is easy to see why there are some ongoing compliance issues with the in-school toothbrushing element of the programme.

Oral health education

It is evident from the questionnaire that staff place a high value on the delivery of oral health education (OHE) through the D2S programme. Despite the importance associated with the implementation of OHE, there seemed to be some hesitation in the impact of D2S OHE on diet as the programme currently stands.

In the ranking tasks, OHE focused on diet and OHE focused on maintaining good oral hygiene were the most highly ranked statements framed within the concept of health education. However, staff appear to be more tentative about the impact OHE in school has had on diet choices. While the open question responses contained references relating to improved oral hygiene as a positive outcome of the programme, there were a few comments suggesting that despite diet education, young children lack the agency to make informed decisions about cariogenic food and drink. These comments appeared to be strongly linked to parental education about diet and the idea that children can eat what they like if they brush their teeth twice a day.

D2S and treatment service integration

There is evidence that some staff feel that there are less than optimum levels of integration between the CDS treatment services and D2S. To some extent this is unsurprising considering the services are implemented within different settings. The open responses revealed a desire, particularly from the treatment staff, to work more closely with D2S staff in order to understand more about the programme.

Links with GDS and partnership working

Considering the advantages of a joined-up approach in many areas of health and social care it is no surprise that respondents felt that a higher level of GDS awareness and involvement in D2S was necessary to support the preventative oral health agenda. While staff suggested ways of promoting parents awareness of primary care dental services, there was generally a dearth of references in the open responses suggesting ways to improve GDS integration with D2S.

Additionally, the open response data yielded support for partnership working between the educational sector and other health professionals, particularly health visitors, very early on in a child's life. In areas of high dental need there may be a need to address common risk factors.

Resources

There was a view that D2S has been promoted at the expense of CDS treatment services. These results were elaborated upon in the open question responses. A few staff went as far as to say that treatment services were lacking essential equipment when D2S teams are over-resourced. However, to counterpoint these views, many staff indicated the need for more stickers, leaflets, toothbrushes and toothpaste in the clinical setting, so as to support the preventative aims of the programme.

Aside from the notion of competing resources between treatment services and D2S, there were many requests for additional D2S resources throughout the open response data. These related to extra staff to ensure the education element of the programme is delivered effectively, to extra online resources to ensure maximum participation and engagement with the programme.

Programme expansion

While there was majority agreement that the programme was targeting those most in need of in-school toothbrushing, the questionnaire findings indicate support for the programme to be extended across Wales. Moreover, the responses to the open questions demonstrate support for the education element of the programme to reach secondary school students, and for the toothbrushing to continue throughout primary school.

One of the issues for staff is that they are simply not reaching enough children, or delivering the toothbrushing element of the programme for long enough to fully implement and normalise good oral health habits. However, despite identifying gaps in the reach of the programme the desire to expand demonstrates a strong belief in the importance of primary caries prevention and a willingness to share the intended benefits of the programme with more of the child population.

Health policy

The ranking tasks indicated a very different reception to the two health policy statements concerning water fluoridation and the addition of tax to food and drink high in added sugar.

The high priority given to water fluoridation was tempered by a large spread of ranks indicating that while a small majority believe that fluoride contact through drinking water is the best way to achieve a reduction in tooth decay, a significant proportion of staff acknowledge that it is highly unlikely to ever be implemented. As such, more moderate interventions to maximise fluoride contact with the teeth may be more favourable to dental staff. This may explain why toothbrushing and fluoride varnish in schools were given such high priority rankings.

In light of the pressure placed on government to levy a tax on drink very high in added sugar¹² it is interesting that staff ranked a sugar tax as a low priority in the optimisation of children's dental health. However, these ranking tasks were about orders of importance and while staff may still support a sugar tax, the low rankings may indicate that they do not believe that this intervention in isolation could cut caries rates in children.

Differences in attitudes

Generally, those who devoted at least part of their working time to the D2S programme were more positive towards the programme. This may be because of cognitive bias such as in-group favouritism, or perhaps because treatment staff see the effects of poor toothbrushing habits and poor diet every day and therefore are more sceptical of the benefits D2S might have. However, there was nothing in the open response data to support these potential explanations.

Similarly, some health boards appeared more convinced about the programme than others. Again, there was no indication in the qualitative data as to why this might be.

On the whole staff seem to have a very proactive attitude to tackling poor oral health in children from using the preventative methods that D2S offers. While staff overall appeared confident in the practices the programme employs to maximise children's oral health and reduce health inequalities, there were many suggestions as to how the outcomes of programme might be improved. Although the D2S programme is not without its limitations, and will not be supported by everyone, the fact that almost three quarters of the responding CDS workforce felt the programme should be extended across Wales is a testament not only to the impact staff feel the programme is having on the dental health of young children, but also to the development of the preventative health agenda across Wales.

6. Conclusions

The outcomes from this questionnaire suggests that staff generally have a positive opinion of the programme. The overall impression is that staff are confident that the programme is making a difference to the dental health of young children.

7. Acknowledgements

We would like to gratefully acknowledge the Community Dental Service staff who took time to complete the questionnaire surveys and for assisting in the distribution of the surveys.

8. References

1. Welsh Government. Together for Health: A National Oral Health Plan for Wales 2013-18. 2013.
2. Trubey R.J, Moore S.C, Chestnutt I.G. Parents' reasons for brushing or not brushing their child's teeth: a qualitative study. *Int J Paediatr Dent* 2014;24(2):104-12.
3. Trubey R.J, Moore S.C, Chestnutt I.G. Children's toothbrushing frequency: the influence of parents' rationale for brushing, habits and family routines. *Caries Res*. 2015;49(2):157-64.
4. Trubey R.J, Chestnutt I.G. Designed to Smile. Evaluation of a national child oral health improvement programme. Interim Report I. Dental Public Health Unit. Cardiff University School of Dentistry, 2009.
5. Trubey R.J, Chestnutt I.G. Designed to Smile. Evaluation of a national child oral health improvement programme. Interim Report II. Dental Public Health Unit. Cardiff University School of Dentistry, 2010.
6. Trubey R.J, Chestnutt I.G. Designed to Smile. Evaluation of a national child oral health improvement programme: Part III. Dental Public Health Unit. Cardiff University School of Dentistry, 2011.
7. Trubey R.J, Chestnutt I.G. Designed to Smile. Evaluation of a national child oral health improvement programme. Part II Evaluation. Interim Report I. Dental Public Health Unit. Cardiff University School of Dentistry, 2012.

8. Trubey R.J, Chestnutt I.G. Designed to Smile. Evaluation of a national child oral health improvement programme. Part II Evaluation. Interim Report II Dental Public Health Unit. Cardiff University School of Dentistry, 2013.
9. Collins D. Pretesting survey instruments: An overview of cognitive methods. *Quality of Life Research*. 2003;12(3):229-38.
10. Griffin SO, Oong E, Kohn W, Vidakovic B, Gooch BF, Bader J, et al. The Effectiveness of Sealants in Managing Caries Lesions. *J Dent Res* 2008;87(2).
11. Tannahill A. Health promotion: The Tannahill model revisited. *Public Health*. 2008;122 1387-91.
12. Faculty of Public Health. A duty on sugar sweetened beverages: A position statement.

9. Appendices

APPENDIX 1: Community Dental Service Questionnaire Survey (v.2.0 19.03.15)

Unique identifier:

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Community Dental Service Questionnaire Survey

Introduction

Thank you for taking part in this questionnaire survey

Although there appears to be a lot of questions most of these can be answered by simply ticking your chosen response.

There are two questions where we want you to number statements in rank order. There are also three questions at the end where you are asked to write in your response.

Note: Throughout the questionnaire the Community Dental Service and Designed to Smile have been abbreviated to 'CDS' and 'D2S' respectively.

1 What is your role within the CDS? (Please tick the one box that best describes your main role)

- Dentist
- Dental Hygienist
- Dental Therapist
- Dental Nurse
- Oral Health Educator
- Support Worker
- Other

If you selected 'other' please describe your role

2 Please state how long you have worked in your current role:

Years	Months
<input type="text"/>	<input type="text"/>

3 What is your working pattern?

- Full time throughout year (37.5 hours per week)
- Full time **term time only** (37.5 hours per week during term time)
- Part time throughout year
- Part time **term time only**
- Other

If you selected 'other' please describe your pattern of work

4 Approximately what proportion of your working time is devoted to the D2S programme?

- 0%
- 1 – 19%
- 20 – 39%
- 40 – 59%
- 60 – 79%
- 80 – 100%

5 Do you have managerial responsibility for the D2S programme?

- Yes
- No

6

Please add your response to the following statements (select one box per statement)

	Yes	Somewhat	No	Don't know
Do you believe that the D2S programme will achieve its objective/goal of preventing dental caries in young children?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you believe that the D2S programme will achieve its objective/goal of addressing inequalities in oral health in young children?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7

How confident do you feel about the evidence on which D2S is based? Please tick one of the numbered boxes below to indicate your confidence. The boxes are labelled 1 through to 6, where '1' represents 'least confidence' to '6' which represents 'most confidence'

Least confidence Increasing confidence Most confidence

←—————→

1 2 3 4 5 6

8

Do you believe that the D2S programme has improved the following in children participating in the programme?

	Yes	Somewhat	No	Don't know
Oral hygiene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Levels of dental decay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooperation when attending for dental care in clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing a diet less likely to result in dental caries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
Children will brush their teeth more frequently at home as a result of taking part in school toothbrushing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The knowledge provided by the D2S programme will be of lifelong benefit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme has positive knock-on effects on the oral health of siblings not participating in the programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4

10

We are interested in your views on how preventative activities should be prioritised. Below are 20 statements. The statements briefly describe types of services aimed at preventing poor oral health in children. These statements include services that currently exist in Wales and also include some services, pathways or policies that do not currently exist.

Please read through all these statements carefully and then rank them from 1 to 20 where 1 = the statement you believe to be the most important in maximising oral health in children, 2 = the service you believe to be the 2nd most important in maximising oral health in children and so on. Please do not use any number more than once and use all numbers 1 to 20. Please add your chosen number ranking to the boxes next to the statements.

What is most important in maximising oral health in children? 1 = most important, and so on

Providing free toothpaste and toothbrushes

Provision of generic leaflets on maintaining good oral health

Providing reward vouchers to encourage frequent non-attenders to keep CDS appointments

Fluoride varnish application in clinics

Providing individualised written feedback about a child's teeth

Providing oral health education focused on oral hygiene

Fluoridating the water supply

Extending intensive oral health promotion in schools to children up to age 16

Fluoride varnish application in schools

Fissure sealant application in schools

Fissure sealant application in clinics

Toothbrushing in schools

Dental screening in schools

Providing oral health education during clinical consultations

Providing oral health education focused on diet

Visiting 'hard to reach' families at home

Helping 'hard to reach' families find a General Dental Practitioner

Providing parents with face-to-face feedback about a child's teeth

Adding tax to cariogenic foods and drinks

Encouraging 6 monthly check-ups with a General Dental Practitioner

11 Approximately how often do you visit the D2S website?

Daily

Weekly

A few times a month

A few times a year

Never

12 To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
Promotional materials designed to support D2S have had a wider benefit for the CDS as a whole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am confident the clinical outcomes of D2S are being monitored	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Too many resources have been devoted to the D2S programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13 To what extent do you think health promotion activities aimed at children have been encouraged at the expense of CDS clinical resources (e.g. clinical staff time, staffing levels, acquiring necessary equipment)?

Completely

Quite a bit

A little

Not at all

Don't know

14 Do you agree with the following statements?

The D2S programme is well integrated with CDS treatment services	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>
There are clear pathways for communication between the D2S programme and the CDS treatment services	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Don't know <input type="checkbox"/>

15 To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
The D2S programme is now an integral part of CDS activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The CDS and D2S teams are closely integrated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nursing staff working on D2S have sufficient opportunity to maintain their clinical competencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16 Do the following non-dental professionals link with the D2S programme in your area?

	Yes	Somewhat	No	Don't know
Health visitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Midwives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teachers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nursery staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General Practitioners (GPs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School nurses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
'Healthy Schools' representatives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dietitians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17 Do you agree with the following statements?

	Yes	Somewhat	No	Don't know
The D2S programme in your Health Board is well integrated with the General Dental Service treatment services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme is well integrated with other health promotion activities e.g. the Healthy Schools Initiative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme has had a wider positive impact on the school environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18 Do you agree with the following statements?

	Yes	Somewhat	No	Don't know
Parents are adequately informed of the purpose of D2S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents of D2S children are clear that they need to continue to attend their usual source of dental care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tooth-brushing is a parental responsibility and should be left totally to parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19 To what extent do you agree with the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
Clinic-based teams are likely to defer responsibility for oral health education to the D2S programme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme has focused on tooth-brushing at the expense of other oral health messages such as diet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents view fluoride varnish treatment as an alternative to toothbrushing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme is a good use of taxpayers' money	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20 Do you agree with the following statements?

	Yes	Somewhat	No	Don't know
In-school tooth-brushing works as an effective method of promoting brushing at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The health promotion message delivered by the D2S team and clinical CDS staff is consistent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21 To what extent are you concerned that fissure sealants may encourage hidden caries?

- Very concerned
- Slightly concerned
- Not at all concerned
- Don't know

22 Are you aware of the D2S 'How to Guide'?

Yes

No

If 'no' please skip to question **24**

23 To what extent do you agree with the following statements?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
I find the D2S 'How to Guide' useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When working on D2S I adhere to the D2S 'How to Guide'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The D2S programme is sufficiently audited for adherence to the 'How to Guide'?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24 To what extent do you agree with the following statement?

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
D2S is targeting those children most likely to benefit from in-school toothbrushing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25 Do you think that D2S should be expanded to cover all children in Wales?

Yes

No

Don't know

26 To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
The D2S programme poses too much of a burden on teachers and classroom assistants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The data required for process monitoring of D2S is excessive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27

In question 10 we asked you to rank 20 preventative interventions. Below is a second list.

We would again like you to read through these statements carefully and then rank them from 1 to 20 where 1 = the statement you believe to be the most important in preventing poor dental health in children, 2 = the service you believe to be the 2nd most important in preventing poor dental health in children and so on. Please add your chosen number ranking to the boxes next to the statements.

Please do not use any number more than once and use all numbers 1 to 20.

Please note that some of the interventions described in the statements are not currently rolled-out in Wales.

What do you believe is most important in preventing poor dental health in children? 1 = most important, and so on

Dental check-ups within a school setting

Educating children about the oral health benefits of brushing their teeth twice a day

Enhancing the reach of in-school oral health promotion by delivering oral health education sessions to older children

Brushing teeth in school

Increasing contact with fluoride through drinking water

Promoting contact with a family dentist twice a year

Finding General Dental Practitioners for 'underserved' families

Distribution of pamphlets which focus on keeping the teeth and mouth in a healthy condition

Incentivising parents and children to keep scheduled clinic visits through a reward system

Increasing the price of foods and drinks high in added sugar

Preventing caries development through the application of fissure sealants in the school setting

Extending the reach of the dental service by giving 'underserved' families the option of a home check-up

Writing to parents with bespoke information about their child's teeth

Preventing caries through the application of fluoride varnish in the school setting

Free toothbrushing materials to promote toothbrushing at home

Preventing caries by applying fissure sealants in clinics

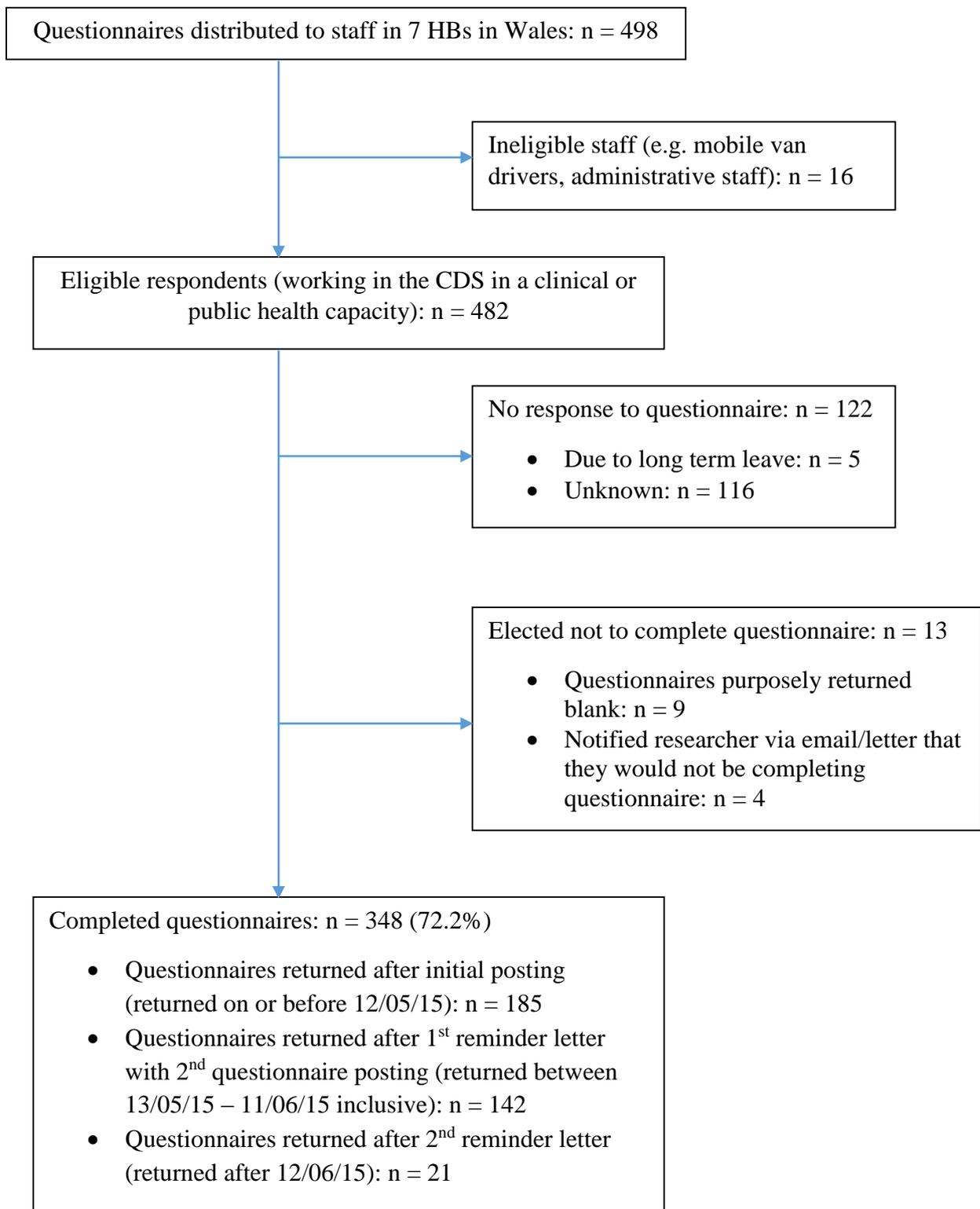
Consulting with parents about the condition of their child's teeth

Preventing caries by applying fluoride varnish in clinics

Delivering oral health promotion during clinic appointments

Educating children about the oral health benefits of a diet low in added sugar

APPENDIX 2: Respondent flow diagram



APPENDIX 3: Spearman rank correlation between statements in rank task 1 and rank task 2

Subscale	Task 1 statement	Task 2 'matching' statement	N	Mean	Median	Std. Deviation	Spearman correlation
Prevention	Providing free toothpaste and toothbrushes	Free toothbrushing materials to promote toothbrushing at home	266	9.750	9.5	4.871	0.6168
	Fluoride varnish application in schools	Preventing caries through the application of fluoride varnish in the school setting	266	6.374	5	3.959	0.7469
	Fissure sealant application in clinics	Preventing caries by applying fissure sealants in clinics	265	9.568	9.5	3.827	0.6094
	Toothbrushing in schools	Brushing teeth in school	266	6.265	5.5	4.135	0.7085
	Fissure sealant application in schools	Preventing caries development through the application of fissure sealants in the school setting	263	8.827	8	4.404	0.7058
	Fluoride varnish application in clinics	Preventing caries by applying fluoride varnish in clinics	266	8.384	8	3.815	0.6059
Access	Providing reward vouchers to encourage frequent non-attenders to keep CDS appointments	Incentivising parents and children to keep scheduled clinic visits through a reward system	264	17.390	18.5	3.282	0.6683
	Dental screening in schools	Dental check-ups within a school setting	265	9.460	9	4.587	0.5211
	Helping 'hard to reach' families find a General Dental Practitioner	Finding General Dental Practitioners for 'underserved' families	265	12.302	13	4.320	0.5815
	Encouraging 6 monthly check-ups with a General Dental Practitioner	Promoting contact with a family dentist twice a year	266	9.447	10	4.605	0.5675
	Visiting 'hard to reach' families at home	Extending the reach of the dental service by giving 'underserved' families the option of a home check-up	266	14.188	15	4.061	0.4794
Education	Providing individualised written feedback about a child's teeth	Writing to parents with bespoke information about their child's teeth	266	13.974	15	3.921	0.5143
	Providing oral health education focused on diet	Educating children about the oral health benefits of a diet low in added sugar	266	7.643	7.5	4.115	0.5393
	Providing parents with face-to-face feedback about a child's teeth	Consulting with parents about the condition of their child's teeth	265	10.564	11	4.223	0.4998
	Providing oral health education during clinical consultations	Delivering oral health promotion during clinic appointments	266	10.188	10.5	3.780	0.4942

	Extending intensive oral health promotion in schools to children up to age 16	Enhancing the reach of in-school oral health promotion by delivering oral health education sessions to older children	266	10.120	10	4.210	0.4893
	Providing oral health education focused on oral hygiene	Educating children about the oral health benefits of brushing their teeth twice a day	266	7.846	7.75	4.018	0.4895
	Provision of generic leaflets on maintaining good oral health	Distribution of pamphlets which focus on keeping the teeth and mouth in a healthy condition	265	14.800	15	3.653	0.5335
Protection	Fluoridating the water supply	Increasing contact with fluoride through drinking water	266	7.412	4	7.056	0.9244
	Adding tax to cariogenic foods and drinks	Increasing the price of foods and drinks high in added sugar	265	14.693	17	5.603	0.7661

APPENDIX 4: Task 1 statements ranked by median* (n = 287)

Order of importance **	Rank order task 1 statements	Matched statement order (Appendix 5)	Lowest rank	Lower quartile (Q1)	Median	Upper quartile (Q3)	Highest rank
1	Fluoridating the water supply	1	1	1	3	15	20
2	Toothbrushing in schools	2	1	2	5	8	20
3	Fluoride varnish application in schools	= 3	1	3	5	8	19
4	Providing oral health education focused on diet	5	1	4	7	11	19
5	Fissure sealant application in schools	9	1	4	7	11	20
6	Fluoride varnish application in clinics	6	1	5	8	12	20
7	Providing free toothpaste and toothbrushes	11	1	5	9	14	20
8	Dental screening in schools	9	1	5	9	13	20
9	Providing oral health education focused on oral hygiene	= 3	1	5	9	13	20
10	Fissure sealant application in clinics	10	2	6	9	13	20
11	Extending intensive oral health promotion in schools to children up to age 16	14	1	5	10	14	20
12	Encouraging 6 monthly check-ups with a General Dental Practitioner	7	1	6	10	15	20
13	Providing oral health education during clinical consultations	13	1	7	10	14	20
14	Providing parents with face-to-face feedback about a child's teeth	12	1	7	11	15	20
15	Helping 'hard to reach' families find a General Dental Practitioner	15	1	9	13	16	20

16	Visiting 'hard to reach' families at home	19	1	10	14	17	20
17	Providing individualised written feedback about a child's teeth	16	1	11	15	17	20
18	Provision of generic leaflets on maintaining good oral health	17	2	12	16	18	20
19	Adding tax to cariogenic foods and drinks	18	1	12	18	19	20
20	Providing reward vouchers to encourage frequent non-attenders to keep CDS appointments	20	5	17	19	20	20

* Task 1 rankings ordered first by lowest median ranking and then by lowest ranking within the lower quartile (lower number = activity/service deemed more important)

** 1 = statement deemed most important; 2 = statement deemed second most important; 20 = statement deemed least important

APPENDIX 5: Task 2 statements ranked by median* (n = 278)

Order of importance**	'Matched' rank order task 2 statements	Matched statement order (Appendix 4)	Lowest rank	Lower quartile (Q1)	Median	Upper quartile (Q3)	Highest rank
1	Increasing contact with fluoride through drinking water	1	1	1	4	14	20
2	Brushing teeth in school	2	1	3	5	9	20
= 3	Preventing caries through the application of fluoride varnish in the school setting	3	1	3	5	10	20
= 3	Educating children about the oral health benefits of brushing their teeth twice a day	9	1	3	5	10	20
5	Educating children about the oral health benefits of a diet low in added sugar	4	1	3	7	11	20
6	Preventing caries by applying fluoride varnish in clinics	6	1	5	8	11	20
7	Promoting contact with a family dentist twice a year	12	1	4	9	12	20
8	Dental check-ups within a school setting	8	1	5	9	13	20
9	Preventing caries development through the application of fissure sealants in the school setting	5	1	5	9	14	20
10	Preventing caries by applying fissure sealants in clinics	10	1	6	9	13	20
11	Free toothbrushing materials to promote toothbrushing at home	7	1	6	10	15	20
12	Consulting with parents about the condition of their child's teeth	14	1	7	10	14	19
13	Delivering oral health promotion during clinic appointments	13	1	7	10	13	20
14	Enhancing the reach of in-school oral health promotion by delivering oral health education sessions to older children	11	1	7	11	14	20

15	Finding General Dental Practitioners for 'underserved' families	15	1	10	14	16	20
16	Writing to parents with bespoke information about their child's teeth	17	1	11	15	18	20
17	Distribution of pamphlets which focus on keeping the teeth and mouth in a healthy condition	18	2	12	16	18	20
18	Increasing the price of foods and drinks high in added sugar	19	1	11	17	19	20
19	Extending the reach of the dental service by giving 'underserved' families the option of a home check-up	16	2	13	17	19	20
20	Incentivising parents and children to keep scheduled clinic visits through a reward system	20	1	16	18	20	20

* Task 2 rankings ordered first by lowest median ranking and then by lowest ranking within the lower quartile (lower number = activity/service deemed more important)

** 1 = statement deemed most important; 2 = statement deemed second most important; 20 = statement deemed least important

APPENDIX 6: Abbreviations

CDS	Community Dental Service
D2S	Designed to Smile programme
GDS	General Dental Service
HB	Health Board
NHS	National Health Service
OHE	Oral Health Educator/Oral Health Education
SW	Support Worker

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