The role of team dentistry in improving access to dental care in the UK

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The role of professionals complementary to dentistry (PCDs) in improving access to NHS primary dental care is discussed. The pattern of under-supply of dentists in poor socio-economic areas is highlighted and identified, in drawing a parallel to the workings of primary medical teams, as a possible area where PCDs could be used.

There are three major issues that currently face NHS dentistry. Firstly, how do we rectify the widely acknowledged geographical imbalance in the supply and demand for dental services in the UK? Secondly, how do we overcome problems of access to NHS primary dental care caused by a significant number of practitioners offering care on a private or private capitation basis, and thirdly, how do we achieve the above within the cash limits imposed by the Government? The increased use of professionals complementary to dentistry (PCDs) is seen as a solution to these problems.¹ This paper explores this supposition, and draws a parallel with changes that have occurred in the last 20 years to teams working in primary medical care services.²

Inequity of dental health and dental care

The Acheson Report³ reiterated a fact that has been recognised for many years that a close relationship exists between poverty and disease in the UK. Dental disease is no exception to this rule, with huge variations in levels of disease existing between communities. A strong geographical pattern of dental caries prevalence exists, with levels lowest in the South, increasing in extent and

severity towards the North and the West.⁴ Furthermore, an 'inverse care law' has been seen to operate, where those most in need of medical care are the least likely to receive it.⁵ This is also true of access to dental care. Comparing children social classes IV and V with those from social classes I, II and III non-manual, almost twice as many children from the lower social classes have actively decayed teeth, even though less than half as many from the lower social classes have ever visited the dentist.⁶

Even though there are many economic and psychosocial reasons⁷ why people from deprived areas receive comparatively less dental treatment, the relative availability of dentists in the local area does appear to explain at least part of the difference in the uptake of treatment.⁸ Whilst high socio-economic groups have been shown to often choose dental practices some way from their home, it appears that those from poorer backgrounds are more likely to either use the community dental service (CDS) or a General Dental Practice near their home.⁹

In brief

- There are parallels between the development of primary care medical teams as a means of improving access to services and the potential role of PCDs in dental teams in deprived areas.
- The cost-effectiveness of PCDs hinges on the existence of an unmet demand for dental services.
- PCDs are most efficiently used in larger dental teams. This may mean that there needs to be a change in the way the general dental practice is organised.

There is some basis for the suggestion that primary dental care services should be sited locally if those from a deprived background are to attend on a regular basis.

Unfortunately the distribution of general dental practitioners (GDPs) in relation to the dental health levels of children and adults in the UK is markedly inequitable. Whereas, for example, in a ranking of English health authorities according to dental health equity indicators, St Helen's and Knowsley is ranked only 22/96 in terms of 'need' based on GDP to population data, it is ranked in the highest three places for all the GDP to health indicators.¹⁰

Prior to analysing potential policies to reduce inequality, it first becomes necessary to define 'inequality'. The conventional approach based on Aristotle's principle that equals should be treated equally and unequals treated unequally simply refocuses the problem on what exactly constitutes equal and unequal 'need' for dental services. This issue is not as straightforward as it may, at first, appear and we need to distinguish between concepts of normative need, felt need, expressed need and comparative need.¹¹ Are there absolute standards of dental health that should be aspired to (normative need) or should the service be simply responding to patient aspirations (felt need) or patient demands (expressed need) or inequalities in service receipt (comparative need)? Whichever definition is adopted, it should reflect the ability of a population to benefit from the provision of dental services and the extent to which such potential benefit is synchronised with the supply of dental services within the UK.

The supply of dental services in the UK has been partly shaped by political and administrative pressures, but is overwhelmingly determined by the individual preferences with regard to practice location exhibited by dentists. The relatively uneven distribution of General Dental Services in the UK reflects their status as independent contractors with a freedom to choose where to locate their practice.

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Lack of access to NHS primary dental care

Since the dispute between the government and the profession in 1992 concerning the fee cut, a significant number of GDPs have stopped offering an NHS service. Instead they are treating patients on a private basis or under private capitation schemes, sometimes also still continuing to register patients exempt from NHS charges. This has left a group of people (unable to afford private fees but not qualifying for exemptions) unable to access NHS care in the General Dental Service (GDS).¹² The proportion of dentists with an NHS commitment of 75% or more has fallen from around 70% to 60% since the early 1990s.¹³ Again there is a difference between different regions of the country, with NHS provision in South-East England being particularly badly affected.

Improving accessibility — lessons from primary care?

Primary care teams have become the 'norm' in primary medical care services but still remain very much the exception in primary dental care services.¹⁴ However, it is important to acknowledge that accessibility and equity issues currently confronting dentistry mirror those faced by General Medical Practice in the recent past.¹⁵ In order to improve accessibility to General Medical Practitioner (GMP) services, two sets of policies were advocated. Firstly, on the supply side, strict controls were enforced on the location decisions of GMPs through a policy of preventing GMPs locating in over-resourced areas. Secondly, on the demand side, primary care medical teams were developed as a method of expanding the service provision capacity of individual GMPs and hence extending access to primary care in under-resourced areas.¹⁶ The development of the role of community nurses, counsellors and other primary care-based health professionals had two effects. Firstly, it enabled the GMP to focus more directly on patients who had greater need of their enhanced expertise. Secondly, it enabled the practice to provide a greater range of preventative services (health education and health pro-

motion) that reduced demand for primary health care over the long term, particularly in under-served populations.¹⁷ Such developments significantly altered the structure of primary medical care services within the UK. The number of practice nurses more than trebled between 1985 and 1991¹⁴ with many of these nurses performing what were previously seen as 'medical' duties. The development of teams was also promoted by the move from individual to group practices.

The extent to which policies which have been implemented in General Medical Practice would succeed in improving access to NHS dental care is debatable. Firstly, an introduction of strict location controls would probably be less palatable for GDPs than for GMPs caused by differences in their employment situations. GMPs accepted location controls because the NHS bought GMP practice goodwill at the outset of the NHS. By contrast the NHS does not offer GDPs any guaranteed income and risk protection. GDPs experience a greater degree of business risk which means that the NHS needs to accept dentist freedom to decide where to practise and how to organise themselves to avoid business failure. GMPs also have a legal responsibility to provide care for people living in the locality, whereas the GDP has no such responsibility. The law only says that if a person can find a dentist willing to offer GDS treatment then the NHS will pay its share. The GDP is an independent contractor, whereas GMPs are in contract with their local health authority to provide services. The development of their general medical practice premises are even sometimes supported by public funding. An introduction of location controls for general dental practice would therefore probably be unworkable.

Secondly there is the issue of expanding service provision by the increased use of a team approach. This appears to have worked well in general medical practice. However, GMPs are able to use nurses (albeit statutorily regulated) to innovate without central direction. Different medical practices have been able to try different

things (for example: nurses diagnosing common childhood illnesses), without a law being written to allow it. The system of regulation is significantly different in primary dental care, where there is a listing of duties as a method of regulating PCDs. This has stifled innovation and experimentation within the dental team since GDPs have, to date, been unable to delegate even minor procedures such as suture removal, even though the competencies of the PCDs and individual patient and practice needs may have made it seem appropriate. Nevertheless, the possibility of improving access by an increased use of PCDs in the dental team does warrant closer examination. This paper therefore concentrates upon the potential role of primary care dental teams in improving access to NHS dental services in under-resourced locations.

Primary dental care teams

What do we mean by a primary dental care team? *The Nuffield Report*¹ defined the dental team as an interchangeable mix of skills provided by those best suited to exercise them by virtue of their training and experience. In pragmatic terms the dental team is comprised of one or more dentists with a number of other people with lesser training who are able to carry out delegated tasks not requiring the full range of the dentists' skill and experience. The vision of primary dental care being delivered by a dental team is rapidly becoming accepted as the future ideal for primary dental care services in the UK. A speech by the Minister of Health¹⁸ at the 1998 BDA conference confirmed the Government's commitment to 'encourage dentists as team leaders and provide more opportunities for members of the dental team working under their direction'.

The Nuffield Enquiry¹ concluded that the way to extend effective primary dental care to a larger proportion of the population without increasing the overall cost of the service was to use 'a differently constituted workforce, running the service more effectively and having auxiliaries providing more skills, including preventive and therapeutic skills'. However, underlying this strategy is an assumption that the use of PCDs in dental teams would enable more people to

be seen by Primary Dental Care services, but at no extra cost to the NHS.¹⁹ Unfortunately, no evidence is currently available either to support or to refute this assumption.

Cost-effectiveness of PCDs

In the model of the dental team envisaged in this country, a dentist will still undertake all diagnosis and treatment planning as well as complex treatment outside the remit of other members of the team. Outside the UK, PCDs are often allowed to work more independently. The ability to improve efficiency by more accurately equating skill level to task complexity is therefore potentially enormous. The extent of such savings, however, depends not on the comparative cost of dentists and other members of the dental team, but on their 'efficiency wage' which relates cost to productivity. Thus, if a dentist costs three times as much as a dental hygienist but can treat patients three times as quickly, then their efficiency wage will be equivalent and no savings will arise from substitution. Unfortunately, there remains a paucity of information concerning the economic impact of using PCDs in a dental team. One American study²⁰ evaluated the workload of a dentist: PCD ratio of 1:2, 1:3 and 1:4 respectively. They found that, on average, PCDs took 40% more time to complete procedures than dentists did and an increased throughput was clearly evident when PCDs were used. When the dentist worked with four PCDs his productivity in terms of dental procedures performed increased from 44 per day (for a dentist working alone assisted by a dental nurse) to 103 procedures per day.

An experimental project based in London studied both the cost and productivity of different compositions of dental teams, including one in which PCDs carried out the range of procedures permitted under the UK system and one in which PCDs worked to the remit of the American system of expanded function dental auxiliaries (EFDA).²¹ It concluded that the dentist working alone was the cheapest way of providing care with PCDs being 10% more expensive and EFDAs being 40% more expensive. However, PCDs were the most productive, with EFDAs taking 25% more time, and dentists working alone taking 50%

more time to carry out tasks. A cost increase of 10% for a 50% productivity gain makes PCDs appear a highly cost-effective treatment source for these limited ranges of tasks.

An increase in cost-effectiveness by using PCDs does, however, hinge on the existence of an unmet demand for dental services which cannot be met by the dentist/s currently working in the practice. The dentist who diagnoses and treatment plans represents a large fixed cost, and although the unit cost of output (ie cost of treating each patient) may be reduced by delegating tasks to people with lesser training and lower pay, there is a limit to such substitution. The dentist either needs to spend the majority of his time doing diagnosis and treatment, or additional more complex work requiring the full range of the dentists' skill to sustain a significant number of PCDs.²² Alternatively, PCDs need to work within group practices of several dentists to maximise their efficiency. Since in England and Wales 36% of GDS practices are run by a single dentist, with a further 26% run by two dentists, and only 12% of practices have five or more dentists working at the same practice address,¹³ there are currently only limited situations where PCDs may be used efficiently.

GDS workload statistics illustrate the potential for substituting support staff for dentists in the GDS. In 1991/92, out of the 25.6 million items of service completed in the GDS, 44% were a combination of a check-up, diagnosis including an x-ray, and scale and polish. A further 36% were 'routine' fillings and extractions and only 6% involved complex restorative work such as crowns, inlays, porcelain veneers, bridges.¹ A comparison with more recent figures from 1997/98 shows that the amount of complex treatment provision has fallen whilst the amount of simple treatments has increased.¹³ If dental therapists were to be able to work in the GDS, they could undertake around 36% of work presently undertaken by dentists.¹

Some of the economic benefits of employing PCDs may only be seen in the longterm by increasing the amount of preventive dentistry carried out in the practice. One reason for the increased use of dental hygienists in the dental team is that, caused by their professional training, they repre-

sent an approach to care directed principally towards prevention. In a theoretical model based on the fact that hygienists undertaking dietary advice, topical fluoride application, toothbrushing instruction and prophylaxis could reduce the caries increment in children and therefore the number of fillings undertaken by the dentist, McKendrick found that it was cheaper to carry out preventive measures than for a dentist to treat the resulting disease.²³ Any consideration of the cost-effectiveness of using PCDs in primary dental care teams must take long term health gain into account. As such the rationale for introducing PCDs into deprived areas where dental health is poor mirrors what has happened in primary medical care teams, where different health workers working alongside doctors have been able to increase the level of prevention taking place in an attempt to reduce the level of disease in the population and thus the demands on the doctor's time.²⁴

Discussion

In 1997, over 27 million people were registered with a dentist under the GDS, the cost of this to the NHS is around £1.6 billion pounds.⁷ It is remarkable that even though evidence-based dentistry is now seen as the way forward, evidence-based dental policy-making seems to be lagging somewhat behind. Even though it is widely acknowledged that we 'urgently require reliable information on the workforce implications which will result from the redistribution of tasks within the dental team',²⁵ as yet none is forthcoming. Research is particularly needed to evaluate the impact of PCDs on the accessibility and cost-effectiveness of NHS service provision.

Research in this area must take adequate account of the fact that dental practices vary significantly from each other in the size of the team and the way personnel such as dental hygienists are paid. Given the relatively small size of most dental practices, the working practices of each practitioner may significantly affect the work patterns and productivity observed. The type of area in which the practice is situated will also affect the type of treatment offered to the patients on account of variations in patients' expect-

tations and attitudes to dental care.

From the available, but very limited evidence, it is possible to ascertain a significant potential role for the development of team dentistry. The proportion of the workload represented by 'routine' dentistry provides an opportunity to augment the workload supported by dentist by substituting other trained support staff in strictly delineated areas within their competence. The implication of this is that the ability to provide dental care within poorly-resourced areas could be significantly expanded over the short term without the need to train more dentists or directly interfere in dentists' practice location decisions. In addition, the cost-effectiveness of PCDs in primary dental care may be improved by a move towards larger dental teams. A substantial change will be needed in the way general dental practice is organised in order to support the cost-effective employment of dental therapists. It is interesting to observe that in the development of primary care teams in medicine, the size of medical practices increased significantly.²⁶

Factors in behaviour

The majority of people living in the very poorest localities attend a dentist in a more affluent area,²⁷ if they do visit the dentist, demonstrating the lack of a local service. It might therefore be supposed that by an increased positioning of dental services in these deprived areas, the demand for dental care would increase, and there is some evidence to support this supposition.⁸ However, other studies show that psychosocial factors also act as determinants when accessing primary dental services,²⁸ and also that barriers to dental attendance experienced by deprived populations are not easily modifiable.²⁹ In a study of the effect of social and personal factors on the use of dental services in Glasgow, the dental behaviour of respondents living in deprived areas was significantly affected by life events and yet structural/organisational barriers to attendance had a greater impact on the dental visiting patterns of those from affluent areas.²⁹

One could argue that by effectively increasing services in deprived areas by an increased use of PCDs, those who make use of the increased availability may be those who already have access to dental services. In other words, the more educated and dentally aware in the community may be the ones who take up the local service. Of course this would just entrench the pattern of inequity and exclusion rather than tackling it. It therefore follows that increasing the availability of dental services in a deprived area is a necessary but not suffi-

cient factor in reducing within district inequalities. An extension in the provision of service in deprived areas is necessary in order to overcome structural barriers to dental attendance, but may not be sufficient to increase the attendance of the most disadvantaged in the community. Positive action in terms of health promotion is also required to promote the importance of dental health and the benefits of care among the least aware within the locality.

The capacity of PCDs to increase productivity represents a potential solution to the problem of unmet demand for NHS services where existing dental manpower has been diverted into providing dental care on a private basis only. By employing a PCD a dentist could refer on his NHS patients needing routine care, leaving him free to spend time doing complex treatment, or treating patients on a private basis. The issue concerning whether PCDs represent a more cost-effective approach to the provision of dental services has yet to be resolved, but at least access to NHS primary dental care in these areas will have been restored.

The scope for substituting other support staff in certain select areas appears to be substantial. It has been established that it is possible to increase productivity with the use of PCDs, and thus PCDs may be particularly useful where there is an unmet demand for dental services. If PCDs were permitted to be employed in GDS practices located in deprived and 'under-dentisted' areas, they may prove to be a valuable resource. Any financial benefits gained by the employing practitioner could be seen as giving an incentive to locate a dental practice in the area.

The issue of substitution and its associated costs and benefits is, however, complex and relates to an evolving range of staff and tasks in an evolving policy environment.³⁰ There exists a paucity of evidence on which to base future development, but a very strong policy commitment to develop primary care teams in dentistry. It is vital in an age of evidence-based medicine that this crucial area of health care benefits from evidence-based policy-making.

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