

Getting to the Root of It with “The 5 Whys”: A Structured Mental Tool for Problem-Solving

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As dental clinicians, we encounter oral health problems daily and can typically arrive at the primary or root cause of the problem instantaneously.... or do we? Case in point, we have a 4-year-old patient that presents with a parulis at the buccal aspect of the upper right primary first molar. Further inspection, by way of clinical and radiographic exam, reveals a large carious lesion that has encroached upon the pulp tissue of the upper right primary first molar. Our immediate explanation for the patient's parent is that the cavity caused the abscess that led to the parulis. But is the cavity the “root cause” of the abscess?

Let's break this down further. What is the problem: the abscess. Why did the abscess occur: carious encroachment onto the pulp tissue. Why did the cavity occur: poor hygiene habits. Why do we have poor hygiene habits: parental lack of dental education and involvement. We can see that the parent's lack of dental education and involvement ultimately led to the above-mentioned parulis. The cavity, just like the abscess, is merely a symptom of poor oral hygiene that stems from the lack of the patient's parents' dental education and involvement.

We, as pediatric dentists, know the above case story and root cause all too well. It serves as a simple example of an effective interrogative technique for root cause analysis known as the 5 Whys Analysis Process. This process is considered an effective approach to problem-solving and can be utilized for any problem-solving needs. Taiichi

Ohno, a Japanese industrial engineer and manager at Toyota Motor Corporation, developed the 5 Whys Analysis Process. He believed that by repeating “Why” five times whenever we find a problem, the nature of the problem as well as its solution becomes clear. Keep in mind that “5” is just a number. Ask “Why” as many times as you need to complete the process and arrive at the underlying cause or causes of the problem at hand.

Below is a sample 5 Why Template. The template provides a structured process for conducting the analysis. The template can and should be tailored to align with specific types of problems or requirements.

1. **What is the problem?**
2. **Why did the problem occur?**
3. **Why did the reason in question 2 happen?**
4. **Why did the reason in question 3 happen?**
5. **Why did the reason in question 4 happen?**
6. **Why did the reason in question 5 happen?**

It is also important to include all involved or familiar with the process that is going to be investigated. This will help you collect enough information to help you make an informed decision and apply the corrective action to stop the problem.

Here is another example: Let's say you are suddenly experiencing incidences of your etch syringe tip disengaging when attempting to etch a tooth. This is causing the tip to launch into the patient's mouth creating a potential choking/aspiration/ingestion hazard and resulting in a large amount of etch contacting your patient both intra- and extra-orally. This is a problem that needs a solution. You assemble your clinical team and begin with the 5 Whys:

Define the problem: etch tips are disengaging.

Why - are they disengaging? The syringe tips are not locking into the syringe.

Why - are the tips not locking into the syringe? The wrong tips are being used.

Why - are the wrong tips being used? The newest staff member in charge of chair set-up was not properly instructed on which tips to use with the specific dispensing syringes.

Why - was she not instructed properly? We only have one primary training assistant, and she has been out on maternity leave.

Why - are we not crosschecking for each other and most importantly, for the newest staff member? No good answer was provided.

We exhausted the “whys”, and the primary root cause of this safety concern has been identified as the lack of proper training/instruction for the new staff member. There are other reasons that have arisen from this questioning. For example, we need more than one staff member to be able to train new clinical assistants and ensure they are performing to our office standards. We should also be crosschecking and verifying each other’s work and material use. Other good habits discussed in patient care include use of a rubber dam and the assistant expressing etch from the syringe prior to using it in the patient’s mouth. We started with one problem and now have several good solutions.

When in need to perform a 5 Whys Analysis, assemble your team, define your problem, start asking why, discover the root cause(s) and apply the best solution that will prevent your problem from recurring.

More articles from the Safety & Quality Improvement Committee

What is a High Reliability Organization? 5 HRO Principles for Pediatric Dentistry by Dr. Brian Hodgson

The Case for Checklists in Dentistry by Dr. Travis Nelson

Systems & Safety in Dentistry by Dr. Charles Czerepak

Evidence-Based Dentistry Award Recognitions

Publications from AAPD’s EBD workgroups were widely recognized at the Annual Session this year by the AAPD membership. During the General Assembly, Dr. Jim Coll was awarded the Paul P. Taylor Award for the latest systematic review on pulp therapy in primary teeth published in November 2023.

The Behavior Guidance workgroup was awarded the Suzi Seale Coll Evidence-Based Dentistry Award for its work on the behavior guidance clinical practice guideline published in September 2023.



Pictured Left to Right: Dr. Vineet Dhar, Dr. Cameron Randall, Dr. Clarice Law, Rachel Wedeward, and Dr. Scott Cashion.

Congratulations to our workgroup members for being recognized for all their hard work and contribution to evidence-based dentistry research.

Members in both workgroups are listed below:

Pulp Therapy

Dr. Jim Coll
Dr. Yasmi Crystal
Dr. Vineet Dhar
Dr. Marcio Guelmann
Dr. Abdullah Marghalani
Dr. Zheng Xu
Dr. Shahad Al Shamali
Dr. Gerald Glickman
Dr. Chia-Yu Chen
Rachel Wedeward

Behavior Guidance

Dr. Vineet Dhar
Dr. Elizabeth Gosnell
Dr. Jayakumar Jayaraman
Dr. Clarice Law
Dr. Martina Mastorovic
Dr. Abdullah Marghalani
Dr. Cameron L. Randall
Dr. Janice Townsend
Dr. Martha Wells
Dr. Chia-Yu Chen
Rachel Wedeward



Pulp Therapy Workgroup Chair, Dr. Jim Coll