**Supplementary Material 1**

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| --- | --- |
| Sensitivity | Proportion of true positives correctly identified |
| Specificity | Proportion of true negatives correctly identified |
| Positive predictive value | Proportion of test positives that are truly positive |
| Negative predictive value | Proportion of test negatives that are truly negative |

**Table S1** Definitions from the textbook by Kirkwood and Sterne [1]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Standard /disease | | |  |
| Pulpotomy fail  **Positive** | Pulpotomy success  **Negative** | Total |
| **Positive**  ≥ 334.8ng/mL MPP-9 | 5 | 6 | 11 | PPV = 5/11 = 45.5% |
| **Negative** <334.8ng/mL MMP-9 | 0 | 29 | 29 | NPV = 29/29 = 100% |
| Total | 5 | 35 | 40 |  |
|  | Sensitivity = 5/5 = 100% | Specificity = 29/35 = 83% |  |  |

Legend: NPV, negative predictive value, PPV, positive predictive value

**Table S2** Contingency table developed from the information in Sharma et al. [2].

The paper by Sharma et al. [2] states that the cut-off MMP-9 concentration ([MMP-9]) to predict the outcome (success or failure) of a complete pulpotomy is 334.8 ng/mL ie a positive test result of ≥334.8 ng/mL predicts pulpotomy failure and a negative result of <334.8 ng/mL predicts pulpotomy success. They identified a sensitivity value of 100% and a specificity value of 83%. Forty pulpotomies were performed, of which 35 were successful and 5 failed. As seen in Table 4, the number of true negatives (29) was calculated based on x/35=83% (where x is the number of true negatives). The number 6 in the table is the number of false test positives and was calculated to add up to the total number of cases that were a success (35). The number of false test positives is the number of cases predicted to fail that were actually a success.

According to the above table, the following statement in the paper is incorrect; “The 83% specificity of the test suggests that only 17% of teeth with aMMP-9 concentration ≥ 334.8 ng mL-1 will have a successful outcome after pulpotomy.” This is because 6 of a total of 11 cases (54.5%) that had a [MMP-9] of ≥334.8 ng/mL were actually successful. In fact, only 5 out of 11 failures were correctly predicted by the test to fail, resulting in a positive predictive value of 45.5%. In summary, of the teeth where the test indicated no pulpotomy should be performed, more than half could have had a successful pulpotomy.

If the findings of this paper alone were used to develop a chairside diagnostic test, an MMP-9 concentration of ≥ 334.8 ng/mL would encourage the clinician to not perform the pulpotomy despite half of these cases potentially being a success.

**References**

1. Kirkwood, B.R.; Sterne, J.A.C. *Essential Medical Statistics*, 2nd Edition ed.; Wiley: Hoboken, 2003.

2. Sharma, R.; Kumar, V.; Logani, A.; Chawla, A.; Mir, R.A.; Sharma, S.; Kalaivani, M. Association between concentration of active MMP‐9 in pulpal blood and pulpotomy outcome in permanent mature teeth with irreversible pulpitis – a preliminary study. *Int Endod J* **2021**, *54*, 479-489, doi:10.1111/iej.13437.