**A practice-based evaluation of Dentsply Sirona Nupro White Varnish**

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**INTRODUCTION**

**Practice based research**

The value of practice-based research has been previously discussed1, with the arena of general dental practice having been considered the ideal environment in which to carry out evaluations of the handling of dental materials and their clinical effectiveness. In this regard, a wide variety of research projects may be considered to be appropriate to general dental practice, including1 assessment of materials, devices and techniques, clinical trials of materials, assessment of treatment trends and, patient satisfaction with treatment.

A UK-based group of practice-based researchers is the PREP (**P**roduct **R**esearch and **E**valuation by **P**ractitioners) Panel. This group was established in 1993 with 6 general dental practitioners, and has grown to contain 33 dental practitioners located across the UK, with one in mainland Europe2. The group have completed over 70 projects – “handling” evaluations of materials & techniques, and more recently, clinical evaluations (n=8) of restorations placed under general dental practice conditions, with the restorations being followed for periods of one to five years2.

A new 5% Sodium Fluoride Varnish has recently been developed and released by Dentsply Sirona (DENTSPLY Limited, Building 3, The Heights, Brooklands, Weybridge, Surrey, KT13 0NY: www.dentsplysirona.com). It is therefore the aim of this article to describe how a group of practice–based researchers, the PREP Panel, considered the handling of Dentsply Sirona Nupro White Varnish(Figure 1).

Figure 1 ADD PACK SHOT

**METHODS**

 A questionnaire was developed jointly by the PREP Panel co-ordinators and

members of the Dentsply Sirona team, this being designed to assess the

respondents’ opinions on the presentation of the varnish, its ease of use and

other aspects such as flavour.

Selection of participants

All 33 members of the practice-based research group, the PREP Panel, were sent an email communication asking if they would be willing to evaluate a new fluoride varnish. Ofthose who responded in the affirmative, thirteen general dental practitioners (GDP) members of the PREP panel were selected at random, three of which were female. Their average time since graduation was 27 years, with a range of 13 to 38 years.

Explanatory letters, questionnaires and 2 packs of 50 Nupro White varnish sachets (one of each flavour) were distributed to evaluators in February 2017. The practitioners were asked to use the materials as indicated and return the questionnaires after 10 weeks. Questionnaires were completed by ten GDPs and twelve Hygienists.

**CLINICAL EVALUATION**

Background information

Regarding the number of applications placed by the evaluators in a typical week, 8 (36%) used <5 applications, 8 (36%) used 5-10, while 5 (23%) used >10. The fluoride varnishes used by evaluators prior to the evaluation were: Duraphat (16 evaluators), Voco Bifluorid (5 evaluators), Flairesse (2 evaluators) and 3M Clinpro White Varnish (1). Two evaluators used more than one material. The main reasons for the use of these materials were good results, ease of use, patient acceptance, and, “provided by the practice”. Other reasons given were cost, and “not aware of alternatives”. The main perceived disadvantages of the varnish used prior to the present evaluation were stated to be the colour and taste. Other disadvantages were stated to be: non-adherence to wet surfaces, messy and poor infection control when dispensed from a tube, and limited efficacy.

When the evaluators were asked to rate the ease of use of their current varnish, the result was:

Difficult to use 1 5 Easy to use

  **4.5**

Seventeen (92%) of the evaluators stated that patients made comments about the taste or smell of their current varnish, with nine reporting negative comments.

Twelve of the evaluators (55%) stated that they knew the % fluoride concentration of their current varnish. Answers given were 50mg/ml (3 evaluators), 2.2% (8), and 5% (1 evaluator). One evaluator stated 50% with no elaboration as to how that percentage was arrived at.

Clinical evaluation of Dentsply Sirona Nupro White Varnish

Evaluators rated the presentation of the kit as follows:

 Poor 1 5 Excellent

  **4.8**

No comments were made suggesting improvement to the presentation**.** Comments made included “Some wastage due to individual packaging”

When the evaluators were asked to rate the instructions for Nupro White Varnish, the result was:

 Poor 1 5 Excellent

 **4.8**

Comments made included: “Add more colour and include reasons for use”, and, “Clarify if OK to use on Asthmatic patients (Duraphat is contra-indicated)”

The total number of applications made during the evaluation was 324. Twenty (91%) of the evaluators stated that they were satisfied with Nupro White Varnish for the treatment of dentinal hypersensitivity. Sixteen evaluators (73%) did not encounter any adverse comments from patients in regard to the taste and smell of Nupro White Varnish. Comments made included: “Patients liked taste”, “Grape flavour not like grapes!”, “Both flavours liked”, “A few didn’t like the grape flavour”. Three evaluators (14%) noted a preference for the Raspberry flavour of Nupro White Varnish. Positive comments made by patients were noted by 17 evaluators (77%) and included: “Hypersensitivity settled after one application”, “Clear colour less obvious than Duraphat” (3 comments), “Like taste” (8 comments), and “Both flavours great”.

The evaluators rated the ease of use of Nupro White Varnish as follows:

Inconvenient 1 5 Convenient

 **4.8**

When asked to compare Nupro White varnish with their previously used fluoride product, one evaluator (5%) stated “Worse”, 15 evaluators (68%) stated “Better”, 5 evaluators (23%) stated “The same” and one did not reply.

All (n=22) of the evaluators experienced no difficulty applying Nupro White Varnish and 82% (n=18) of the evaluators stated that the viscosity of Nupro White Varnish was satisfactory.

In respect of the viscosity of the material, the evaluators rated it as follows:

Not viscous 1 5 Too viscous enough **2.9**

All (n=22) of the evaluators stated that the working time of Nupro White Varnish was sufficient.

Twenty (91%) of the evaluators felt that the clear colour of Nupro White Varnish was an advantage compared to some other varnishes.

The application of Nupro White Varnish on wet teeth was rated (in comparison with the previously used varnish) as “Worse” by 2 evaluators (9%), “Better” by 11 evaluators (50%), “The same” by 8 evaluators (36%), with no response from one. Comments made included: “Less adherent to wet surfaces than Duraphat”, and, “Seems better to dry the tooth” (2 similar comments).

When asked if they would purchase Nupro White Varnish if it was available at an average cost per dose, 91% (n=20) of the evaluators stated that they would purchase. Ninety-one (n=20) considered that a box of 50 units was suitable, with one evaluator suggesting a box of 25.

When the evaluators were asked if they would recommend Nupro White Varnish to colleagues, the responses were “Extremely likely” by 13 evaluators (59%), “Very Likely” by 5 evaluators (23%), and “Somewhat likely” by 3 evaluators (14%). On being asked if they would replace their current varnish with Nupro White Varnish, the responses were: “Yes” by 12 evaluators (54%), “No” by 5 evaluators (23%), “Not sure” by 3 evaluators (14%), with 2 evaluators (9%) making no comment. Comments made were: “Depends on cost”, “Undecided – if viscosity better then Yes”.

Other comments included:

“Brilliant on wet surfaces, liked flavours, good results with hypersentivity”

“A pleasure to use – hygienists liked it – Will be using it in future”

“Packaging excellent. Make it more viscous to adhere to smooth surfaces”

“I liked this product. Fun for children & nice appearance – only concern is cost”

“Big disadvantage is no eating for 2 hours after application” (2 evaluators)

“Wastage per application is an issue but good to use in a wet environment and patients liked taste”

“It would be useful to have an option to self-dispense from a tube”

“Very nice to use – Therapist liked it too. Excellent results in a lovely take away pack – Well done!”

“Liked the packaging – hygienic and good flavours”

“Is it OK for asthmatics?” (2)

**DISCUSSION**

Dentsply Sirona Nupro White Varnish has been subjected to an extensive evaluation in clinical practice by members of the PREP panel, in which over 324 applications were made by evaluators, who included 10 GDPs and 12 hygienists. Based on this the following conclusions may be made:

Presentation & Instructions

The presentation and contents of the kit, and the instructions, scored highly (scores from 4.8 for presentation and instructions, 4.7 for contents of the kit, on a visual analogue scale [VAS] where 5 = excellent and 1 = poor).

Ease of use

Nupro White Varnish scored an excellent 4.8 for ease of use compared with 4.5 (on a VAS where 1 = difficult to use and 5 = easy to use) for the previously used fluoride varnish.

Viscosity

The evaluators scored the viscosity of Nupro White Varnish close to the ideal median score of 3.0 (2.9 on VAS where 1 = Not viscous enough and 5 = too viscous).

Patient acceptability

Sixteen evaluators (73%) did not encounter any adverse comments from patients in regard to the taste and smell of Nupro White Varnish. No clear preference regarding flavour was reported by the majority of evaluators, but the grape flavour tended to be the only flavour attracting a few negative comments.

Positive comments by patients, regarding taste, smell and efficacy were reported by 77% of the evaluators.

**CONCLUSIONS**

The excellent reception of this new fluoride varnish material is underlined by the high scores achieved in all criteria, with 82% (n=18) of evaluators being either “extremely likely” or “very likely” to recommend the new system to colleagues, and 91% of evaluators stating that they would purchase Dentsply Sirona Nupro White Varnish. Twenty (91%) of the evaluators also felt the clear colour of Nupro White Varnish was an advantage compared to some other varnishes.

**ACKNOWLEDGMENTS**

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**CONFLICT OF INTEREST**

The authors do not have any financial interest in the company whose material was included in this study.

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**Manufacturer’s comments**

Dentsply Sirona wish to thank the PREP Panel for their comments regarding our recently introduced Nupro White Varnish. We are delighted with the good reception that this product received.

Nupro White Varnish is uniquely formulated varnish for hypersensitivity relief and delivers rapid fluoride release\*. It may be applied to wet tooth surfaces to save time and effort and, with a 2 hour wear-time, requires half the wear-time compared to competitve varnishes so patients can quickly resume normal eat and drinking\*. Nupro White Varnish offers easy handling, as it is formulated to minimize clumping, with no dripping or stringing, and is available in grape and raspberry flavors. It is packaged in a single-use dose to avoid cross contamination, and is contraindicated for use with patients with bronchial asthma. For more information about Nupro White Varnish, please visit www.dentsplysirona.com.

\* Compared to competitive varnishes. Data on File.