Milestones in oral health services in the Republic of Ireland

M Mc Donnell BDS MDPH BBS
HSE-South (North Lee)

M Harding BDS MFGDP (UK) MDPH
HSE-South (North Lee)
Oral Health Services Research Centre,
University Dental School & Hospital,
University College Cork,
Wilton,
Cork

H Whelton BDS MDPH PhD FFPHM
Director, Oral Health Services Research Centre,
University Dental School & Hospital,
University College Cork,
Wilton,
Cork

D O'Mullane, Emeritus Professor
Oral Health Services Research Centre,
University Dental School & Hospital,
University College Cork,
Wilton,
Cork

Address for correspondence:
Margaret McDonnell
HSE Dental Clinic,
St Mary's Health Centre,
Bakers Road,
Cork
E: Margaret.McDonnell@hse.ie

With the many changes occurring in Ireland it would seem an opportune time to review the body of research conducted and policy enacted in the Republic of Ireland on oral health services and oral health. The dental health of the nation prior to water fluoridation, the legislation and policy decisions impacting on oral health up to budgetary changes, and the production of evidence-based guidelines will be discussed.

The first national survey of dental health was conducted in Ireland in 1952 – 'Dental Caries in Ireland'.[1] In the intervening 60 years, further surveys of the oral health of people in Ireland have been carried out. Legislation, surveys and policy documents that have shaped dentistry and the oral health of the population are set out in **Tables 1** and **2**. A more comprehensive description of the policies can be found in the thesis submitted in fulfilment of Masters in Dental Public Health (MDPH) by the lead author.[2]

Pre water fluoridation – 1952-1958

- Dental Caries in Ireland, 1952
- Health Act, 1952
- Water fluoridation internationally
- Fluorine Consultative Committee

Dental Caries in Ireland, 1952

The first dental survey was conducted in Ireland in 1952 under the Nutrition Committee of the Medical Research Council of Ireland. School children in different areas of Ireland were examined to see if differences in decay levels could be identified. At the time there was a theory that the quality of food had an impact on the level of dental decay. The research did not support the hypothesis, as no correlation was found between dietary intake and caries. Very high levels of decay were found, with only 1% of children in the 12-13 years age group caries free, and the mean decayed/missing/filled teeth (DMFT) was 6.9. The examiners concluded that there was little restorative treatment provided and little done to arrest dental decay.[1]

Health Act, 1953

Legislation introduced in 1953 gave the health authorities responsibility for the dental care of a large proportion of the population.[3] Under the Act the health authority was given the responsibility to make available dental treatment and the provision of dental appliances to children attending national schools and children less than six years of age. Dental treatment and dental appliances were to be provided free of charge to this group of patients, with the exception of replacement appliances in certain circumstances. Health authorities were also given the responsibility to provide dental treatment to adults, and their dependants who could not afford treatment, and to those who were insured under the Social Welfare Act, 1952.[4]

TABLE 1: Some milestones in oral health services in the Republic of Ireland.

Time period	Reports commissioned Legislation enacted
1952-1970	Health Act, 1952 Fluorine Consultative Committee, 1958 Health (Fluoridation of Water Supplies) Act, 1960 'Kaim-Caudle Report', 1969 Health Act, 1970
1979-1985	'Working party' Report 1979 1985 criteria for orthodontic treatment Dentists Act, 1985
1988-1994	'The Leyden Report', 1988 Shaping a Healthier Future, 1994 Dental Health Action Plan, 1994 Dental Treatment Services Scheme
2000-2012	Health (Dental Services for Children) Regulations, 2000 Forum on Fluoridation, 2002 Health Act, 2004 Disability Act, 2005 Modified Index Of Treatment Need, 2007 Fluoridation of Water Supplies Regulations, 2007 Clinical Practice Guidelines, 2005-2012 Budget 2010

Water fluoridation internationally

Internationally, independent studies of water fluoridation were carried out in the 1940s and 1950s. Five studies were carried out across America, Canada and Finland. Each of these studies, some lasting over 15 years, showed a reduction in dental caries in the towns with fluoridated water compared to the non-fluoridated control towns.[5]

Fluorine Consultative Council

Appointed in 1956 by TF O'Higgins, the Fluorine Consultative Council in Ireland reported in 1958.[6] The Council was to establish if an increased intake of fluorine (F) was desirable to reduce the incidence of dental caries, and to examine how best to provide it. Safety precautions were also to be considered. The Council found that the association between F and reductions in dental decay made the increased intake of F desirable. They advised that the increased intake of F would be best provided by the fluoridation of public water supplies at a level of 1 part per million F (1ppm F).[6]

Water fluoridation in Ireland

The Health (Fluoridation of Water Supplies) Act, 1960[7] was enacted to make water fluoridation possible in response to the recommendations of the Fluorine Consultative Council. Fluoridating public water supplies was a contentious issue. Much opposition to the Act existed. One area of contention was whether water fluoridation should be compulsory or voluntary. The Act was delayed in its implementation by court actions that were taken by Gladys Ryan. The case was heard in the High Court and appealed to the Supreme Court. Ultimately the Supreme Court decided that the Act was constitutional, and compulsory water fluoridation commenced in July 1964.

TABLE 2: National surveys.[1,8,12-14]

Group Survey
Adults
Adult dental survey, 1979
Oral Health of Irish Adults, 1989-1990
Oral Health of Irish Adults, 2000-2002
Children
Dental Caries in Ireland, 1952
Reports on the Incidence of Dental Caries in Schoolchildren and on the Analyses of Public Piped Water Supplies in the Different Counties, 1961-1965
Children's Dental Heath in Ireland, 1984
Children's Oral Health in Ireland, 2002
Special needs
Oral Health of Adults with an Intellectual Disability in Residential Care in Ireland, 2003
Oral health of children attending special needs schools and day care centres

Dental surveys prior to water fluoridation

Legislation requires that figures of dental caries prevalence would be provided by health authorities before and "whenever and so often as the Minister so requires" after water fluoridation.[7] The baseline surveys were carried out from 1961-'65. They found high levels of decay in children.[8] A more in-depth discussion of these and other surveys can be found in the paper in this supplement by Whelton and O'Mullane.[9]

Health service structural reform

- Establishment of health boards, 1970
- Establishment of the Health Service Executive (HSE), 2005

In 1970 a new health act was enacted, establishing the health boards. Health boards were given the responsibility to make dental treatment and appliances available as in the previous legislation.[10] The Health Board structure lasted until the introduction of the Health Service Executive (HSE) on January 1, 2005. The HSE is a separate entity to the

TABLE 3: The proportion of edentulous adults by age group in Ireland.[12-14]

Year	35-44 age group	Over 65 years
1979	12%	72%
1989-1990	4%	48%
2002	0.9%	40.9%

Department of Health. The purpose of the HSE is "to use the resources available to it in the most beneficial, effective and efficient manner to improve, promote and protect the health and welfare of the public".[11] The same responsibility in relation to dental care was given to the HSE as in the preceding health acts.

Surveys post water fluoridation

Adult

- Adult dental survey, 1979
- Oral Health of Irish Adults, 1989-1990
- Oral Health of Irish Adults, 2000-2002

The first national survey of adult dental health was a questionnaire survey conducted in 1979.[12] The next survey of Irish adults was conducted in 1989-1990 and was both a clinical and sociological survey.[13] The most recent survey of adult dental health was conducted in 2000-2001.[14] The surveys, which were carried out in compliance with the water fluoridation legislation,[7] measured many factors, including edentulousness (**Table 3**). All the surveys demonstrated that adults with medical cards had lower retention of teeth. The surveys also showed that people eligible under the Dental Treatment Benefits Scheme (DTBS) had less unmet need than those not eligible and higher levels of tooth retention.[12-14] The two clinical surveys demonstrated that those resident in fluoridated areas had better oral health than those resident in non-fluoridated areas.[13,14]

Children

- Children's Dental Heath in Ireland, 1984
- Children's Oral Health in Ireland, 2002

Two national surveys of children's dental health have been conducted since water fluoridation was introduced. The first was conducted in the Republic of Ireland only, while the second examined children on the entire island. Examining children north and south of the border allowed comparisons between Irish fluoridated and non-fluoridated areas, and the non-fluoridated Northern Ireland.[15,16] **Table 4** shows caries free percentages across the surveys.

TABLE 4: The proportion of children caries free by age and fluoridation status.[1,15,16]

Year	Country	Fluoridation status	12- to 13-year-olds	15-year-olds
1952	Ireland	Non-fluoridated	1%	
1961-1965	Ireland	Non-fluoridated		2%
1984	Ireland	Non-fluoridated		8%
1984	Ireland	Fluoridated		12%
2002	Northern Ireland	Non-fluoridated		18.9%
2002	Ireland	Non-fluoridated		20.7%
2002	Ireland	Fluoridated		27%

People with special needs

- Oral Health of Adults with an Intellectual Disability in Residential Care in Ireland, 2003
- Oral health of children attending special needs schools and day care centres

The 1979 working party report highlighted that the dental service for people with special needs should be placed higher on the oral health agenda.[17] Health and disability in Ireland began to be examined in the 2000s. Surveys were carried out of people with special needs attending special needs schools and day centres, as well as those in residential centres, during 2002 and 2003. These surveys highlighted inadequate dental service provision for these groups of patients with high treatment needs.[18,19] The Disability Act, 2005, outlines the rights of people with disabilities and the responsibilities of service providers.[20] 'Oral Health and Disability: the way forward' was published in 2005.[21]

Reports and strategies

1960s-late 1980s

- Dental Services in Ireland, 1969
- Dental Services Report, 1979
- 'The Leyden Report', 1988
- Dentists Act, 1985

In 1969 The Economic and Social Research Institute (ESRI) examined the dental service in Ireland, as well as looking at the services in Northern Ireland, Denmark, New Zealand and the USA. The report is commonly referred to as the Kaim-Caudle report. The author praised water fluoridation, saying that it "is possibly the most outstanding measure in the public health field undertaken since the foundation of the State".[22] In the late 1970s a joint working party was formed

between the Department of Health, the Irish Dental Association and the health boards. In the assessment of the services being provided the joint working party found that "it is clear that the health board dental service is not at present capable of providing an acceptable level of service for all eligible persons".[17] In 1988 Dr Rory O'Hanlon TD, Minister for Health, requested a working group report on improvements that could be made to dental services. Terry Leyden TD chaired the working group and so the report is commonly referred to as 'the Leyden Report'. One recommendation of the Leyden Report was the development of national guidelines for the children's dental service.[23]

Each of these reports made a number of recommendations based on the knowledge and resources available. All highlighted the need for changes to the service being provided for those eligible for medical cards. The recommendation made by them all was that a system similar to the DTBS should be introduced to allow people with medical cards to receive dental care in private practices rather than from public salaried dentists. Another common thread across these reports was that the public salaried dentists should care for children, with a strong emphasis on prevention. The introduction of dental auxiliary workers was also recommended. The type of worker discussed most frequently was the dental hygienist.[17,22,23]

Dentists Act, 1985

Many reports and surveys published following the Dentists Act, 1928, made suggestions that the legislation should be amended.[15,17,22] It was finally updated with the Dentists Act, 1985, which in 2012 is still current legislation.[24] The ability to create classes of dental auxiliary workers was given to the Dental Council, and in 1990 dental hygienists were given legal recognition.[25]

1990s

- Shaping a Healthier Future, 1994
- Dental Health Action Plan, 1994
- Dental Treatment Services Scheme

A healthcare strategy and the Dental Health Action Plan were introduced in 1994 by the then Minister for Health, Brendan Howlin TD. Key aims were highlighted for oral health:

1. Reduce the level of dental disease in children.
2. Improve the level of oral health in the population overall.
3. Provide adequate treatment services to children and to all medical card holders.

The main theme of the Health Strategy was the reorientation of the system by reshaping service planning and delivery.[26] The Dental Health Action Plan was the first to articulate a strategy for the dental service. It stated that the aim of the public dental service is "To improve the level of oral health of the whole population". The plan aimed to extend dental services to children up to their 16th birthday, and at the same time phase in a scheme that would enable adult medical card holders to be treated by private dental practitioners. Prevention of dental disease was an important part of this action plan.[27]

The Dental Treatment Services Scheme (DTSS) was established following on from the Dental Health Action Plan.[27] The treatment of individuals holding a medical card was transferred from salaried public dentists to contracted private practice in a phased manner. Patients with medical cards were then able to attend any participating dentist to receive basic dental treatments including the provision of dentures. The age limit for receipt of services through the salaried service was extended to 15 years, i.e., up to the 16th birthday.[28] These were two recommendations that had been consistently made since the 1979 working group.[17]

2000 onwards

- Forum on Fluoridation, 2002
- Clinical Practice Guidelines, 2005-2012
- Budget 2010

Water fluoridation was a contentious issue in the early 2000s. Opponents of water fluoridation questioned the need for it, its safety and increasing fluorosis. Micheál Martin TD, Minister for Health and Children, established the Forum on Fluoridation Ireland, which reported in 2002. The Forum's remit was to examine water fluoridation effectiveness and safety, and to make recommendations on the information examined. The Forum concluded that water fluoridation was having a beneficial effect on the oral health of the population. It recommended continuing water fluoridation in Ireland at a reduced level of between 0.6ppm and 0.8ppm F with a target value of 0.7ppm F.[29] The reason given for the reduction is that higher use of fluoride from other sources such as toothpaste since the 1970s meant that less fluoride in the water would produce a similar benefit and minimise fluorosis. Legislation making this change was signed into effect in July 2007.[30] An expert body on fluorides was established to implement the recommendations of the Forum on Fluoridation report and to evaluate ongoing research in all aspects of fluoride.[31]

One of the recommendations of the 'Leyden Report' was the development of national guidelines for the children's dental service.[23]

The Irish Oral Health Services Guideline Initiative was established, a collaboration between University College Cork, the HSE and The Cochrane Collaboration, and commenced work in 2005. The project funding came from the Health Research Board as part of its strategic development and research development awards. The Irish Oral Health Services Guideline Initiative published four guidelines between 2008 and 2012:[32-35]

1. 'Topical Fluorides: Evidence-based guidance on the use of topical fluorides for caries prevention in children and adolescents in Ireland', 2008.[32]
2. 'Strategies to prevent dental caries in children and adolescents: Evidence-based guidance on identifying high caries risk children and developing preventive strategies for high caries risk children in Ireland', 2009.[33]
3. 'Pit and Fissure Sealants: Evidence-based guidance on the use of sealants for the prevention and management of pit and fissure caries', 2010.[34]
4. 'Oral Health Assessment: Best practice guidance for providing an oral health assessment programme for school-aged children in Ireland', 2012.[35]

The guidelines are evidence based and cover important preventive strategies of relevance to public and private dentists in Ireland. Evidence-based practice is an essential component of modern dentistry and quality guidelines such as those mentioned are essential in the provision of quality care to the dental public.

Budget 2010

Since the first survey of dental caries in Ireland, many changes have occurred in the dental service. Adults with medical cards were being treated in private practice contracted under the DTSS. The children's service provided by the salaried public dental service was extended to the 16th birthday.[28] As Ireland faced great economic challenges, the national budget for 2010 changed the schemes for eligible dental patients under both the DTBS and the DTSS:[36]

1. DTBS: insured workers are entitled to only one dental examination a year and all other treatment has to be paid in full by the patient. (This is a dramatic change from the previous benefits that insured workers enjoyed for their PRSI contributions, which previously included biannual cleanings and subsidised restorative treatment.)
2. The budget for the DTSS was reduced in the 2010 national budget. (The reduction in budget led to the Scheme being reduced dramatically mid year to examination, limited restorative treatment and emergency treatments, also with no cleanings for eligible patients.)
3. The 2010 national budget reduced tax relief on dental expenses to the standard rate of relief: 20%.[36]

Orthodontic care in the dental public service

- 1985 criteria
- Modified Index Of Treatment Need, 2007

In 1985 criteria were issued by the Department of Health to "be applied in assessing degrees of priority of need for specialist orthodontic treatment on the basis of degree of handicap and severity of malocclusion".[37] Three categories of patients were identified: A, B, and C. The Health Board appointed the first consultant orthodontist in 1985. In response to demands to improve access to orthodontic care a review group was established, and the Orthodontic Review Group reported in 2007.[38] New eligibility guidelines were chosen, a modified Index Of Treatment Need (IOTN), which they acknowledged would result in higher numbers of patients being eligible for public orthodontic treatment. For this reason the report recommended that the impact of this increase on resources should be measured. These guidelines are currently being used to assess eligibility in the HSE.

Conclusion

On this brief journey through our surveys and reports, it is clear that many changes have taken place. Some of the changes have taken a long time to occur and to be accepted. The introduction of dental hygienists was called for in many reports before it was legislated for and finally introduced.[15,17,22,24,25] Moving adults from the public dental service into contracted private practice is another example of something that took many years to happen.[17,22,23,26,27] The profession pushed for these changes and the research carried out on the oral health of the population demonstrated why they were necessary.[12-16,18,19] This link between public policy and research makes us stronger as a profession. I hope that planning for the future of our dental service will continue to be supported by research such as the current evidence-based guidelines.[32-35]

Ireland was pioneering when it introduced water fluoridation. It was and still is an efficient and effective public health measure against dental decay. The work of the Fluorine Consultative Council in the mid 1950s and the Forum on Fluoridation in 2002 shows how working with a wider group of people can be successful when formulating healthy public policy for populations. There may come a day when it

is replaced by another strategy but for now it is crucial in our armamentarium.

The PA Consulting Group report commissioned by the HSE produced the Strategic Review of the Delivery and Management of HSE Dental Services.[39] Some of its recommendations are currently being implemented in the HSE. It is too soon to say what the outcome will be but it is an exciting time for the Public Dental Service, as much change is planned.

Acknowledgements

I would like to thank Dr M Harding and Professor D O'Mullane for their support and assistance in producing this article. I would also like to thank Professor Whelton, the staff of the Oral Health Services Research Centre and the visiting lecturers from UCC for their support and assistance while studying for the MDPH in UCC.

References

1. **Fearon, *et al.* – Nutrition Committee.** Dental Caries in Ireland, Report on The Dental Caries Survey, 1952.
2. **McDonnell, M.** An analysis of published policy documents relating to publicly funded dental services in the Republic of Ireland. Thesis submitted in fulfilment of Masters in Dental Public Health, University College Cork, 2007.
3. **Government of Ireland.** Health Act, 1953. Dublin; Stationery Office, 1953. [Available at http://www.irishstatutebook.ie/1953/en/act/pub/0026/index.html; accessed May 27, 2012].
4. **Government of Ireland.** Social Welfare Act, 1952. Dublin; Stationery Office, 1952. [Available at http://www.irishstatutebook.ie/1952/en/act/pub/ 0011/index.html; accessed May 27, 2012].
5. **Fejerskov, O., Kidd, E. (eds.).** *Dental Caries: The disease and its clinical management (2nd ed.).* Oxford; Blackwell Munksgaard, 2008: 288-295.
6. **Fluorine Consultative Council.** Report of the Fluorine Consultative Council. Dublin; Stationery Office, 1961.
7. **Government of Ireland.** Health (Fluoridation of Water Supplies) Act, 1960. Dublin; Stationery Office, 1960. [Available at http://www.irishstatutebook.ie/1960/en/act/pub/0046/index.html; accessed May 27, 2012].
8. Reports on the Incidence of Dental Caries in Schoolchildren and on the Analyses of Public Piped Water Supplies in the Different Counties, 1961-1965. Dublin; Stationery Office. [Available in National Library of Ireland Catalogue – http://catalogue.nli .ie/Record/vtls000235321].
9. **Whelton, H., O'Mullane, D.** Monitoring the effectiveness of water fluoridation in the Republic of Ireland. *Journal of the Irish Dental Association* 2012; 58 (3; Suppl.): S6-S8.
10. **Government of Ireland.** Health Act, 1970. Dublin; Stationery Office, 1970. [Available at http://www.irishstatutebook.ie/1970/en/act/pub/0001/index.html; accessed May 27, 2012].
11. **Government of Ireland.** Health Act, 2004. [Available at http://www.irishstatutebook.ie/2004/en/act/pub/0042/index.html; accessed May 29, 2012].
12. **O'Mullane, D.M., McCarthy, D.** Dental health status and dental knowledge, attitudes and behaviour in Irish adults. *Journal of the Irish Dental Association* 1981; 27: 54-60.
13. **O'Mullane, D., Whelton, H. – Department of Health.** Oral health of Irish Adults. Stationery Office; Dublin, 1992.
14. **Whelton, H., Crowley, E., O'Mullane, D., Woods, N., McGrath, C., Kelleher, V., *et al.* – Department of Health and Children.** Oral Health of Irish Adults, 2000-2002.
15. **O'Mullane, D., Clarkson, J., Holland, T., O'Hickey, S., Whelton, H. – Department of Health.** Children's Dental Health in Ireland 1984, 1986.

16. **Whelton, H., Crowley, E., O'Mullane, D., Cronin, M., Kelleher, V. – Department of Health.** Children's Oral Health in Ireland 2002, 2003.
17. **Department of Health – Irish Dental Association – Health Board Working Party.** Dental Services Report, 1979.
18. **Crowley, E., Whelton, H., Murphy, A., Kelleher, V., Cronin, M., Flannery, E., *et al.* – Department of Health and Children.** Oral Health of Adults with an Intellectual Disability in Residential Care in Ireland 2003, 2005.
19. **Whelton, H., Crowley, E., Nunn, J., Murphy, A., Kelleher, V., Guiney, H., *et al.* – Health Service Executive, University College Cork, Department of Health and Children.** Oral health of children attending special needs schools and day care centres, 2009.
20. **Government of Ireland.** Disability Act, 2005. [Available at http://www.irishstatutebook.ie/2005/en/act/pub/0014/index.html; accessed May 31, 2012].
21. **National Disability Authority – Dublin Dental Hospital TCD – Dental Health Foundation Ireland.** Oral Health and Disability: the way forward, 2005.
22. **The Economic and Social Research Institute.** Dental Services in Ireland – Kaim-Caudle, 1969. [Available at http://catalogue.nli.ie/Record/vtls000074416].
23. **Department of Health.** Report of Working Group Appointed to Review the Delivery of Dental Services – The Leyden Report. Dublin, 1988.
24. **Government of Ireland.** Dentists Act, 1985. [Available at: http://www.irishstatutebook.ie/1985/en/act/pub/0009/index.html; accessed May 31, 2012].
25. Scheme for the establishment of a class of auxiliary dental worker to be known as Dental Hygienist, 1990. [Available at http://www.dentalcouncil.ie/exam-hygienists-details.php; accessed May 31, 2012].
26. **Department of Health.** Shaping a Healthier Future, a strategy for effective healthcare in the 1990s. Stationery Office; Dublin, 1994.
27. **Department of Health.** The Dental Health Action Plan, 26 May, 1994.
28. **Government of Ireland.** Health (Dental Services for Children) Regulations, 2000 (S.I. No. 248 of 2000). [Available at http://www.irishstatutebook.ie/2000/en/si/0248.html; accessed May 31, 2012].
29. **Department of Health and Children.** Forum on Fluoridation Ireland. Government Publications; Dublin, 2002. [Available at http://www.dohc.ie/publications/fluoridation_forum.html; accessed May 31, 2012].
30. **Government of Ireland.** S.I. No. 42/2007 – Fluoridation of Water Supplies Regulations, 2007. [Available at http://www.irishstatutebook.ie/2007/en/si/0042.html; accessed May 31, 2012].
31. **The Irish Expert Body on Fluorides and Health.** [Available at http://www.fluoridesandhealth.ie; accessed May 31, 2012].
32. **Irish Oral Health Services Guideline Initiative.** Topical Fluorides: Evidence-based guidance on the use of topical fluorides for caries prevention in children and adolescents in Ireland, 2008.
33. **Irish Oral Health Services Guideline Initiative.** Strategies to prevent dental caries in children and adolescents: Evidence-based guidance on identifying high caries risk children and developing preventive strategies for high caries risk children in Ireland, 2009.
34. **Irish Oral Health Services Guideline Initiative.** Pit and Fissure Sealants: Evidence-based guidance on the use of sealants for the prevention and management of pit and fissure caries, 2010.
35. **Irish Oral Health Services Guideline Initiative.** Oral Health Assessment: Best practice guidance for providing an oral health assessment programme for school-aged children in Ireland. 2012. [Guidelines are available at http://ohsrc.ucc.ie/html/ guidelines.html].
36. **Department of Finance – Department of Public Expenditure and Reform.** Budget 2010, 2009. [Available at http://www.budget.gov.ie/budgets/2010/2010.aspx; accessed May 31, 2012].
37. **Department of Health.** Criteria for eligibility for orthodontic treatment, 1985.
38. **Health Services Executive.** Orthodontic Review Group Report, 2007. [Available at http://www.hse.ie/eng/services/publications/services/children/orthodontic_review_group_report.pdf; accessed May 31, 2012].
39. **PA Consulting Group.** Strategic Review of the Delivery and Management of HSE Dental Services, 2010.