Periodontal Screening and Recording: Its Use When Detecting Periodontal Disease

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Intended Audience: Dentists, Dental Hygienists, Dental Assistants, Dental Students, Dental Hygiene Students, Dental Assistant Students
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Conflict of Interest Disclosure Statement

- The author reports no conflicts of interest associated with this course. She has no relevant financial relationships to disclose.

Short Description

Periodontal Screening and Recording (PSR) is a rapid method of screening patients to decide if a more comprehensive assessment is necessary. After taking this course, the participant will be able to explain the benefits of the PSR system, use the PSR system in a clinical setting, interpret a patient's PSR score, identify who should be assessed with a more comprehensive periodontal exam, and discuss the PSR system with patients.

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Overview

Periodontal Screening and Recording (PSR) is a rapid method of screening patients to decide if a more comprehensive assessment is necessary. After taking this course, the participant will be able to explain the benefits of the PSR system, use the PSR system in a clinical setting, interpret a patient's PSR score, identify who should be assessed with a more comprehensive periodontal exam, and discuss the PSR system with patients.

Learning Objectives

Upon completion of this course, the dental professional should be able to:

- Explain the benefits of the PSR system.
- Use the PSR system in a clinical setting.
- Interpret a patient's PSR score.
- Identify who should be assessed with a more comprehensive periodontal exam.
- Discuss the PSR system with patients.

Introduction

A complete periodontal assessment includes a thorough review of the patient's medical and dental histories, as well as the recording of gingival findings including probing depths, clinical attachment levels, tooth mobility and position, furcation involvement, bleeding on probing, occlusal relationships, and bone levels.

It is important the dentist or dental hygienist monitor and evaluate a patient's periodontal status on a regular basis. The American Dental Association estimates 42% of adults in the United States over the age of 30 have periodontal disease.[1] Periodontal disease is found worldwide, but most common in older populations. Bleeding upon probing was found to differ among low-, middle- and high-income countries.[16] The Centers for Disease Control and Prevention reports 47.2% of adults in the United States have a form of periodontal disease. The rate increases to 70.1% for those Americans age 65 and older.[9] While there is no true way to know if periodontal disease is increasing or decreasing among the population in the United States, it can be assumed that since Americans are living longer with their natural teeth, and since periodontal disease is common in the older population, there are more people living with periodontal disease.[10] Every oral examination should include an evaluation of the periodontium. The ultimate goal of the periodontal assessment is to identify and classify periodontal disease.[3] Although the Periodontal Screening and Recording® (PSR) is not intended to replace a full mouth probing and recording of findings, it is a rapid method of screening patients to decide if a more comprehensive assessment is necessary. The dentist or dental hygienist must decide, upon completion and documentation of their patient's PSR scores, whether the patient should receive a full periodontal examination. This would result in the patient's classification of periodontal disease characterized by the staging and grading system as recommended by the American Academy of Periodontology (AAP).[15] The severity of periodontal disease is classified by four Stages (I – IV) where the focus is on attachment and bone loss. The dental professional then determines one of three Grades (A, B, or C) which indicates disease progression and outcome.[17]

Gingivitis and periodontitis fall into the category of periodontal diseases. Both are microbial infections of the periodontium, where the microorganisms operate in conjunction with a person's host response.[7] The dental hygienist is most often the person in the professional dental setting who screens patients and assesses periodontal health or disease. The most commonly used screening method for the measurement of depth of the gingival sulcus and the clinical attachment level is periodontal probing.[6] The clinician, by measuring probing depths, can make assumptions of the state of health of the periodontium. Early detection and diagnosis

are significant components in the prevention of periodontal disease. The American Academy of Periodontology (AAP) recommends every dental patient should receive a comprehensive periodontology evaluation annually.[11] The Periodontal Screening and Recording® (PSR) system is one example of a diagnostic aid used to assess the periodontal health of patients. The PSR system has been used to study the relationship in overweight and obese patients who smoke as well as a way to estimate the periodontal health statuses of a representative military population.[2,8] A study by Khocht et al found the PSR to be an effective tool in the screening of periodontal diseases.[4] The PSR has been used to detect the periodontal status of individuals with immunoglobulin A deficiency.[12] Overall, there are a limited number of studies involving use of the PSR.

Background

In 1982, the World Health Organization (WHO) created the Community Periodontal Index of Treatment Needs (CPITN). This method of evaluation estimated the periodontal disease prevalence and severity based on the probing depths and condition of the periodontium. In 1992, the AAP modified the Simplified Periodontal Examination (SPE), used in New Zealand, and developed the PSR system for use in North America (journal article). With the corporate sponsorship of the Procter & Gamble Company, the AAP and the American Dental Association (ADA) adopted the PSR system.[3]

The PSR system was designed to initiate the promotion, prevention, and early treatment of periodontal diseases by:

- Introducing a simplified screening method that met legal dental recording requirements.
- Encouraging dentists to incorporate the PSR system into every oral examination.
- Educating members of the public to value periodontal health and to request a periodontal screening from dentists (PSR Training Program, 1992).

Objectives of Screening

The PSR system does not replace the need for a comprehensive periodontal examination. It acts as a time saving screening of periodontal health to indicate when a partial or full-mouth examination is required. When the clinician becomes familiar with the PSR system examination process, it should only take a few minutes to conduct a screening.

Similar to a traditional comprehensive periodontal examination, the PSR system measures each tooth individually, with implants examined the same way as natural teeth. However, the mouth is divided into sextants instead of quadrants (Figure 1).

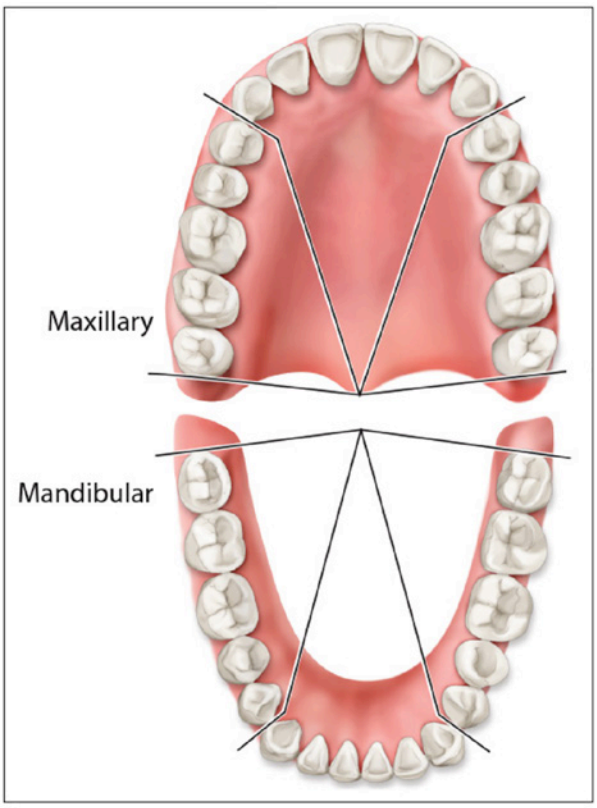


Figure 1. Sextants of Mouth.

Six measurements for each tooth are obtained, utilizing a special ball-tipped probe. This probe has a 0.5 mm ball at the tip and a color-coded area 3.5 to 5.5 mm from the tip. The probe may be plastic or metal. The ball at the end of the probe is intended to enhance patient comfort and assist in detecting overhanging margins and subgingival calculus (Figure 2).

Figure 2. Special Ball-tipped Probe.

The probe is inserted into the sulcus or pocket and walked around the circumference of each tooth. This method is the same technique used as with a comprehensive periodontal examination. However, the PSR system is unique in the way the probe is read. The clinician need only observe the position of the color-coded band in relation to the gingival margin. The color-coded band is commonly known as a reference mark, which spans between 3.5 mm to 5.5 mm. For each area probed, the clinician will decide if the colored band is either totally visible, partly visible, or not at all visible.[14] The presence of furcation involvement, mobility, mucogingival problems, or recession should also be noted with an asterisk. After each tooth in the sextant has been examined, only the highest code obtained is recorded and only one score is recorded for each sextant. If a sextant is edentulous, an "X" is placed. Measurements are recorded by sextants as shown below (Figure 3).

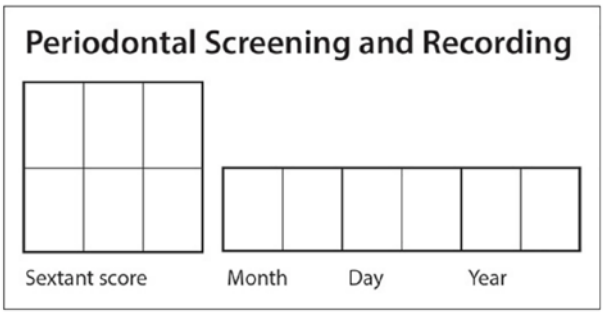
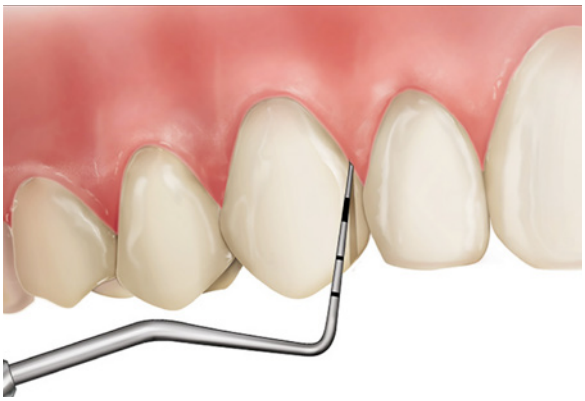


Figure 3. Recording Scores.

Interpretation of Codes

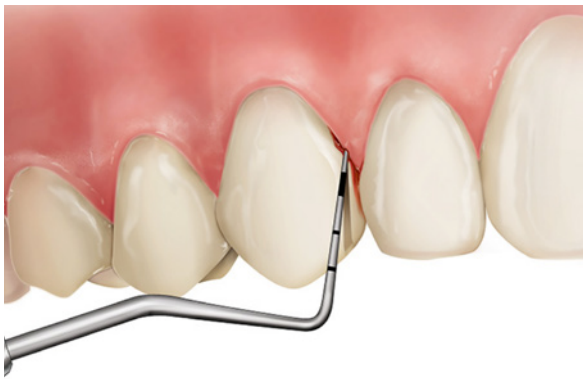
Code 0:
The colored area of the probe remains completely visible in the deepest crevice of the sextant; this indicates that probing depths in the sextant range between 1 mm to 3 mm. There is no calculus or defective margins detected. The gingival tissues are healthy with no bleeding after gentle probing.



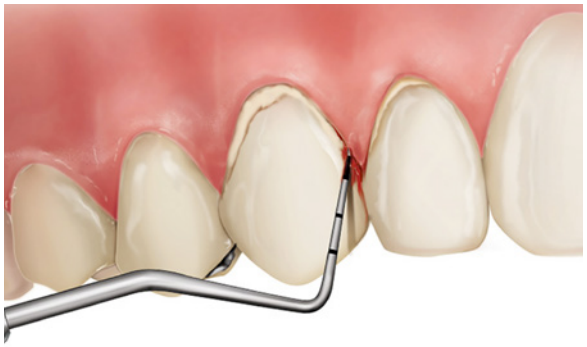
Code 0

Code 1:
The colored area of the probe remains completely visible in the deepest probing depth in the sextant; this indicates that probing depths range between 1 mm to 3 mm. There is no calculus or defective margins detected. However, there is bleeding after probing.

Code 2:
The colored area of the probe remains completely visible in the deepest probing depth in the sextant; this indicates probing depths range between 1 mm to 3 mm. Supragingival or subgingival calculus and/or defective margins are detected.

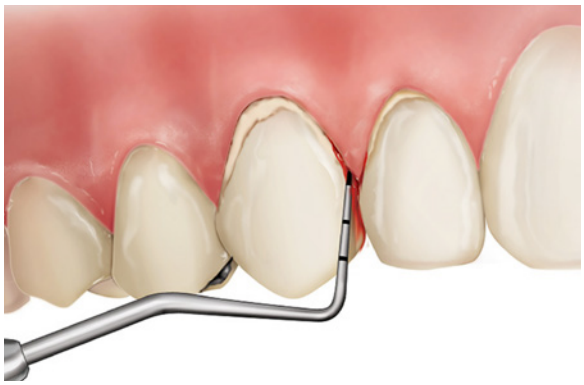


Code 1



Code 2

Code 3:
The colored area of the probe remains partly visible in the deepest probing depth in the sextant; this indicates that probing depths may range between 4 mm to 5 mm.



Code 3

Code 4:
The colored area of the probe completely disappears indicating a probing depth of greater than 5.5 mm.

Code 4

The Symbol "*":
The symbol "*" should be added to a sextant score whenever the following is found: furcation involvement, mobility, mucogingival problems, or recession extending to the colored area of the probe (indicating 3.5 mm or greater).

Guidelines for Patient Management

Code 0:
Appropriate preventive care should be given as well as a review of daily plaque control habits.

Code 1:
Individualized oral hygiene instructions should be reinforced with the patient. Appropriate therapy, including subgingival plaque removal should be performed.

Code 2:
Individualized oral hygiene instruction and appropriate therapy, including subgingival plaque removal, as well as the removal of calculus and the correction of plaque-retentive margins and restorations should be performed.

Code 3:
A comprehensive periodontal examination and charting of the affected sextant are necessary to determine an appropriate care plan. This examination and documentation should include the following: identification of probing depths, clinical attachment levels (gingival recession), bleeding on probing, mobility, mucogingival problems, furcation involvement, and radiographs. If one or more sextants score a Code 3, a comprehensive full mouth examination and charting are indicated.

Code 4:
A comprehensive full mouth periodontal examination and charting are necessary to determine an appropriate care plan. This examination and documentation should include the following: identification of probing depths, clinical attachment levels (gingival recession), bleeding on probing, mobility, mucogingival problems, furcation involvement, and radiographs. It can be assumed that advanced periodontal treatment will be required.

Symbol (*):
If an abnormality exists in the presence of Codes 0, 1, or 2, the clinician should make a specific notation and/or treatment for that condition as needed. If an abnormality exists in the presence of Code 3 or 4, a comprehensive periodontal examination and charting are necessary to determine an appropriate care plan.

Advantages and Limitations

The advantages of using the PSR system include early detection, speed, simplicity, cost-effectiveness, ease of recording, and risk management.

- **Early detection:** Since all sites are evaluated, the risk of periodontal disease can be made early and appropriate treatment can be performed.
- **Speed:** Once the technique of the PSR system is learned, it should take only a few minutes to perform the screening. This saves time versus a comprehensive examination.
- **Simplicity:** It is easy to do and understand for patients.
- **Cost-effectiveness:** It is not necessary to purchase expensive equipment since all that is needed is a ball-tipped probe.
- **Ease of recording:** Only one number is recorded for an entire sextant.
- **Risk management:** The dental team is monitoring and recording a patient's periodontal status to stay compliant with standards of care and for legal requirements.

There are limitations when using the PSR system. As stated earlier, it is not intended to replace a full-mouth periodontal examination. Those patients who have received treatment for periodontal diseases and/or are in a maintenance phase of care should receive comprehensive periodontal examinations routinely. There is also limited use of the PSR system in children. It is necessary to differentiate pseudo-pockets from true periodontal pockets with these younger patients. In any patient exhibiting enlarged gingiva or recession, the PSR score may give false results.[14] Landry and Jean reported that since the PSR does not measure epithelial attachment, the severity of periodontal disease may be underestimated with its use.[5] While a study by Rams and Loesche found a pretreatment PSR score of 4 or greater in 110 adults to be a good predictor of periodontal access surgery needs, this same study concluded after performing non-surgical periodontal therapy the score overestimated surgical access needs.[13]

Conclusion

The PSR system is a valuable tool in the early detection of periodontal disease. This system can indicate when a more comprehensive periodontal examination should be performed. The unique way the probe is read and the limited amount of recordings needed when performing an examination is easy to incorporate into every patient's appointment.

Course Test Preview

To receive Continuing Education credit for this course, you must complete the online test. Please go to: *www.dentalcare.com/en-us/ce-courses/ce617/test*

1. What makes the PSR system unique?

A. The way the probe is read.
B. The way the probe is inserted into the sulcus.
C. Its adoption by the ADA and AAP.
D. Its intended use on patients.

2. A new patient presented to the dental office for an initial examination. The PSR would be an appropriate method to comprehensively assess the patient's periodontal status.

A. True
B. False

3. Which of the following describes a PSR Code 2?

A. Colored area of the probe remains partly visible; no calculus or defective margins detected; gingival tissues healthy.
B. Colored area of the probe remains visible in deepest probing depth; no calculus or defective margins detected; there is bleeding on probing.
C. Colored area of the probe completely disappears; probing depth > 5.5 mm.
D. Colored area of the probe is completely visible in deepest probing depth in sextant; supra- or subgingival calculus detected or defective margins present.

4. Which of the following patients would NOT be a good candidate for the PSR system?

1. Child patient
2. Periodontal maintenance patient
3. Recall patient with no bleeding upon probing
4. Patient screened at a health fair

A. 3
B. 3 and 4
C. 1
D. 1 and 2

5. For each sextant, only the lowest PSR score is recorded.

A. True
B. False

6. The patient management of a PSR Code 4 is _____.

A. individualized oral hygiene instruction and removal of subgingival calculus; as well as removal of calculus and correction of plaque-retentive margins and restorations
B. individualized oral hygiene instructions should be reinforced; subgingival plaque removal
C. comprehensive full mouth periodontal examination and charting

7. If one or more sextants score a Code 3, what is the appropriate protocol?

A. Removal of subgingival plaque
B. Full mouth exam and charting
C. Refer to a periodontist
D. Oral hygiene instruction

8. All of the following are advantages to using the PSR EXCEPT one. Which one is the exception?

A. Excessive cost
B. Simplicity
C. Risk management
D. Speed

9. The probe used with the PSR system has a 0.5 mm ball tip. Which of the following is NOT a purpose for this tip?

A. Gives a more accurate reading.
B. Enhances patient comfort.
C. Detects subgingival calculus.
D. Detects overhanging margins.

10. In which of the following conditions could the scores of the PSR give a false reading?

A. Excessive plaque
B. Gingival health
C. Gingival bleeding
D. Gingival recession

References

1. Periodontitis. American Dental Association. Accessed April 30, 2023.
2. Covington LL, Breault LG, Hokett SD. The application of Periodontal Screening and Recording (PSR) in a military population. J Contemp Dent Pract. 2003;4(3):36-51. Published 2003 Aug 15.
3. Hodges KO. Concepts in nonsurgical periodontal therapy. Albany, NY. Delmar Publishers. 1998.
4. Khocht A, Zohn H, Deasy M, Chang KM. Screening for periodontal disease: radiographs vs. PSR. J Am Dent Assoc. 1996;127(6):749-756. doi:10.14219/jada.archive.1996.0310.
5. Landry RG, Jean M. Periodontal Screening and Recording (PSR) Index: precursors, utility and limitations in a clinical setting. Int Dent J. 2002;52(1):35-40. doi:10.1111/j.1875-595x.2002.tb00595.x.
6. Weinberg MA. Comprehensive periodontics for the dental hygienist. Upper Saddle River, NJ. Prentice Hall. 2001.
7. Weinberg MA, Fine JB. Comprehensive periodontics for the dental hygienist. Upper Saddle River, NJ. Pearson Education. 2010.
8. Wood N, Johnson RB. The relationship between smoking history, periodontal screening and recording (PSR) codes and overweight/obesity in a Mississippi dental school population. Oral Health Prev Dent. 2008;6(1):67-74.
9. CDC. Oral Health Conditions. Periodontal Disease. Accessed June 1, 2020.
10. Eke PI, Borgnakke WS, Genco RJ. Recent epidemiologic trends in periodontitis in the USA. Periodontol 2000. 2020;82:257–267.
11. American Academy of Periodontology. Comprehensive periodontal therapy: a statement by the American Academy of Periodontology*. J Periodontol. 2011;82(7):943-949. doi:10.1902/jop.2011.117001.
12. Jorgensen GH, Arnlaugsson S, Theodors A, Ludviksson BR. Immunoglobulin A deficiency and oral health status: a case-control study. J Clin Periodontol. 2010;37(1):1-8. doi:10.1111/j.1600-051X.2009.01494.x.
13. Rams TE, Loesche WJ. Relationship Between Periodontal Screening and Recording Index Scores and Need for Periodontal Access Surgery. J Periodontol. 2017;88(10):1042-1050. doi:10.1902/jop.2017.170070.
14. Gehrig JS, Shin DE, Willmann DE. Foundations of periodontics for the dental hygienist. Philadelphia, PA. Wolters Kluwer. 2019.
15. Caton JG, Armitage G, Berglundh T, et al. A new classification scheme for periodontal and peri-implant diseases and conditions - Introduction and key changes from the 1999 classification. J Periodontol. 2018;89 Suppl 1:S1-S8. doi:10.1002/JPER.18-0157.
16. Muhammad Nazir, Asim Al-Ansari, Khalifa Al-Khalifa, Muhanad Alhareky, Balgis Gaffar, Khalid Almas, "Global Prevalence of Periodontal Disease and Lack of Its Surveillance", The Scientific World Journal, vol. 2020, Article ID 2146160, 8 pages, 2020.
17. American Academy of Periodontology. Accessed on April 30, 2023

Additional Resources

- No Additional Resources Available.

About the Author

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