Brazilian Dentists' Restorative Treatment Decisions

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Purpose: To investigate the pattern of decision-making by southern Brazilian dentists regarding the use of restorations in the treatment of dental caries.

Materials and Methods: A cross-sectional survey involving 840 dentists, randomly selected in three southern Brazilian states, was performed. Telephone interviews were conducted by three previously trained dentists, in which clinical situations with different-depth radiolucencies, based upon bitewing radiographs, were described. Two other situations, including dark fissures and white spots, were also described. The main outcome measures were the tendency in clinical decision-making in comparison with the number of years elapsed since qualification and attendance on postgraduate courses.

Results: The overall response rate was 89.4%: 31.5% of dentists would restore cavities in the outer half of the enamel; 54.5% when the cavity reached the inner half of the enamel, but not the enamel-dentine junction (EDJ); 79.0% when cavities reached the EDJ; and 96.9% when cavities reached the outer half of the dentine. Furthermore, 21.8% of dentists would restore dark fissures without signs of demineralization. Dentists qualified for less than 10 years and those who had attended postgraduate courses were less interventionist.

Conclusion: It was concluded that dentists have an interventionist attitude in the making of treatment decisions for dental caries and may be over-treating in several situations.

Key words: diagnosis, dental caries, treatment decision, over-treatment

Oral Health Prev Dent 2005; 3: 53–60. *Submitted for publication: 05.07.04; accepted for publication: 11.08.04.*

The outcome of the diagnostic process of dental caries is, in dental practice, based on the judgment of the dentist and the interpretation of the findings in a particular clinical situation (Espelid et al, 1985).

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Decision-making and the definition of treatment plans are complex processes that involve diverse external and personal factors for the dentist. According to Kay and Nuttall (1994) the factors that influence most decision-making are the patient/professional relationship, both in terms of the involvement of the patient in defining the treatment plan, as well as personal and social similarities between the patient and the professional.

Other factors suggested by the authors are the frequency of attendance at the dental clinic, the probability of treatment success and the risk/benefit relationship. The last is related to how much the benefits exceed the risks and the attitude of the patient and the dentist towards these risks. Also, the values both of the professional and the patient in relation to oral health, such as a esthetic

preferences or attitudes based on the improvement of oral health; the threshold of the dentist with regard to taking the decision to intervene and the financial situation of the patient also influence the decision-making (Kay and Nuttall, 1994).

The clinical decision-making for restorative intervention in the treatment of caries has been found to exhibit great variability (Mileman and Espelid, 1988; Nuttall and Pitts, 1990) in studies carried out on extracted teeth, interproximal radiographs and patient examinations (Lewis et al, 1996). False-positive clinical diagnoses, using radiographic examinations as the standard, present a variation of between 5% and 34% (Mileman et al, 1992).

In Brazil, there has been very little investigation of such a variation. Silva et al (1994) studied the treatment decision in a group of 15 dentists. They concluded that there was great difficulty in standardizing the diagnosis and the treatment decision in relation to caries of occlusal surfaces. Such studies have gained importance because of the marked decline of dental caries pattern in Brazil. The DMF-T among 12-year-old schoolchildren decreased from 6.7 to 2.8 in 18 years (Ministério da Saúde, 2004).

The moment of restorative clinical intervention in the treatment of caries has been the object of studies in several developed countries such as Norway (Espelid et al, 1994; Espelid and Tveit, 2001); Scotland (Nuttal and Pitts, 1990; Kay and Knill-Jones, 1992; Pitts, 1997); Holland (Mileman et al, 1992); Norway and Australia (Espelid et al, 1994); Canada and Scotland (Kay and Locker, 1996); Canada (Lewis et al, 1996; Choi et al, 1998); Sweden (Mejare et al, 1999); and France (Doméjean-Orliaguet et al, 2004). The results have shown that dentists would restore before the lesion penetrates the dentine. Dentists have shown a high sensitivity, but low specificity, exhibiting a high tendency towards invasive treatment (Kay and Locker, 1996). In France about 50% of the studied dentists would restore an occlusal lesion confined to enamel and 88% would have prepared a cavity for a lesion at the EDJ (Doméjean-Orliaguet et al, 2004).

It is accepted today that radiolucent radiographic images restricted to the enamel correspond to non-cavitated lesions, while radiolucent images in the internal half of the dentine correspond to cavitated lesions. The possibility of cavitation in lesions that penetrate the dentine, seen in radiographic images, is just 52% (Mileman et al, 1992). This has fundamental implications for dental practice in terms of the treatment of dental caries.

The disease has been understood today as an imbalance in the demineralization/remineralization process in dental tissues. This understanding assures characteristics of dynamism and reversibility when treated appropriately. In addition, there are implications for the treatment of cavities resulting from the maintenance of an imbalance for a specific period. This implies, besides the appropriate treatment of the disease, the application of restorative procedures for the recovery of function and dental esthetics. A better understanding of this process has brought changes to the concepts of the treatment of disease. It is known that active lesions of the enamel can be inactivated and, in dentine, even with the resulting bacterial invasion, the lesions can be inactivated, provided the factors involved in the disease process can be controlled (Maltz et al, 1999).

Thus, the objective of this study was to describe the tendency in clinical decision-making among dentists from southern Brazil regarding dental caries, comparing this with the number of years elapsed since qualification and attendance on postgraduate courses.

MATERIAL AND METHODS

A cross-sectional study was carried out. This included a representative sample of all general dental practitioners (GDPs) in Curitiba, Florianópolis and Porto Alegre, the state capitals of Paraná, Santa Catarina and Rio Grande do Sul, respectively. The total population of GDPs was 3500 in Curitiba-PR, 1074 in Florianópolis-SC, and 3346 in Porto Alegre-RS in 1999. These data were obtained from the General Dental Council (GDC) of each state. All GDPs registered in the GDC were eligible to participate in the study independently of their age and year of qualification.

The size of the sample was calculated to give a standard error of less than 1%. The 95% confidence level ($z = 1.96$) and a prevalence of 50% were used for the calculation. The minimum sample size to satisfy these requirements was estimated to be 810 dentists. Two hundred and eighty professionals from each of the cities under investigation were invited to take part in the study, selected by a single draw with replacement. The interviews were carried out by telephone and featured

questions directed towards the professional regarding the gender, age, year of qualification and attendance on postgraduate courses.

The interviews were conducted by three dentists who had been previously trained by an experienced researcher (J.T.). None of the interviewees responded against their will and the confidentiality of replies was guaranteed.

The interview instrument was pre-tested in each of the three cities, with small changes being necessary to some questions, to facilitate the professionals' understanding. In addition, pilot studies were carried out in each of the three cities, in which 20 professionals were interviewed who had not been selected for the main study, and the methodological procedures were found to be appropriate.

During the interview, the researchers described a hypothetical situation involving a 16-year-old patient, a regular attendee at the dental clinic and with a check-up scheduled for one year's time. The previous caries experience of such a patient, as well as sugar consumption and hygiene levels, were average, that is, better than the worst patients but not as good as the best. Interviewees were also told that the attitude of patients in relation to treatment was one of co-operation and that they were able to bear the costs of any type of treatment (Kay and Knill-Jones, 1992).

Following this description, five closed questions were presented in which clinical situations were described where the penetration of the carious lesion, based on the observation of bitewing radiographs, varied from the external part of the enamel to deeper areas of the dentine. Replies were given on a scale that varied from "definitely would restore" to "definitely would not restore" with five possible choices (Appendix). For the analysis of the results, the responses of the dentists were re-grouped in the following form: definitely would restore and very probably would restore constituted the "restore" group, while possibly would restore, very probably would not restore and definitely would not restore constituted the "not restore" group.

The interview also included two open questions regarding the type of treatment the professional would prescribe for a dark fissure, without visual signs of demineralization of the enamel, and for a white lesion, without cavitation in a smooth surface of a permanent molar.

The data were entered on an electronic form specially designed for this study and were analyzed through the *SPSS for Windows* programme, version 10.0. The frequency of the responses obtained was determined and the differences between proportions were tested by the Chi-squared test with Yates' correction or by Fischer's exact test.

Table 1 Frequency distribution of the studied population by age group and gender

AGE GROUP (YEARS)	TOTAL	
	n	%
21 – 30	238	28.3
31 – 40	242	28.8
41 – 50	183	21.8
51 – 60	130	15.5
> 60	47	5.6
TOTAL	840	100.0
SEX		
Male	421	50.1
Female	419	49.9
TOTAL	840	100.0

RESULTS

In order to achieve the required sample size it was necessary to invite 929 professionals to participate, which gave an overall response rate of 89.4%. Of the total of 840 interviewees, 50.1% were male and 49.9% female. The majority of the professionals interviewed (57.1%) was aged between 21 and 40 years (Table 1).

Table 2 shows that 31.5% of the dentists studied would restore lesions confined to the external half of the enamel; 54.3% would do the same when the lesion reached the internal half of the enamel, but without affecting the EDJ. When the lesion affected the EDJ, but did not penetrate the dentine, 79.0% would use a restoration for the treatment of a carious lesion and almost all of the dentists (96.9%) would do this when the lesion reached the dentine, but without reaching any depth.

Of all the interviewees, 21.8% would restore dark fissures without evidence of demineralization, while 96.7% would not perform any restorative

Table 2 Distribution of the professionals who would restore or probably would restore proximal carious lesions in a first upper molar, according to the depth of the lesion

DEPTH OF PROXIMAL CARIOUS LESION	YES n (%)	NO n (%)
External half of the enamel	262 (31.5)	570 (68.5)
Internal half of the enamel, but without reaching the EDJ	453 (54.5)	379 (45.5)
Enamel-dentine junction, but without penetrating the dentine	657 (79.0)	175 (21.0)
Dentine, but not deep	806 (96.9)	26 (3.1)
Dentine, deep	830 (99.7)	2 (0.3)

8 professionals did not respond.

Table 3 Distribution of the professionals that would use invasive restorative treatment for the clinical situations

CLINICAL SITUATION	YES n (%)	NO n (%)
Dark fissure, without signs of demineralization of the enamel	180 (21.8)	645 (78.2)
Detectable small white lesion, without cavitation in the continuity of the enamel, on the vestibular surface	27 (3.3)	798 (96.7)

15 professionals did not respond.

intervention in a small white lesion on the smooth surface of a permanent molar (Table 3).

From Table 4 it can be seen that those professionals with less than 10 years of post-qualification experience were more conservative in clinical situations 1 and 2, although the time elapsed since qualification was not significant in the other situations. Those professionals who had attended postgraduate courses were more conservative in most of the situations presented (situations 1, 2 and 3).

In relation to the clinical situations described in Table 5, the more recently qualified professionals were more conservative only in situation 1, in which a dark fissure without evidence of demineralization was assessed ($p < 0.01$). Those professionals who had attended postgraduate courses also were more conservative, although the difference was statistically significant only in situation 2 ($p < 0.01$) in which a white lesion was described.

DISCUSSION

The findings of this study demonstrate that GDPs in the southern region of Brazil are likely to overtreat their patients. These findings have significant implications for dental education, outcome of restorative treatment and caries prevalence.

It was observed that the professionals with less post-qualification experience and those who had attended postgraduate courses displayed a less interventionist posture. This suggests that the recent transformation in knowledge regarding the progression of carious lesions and the conservative treatment approaches more recently incorporated in undergraduate and postgraduate courses may be influencing the professionals' decision-making.

Hypothetically, one may consider that the postgraduate courses are contributing to a less interventionist treatment decision. The dentist's decision is less variable and more precise when there is an educational intervention, such as participation in seminars on probabilistic reasoning or the importance of sensitivity and specificity of diagnoses. The problem of a lack of precision in diagnosis and variability in treatment decisions appears to occur because the professionals tend to view the disease as an entity that is present or absent, rather than as a dynamic process, as it should be recognized (Choi et al, 1998). Therefore, understanding on the part of dentists of the difference between false-negative and false-positive diagnoses is fundamental for decision-making in situations of uncertainty (Kay et al, 1992). Choi et al (1998) have commented that the precision of decision-making with regard to the treatment of caries can be improved by the introduction not of strict definitions for disease pathology, but rather by encouraging the recognition of uncertainty.

The findings of this study also have implications for what is referred to as early restorative intervention and its consequences. Since it is known that restorative treatment alone does not ensure the reestablishment of oral health (Elderton, 2003), early restorative intervention is especially inappropriate, since it represents the beginning of a process named by Elderton (1993) as the repetitive restoration cycle, in which one of the most serious results is the early loss of the tooth.

It is fundamental that the GDP should understand that traditional restorative dentistry is outdated and that what is needed is a change of direction in practice towards a non-invasive preventive model, and that when an invasive restoration is necessary one should always bear in mind the danger of initiating the repetitive restoration cycle (Elderton, 2003).

Further implications of the potential contribution of the changing treatment philosophy to the decline of caries have been widely discussed (Mileman and Espelid, 1988; Kay et al, 1992). The most dramatic evidence comes from New Zealand where documented changes in treatment decision criteria led to the reduction of caries (Brown, 1982; Hunter, 1984). Similarly, clinical data collected by a single examiner in two English schools in 1963, 1978, 1982 and 1988 showed that a less interventionist approach greatly contributed to the reduction of caries (Anderson, 1989).

The findings of this study present good internal and external validity. The sample size was adequate allowing good statistical precision to report descriptive data and enough power to test the associations. Since it was randomly selected from the list of all GDPs, it represents the population of GDPs in the capitals of southern region of Brazil. Studies based on telephone interviews may be criticized due to a lack of clinic-tactile inspection of the patient. It is unlikely that this methodology has affected the finding of this study. Nuttall and Elderton (1983) reported that the greatest source of variability in decisions on the part of dentists would remain, even if the patients were present together with the radiographs.

Numerous studies have shown a great variation in diagnosis, the decision of restorative intervention and in treatment plans among dentists, using extracted teeth (Kay et al, 1988; Noar and Smith, 1990), interproximal radiographs (Mileman et al, 1992) or patient examinations (Nuttall and Elderton, 1983; Bader and Shugars, 1993).

Table 4 Associations between time elapsed since qualification, attendance on postgraduate courses and the decision to restore proximal carious lesions in a first upper molar according to the depth of the lesions. Chi-squared test with Yates' correction (p values)

Variable	Situation 1 – External half of the enamel		Situation 2 – Internal half of the enamel without affecting the EDJ		Situation 3 – EDJ without penetration of the dentine		Situation 4 – Dentine, not deep		Situation 5 – Dentine, deep	
	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)
Time since qualification										
Up to 10 years	73 (22.1)	258 (77.9)	159 (48.0)	172 (52.0)	251 (75.8)	80 (24.2)	318 (96.1)	13 (3.9)	330 (99.7)	1 (0.3)
> 10 years	189 (37.7)	312 (62.3)	294 (58.7)	207 (41.3)	405 (80.8)	96 (19.2)	487 (97.2)	14 (2.8)	499 (99.6)	2 (0.4)
p	< 0.01		0.003		0.10		0.48		0.48*	
Postgraduate education										
Yes	86 (27.9)	222 (72.1)	148 (48.1)	160 (51.9)	226 (73.4)	82 (26.6)	293 (95.1)	15 (4.9)	307 (99.7)	1 (0.3)
No	176 (33.6)	348 (66.4)	304 (58.0)	220 (42.0)	431 (82.2)	94 (17.8)	512 (97.7)	12 (2.3)	522 (99.6)	2 (0.4)
p	0.10		< 0.01		< 0.01		0.07		0.64*	

* Fischer's exact test.

Table 5 Associations between time elapsed since qualification, attendance on postgraduate courses and the decision to restore in the clinical situations described. Chi-squared test with Yates' correction (p values)

Variable	Situation 1 – Dark fissure in the enamel without signs of demineralization of the enamel		Situation 2 – White lesion without cavitation in the smooth surface of permanent molar	
	Restore n (%)	Not restore n (%)	Restore n (%)	Not restore n (%)
Time since qualification				
Up to 10 years	49 (14.8)	282 (85.2)	221 (66.8)	110 (33.2)
> 10 years	123 (24.9)	371 (75.1)	337 (68.2)	157 (31.8)
p	< 0.01		0.72	
Postgraduate education				
Yes	59 (19.4)	245 (80.6)	187 (61.5)	117 (38.5)
No	113 (21.7)	408 (78.3)	375 (72.0)	146 (28.0)
p	0.49		< 0.01	

The results of this investigation are worrying, since it is known that only radiolucent images that include the internal half of the dentine correspond to cavitated lesions (Mileman and Espelid, 1988). Therefore, very probably the majority of dentists studied here are overtreating. This finding was above the percentage reported in other studies.

Kay et al (1992) in a study of the limits for restorative intervention of 20 dentists from Glasgow, Scotland, showed that 40% indicated restorative treatment of every lesion that reached the EDJ. Meanwhile, in the case of Dutch dentists, the proportion reached 50% in 15-year-old patients (Mileman and Espelid, 1988). Espelid et al (1985) reported that 65% of a sample of Norwegian dentists would restore when the lesion reached the same level, and in France this figure would reach 88% (Doméjean-Orliaguet, 2004).

In the light of this study it can be concluded that, in general, the dentists interviewed in the three cities display an interventionist attitude in relation to overtreatment in diverse clinical situations, mainly in the cases of lesions confined to the enamel and EDJ. In general, a post-qualification career of less than 10 years and attendance on postgraduate courses represent factors that influenced the most conservative clinical decision-making in the treatment of dental caries. Further studies on this theme are necessary to identify the role of these factors in making the decision for restorative treatment in dental caries.

REFERENCES

1. Anderson RJ. The changes in dental caries experience of 12-year-old schoolchildren in two Somerset schools. A review after an interval of 25 years. Br Dent J 1989;167:312-314.
2. Bader JD, Shugars DA. Agreement among dentists' recommendations for restorative treatment. J Dent Res 1993;72: 891-896.
3. Brown RH. Evidence of decrease in the prevalence of dental caries in New Zealand. J Dent Res 1982;61:1327.
4. Choi BC, Jokovic A, Kay EJ, Main PA, Leake JL. Reducing variability in treatment decision-making: effectiveness of educating clinicians about uncertainty. Med Educ 1998;32: 105-111.
5. Doméjean-Orliaguet S, Tubert-Jeannin S, Riodan PJ, Espelid I, Tveit AB. French dentists' restorative treatment decisions. Oral Health Prev Dent 2004;2:125-131.
6. Elderton RJ. Overtreatment with restorative dentistry. When to intervene? Int Dent J 1993;43:17-24.
7. Elderton RJ. Ciclo restaurador repetitivo. In: Kriger L (ed). Promoção de Saúde Bucal. 3rd ed. São Paulo: Artes Médicas 2003;108-125.
8. Espelid I, Tveit A, Haugejorden O, Riordan PJ. Variation in radiographic interpretation and restorative treatment decisions on approximal caries among dentists in Norway. Community Dent Oral Epidemiol 1985;13:26-29.
9. Espelid I, Tveit AB, Riordan PJ. Radiographic caries diagnosis by clinicians in Norway and Western Australia. Community Dent Oral Epidemiol 1994;22:214-219.
10. Espelid I, Tveit AB. A comparison of radiographic occlusal and approximal caries diagnoses made by 240 dentists. Acta Odontol Scand 2001;59:285-289.
11. Hunter PBV. The prevalence of dental caries in 5-year-old New Zealand children in 1977 and 1982. NZ Dent J 1984;80:16.

12. Kay EJ, Watts A, Paterson RC, Blinkhorn AS. Preliminary investigation into the validity of dentist's decisions to restore occlusal surfaces of permanent teeth. Community Dent Oral Epidemiol 1988;16:91-94.
13. Kay EJ, Knill-Jones R. Variation in restorative treatment decisions: application of Receiver Operating Characteristic curve (ROC) analysis. Community Dent Oral Epidemiol 1992; 20:113-117.
14. Kay EJ, Nuttal NM, Knill-Jones R. Restorative treatment thresholds and agreement in treatment decision-making. Community Dent Oral Epidemiol 1992;20:265-268.
15. Kay EJ, Locker D. Variations in restorative treatment decisions: an international comparison. Community Dent Oral Epidemiol 1996;24:376-379.
16. Kay EJ, Nuttall NM. Relationship between dentists' treatment attitudes and restorative decisions made on the basis of simulated bitewing radiographs. Community Dent Oral Epidemiol 1994;22:71-74.
17. Lewis DW, Kay EJ, Main PA, Pharoah MG, Csima A. Dentists' stated restorative treatment thresholds and their restorative and caries depth decisions. J Public Health Dent 1996;56: 176-181.
18. Maltz M, Cavalcanti Fatturi Ruppenthal L, Jobim Jardim J. Bases biológicas para a remoção de dentina cariada. Rev ABOPREV 1999;2:11-19.
19. Mejare I, Sundberg H, Espelid I, Tveit B. Caries assessment and restorative treatment thresholds reported by Swedish dentists. Acta Odontol Scand 1999;57:149-154.
20. Mileman PA, Espelid I. Decisions on restorative treatment and recall intervals based on bitewing radiographs. A comparison between national surveys of Dutch and Norwegian practitioners. Community Dent Health 1988;5:273-284.
21. Mileman PA, Mulder H, Van der Weele LT. Factors influencing the likelihood of successful decisions to treat dentin caries from bite-wing radiographs. Community Dent Oral Epidemiol 1992;20:175-180.
22. Mileman PA, Van der Weele LT. The role of caries recognition: treatment decisions from bitewing radiographs. Dentomaxillofac Radiol 1996;25:228-233.
23. Ministério da Saúde. www.saúde.gov.br. Captured in June 1st 2004.
24. Noar SJ, Smith BG. Diagnosis of caries and treatment decisions in approximal surfaces of posterior teeth in vitro. J Oral Rehabil 1990;17:209-218.
25. Nuttal NM, Elderton RJ. The nature of restorative dental treatment decisions. Br Dent J 1983;154:363-365.
26. Nuttal NM, Pitts NB. Restorative treatment thresholds reported to be used by dentists in Scotland. Br Dent J 1990; 169:119-226.
27. Pitts NB. Diagnostic tools and measurements – impact on appropriate care. Community Dent Oral Epidemiol 1997;25: 24-35.
28. Silva BB, Maltz M, Franco F. Diagnóstico e tratamento da cárie de superfície oclusal: variação entre examinadores. Rev Assoc Paul Cir Dent 1994;48:1231-1234.

APPENDIX

Research instrument – to be read out by the researcher to the interviewee.

Dear colleague,
The clinical decision-making for restorative intervention in the treatment of caries has been found to exhibit great variability.
The objective of this study is to describe the tendency in clinical decision-making among dentists from (_____ *say the name of the city*).
Would you please help us giving your opinion?

GENERAL INFORMATION

Age: _____ years.
Sex: |___| Male |___| Female
Year of graduation: _____
Have you attended any postgraduate course? |___| Yes |___| No

QUESTIONS

You have a 16-year-old patient, a regular attendee at your dental clinic and with a check-up scheduled for one year's time. The previous caries experience of such a patient, as well as sugar consumption and hygiene levels are average, that is, better than the worst patients, but not as good as the best. The attitude of the patient in relation to treatment is one of co-operation. Your patient is able to bear the costs of any type of treatment.

Question 1
Based upon a bitewing radiograph, you see that an inter-proximal carious lesion has penetrated into the external half of the enamel of the element 26. Answering according to the scale, would you restore or not?
|___| Definitely would restore.
|___| Very probably would restore.
|___| Possibly would restore.
|___| Very probably would not restore.
|___| Definitely would not restore.

Question 2
Based upon a bitewing radiograph, you see that an inter-proximal carious lesion has penetrated into the internal half of the enamel, but without reaching the enamel-dentine junction of the element 26. Answering according to the scale, would you restore or not?
|___| Definitely would restore.
|___| Very probably would restore.
|___| Possibly would restore.
|___| Very probably would not restore.
|___| Definitely would not restore.

Question 3
Based upon a bitewing radiograph, you see that an inter-proximal carious lesion has reached into enamel-dentine junction, but without penetrating the dentine of the element 26. Answering according to the scale, would you restore or not?
|___| Definitely would restore.
|___| Very probably would restore.
|___| Possibly would restore.
|___| Very probably would not restore.
|___| Definitely would not restore.

Question 4
Based upon a bitewing radiograph, you see that an inter-proximal carious lesion has penetrated into the dentine, but not deeply of the element 26. Answering according to the scale, would you restore or not?
|___| Definitely would restore.
|___| Very probably would restore.
|___| Possibly would restore.
|___| Very probably would not restore.
|___| Definitely would not restore.

Question 5
Based upon a bitewing radiograph, you see that an inter-proximal carious lesion has penetrated deeply into the dentine of the element 26. Answering according to the scale, would you restore or not?
|___| Definitely would restore.
|___| Very probably would restore.
|___| Possibly would restore.
|___| Very probably would not restore.
|___| Definitely would not restore.

Question 6
The same patient presents a dark fissure, without visual signs of demineralization of the enamel of element 26. Based upon a bitewing radiograph, you see that the carious lesion has not penetrated into the dentine. Which treatment, if any, would you provide?
_____
_____

Question 7
The same patient presents a small white lesion, without cavitation in a smooth surface of element 26. Which treatment, if any, would you provide?
_____
_____