



EUROPEAN COMMISSION
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL
Directorate C - Public Health and Risk Assessment
C7 - Risk assessment

SCIENTIFIC COMMITTEE ON CONSUMER PRODUCTS

SCCP

Guidance document on Epidemiological and clinical studies on Tooth Whitening Products

Adopted by the SCCP
during the 7th plenary meeting of 28 March 2006

TABLE OF CONTENTS

1.	INTRODUCTION	3
2.	DISCUSSION	4
3.	REFERENCES	6
4.	ACKNOWLEDGEMENTS	6

1. INTRODUCTION

On 15 March 2005, the SCCP delivered an opinion on “Hydrogen Peroxide in Tooth Whitening Products” (SCCP/0844/04) stating that:

“In response to the questions asked, the SCCP is of the opinion that:

tooth whitening products containing up to 0.1% hydrogen peroxide

The use of tooth whitening products up to 0.1% hydrogen peroxide is safe.

tooth whitening products containing > 0.1% to 6.0 % hydrogen peroxide

The proper use of tooth whitening products containing > 0.1 to 6.0 % hydrogen peroxide (or equivalent for hydrogen peroxide releasing substances) is considered safe after consultation with and approval of the consumer's dentist.

Particular care should be taken in using tooth whitening products by persons with gingivitis and other periodontal diseases or defective restorations. Conditions such as preexisting oral tissue injury or concurrent use of tobacco and/or alcohol may exacerbate the toxic effects of hydrogen peroxide (see e.g. section 3.3.13.1).

The new additional data supplied does not provide the necessary reassurance in terms of risk assessment to support the safety of hydrogen peroxide up to 6 % in tooth whitening products freely and directly available to the consumer in various application forms (strips, trays, etc...). SCCP cannot quantify the risk of potential serious adverse effects in relation to the use of tooth whitening products

Following this opinion, the Commission services have drafted a strategy in order to take the relevant management decision. The 4th pillar of the strategy provides Industry commitment to submit data in order to answer the SCCP concerns about lack of: « *good clinical data and long-term epidemiological studies that assess the possible adverse effects within the oral cavity* ».

2. TERMS OF REFERENCE

On the basis of the data gaps identified in the SCCP opinion SCCP/0844/04 of 15 March 2005 concerning clinical data and long term epidemiological data to assess effects in the oral cavity the SCCP is asked to provide guidance concerning the methodology of studies to be considered including product application, end points, size and definition of the study population(s) including subgroups, study duration and possibly other aspects.

3. DISCUSSION

3.1. Introduction

On 25 January 2006, a discussion took place within the SCCP with experts in the field. Some critical points were highlighted:

- Tooth whitening procedures are not recommended under the age of 18.
- a dental consultation should be emphasized to enable a proper diagnosis/determination of the reasons and/or origins of tooth discoloration/staining. It should be mandatory before any bleaching procedure.
- There is evidence that self diagnosis in this matter is a risk.
- The use of tooth whitening products is not recommended prior to or immediately after dental restoration.
- There is an absence of good clinical data and long-term epidemiological studies that assess the possible adverse effects within the oral cavity.

For a complete evaluation of the safety of tooth whitening products containing hydrogen peroxide, studies are needed that fulfill a number of criteria:

- Having a clear objective; different problems should be tackled in separate well-defined studies.
- Having a sufficient resolution power to pick up critical adverse health effect (including supporting rationale). Calculation of the study size(s) is dependent on type of study (e.g. effects on soft tissues and/or on hard tissues).
- Specification of all endpoints.
- Description of usage pattern(s) (single/multiple application).
- Follow-up during a relevant period after tooth whitening treatment (e.g. single application with follow-up periods of 1,3,6 and 12 months; multiple applications with longer follow-up, etc.).
- Inclusion of confounders and effect modifiers.
- Description of subjects source(s), selection criteria, methodology with appropriate analytical details.
- Inclusion of a clear starting point (substantiated by e.g. photographs, tooth models).

3.2. Critical adverse health effects (endpoints):

- Tooth sensitivity.
- Irritation of oral mucosa.
- Patho-physiological effects on oral and pulp tissues from repeated treatment.
- Alterations of enamel surfaces, including shallow depressions, and increased porosity and slight erosions.
- Periodontal ligament and root damage.
- Microstructural changes in amalgam surfaces and possibly increasing exposure of patients to mercury.
- Disruption of the matrix in a number of resin composite formulations resulting in a decrease of the physical properties of the surface of aesthetic restorations.

3.3. Prospective studies

3.3.1. Parameters to be included are:

- Application types: separation between trays, strips, paint-on gels with respect to the type of tooth discoloration or staining.
- Type of tissues involved:

Hard tissue effect:

Age group: 18 – 30 years, 31 – 50 years, 51 – 70 years

Discrimination in age groups is recommended as differences in the degrees of mineralisation of dental hard tissues may affect the treatment outcome.

Group size of at least 40 – 50 is recommended (substantiated by power calculations)

Soft tissue effect:

Age group: 18 – 30 years, 31 – 50 years, 51 – 70 years.

Group size will be much larger than that for hard tissue effects and has to be determined by power calculations.

- Type of application:
 - Single use group
 - Multiple use group (maintenance protocols have not yet been investigated)
- Smokers/ex-smokers/never-smokers
- Appropriate control groups

3.3.2. Duration of the study

- Single use group – follow-up protocol depending on the investigation of dental hard tissues or oral soft tissues (long-term clinical follow-up according to the following recalls 1, 3, 6 and 12 months, yearly up to 5 years).
- Multiple use group – maintenance protocols have not yet been investigated – long-term clinical follow-up is advocated (5 years).

3.4. Retrospective studies

General status of the soft and hard tissues in the oral cavity taking into account the availability of the product in the US market:

- *aggressive bleaching treatment (very high concentrations of hydrogen peroxide, used by dentist), eventually followed by tooth bleaching at home*
- *several repeated treatments at home*
- *Control group.*

3.5. Additional important information related to all studies

Smoking habits

Reasons for the discoloration and choice of the procedure

4. REFERENCES

Opinion of the Scientific Committee on Consumer Products on Hydrogen Peroxide in Tooth Whitening Products, adopted by the SCCP during the 3rd plenary meeting of 15 March 2005. Doc. n° SCCP/0844/04

5. ACKNOWLEDGEMENTS

Members of the working group are acknowledged for their valuable contribution to this memorandum. The members of the working group are:

Dr. C.M. Chambers	Prof. J. Revuz	
Prof. G. Degen	Prof. V. Rogiers	
Prof. J. Krutmann	Prof. T. Sanner	(chairman and rapporteur)
Prof. J.-P. Marty	Dr. J. van Engelen	
Prof. T. Platzek	Dr. I.R. White	
Dr. S.C. Rastogi		

External experts

Prof. R. De Moor (University of Ghent, Belgium)

Prof. A. Ahlbom (Karolinska Institutet, Sweden)