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Barriers and facilitators for prevention in Danish dental care

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ABSTRACT

Objective: To explore barriers and facilitators to oral disease prevention in Danish dental care from a multi-stakeholder perspective.

Methods: Eleven semi-structured focus groups and interviews about Danish oral healthcare were conducted with 27 stakeholders (general public, dental teams, dental policy makers) in Copenhagen. Transcripts were analyzed using deductive thematic analysis independently by KR and HL, supervised by JC and KVC.

Results: Seven broad themes were identified, including both barriers and facilitators: Knowledge and attitudes, Education and training, Regulation, Incentivization, Multidisciplinary approach, Access to care and the Dental professional-patient relationship. Whilst all themes were relevant to each group of stakeholders, the salient driver within each theme was different for each group.

Conclusions: Stakeholder perspectives on the Danish Oral health care system suggest the following are important features for a preventively focused system: (a) Involving all stakeholders in oral healthcare planning. (b) Securing sufficient and ongoing briefing regarding disease prevention for all stakeholders. (c) Regulatory support and creation of incentives to promote and facilitate implementation of disease prevention. (d) Appropriate prevention for disadvantaged groups within society which may be possible to a higher degree by means of multidisciplinary collaboration. (e) Personal relations between the patient and the professional based on mutual trust.

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Oral health care; adult; health service research; quality improvement; preventive dentistry; patient-centered outcomes; health promotion; dental public health

Introduction

Oral diseases are recognized as a considerable burden to both individuals and the community. Since the two most common ones (dental caries and periodontal diseases) are almost entirely preventable [1], effective preventive care should be integral to oral healthcare systems. Health promotion, primary and secondary prevention hold the potential to provide better general, as well as oral health, outcomes than treatments (tertiary prevention) alone can do. Health promotion is an umbrella term which refers to organized activities to improve health, prevent disease and reduce the impact of disease. Primary prevention aims at lowering the rate of event, i.e. the incidence rate of the disease. Secondary prevention aims at lowering the occurrence of later and more severe stages of the disease and tertiary prevention aims at reducing the consequences of the disease [2]. According to a recent summary [1] dentistry finds itself in an enviable position with respect to its ability to prevent, arrest and reverse much of the burden of disease. Despite this, and due to aging and growing populations (among other reasons), oral health at a global level has not improved in the last 25 years [3].

In Denmark, there is a statutory requirement to include prevention and health promotion in dental care [4]. Children under the age of 18 years have access to free dental care with a substantial focus on prevention [5]. At the time of data collection for this study, adult dental care was based on a system with partial self-payment and reimbursements from the Public Health Insurance for some dental services. Best practice is described in guidelines from The Danish Health Authority, which form the basis for collective agreements that determine labour and management relations, between the Danish Regions and private dental practitioners, and describe the content of reimbursed services with regard to diagnostic, preventive and treatment elements [6]. All types of preventive dental care are covered under one generic dental service code [6]. New guidelines in 2013 (revised in 2016) [7] and the subsequent renegotiation of the collective agreement in 2015 led to marked changes in claims patterns; notably an increase in claims for preventive services [8]. At present this collective agreement has been terminated by the Government, due to cost overrun, a temporary Act has been passed and new legislation is expected in 2019.

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Monitoring the number of preventive services provided by dental professionals is delivered as 'comparison to the mean' procedures. Too large deviations from the mean will lead to a demand from the health authorities for an explanation. The assumption that average care equals optimal care, failure to evaluate the type and effectiveness of prevention given to patients [9], and failing to explore dental teams and patients' perception of the value of prevention may all be considered examples of insufficient quality assurance. Furthermore, if prevention is focused on secondary and tertiary prevention rather than health promotion and primary prevention, and is received passively as a chair-side service, then there is a risk of it negatively impacting oral health and leading to increased social inequalities [10]. A recent Danish study found indications of social inequalities in receipt of dental care services [11]. The study showed at the point of dental service delivery, dental services reflected estimated (normative) need across different social backgrounds. However, there were also signs of more radical treatments and fewer dental examinations among those from a lower socio-economic background. Such issues correspond with the recommendations of a summary published in 2015 [1] which suggested that the infrastructure within primary care must be changed, and practitioners and their teams be appropriately supported to deliver this paradigm shift from a surgical to a medical model [1].

Shifting from the traditional curative approach of tertiary prevention to a primary and secondary prevention paradigm where prevention and health promotion are central functions requires significant system changes [2,10]. Research to date has largely focused on dental teams' perspectives of barriers and facilitators to prevention. Any system change towards a preventive led system should engage all stakeholders. This is an area of research deficit where triangulation of all stakeholder perspectives is considered; dental team members and the general public, alongside those who provide dental insurance and those who influence the policy decisions. Exploring stakeholders' different perspectives and preferences in relation to prevention and health promotion may be key to identifying ways to come closer to a prevention and health promotion paradigm shift.

The ADVOCATE (Added Value for Oral Care) project seeks to establish an innovative evidence-informed oral healthcare model which is patient-centered and prevention-oriented, delivers safe and efficient care, and is sustainable and resilient to crises. As part of this, an intermediate goal was to identify major barriers and facilitators for change towards a preventive paradigm within each of the participating member states of the ADVOCATE project: Denmark, England, Germany, Ireland, Hungary and the Netherlands. Knowledge of such barriers and facilitators may be useful at the local level for planning and organization of individual dental care systems within participating countries, but will also be useful on an international scale for comparisons between countries. Variations in the administration and financing of oral healthcare within different European countries [12] provides the possibility to explore how oral healthcare systems differ in the support of prevention and health promotion. This paper seeks to identify barriers and facilitators for prevention and health promotion from the perspectives of a range of oral healthcare stakeholders within the Danish dental care system.

Materials and methods

Design

This research formed part of the ADVOCATE project (supported by the European Commission under Horizon 2020, grant agreement no. 635183) [13]. Semi-structured interviews and focus groups were conducted in 6 EU member states: Denmark, England, Germany, Ireland, Hungary and the Netherlands to explore perceived barriers and facilitators to prevention within each dental care system. This study relates to the Danish dental care system only.

Participants and recruitment

Permission for the handling of personal data was obtained from the Danish Data Protection Agency. An opinion from the legal office of The Regional Committee on Health Research Ethics confirmed that ethical approval was not required as the project qualifies as quality assurance of existing healthcare procedures. Purposeful sampling was used for the recruitment of participants. General public participant recruitment was carried out by means of social media advertisements, by personal approach to the general public in Copenhagen, inviting them by handing out leaflets and informing them about the study and via snowball sampling with participants being encouraged to invite their contacts. Dental team participants and dental policy makers (including those involved in dental academia) were also approached via social media advertisements and through local networks. Dental insurers were invited personally by email and telephone. Individual interviews were conducted where a focus group could not be organized.

Demographics

From those approached, 27 agreed to participate; 7 general public (PUB), 12 members of dental teams (MDT), 7 dental policy makers (DPM), consisting of those who worked for the government on directing policy, those who represented the interests of dental teams at a policy level and dental academics; and one insurer (INS). Two separate focus groups were carried out; one with the general public ($n = 6$) and one with the dental team ($n = 12$). The remaining nine participants (seven dental policy makers, one insurer and one general public) were interviewed individually. Recruitment and data collection took place between June and July 2016.

Procedure

Parallel questions were developed for each stakeholder group to assess barriers and facilitators to prevention from each stakeholder group's perspective. The questions were developed through an iterative process of refinement. This began with seeking expert knowledge of prevention,

followed by a systematic literature search on prevention in oral healthcare. After creating the questions, they were piloted through patient-public engagement sessions which were undertaken with the general public, dental teams, insurers and policy makers. Eleven interviews/focus groups were conducted, recorded and transcribed verbatim in Danish. The Danish transcriptions were then translated into English in a MS Word document in a two-step process to ensure an accurate and thorough transcript. Translating the questionnaires from their original language has the potential to lose some of the nuances in the meaning; however, this was necessary to enable triangulation across the project. To limit the impact of this, back translation was undertaken where necessary and a native speaker was involved at all stages of the analysis.

Thematic analysis

Each transcript was imported into Nvivo®, read and reread for familiarization, by KR and HL. Transcripts were coded using a deductive approach [14] and analyzed using thematic analysis. The analysis focused on the barriers and facilitators to giving and receiving prevention in oral healthcare. Each transcript was coded separately by two researchers (HL and KR) and discussed until a consensus on each code was reached. Unclear or opposing understandings of the interviews, were validated further by relistening to the original recordings and by discussions with researchers JC and KVC. After initial coding was established an iterative process began of reviewing and revising the codes as the overarching codes began to develop. This was undertaken in line with guidance from the literature [14]. This led to the development and refinement of three overarching structural themes, '*Organization of dental care*', '*Provision of dental care*' and '*The Human Equation*' which each contained multiple sub-themes pertaining to barriers and facilitators to providing prevention in oral healthcare. Further refinement and development of the themes and sub-themes was undertaken by four researchers (HL, KR, KVC and JC) which led to the identification of 7 themes overall. A brief description of each theme can be found in Table 1.

The themes were drawn from general public, dental teams and dental policy maker's responses. Views gained from the insurer are not reflected within the analysis due to the field of discussion not aligning with the subject matter under investigation. Every interviewee received an anonymized ID in the transcripts, which are shown in the results section together with the abbreviation (PUB, MDT, DPM, INS) designating the group membership, to make clear when different stakeholders speak. Interviewer is abbreviated with an 'I'. General public interviewees are representatives for patients, and the words 'general public' and 'patients' will be used interchangeably.

Results

Theme 1: Knowledge and attitudes towards prevention

Patient's knowledge of and attitudes towards prevention

Many of the patients found it challenging to differentiate between treatment and prevention. Some found it difficult to explain what a preventive dental service entailed, and some could not recall whether they had received such a service. This could be due to a lack of, or unclear verbalization of what prevention is and may also be seen as a symptom of a lack of shared understanding of prevention. Patients recognized that a lack of knowledge of prevention was a significant barrier for their self-care. Conversely, they did suggest that knowledge enabled them to maintain good oral health and they were aware of the long-term benefits of keeping their mouths healthy.

Furthermore, patients appeared to value preventive advice and saw it as the role of the dental team to provide this. Patient's attitudes suggested a lack of felt need for more prevention from their dental professional. This may be because they do receive adequate prevention, but might be because they lack the knowledge of what professionally delivered preventive care is and how they might benefit from it.

> *PUB: P7: 'I get my teeth thoroughly cleaned every 3 months, and if I didn't do this, I would end up developing severe periodontitis, so I see the regular scaling as a treatment but at the same time I guess it is preventive of not getting more severe disease'.*
>
> *PUB: I: 'IFB [an individual preventive treatment], or have you not noticed receiving this type of service?*
>
> *P7: I haven't noticed, I pay just*
>
> *I: Well, it's interesting, if you did not think of it?*
>
> *P1: No, is that service listed on the bill?*
>
> *I: Yes*
>
> *P7: I feel I should go home and check my last bill, haven't noticed it.'*

Policy makers' knowledge of and attitudes towards prevention

Policy makers had a higher level of understanding regarding prevention and this is represented in their detailed discussion of how prevention may be understood. The understanding of this group, coupled with their positive valuing of prevention may have influenced their opinion on its cost effectiveness. The overriding sentiment expressed was that prevention was not only in the interest of the patient because it may prevent pain and discomfort and reduce dental cost to the patient, but it is also cost-effective for the dental care system. However, they felt that, for prevention to become cost-effective, it would require initial financial investments from the government.

> *DPM: P6: 'If we look at the organization's strategy. prevention, must be prioritized over treatment. Because we have some patients, who are very difficult to treat … and therefore. To the extent that it is possible to prevent, this service should be delivered, you have a gain that does not only benefit the patient, but it's actually cost-effective for the organization.'*
>
> *DPM: P7: Yes, but 80% of the elderly population have 20 or more teeth. So today it is a completely other job that needs to be done, and it is so important to maintain it, in relation to pneumonia, heart conditions, cardiovascular diseases, diabetes control etc., and*

Table 1. Themes and sub-themes of barriers and facilitators for prevention.

Themes	Sub-themes	Theme summary
1. Knowledge and attitudes towards prevention	1.a Patient's knowledge of and attitudes towards prevention 1.b Policy makers' knowledge of and attitudes towards prevention 1.c Dental team's knowledge of and attitudes towards prevention	- Varied levels of knowledge between the stakeholders
2. Education and training	2 –	- Too little focus on prevention in training or education
3. Regulation	3.a Dental teams' attitude towards current regulation 3.b Dental policy makers' views on current regulation 3.c Top down construction of guidelines	- Dentists felt mistrust from the policy makers and felt too tightly regulated and controlled with little ownership over the guidelines - Apprehension that the guidelines were leading to an increase in public health spending and concern over misuse/ compliance with the guidelines - Not enough involvement of dental professionals or the general public in guideline development
4. Incentivization	4.a Funding of oral healthcare 4.b Behaviour change 4.c Overtreatment 4.d Measuring and assuring quality	- A re-focusing of the budget would allow for more funding to be allocated to preventive activities - Lack of clarity regarding 'what are we paying for' with regards to prevention which does not encourage future spending and implies a lack of transparency regarding value for money - Dentists may still be incentivized to focus on restoration rather than prevention and may be less likely to feel both extrinsically and intrinsically motivated to provide prevention - Early behaviour forming could be capitalized upon to encourage good oral health behaviours, oral health education and advice - The current oral healthcare system could be encouraging overtreatment - Sub-optimal quality assurance and monitoring of care with too little focus on health outcomes
5. Multi-disciplinary approach to prevention	5.a Mouth-body divide	- Lack of multidisciplinary approach and dentistry seen as isolated from the rest of healthcare. - Greater collaboration needed which might improve the provision of oral healthcare at a societal level
6. Access to care	6.a Attendance patterns 6.b Social inequality in accessing care 6.c Ability to access and receive appropriate care	- Attendance is often valued by patients and seen as a facilitator of receiving prevention and a consequence of successful habit forming. Vital for maintaining good oral health - Cost, prioritization and awareness of oral health all influencing irregular attendance - The vulnerable and those that need the care might be those that are less likely to receive and benefit from the care - Need to try and target those that are more likely to drop out of the system
7. Dental professional - patient relationship	7.a Dental professional - patient communication 7.b Ethical dentistry (care given in patients best interests) 7.c Taking responsibility	- A good relationship is more likely to positively influence the care provided and patients receptivity and acceptance of the care - Dental professionals often felt unprepared for bringing about behaviour change in patients - Patients want to be involved in the decision-making process and more information and education to patients would be beneficial - Patients sometimes experienced an assembly line mentality and did not always feel well treated or respected by the dental professional

we know they all suffer from this, and they take large amounts of medicine, that they maybe could do without. They could definitely get a better quality of life, fewer hospitalizations and re-hospitalizations and everything. It would probably also be a good socio-economically. … … when we make the calculations, maybe the effort equals the savings until it is properly incorporated and becomes a natural part of the regiment on the nursing homes, but afterwards it does not cost a lot of money to make it run.

DPM: P1: 'Well because I talk about health promotion and prevention, and health promotion being the part where you prevent a disease from arising, and prevention being the part where you prevent an existing disease from further developing.

….And I believe you should distinguish between health promotion and prevention, because they are different tools.'

Dental team's knowledge of and attitudes towards prevention

Dental teams had varying degrees of knowledge regarding prevention. Their motivation for chairside delivery of prevention and the acquisition of new knowledge on prevention also varied. Some dental team members felt confident that

knowledge they had learnt 30 years ago would be sufficient to deliver effective preventive advice and treatment in the present day.

MDT: P3: 'The-immunological, iatrogenic damage caused by composite fillings is much, much greater than with silver. So, if you do periodontal treatment and make beautiful fillings and provide IPS [an individual preventive treatment] when needed, we can maintain our teeth until we die….Without further education and attending courses'

Theme 2: Education and training

Arguably, if prevention is to be delivered within dental care, it should also be focused on in training in the educational system. The policy makers believed that the segmentation into specialties may be practical but is less expedient for teaching prevention. This group felt that prevention should be all-pervading but may be getting little attention under such organizational structures. Consequently, policy makers suggested that prevention should be a specialty of its own. This would make prevention more of a priority and give it the focus, prestige and value they believe it deserves.

DPM: P5: 'So the dental hygienists or the dental hygienist education is in a dilemma, because we have two legs, the clinical leg that is based on natural science, and then we have a humanistic leg, where it is about working with people, and this is a completely different discipline. And it is of course both a challenge and interesting. I become more and more interested in the things the humanities can give us when it comes to health promotion and prevention, because it is not that people lack information, they already know, but it is tools to make the right decisions, or to do the things you intend to do, that people lack.'

Theme 3: Regulation

The dental care system is underpinned by regulation based in legislation to ensure the service is safe and equitable. Regulation can therefore be used to support or even dictate the level of focus on prevention. The health authorities provide laws and guidelines outlining appropriate dental care and collective agreements are negotiated based on such guidelines.

Dental teams' attitude towards current regulation

The dental team held ambivalent attitudes towards regulation. Some dental professionals felt they spend too much time on record keeping- time which, they felt, would be better spent with patients. From the perspective of the dental team, the level of required documentation created a perceived sense of mistrust from the policy makers. Despite this, some dental professionals felt as though the collective agreement gave them more time with patients for prevention. However, others worried over the impact of extended recall intervals for some patients and felt as though the dental professionals had no ownership over the enforced changes in the guidelines.

MDT: P5: 'We are forced to provide documentation for whatever we do and register this and that…. .No, but I really feel that much of my time is spent on data recording. Everything you haven't written, you haven't said.'

MDT: P5: 'From my point of view, they must either, stop interfering in parts of what we do and let it be more up to the individual dentist to decide what is best. Stop taking a bit of money from one service and give a little money to another one. Less control. Or else they should take complete top-down control and determine the prices on all services.'

MDT: P1: 'I can see how these guidelines changed my own way of addressing prevention. I spend more time on prevention now, and the fun part is that some patients which I had given up, have started to comply to my new way of providing prevention and have started to keep their mouth cleaner.'

Dental policy makers' views on current regulation

The policy makers viewed the most recent guidelines as an effective tool for moving oral health progress in the right direction. However, there were some concerns that the guidelines had led to increased public health spending and apprehensions regarding dental professionals' compliance with the guidelines.

DPM: P5: 'Well it does not bring us all the way to the goal, but it contributes to moving us in the right direction. I do not doubt that for one second. Our way of organizing is of crucial importance for the outcome, but that is not the only thing, it is practitioners that make things happen, they need to have the will and the ability to do the right things'

Top down construction of guidelines

Issues around the construction, negotiation, implementation and evaluation of guidelines and the collective agreement were addressed mainly by the policy makers. Mostly, these issues were seen as barriers to providing more prevention. The general consensus was that there was little involvement of either dental professionals or patients in the development and construction of these guidelines and that this was potentially a barrier to their success. In agreement, the dental academics felt as though dental professionals were not represented well enough on the national board of health. In addition, some also felt as though there was a lack of political will from the policy makers to prioritize oral health and make this a priority in terms of funding.

The guidelines were considered to be developed too quickly and this was suggested to be the reason why there was very little focus on prevention. It was suggested that to enhance the implementation of the guidelines there was a need to evaluate the changes made and this would perhaps aid the introduction and integration of any new directive in practice.

DPM: P1: 'No one has listened to any patients… ….at all. Patients have never been invited inside, perhaps it is difficult to invite them … … … in particular for dental care, where it can be very difficult, and there is no such thing as a patients' association….'

Theme 4: Incentivization

Funding of oral healthcare

In terms of funding, policy makers suggested that the incentivization of preventive activities was necessary. Furthermore,

a re-distribution of subsidies so that poorer individuals had more monetary support in accessing care, was suggested. Both dental professionals and policy makers believed that money should be shifted to allow more funding to be allocated to preventive activities and to ways to improve awareness and knowledge of prevention. However, the dental teams perceived there to be a lack of political will for such a focus, one policy maker viewed the problem to be that oral healthcare was seen as separate to general healthcare and therefore not prioritized. In contrast, the policy makers thought the will was there, but that the funding to pay for it was not.

In addition, with regard to funding there was the view from policy makers of 'what are we paying for?' This lack of clarity in the system does not encourage future spending and implies a lack of transparency regarding value for money.

Incentivizing the patient with lower fees for regular preventive check-ups and maintaining their oral health was another suggestion made by the general public.

> *PUB: P3: 'It's just difficult to measure, but I mean, ideally, I actually think it would be a good idea if you allocated more money to prevention rather than the treatment part.'*

> *DPM: P5: 'But I actually think, because most Danes can afford to pay for an examination and a tooth cleaning, so I do not believe we should spend the money on that. I believe we should spend the money on those who need them the most'*

> *MDT: 'P4: 'With a redistribution of all these subsidies you could actually, within the existing small budget we have, have plenty enough money to fund lots of prevention. But there is a lack of political will. The will is not lacking for such changes from the dentists side of the table.'*

Behaviour change

Motivational factors other than extrinsic monetary ones were suggested to have the potential to motivate dental professionals to focus more on prevention such as, '*feeling a professional proudness*' and '*wanting to do good*'. It was argued that the current system may not support both intrinsic and extrinsic motivation for focusing on prevention sufficiently. In other words, the policy makers felt that dental professionals were still incentivized in terms of payment to offer treatments to patients rather than prevention. Making prevention more financially desirable was seen as one way to extrinsically motivate dental professionals even more. Currently, dental professionals are less likely to feel extrinsically motivated in terms of remuneration to provide prevention.

Feedback was suggested as a potential facilitator for prevention. Feedback, in the right form, could be used to motivate dental professionals to change their behaviour to focus more on prevention. Targeting the dental professionals' 'academic professionalism' was seen as another way to incentivize dental professional behaviour change by the policy makers. Indeed, the dental professionals saw enjoying the work as an important intrinsic motivator for providing effective prevention. However, in the current system, dental professionals may be less likely to feel both extrinsically and intrinsically motivated to provide prevention.

Patients could also be incentivized to seek dental care by it becoming something they saw as routine. The patients saw early behaviour forming as a facilitator for going to the dentist, looking after their oral health and engaging in preventive self-care. The policy makers and the patients recognized that this habit forming could be facilitated by providing oral health education to young children, and encouraging dental attendance and good oral health maintenance from an early age. Patients also mentioned that cost for dental care is an important factor for many, as to whether they attend or not and thereby receive the chairside type of prevention. Hence, it was suggested to make preventive dental care free for patients.

> *DPM: P4: 'Well, I am actually attracted to a model that would give free prevention, but where it would be ok to charge money for treatments to some extent, because then I believe it could be carrot to preserve dental health, if you knew endodontic or periodontal treatment would cost you a lot of money.'*

> *DPM: P5: 'Yes, and I believe that we as a system need to make some feedback mechanisms, to make sure the people who have worked together, once in a while will be told what they did was really good. Because otherwise it will collapse … .but in some way you need some sort of acknowledgement that you actually make a difference and that what you do is useful.'*

> *DPM: P8: D1: 'But I think the most important thing is to try to tickle their academic professionalism. The development must be a long term thing. Most of those who deal with health, they have got it inside themselves. We would like them to think: Well, we participated to change things, and it was really exciting and good'*

Overtreatment

Over- and under-treatment are both incompatible with receiving appropriate care and prevention. Overtreatment was mentioned as a concern by patients and policy makers but not by dental professionals. Overtreatment could be associated with the structure of oral healthcare as the current model incentivizes treatment over prevention. Undertreatment was not mentioned by any of the stakeholders in this context of discussing overtreatment.

> *DPM: P5: 'No, when nothing is wrong with people, the risk of getting treatment you do not need is many times bigger. Therefore, the more frequently people have dental examinations, there is a potential risk of getting over-treated every time, it is highly increased if you go to the dentist too often. So all of this with, e.g. the entire idea of screenings, and that screenings are solely something good, and prevention exclusively is something good. It is not, a lot of prevention can be really bad for the patients and the citizens. It is something you have to investigate, what is the positives and the negatives with these things'*

> *PUB: P2: 'Not with her, but my prior dentist I changed because of that. He insisted on taking the x-rays every time. And I asked him why do you need to take these pictures? It's not like something had changed. And was also a lot like, he also thought I needed to have my wisdom teeth pulled out'*

Measuring and assuring quality

Policy makers saw a lack of appropriate quality assurance as a barrier to the delivery of appropriate care. Lack of quality assurance within dental care (and maybe patient

involvement) may also add to patients' feeling that dental care is non-transparent as it is difficult for patients to know whether the treatment they receive is necessary or not.

DPM: P2: [talking about measuring quality of care] 'it is like there is a tendency in Denmark now, and it will also affect the private practice sector one day. It will be interesting whether you in the future will receive payment according to the quality you offer.'

PUB: P5: 'Well, when I began to get Diana as a dentist, so I found out that the dentist I had had previously, had not been particularly good.'

Theme 5: Multi-disciplinary approach to prevention

Mouth-body divide

Historically the understanding of prevention has not included a common risk factor approach, with dental disease often viewed as an isolated problem to the rest of healthcare. The patients and dental academics argue that there is a need to see patients as whole human beings with complex problems (holistic care) and not as single isolated health issues (reductionist approach). Furthering the feeling that there is a mouth-body divide, was the difference in the way medical and dental care is organized and paid for by patients. The patients did not understand why there is such a divide between medical and dental care since there is an overlap between conditions which affect both.

PUB: P1:'I just don't understand that we have a separate dental association apart from the medical association, we haven't any separate foot-joints association or hand-joint association for instance. So I find it strange we have this separation between the medical society and dental society, now that there are so many interaction between the two subject areas. I believe it should be equally expensive or equally free of charge to see a dentist or a medical doctor. I think it is important because of the large interaction between all kinds of symptoms and the teeth.'

Consequently, there was agreement between the stakeholders that there is a need for greater collaboration between the medical and dental professions and also between other relevant disciplines such as social workers, pharmacists, public institutions. The policy makers believed that if this could be addressed then it may improve the provision of oral healthcare at a societal level.

DPM: P5: 'I believe we need to think about these things in a much bigger perspective. I work on the education side and make sure we work inter-professionally, not only in the odontological team as we have discussed for a generation or two, where the dental hygienists and dentist work together in teams at the clinics, but I also believe we need to work together with a lot of other people on nursing homes, in the communes, the children, the institutions and stuff like that, so we need to be able to contribute to their work. And it is not necessarily us who can harvest the benefits from the work we put into the work with the others.'

Theme 6: Access to care

Attendance patterns

Attendance is necessary for appropriate care and prevention to be provided. Regular attendance was valued by patients. It was seen as a facilitator to receiving prevention, was often viewed as a consequence of successful habit forming, and was ultimately considered to be vital for maintaining good oral health. In contrast, irregular attendance was viewed as a barrier to receiving prevention.

Irregular attendance was seen as being influenced by cost, prioritization by patients and awareness of oral health. The policy makers saw upbringing or culture as negatively influencing attendance if it had not reiterated the importance of oral health and dental visits. However, it could also be caused by not living near a dental practice or due to not receiving a regular reminder to attend. Regional differences in dental care were mentioned as a problem relating to differences or inequalities in access to care by the public, policy makers and dental teams. Region could influence the personnel employed, the focus on prevention, and recall reminders.

PUB: P3: 'And then people get into a vicious circle, if for instance it has been 2 years since the last visit, and you can feel and sense that some teeth are not in too good a shape, everything becomes even more difficult.'

PUB: P5: 'In other words, it's also a deeply-rooted thing in my life, I have always gone to a dentist, even though I am as old as I am, and was born and raised in the countryside and we came to a dentist already when we were 3 or 4 years old, it has become a part of my routine.'

DPM: P3: 'Well, yes, I think maybe that group who rarely use the system also possess the largest potential for improvements within prevention of dental diseases … .But I think there is a part of the population that abstains from seeking out a dentist and get an optimal treatment because it is quite expensive.'

Social inequality in accessing care

The stakeholders all perceived a social skewness in patients accessing care. This was seen in patient's ability to navigate the system and some dental professional's lack of willingness to help patients with the process of applying for and receiving supplementary subsidies for dental care. In addition, it was viewed that the most socially vulnerable often did not benefit from the funding available to help them access care. All stakeholders agreed that cost of care was a major influencer of access which more negatively affected the socially disadvantaged. Exacerbating this, there is the perception that the system is not fully cost effective with money being wasted on unnecessary services rather than those most in need.

The general public had a number of comments as to how this could be addressed; paying to see the medical doctor to reduce dental fees or funding dentistry through taxes. However, it was also viewed that such a system change would not be an easy achievement and as identified by one of the general public, it could damage the healthcare system due to the high costs from people suddenly attending who had not before

DPM: P5: 'There is no need to use the resources on the many healthy people, we need to use the resources on those who are ill and need it. It is very caricatured, but it has favored the healthy in the way that in the subsidies and the money we use, we give a little bit to all examinations and tooth cleanings, and those who need a big rehabilitation only receive a very small subsidy for it. And really that is a very antisocial way of thinking and it creates inequality, because then some have opportunities, and then there are those who have no opportunities.'

Ability to access and receive appropriate care

The ability and motivation to access care at different stages of life were factors that all stakeholders stated negatively impacted access to prevention. The policy makers in particular noted that examples of this were when patients were to transfer from one dental care sector to another and were lost or 'dropped out of the system'.

Young adults dropped out of the system often when they turned 18 and had to pay for their care. This was perceived by both the general public and the policy makers to be influenced by the cost of care, lack of an overarching level to their understanding of the system, their perceived responsibility and value of oral healthcare. At the other end of the life spectrum, patients and policy makers both felt there was a lack of support for accessing care or appropriate services for the elderly. Reportedly, this was due to it not being a priority within the system, a lack of resources in care homes to provide oral health care, and by staff not seeing this as a priority or their role.

Tailoring the dental care system using more extensive and appropriate recall procedures, transportable dental clinics or use of public dental clinics and dental personnel, offering basic diagnostics, and prevention free of charge for all at the initial point of access were suggested solutions.

> *DPM: P1: 'Another barrier is that, for some reason we have not succeeded in ensuring a smooth transfer between the dental care systems.'*

Theme 7: Dental professional – patient relationship

Dental professional – patient communication

The relationship between the dental professional and the patient is key to influencing the care provided and the patients' receptivity and acceptance of the care given. This can include how the message is given, and is recognized by the dental team and the patients as often being a sensitive issue. Patients do not want to feel like they are being told off but do recognize the importance of the message. Importantly for the patients, they wanted to be involved in the decision-making process and be fully informed about their oral health and how they can best look after themselves. The importance of shared decision-making was also shared by the policy makers who recognized that current patient education may be limited. The policy makers agreed that the general public need to be given more information and knowledge so that they can be included in the decision-making process.

> *PUB: P2: 'Yes, I think so, and the dentist is pleasant and good at keeping me informed what is being done and what is going to happen or ought to be done.'*

> *DPM: P3:'It is a sensitive issue, and if you are one of those people who have a lot of caries or have periodontitis, then you can easily feel that you're a bit stigmatized, because you constantly are given a lesson about something that you may think you know.'*

> *MDT: P6: 'Talking prevention with patients can be difficult, because it is a sensitive issue because often it is about personal responsibility…. '*

> *MDT: P3: '….I think it is very important that you do not point fingers at patients in a judicial way… '*

In addition, patients demand more explicit guidance from dental professionals or health authorities to help them improve their knowledge and feel fully informed. This could help them navigate the abundant misinformation they are exposed to, such as health information on the internet. Patients would like to be involved in shared-decision making. But they also need enough knowledge to benefit from the advice given and to understand their treatment options.

> *PUB: P2: 'All these stories being passed around, right? That you just simply don't know, I can see myself getting caught up in it as well, sometimes I'm wondering whether my old amalgam filling is dangerous or not. And then the anxiety sets in. Even I'm left wondering whether or not I should get it removed or change it in to a plastic one. You see there is a lot of contradicting messages about these fillings. And then there are some people saying 'well in Denmark we are the only country in all of Europe still using amalgam, in Swiss they phased it out 30 years ago.'*

The dental team and the policy makers recognized the importance of tailoring the preventive message for each individual and believed that they did so in their consultations. Tailoring is important since it is likely to influence patient receptivity to the advice. In contrast one dental team member seemingly had not understood the concept of tailoring their advice to each patient's needs as the quote below illustrates.

> *MDT: P1: 'High quality prevention is delivered in Denmark, if people would simply do as we tell them.'*

None of the general public mentioned the message being tailored to them and their needs, but maybe this reflects how well the dental professional does tailor the message and manage communication with them.

> *PUB: I: 'So is it important to you that you are informed about what's happening?*

> *P2: Yes I think so, and I trust my dentist, I feel what she is saying is correct, in contrast to stories I have heard about someone getting treatments they didn't really need or about sudden findings of 117 [meaning a very large number] cavities needing treatment, from one check-up to the next.'*

Ethical dentistry (care given in patients best interests)

The patients sometimes felt that they were treated disrespectfully by the dental professional. Some perceived there to be an 'assembly line' mentality within dentistry. That is, they sat in the chair, received a check-up, and were informed of any treatments they needed, paid and left. In addition, patients sometimes felt as though their purpose was to help their dental professional make money and wondered whether the treatments they received were always necessary.

> *PUB: R6: '…. I have experienced my dentist telling me something needed not to be done now and then at the following visit, it did need to be done. I couldn't help to suspect that it might had been okay to wait even longer doing this treatment. So to obtain clarity about what is it all about and be sure that it has been understood why the treatment may be postponed is very important. Treatment is of course voluntary, but the conversation about why it is suggested and an understanding of why it is needed is important.'*

> *PUB: G2: '… maybe she can't remember what she told me the last time? It's a little, I think they have many patients coming because it*

is a popular megastore dentist, so it's a little not assembly line but almost, there are patients around all the time. She's really caring and kind, but the visit is over very soon. Which, of course, also suits me quite well, you might say.'

Patients outlined a lack of trust or not having confidence that their dental professional had their best interests at heart and that this may negatively impact their motivation to look after their own oral health.

PUB: G2: 'Because you can't deliver prevention to a group, who is not interested in treatment. So I believe we must realize that we have these challenges in relation to that there are some people who do not, not because they are afraid of dentists, they simply just don't believe in the value of what the system has to offer them. And I think that the group is growing well, you know there are more and more who become someone who treats themselves.'

Taking responsibility

It is vital that patients take some responsibility for their oral health in order for prevention to be effective. Patients who don't take personal responsibility were viewed by the dental team and the policy makers as not being interested in their oral health or valuing prevention. Patients did recognize the need and importance for them to take responsibility but also recognized that this did not always happen in practice or was not sustained.

DPM: P1: 'It is your responsibility we are here to help you but cannot be responsible for your dental health, it is your own responsibility.'

MDT: D7: 'I hope and I think that in the future we can benefit from having improved in the way we deal with children and how we teach them to be responsible for their own health. Then in the long run I hope children take this know-how with them and benefit from it.'

Discussion

Seven themes were identified as potential barriers and facilitators to prevention. Each theme can be seen as both a barrier and a facilitator for prevention. However, differences arise with regards to the precise influence of the barriers and facilitators, their cause and how they could be best addressed.

Theme 1: Knowledge and attitudes towards prevention

Dental teams and policy makers had their unique understanding of prevention. In contrast, patients had a different and sometimes inaccurate understanding and knowledge of prevention. This was exemplified by the patients asking for clarification of the meaning of the word prevention while policy makers reflected more deeply on the concept of prevention by themselves. This acts as a barrier to patients requesting more prevention, preventive self-care, understanding the appropriateness or quality of their care, and being able to capitalize on the preventive advice given. A systematic review showed that some patients struggle with understanding health concepts that are more readily understandable for others and that such low health literacy may affect the outcome of interventions, use of care systems and thereby health outcomes [15].

Theme 2: Education and training

The greater knowledge and understanding of dental teams and policy makers does not necessarily mean that they prioritize or highly value prevention. Whilst knowledge is a facilitator for prevention, it alone cannot facilitate the delivery of more preventive services. Patient demand is a significant driver of service development; however, without knowledge of prevention, patients are often not aware of what they should be demanding. In addition, comments from dental teams suggested a lack of awareness for the importance of ongoing education and learning. Presently, the value placed on prevention is vital to facilitating more prevention. This is evidenced throughout a number of the themes such as the dental academics perception that there is too low a focus placed on prevention within education. This perception is inexpedient considering that education and training are important influencers of positive attitudes to prevention [16]. Reinforcing the importance of education and training in encouraging prevention, Suga et al. [16] found that teamwork, having a professional understanding of the benefits of preventive activities and engaging in educational activities post-graduation all positively affected dental professionals' motivation to perform preventive measures.

Theme 3: Regulation

With regards to regulation, both dental professionals and policy makers valued the role of the guidelines in facilitating prevention to some degree. However, disagreements between dental professionals and the policy makers regarding how tightly controlled dental professionals should be or currently are, were evident and could limit the dental teams' compliance with the guidelines. A lack of compliance is likely to reflect discord from the dental professionals and a lack of felt ownership over the guidelines. If the guidelines are seen to promote prevention, then a lack of compliance is a barrier to more prevention. Furthermore, it was recognized by both the policy makers and the dental team that patient involvement, in constructing the guidelines, is nearly non-existent and they acknowledge the idea of trying to involve users of the system more in the future as a way to facilitate prevention. Previous research supports that dental professionals often perceive guidelines as a threat to their professional autonomy [17]. Engaging all stakeholders, teamwork [18], having strong professional support [19] and proper/effective dissemination and implementation of the guidelines has been shown to positively influence guideline uptake and compliance [19]. Whereas, nationally set standards and consensus statements are less likely to be adhered to [20].

Theme 4: Incentivization

A lack of incentivization or inappropriate incentivization could be a barrier for prevention, whereas appropriate

incentive can be a facilitator [18]. Dental professionals claim that if prevention was more profitable through larger subsidies, they would be able to invest more time in it. Currently, dental professionals are allowed to offer non-regulated (often unremunerated) services and do so for a range of treatment services in Denmark, but it is not mentioned by any stakeholders that prevention could be offered to patients in a likewise manner. The reason for this may be patients' unwillingness to pay for something less tangible (prevention) than a physical treatment. In support of this, previous research confirms the role of reimbursement [21] and patient's unwillingness to pay as deterrents to dental professionals providing preventive services [22] and reimbursement as a barrier to being motivated to provide prevention [16]. However, policy makers stated that they find it difficult to prioritize limited health funds and address the lack of certainty that continuously increasing health expenses actually leads to better health; traditional focuses of funding such as that on treatment within dental care are hard to change.

Incentive structures may be a key area for affecting behaviour change: both health professionals and patients may undertake more prevention if incentivized in the right way. However, the present structure of the reimbursement scheme might incentivize a focus on treatments rather than prevention and maybe even overtreatment. The question is, whether a change in the subsidy structure to funnel more money to prevention services will lead to better prevention and better oral health or whether the subsidies are just one issue among many that would still act as a significant barrier to prevention. Recent research shows that financial incentives do play a role in encouraging more prevention, however the extent of this impact is likely to be influenced by numerous other variables [21,23–26]. Another factor may be unintended incentivization for focus on treatment rather than prevention stemming from the issue of 'defensive dentistry'. This refers to an inclination to choose or recommend more radical treatments rather than observation or less radical treatments in clinical ambiguous situations, due to the fear of patient complaint, critique for having not acted in a timely way or overlooking serious problems [27]. Such issues had been experienced by the dental team interviewed. The opposite problem, under-treatment was not mentioned by any stakeholders, except in the context of disadvantaged groups.

There is often inherent bias (commission bias) in the medical world towards treatment or acting more radically rather than watchful waiting or undertaking less radical treatments, for instance choosing to fill a tooth instead of applying a sealant [27]. This may be counteracted by not having too strict external judicial health authorities and control procedures with harsh consequences for professionals, as this may pressure dental personnel and affect their decision making. Focus on inclusive, open, dialogical quality assurance that can stimulate dental professionals' intrinsic motives for prevention, rather than external motivational factors (profit, fear of critique) may be more appropriate [27,28]. The dental teams interviewed did not call for more monitoring and quality control of their work, however, this may be because they associate it with the external, judgmental type of quality measuring. It would be reasonable to suggest that all stakeholders would appreciate documentation to show the health outcomes achieved due to the health activities they undertake with patients. However, there appears to be a general lack of focus on health outcomes from the perspective of both the policy makers and the dental professionals. The dental professionals are largely concerned with how regulated and controlled they are, how many patients they need to see, and how much they will get paid for providing preventive advice and treatment. In contrast, the policy makers are largely focused on keeping their budget costs low and what further regulations are required (to keep the dental professionals in check).

Throughout these discussions there is little focus on what the health outcomes are for patients and what needs to be changed in order to address and further improve patient health. Even the policy makers' desire for greater monitoring and quality assurance was largely centered on greater regulation of the dental professionals rather than as a way to ensure improved, appropriate care. The lack of an overarching focus on patient health outcomes may mean less focus on patient health education. Subsequently, this negatively influences patient's knowledge and understanding of prevention. This consequently furthers the lack of transparency within dental care: patients are unlikely to know when they are not being appropriately treated and when to, or what to demand to ensure more quality and health.

Theme 5: Multi-disciplinary approach to prevention

Despite the strengths of the Danish healthcare system- it is still not an integrated one [24]. A lack of inter-disciplinary cooperation and problems with making cooperation effective when it is introduced is seemingly a barrier for prevention and for delivering appropriate dental care to groups most in need. This is consistent with the views of the general public who did not understand why dentistry and medicine were treated as separate associations. In addition, the policy makers, agreed that health personnel from other sectors have a lack of knowledge and are unwilling to try and handle oral health problems. An issue which is exacerbated by the silo mentality in healthcare, with each specialty viewing themselves as distinct from the next [23,29]. Furthermore, research has suggested that dental professionals may feel reluctant to join inter-professional healthcare teams due to their own limited experience of working in healthcare teams and due to their perceived ignorance of others within the team towards the importance of oral healthcare [23]. In addition, the isolation of dental care systems from other sectors is a barrier for sufficient inter-disciplinary collaboration. To be effective, inter-and multi-disciplinary collaboration requires a shared understanding and valuing of prevention across professionals within, and outside of dentistry, as well as the possession of the correct skills and relevant knowledge of prevention; something which the stakeholders feel is currently lacking. It was believed that better multidisciplinary collaboration

across healthcare might improve the provision of oral healthcare at a societal level.

Theme 6: Access to care

Interdisciplinary collaboration may also be the key to increasing access to care, especially for disadvantaged groups. All stakeholders agreed that socially skewed access to care was one of the main barriers for disadvantaged groups in society for receiving prevention, which is supported in the literature [30]. If social workers, home nurses, general medical practitioners, hospital staff and dental professionals worked together more closely they might be better positioned to help socially disadvantaged individuals. Such recommendations have been previously articulated [26,31]. The idea of establishing models and plans for how to implement such ideas are relevant in the Danish context since demands for increased interdisciplinary collaboration according to the stakeholders are not met.

Another large barrier for access to prevention was the cost for patients. This claim is also supported by the literature [32–34], describing cost as a general barrier for access to care. The substantial amount of quotes around this issue all indicated that stakeholders' understanding of prevention was focused on the chairside type of prevention which patients directly need to pay for. Health promotion initiatives targeting entire populations are not influenced by cost for the individual. Positively, the provision of free dental care removes cost as a barrier for those under 18. With 73% attendance rates [35] this system could be seen as positively nudging children towards valuing regular dental attendance and recognizing the importance of prevention.

Theme 7: Dental professional – patient relationship

The dental professional-patient relationship is influenced by not only the dental professional's delivery of the service and care but also the patient's desire and willingness to accept this preventive care. The general public valued being involved in shared decision making and any negative/sensitive information being given in a thoughtful and constructive way. Conversely, feeling unvalued or disrespected, that the appointment was rushed and feeling that their main role was to be financiers for the dental professional were seen as barriers to a balanced dental professional-patient relationship. For the dental professional, it appears that they must find a balance; providing appropriate care but not upsetting the patient and thereby threatening their relationship. The dental professional must therefore assess how receptive their patient is to hearing preventive advice, how best to give that advice and what level of knowledge to pitch it at in order to maximize patient acceptance and behaviour change. This is likely to be a difficult task for the dental professional given the infrequent, time-constrained contact they have with each patient and insight needed for this [36], especially considering the lack of focus on training in communication and important behaviour change strategies. Importantly, similarities in dental professional-patient preference for the dental appointment are related to patient satisfaction reported improvement in oral health behaviour and actual oral health [37]. These findings support previous research which highlights the complexity and the importance of effective communication [36,38]. Consequently, a greater focus on strategies for eliciting patient behaviour change could be useful within dental education and further training.

If access to care is unequal, there is an ongoing risk that improvements made to dental care systems only benefit regular-users. Consequently, social inequality in oral health thereby increases [1]. Concrete suggestions were put forward on how to make dental care systems reach out more to irregular or non-users of dental care. For instance, a dental bus with a fully equipped dental clinic could meet patients in their local environment and maybe overcome some distance or other barriers for showing up by one's own initiative. Such busses might need to be part of a public state funded initiative as it might not be a profitable way forward for private dental professionals- at least not in the existing remuneration system. Improving system transfers between child and adult dental care and between adult and care for the elderly would be another way to facilitate continued access to, and appropriate care for these groups. Initiatives have also been taken, both private and public, to reach out more to socially disadvantaged groups, with care adapted to patients that have higher rates of failure to appear and in general are time-consuming to care for [39]. Positively, promising results have been shown regarding attendance rates and other relevant outcomes [40]. Care for socially disadvantaged groups, such as the homeless, naturally entails the necessary acute treatments but some projects also focused on prevention and education of personnel working with these groups [40]. Increased funding and the act of putting into the system, care which can better meet the demands of socially disadvantaged groups is a matter of political will.

Limitations

Despite the importance of these findings, it is necessary to highlight a number of potential limitations. One such limitation was the use of purposeful sampling to recruit the participants. As a result, our sample may not be representative of each stakeholder group. The general public sample in particular was not representative; all seven participants reported to be regular users of dental care, who were employed, in a secure financial situation, above the age of 38 years and were drawn from within a narrow personal network. It is noticeable that it was rather difficult to engage people off the street to participate in a study exactly on patient involvement. It must be expected that the results from this study are underrepresented with views from patients much different from the seven general public participants. However, this approach did enable the recruitment of information-rich general public, policy makers and dental team members, who were able to provide in-depth, detailed opinions on the barriers and facilitators to prevention. Unfortunately, there was little contribution from the perspective of the insurance companies. Representatives from the main insurance company

within Denmark did not want to participate ('Health Insurance Denmark') and the insurance representative interviewed was from a company with only minor market shares. This participant's responses were difficult to code, and were often not useful as they were largely focused around selling his companies' insurance schemes.

The focus group discussions were conducted in Danish but were translated into English to be analyzed. Although analysis involved a native Danish speaker who could back translate the transcripts, it is possible that some language nuances were lost in the translation process.

Thematic analysis was used to analyse the findings. This method allowed for theoretical freedom since it is not tied to a particular theory or epistemological approach and as such is a flexible research tool [14]. However, it is coupled with a lack of concise guidelines of what constitutes thematic analysis which runs the risk of an 'anything goes approach' [41]. To strengthen our approach, two researchers (KR, HL) coded the transcripts individually before agreeing on a code. Codes and theme development were also checked by authors JC and KCV to ensure objectivity.

Strengths

Despite these limitations, this research is novel in its approach to exploring barriers and facilitators to prevention, since it is the first to explore the perspectives of multiple groups of stakeholders on the same topic within the same research study. The approach allows for a greater in-depth exploration and comparison of the opinions on prevention between the stakeholders. Such comparisons may help to aid further development of the oral healthcare system in a more patient-centered way. Furthermore, it helps to highlight discrepancies between policy makers, dental professionals and patients which may be impacting the delivery, quality and acceptance of care.

Conclusions

The findings reiterate the importance of involving all stakeholders when introducing changes to dental care systems. Doing so will likely increase feelings of ownership among the different stakeholders and thereby increase probabilities for seeing positive changes and compliance to suggested changes.

Based on the seven identified themes on barriers and facilitators for prevention, oral health care systems should be more focused around; (a) Securing sufficient and ongoing education of all stakeholders on the potential benefits of the complex and broad concept of prevention. Such education needs to be prioritized within existing pre- and post-educational systems and ways to educate patients need to be developed further. (b) Incentivization and regulation which may facilitate prevention, by means of careful attention to well-considered implementation and quality assurance that is based on oral health outcomes rather than judgmental control. Furthermore, health outcomes must be on the agenda for all stakeholders involved. (c) Appropriate prevention for the increasing numbers of patients with complex medical problems and in general disadvantaged groups within society which may be possible to a higher degree by means of multidisciplinary collaboration. (d) Good personal relations based on mutual trust. Health care is dependent on good personal relations and health care systems should acknowledge this and support it by offering sufficient pedagogical and psychological education to health personnel, avoid being too focused on short-term economics and accept that it takes time to develop relationships based on mutual trust. The findings will guide future work on barriers and facilitators, providing a new starting point for the exploration of the relative value of potential solutions. The analysis of findings in other countries involved in the ADVOCATE project will shed further light on the subject.

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