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## APPENDIX A

### Glossary

Specialised terms and abbreviations are used throughout this report. The meaning is usually clear from the context but a glossary is provided for the non-specialist reader. In some cases usage differs from that found in the literature, but the term has a constant meaning throughout the report. Some glossary entries adapted from the Glossary in The Cochrane Library, Issue 4, 1998. Oxford: Update Software. Updated quarterly.

#### **Abstracts**

A very brief summary or digest of the study and its results. The abstract describes the study purpose, methods, results and conclusions. Abstracts are often included in database records located by searching bibliographic databases.

#### **Adverse effect**

Any undesirable or unwanted consequence of a preventive, diagnostic or therapeutic procedure (Last, 1988)

#### **AGRICOLA (AGRICultural OnLine Access)**

An extensive bibliographic database which provides selective worldwide coverage of primary information sources in agriculture and related fields. AGRICOLA consists of records for literature citations of journal articles, monographs, theses, patents, translations, microforms, audiovisuals, software, and technical reports. Coverage: 1970 to date. AGRICOLA is produced by the National Agricultural Library (NAL) of the U.S. Department of Agriculture (USDA).

#### **Al-Alousi's Index**

One of the indices used to measure dental fluorosis, please refer to Appendix I.

#### **AMED (Allied and Complementary Medicine Database)**

AMED is a bibliographic database produced which covers a selection of journals in complementary medicine, palliative care, and several professions allied to medicine. Coverage: 1985 to date. Produced by the Health Care Information Service of the British Library, UK.

#### **Anterior teeth**

Refers to the front teeth, either incisor or canine.

#### **Apatite**

An inorganic mineral substance, a calcium phosphate found in teeth and bone (Harty, 1994).

#### **Approximal surface**

Term describing the adjoining surfaces of the teeth.

#### **Artificially fluoridated water**

Water supplies to which soluble fluoride has been added to adjust the level to a defined 'optimum' level.

#### **Baseline examination**

The initial measurement done at the beginning of the study to establish the starting point.

### **Before-and-after studies**

Such studies compare the prevalence of a disease at two points in time in one or more study areas. The aim of these studies is to provide an estimate of how much an outcome has changed over a period of time. Often the baseline survey is conducted before a change in a risk factor for the outcome, and then the final survey is conducted after the change in the risk factor is expected to have had an effect on the occurrence of the outcome. The baseline and final surveys are usually conducted in different subjects; for example the baseline survey may examine all 8 year olds in the study areas and then the final survey several years later will also look at 8 year olds. Such studies have an advantage over cross sectional studies in that the baseline values for the prevalence of the outcome are known. If the only factor to have changed between the baseline and final surveys is the risk factor under investigation then it is likely that this risk factor is responsible for the observed change in the outcome.

### **Bias**

Bias is a deviation of a measurement from the 'true' value. Bias can originate from many different sources, such as allocation of patients, diagnosis, analysis, interpretation, publication and review of data. In the worst circumstances it may lead to the wrong conclusions being drawn.

### **BIOSIS Previews**

BIOSIS Previews is the major English-language service providing comprehensive worldwide coverage of research in the biological and biomedical sciences. The database contains citations from Biological Abstracts, Biological Abstracts/Reports, Reviews, and Meetings (formerly BioResearch Index). BIOSIS includes journal citations, meeting abstracts, reviews, books, book chapters, notes, letters, U.S. patents, selected institutional and government reports, and research communications. Coverage: 1969 to date. Produced by BIOSIS, Philadelphia, PA, USA.

### **Bitting surface**

That surface of the teeth on which food is chewed also the occlusal surface.

### **Blinding (Synonym: masking)**

Keeping confidential group assignment (e.g. to intervention or control) from the study participants or investigators. Blinding is used to protect against the possibility that knowledge of assignment may affect participant response to intervention, provider behaviours (performance bias) or outcome assessment (detection bias).

### **Buccal surface**

Term denoting the tooth surface adjacent to the cheeks

### **CAB Health**

CAB Health is a bibliographic database of information relating to human health and communicable diseases, including non-English-language journals, developing country information, books, research reports, patents and standards, dissertations, conference proceedings, annual reports, and other difficult to obtain material. CAB Health combines the resources of two international databases - the human health and diseases-related information extracted from CAB Abstracts and the complete file from the Public Health and Tropical Medicine Database (previously produced by the Bureau of Hygiene and Tropical Diseases).

Coverage: 1973 to date. substantially deeper subject coverage. Produced by CAB INTERNATIONAL, Oxfordshire, UK.

**Calibration exercises**

Exercises used to standardise the diagnostic criteria and to assess any variation between examiners.

**Canine tooth**

A single pointed tooth intended for tearing and cutting food. Canines are situated towards the front of the dental arch, and appear in both the deciduous and permanent dentition.

**Carcinogenicity studies**

Studies which investigate the possible relationship between potential causal factors and cancers.

**Caries**

Disease resulting in the demineralisation, cavitation and breakdown of calcified dental tissue by microbial activity.

**% Caries-free children**

The percentage of children in a group who show no evidence of dental caries.

**Cases**

Person in the population or study group identified as having the particular disease under investigation

**Case control study**

A population with the outcome of interest (cases) is selected and compared with another group in which the outcome is absent (controls), differences in exposures between the groups are assumed to be responsible for the occurrence of the disease. One of the advantages of this design is that multiple exposures can be examined for one particular outcome. This type of study design has many methodological weaknesses and is particularly susceptible to bias. The most important methodological issues relate to the way in which the cases and controls are selected and the comparability of the exposure data obtained; controls should be a representative sample of the population from which the cases were drawn. As data is collected retrospectively it is difficult to demonstrate whether or not an observed correlation is causal.

**Categorical variable**

Refers to a particular type of variable, which may be nominal (unordered) e.g. male / female, or ordinal (ordered) e.g. grade of fluorosis (Swinscow, 1996).

**Causal agents**

Those factors which are supposed to cause a disease or condition.

**Causal relationship**

Observed changes (the 'effect') in one variable are owing to earlier changes in another (Bowling, 1997).

**Cavitation**

Process in which the hard tissues of a tooth crown are undermined by caries, causing them to cave in and form a cavity (Harty, 1994).

**Chemical Abstracts**

This database includes citations to worldwide literature of chemistry and its applications. The Chemical Abstracts database corresponds to the bibliographic information and complete indexing found in the print Chemical Abstracts. Coverage: 1967 to date. Produced by Chemical Abstracts Service, Columbus, OH, USA.

**Cohort study (Synonyms: follow-up study)**

Individuals are recruited into the study and are allocated to one of two or more study groups depending on whether they have or have not been exposed to the agent under investigation. The selected study groups are followed-up for a period of time that may extend to many years in order to measure the frequency of occurrence of the outcome of interest in those exposed compared to those not exposed. The group that is not subjected to the exposure of interest must be drawn from a population that is similar to the exposed group in all respects other than the exposure under investigation. Cohort studies have the advantage that the exposure and confounding factors are measured before the outcome of interest has developed and so are unbiased in terms of disease development, time-order relationships are known as subjects are classified by risk factors before the outcome becomes manifest, and multiple outcomes can be examined for one exposure. Potential weaknesses of this type of design include loss to follow-up, changes in subject characteristics, and surveillance bias where one population is observed in more detail than the other is.

**Community Fluorosis Index (CFI)**

The CFI enables a community based score to be calculated for fluorosed teeth, (see Appendix D).

### **Conference Papers Index**

This database covers the life sciences, chemistry, physical sciences, geosciences, and engineering. Conference Papers Index consists of reports of current research and development from papers presented at conferences and meetings; providing titles of the papers and contact details of authors. The database also includes announcements of publications issued from the meetings, in addition to available preprints, reprints, abstract booklets, and proceedings volumes, including dates of availability, costs and ordering information. Coverage: 1973 to date. Produced by Cambridge Scientific Abstracts, Bethesda, MD, USA.

### **Confidence interval (CI)**

The range within which the 'true' value (e.g. size of effect of an intervention) is expected to lie with a given degree of certainty (e.g. 95%). This is the interval that includes the true value in 95% of cases. Note: Confidence intervals represent the probability of random errors, but not systematic errors (bias).

### **Confounding factors**

Another factor or effect that confuses the picture. A confounder distorts the ability to attribute the cause of something to the treatment, because something else could be influencing the result.

### **Controlled trial**

Refers to a study that compares one or more intervention groups to one or more comparison (control) groups.

### **Controls**

The people in the 'control' group or 'arm' in a controlled trial or a case-control study (also called the comparison group). In a trial, people who are the 'controls' represent the status quo, against which the effectiveness of a treatment is tested. These could receive no treatment, a placebo treatment, or the standard or conventional treatment. The people in the other arm of a trial are the 'experimental' group. In a case-control study, the controls are the people who don't have the condition being studied: the 'cases' are the people who have the condition.

### **Correlation**

The degree to which variables change together (Last, 1988).

### **Cost-effectiveness**

The cost-effectiveness of a particular form of health care depends upon the ratio of the costs of health care to its health outcomes.

### **Cross-sectional studies**

These are used to investigate the prevalence of a defined condition. Data is collected in a planned way from a defined population. The aim of such studies is to describe individuals in the population at a particular point in time in terms of their personal attributes and their

history of exposure to suspected causal agents. These data are then investigated in relation to the presence or absence of the disease under investigation or its severity with a view to developing or testing hypotheses. These studies are relatively simple to conduct, take only a short time and are relatively cheap. However, these studies are often difficult to interpret, as it is not possible to assess whether the outcome followed the exposure or the exposure resulted from the outcome.

### **Current Contents Search (Social Science Citation Index and Science Citation Index)**

This database reproduces the tables of contents from current issues of leading journals in the sciences and social sciences. Current Contents search also includes complete bibliographic records for articles, reviews, letters, notes, and editorials. Coverage: 1990 to date. Produced by Institute for Scientific Information, Philadelphia, PA, USA.

### **Crystal lattice**

A homogeneous and angular solid, having a definite form characterized by geometric plane surfaces and a symmetrical internal structure, whereby atoms, ions or molecules are arranged in a definite pattern known as the space lattice (Jablonski, 1982).

### **Dean's Index**

One of the principal indices used to measure dental fluorosis (see Appendix I).

### **Deciduous dentition (Synonym: Primary dentition)**

Primary dentition which starts to erupt about the age of 6 months and is complete at about 2½ years, when complete it consists of 20 teeth. Deciduous teeth are gradually replaced by the permanent dentition (Harty, 1994).

### **deft index**

A method of measuring caries experience in the deciduous dentition

### **Demarcated defect**

An area of well-circumscribed enamel of altered colour or appearance.

### **Demineralisation**

Reduction of the mineral content of a tissue.

### **Dental caries (Synonym: Tooth decay)**

Disease resulting in the demineralisation, cavitation and breakdown of calcified dental tissue by microbial activity.

### **Dental decay (Synonym: Dental caries)**

Disease resulting in the demineralisation, cavitation and breakdown of calcified dental tissue by microbial activity.

### **Dental fluorosis**

Enamel hypoplasia (defective development of tissue) caused by the ingestion of water containing excess fluoride during the time of enamel formation.

### **Dentine**

Sensitive calcified tissue forming the bulk of a tooth and surrounding the pulp (Harty, 1994).

**Developmental Defects of Enamel Index (DDE Index)**

One of the principal indices used to measure defects of enamel development (see Appendix I).

**Diffuse defect**

An indefinitely defined area of enamel altered in colour or appearance.

**dmfs index**

A method of measuring carious tooth surfaces in the deciduous dentition

**DMFS index**

A method of measuring carious tooth surfaces in the permanent dentition

**dmft index**

A method of measuring caries experience in the deciduous dentition.

**DMFT index**

A method of measuring caries experience in the permanent dentition.

**Dose-response relationship**

A change in dose is associated with a correlated change in effect. An example is when an increase in dose of a pain-relieving drug leads to an increased effect (reduction of pain). In the context of observational studies, a change in the 'dose' of exposure is associated with a change (increase or a decrease) in risk of a specified outcome (Last, 1988).

**Ecological studies**

Such studies provide a relatively simple and inexpensive method of looking at disease occurrence, especially with regard to an environmental exposure determined by geography. The average exposure of the population is plotted against the rate of the outcome for that population to investigate any possible association between the two. These studies are considered to provide weak evidence because of concern about compatibility of information from different areas, data is often unavailable on many risk factors and because of uncertainties in extrapolating results of analyses at population level to the individual.

**Effectiveness**

Extent to which an intervention does people more good than harm. An effective treatment or intervention is effective in real life circumstances, not just an ideal situation. It answers the question *does it work?*

**Efficacy**

The extent to which an intervention improves the outcome for people under ideal circumstances. Testing efficacy means finding out whether something is capable of causing an effect at all. It answers the question *can it work?*

**EI Compendex**

This database is the electronic version of the print Engineering Index. EI Compendex covers worldwide civil, energy, environmental, geological, and biological engineering; electrical, electronics, and control engineering; chemical, mining, metals, and fuel engineering; mechanical, automotive, nuclear, and aerospace engineering; and computers, robotics, and

industrial robots literature. The database includes abstracted citations from journals, selected government reports, books and published proceedings of engineering and technical conferences. Coverage: 1970 to date. Produced by Engineering Information, Inc., Hoboken, NJ, USA.

### **EMBASE**

This is a major bibliographic database which covers worldwide biomedical journals, with emphasis in the areas of drugs and toxicology. Inclusion of European material is particularly strong. Coverage: 1974 to date. Produced by Elsevier Science B.V., Amsterdam, The Netherlands.

### **EMTREE**

EMTREE is a highly developed classification system and controlled vocabulary, used to index articles on EMBASE.

### **Enamel**

The hard outer covering of the anatomical crown of a tooth (Harty, 1994).

### **Enviroline**

This database corresponds to the print Environment Abstracts. Enviroline provides indexing and abstracting coverage of worldwide environmental related information, including such fields as management, technology, planning, law, political science, economics, geology, biology, and chemistry as they relate to environmental issues. Coverage: 1975 to date. Produced by Congressional Information Service, Inc., Bethesda, MD, USA.

### **Epidemiologic studies**

Studies of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control of health problems (Last, 1988).

### **Exposed group**

A group whose members have been subject to possess, or possess a characteristic that is a determinant of the health outcome of interest.

### **Exposure**

The amount of a factor to which a group or individual was exposed; sometimes contrasted with dose, the amount that enters or interacts with the organism (Last, 1988).

### **Fermentable carbohydrates**

Sugars or starch which can be broken down by micro-organisms.

### **Final survey**

The end survey or data collection on subjects in a particular study.

### **Fissure**

A small groove or trough in the enamel of the tooth

### **Fluorapatite**

The compound formed when fluoride is incorporated into hydroxyapatite.

### **Fluoride**

Naturally occurring inorganic ion of fluorine, a non-metallic gaseous element (Harty, 1994).

### **Fluoridation**

In this review, indicates water fluoridation.

### **Fluorosed**

Teeth or other hard tissue affected by fluorosis.

### **FSTA (Food Science and Technology Abstracts)**

This database corresponds to the printed publication Food Science and Technology Abstracts. FSTA provides comprehensive coverage of research and new development literature in the areas related to food science and technology, and includes evaluated abstracts, patents, reviews, poster presentations, abstracts of theses, technical sessions, reports, symposia, books, conference proceedings, legislation, standards, lectures, yearbooks, and special workshops. Coverage: 1969 to date. Produced by IFIS Publishing, Reading, UK.

### **Forest plot**

A graphical representation of a number of studies showing the mean result with associated confidence intervals.

### **Free smooth surfaces**

Tooth surfaces adjacent to the tongue, palate, cheek, or lips.

### **Funnel plots**

A graphical display of sample size plotted against measure of effect for the studies included in a systematic review, which can be used to investigate publication bias.

### **Generalisability (Synonyms: applicability, external validity, relevance, transferability)**

Generalisability is the degree to which the results of a study or systematic review can be extrapolated to other circumstances, in particular to routine health care situations.

### **Grey Literature**

Grey literature refers to research findings and results which may have been published in reports, booklets, conference proceedings, technical reports, unpublished theses, discussion papers or other formats which are not indexed on the main databases.

### **Handsearching**

Handsearching involves systematically looking through journals by hand, to identify any appropriate articles which may have been overlooked, or which might have been missed by an electronic literature search due to inaccurate or incomplete indexing of the record. Handsearching is also a vital way of identifying very recent publications which have yet to be cited or entered and indexed on the electronic databases.

### **HealthStar (Health Services Technology, Administration, and Research)**

This bibliographic database contains citations to journal articles, monographs, technical reports, meeting abstracts and papers, book chapters, government documents, and newspaper articles. HealthStar incorporates all records from the former Health Planning and Administration database, the HSTAR database, and the printed index Hospital and Health Administration Index. Coverage: 1975 to date. Produced co-operatively by the U.S. National Library of Medicine and the American Hospital Association, USA.

**Heterogeneity**

In systematic reviews, heterogeneity refers to variability or differences between studies in the estimates of effects. A distinction is sometimes made between "statistical heterogeneity" (differences in the reported effects), "methodological heterogeneity" (differences in study design) and "clinical heterogeneity" (differences between studies in key characteristics of the participants, interventions or outcome measures). Statistical tests of heterogeneity are used to assess whether the observed variability in study results (measures of effect) is greater than that expected to occur by chance.

**Histological changes**

Changes seen in tissues at a microscopic level.

**Homogeneity**

Homogeneity refers to 'similarity'. Studies are said to be homogeneous if their results vary no more than might be expected due to chance. The opposite of homogeneity is heterogeneity.

**HSRProj (Health Services Research Projects in Progress)**

HSRProj is a database of descriptions of ongoing research projects, in the field of health services research including health technology assessment and the development and use of clinical practice guidelines. HSRProj includes monographs, journal articles, publications from symposia and congresses. Coverage: not known. Produced by the National Information Center on Health Services Research and Health Care Technology (NICHSR), Bethesda, MD, USA. Accessible free via the internet: <http://igm.nlm.nih.gov/>

**Hydroxyapatite crystal**

Mineral compound of the general form hydroxyapatite:  $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ , which is the principal inorganic component of bone, teeth and dental calculus (Zipkin, 1970).

**Hypersensitivity**

An excess response to a stimulus. Often used to denote an allergic response.

**Hypoplasia**

A defect of enamel structure arising from disturbance of matrix formation.

**Hypomaturation**

A defect of enamel structure resulting from disturbance of mineralisation during tooth formation.

**Hypothesis (Plural: hypotheses)**

A theory or suggestion to be tested.

**ICD-9**

International Classification of Diseases 9<sup>th</sup> Edition. The classification of specific conditions and groups of conditions determined by an internationally representative group of experts who advise the World Health Organization (publishers of the ICD) which is revised periodically.

**Incisor**

Single-rooted tooth with a cutting or shearing edge. Incisor teeth occur in both the primary and secondary dentition, and are situated at the front of the dental arch.

### **Inclusion criteria**

The criteria used by authors of a review to decide whether to include studies.

### **Increment**

A change in value of a variable. In this review, denotes the amount of new disease occurring between two defined points in time.

### **Index Medicus**

A printed index of journal articles, reports, books and theses, relating to biomedicine. This cumulative publication was published as Index Medicus (19879-1915), Quarterly Cumulative Index to Current Medical Literature (1916-1926), Quarterly Cumulative Index Medicus (1927-1959), and Cumulated Index Medicus (1960-present). From 1966, the contents of Index Medicus can be searched electronically via the **MEDLINE** database. Records from 1960-1965 can be searched electronically via the **OLDMEDLINE** database. Each record in Index Medicus is indexed using NLM's controlled vocabulary, MeSH (Medical Subject Heading). Coverage: 1879 to date. Produced by the National Library of Medicine (NLM), Bethesda, MD, USA.

### **Intervention**

Anything meant to change the course of events for someone: surgery, a drug, a test, a treatment, change in environment, counselling, giving someone a pamphlet - all of these are interventions.

### **JICST-EPlus (Japanese Science and Technology)**

This is a comprehensive bibliographic database covering literature published in Japan from all fields of science, technology, and medicine. JICST-E contains bibliographic data, abstracts (when available), and indexing from 1985 to the present. Coverage: 1985 to date. Produced by Japan Science and Technology Corporation (JST), Tokyo, Japan.

### **Labial surface**

Term denoting the tooth surface adjacent to the lip.

### **LILACS (Latin American and Caribbean Literature on the Health Sciences)**

This is a bibliographic database, which contains literature related to the health sciences published in Latin America and the Caribbean. Publication types indexed by LILACS include journal articles, theses, chapters of theses, books, chapters of books, congress and conference annals, technical and scientific reports and governmental publications. Coverage: 1982 to date. Produced by BIREME (Biblioteca Regional de Medicina), Sao Paulo, Brazil. Accessible free via the internet: <http://www.bireme.br/iah2/homepagei.htm>

### **Lingual surface**

Term describing the tooth surface adjacent to the tongue.

### **Logistic regression (See also regression)**

Logistic regression is used to investigate the relationship between an event rate or proportion and a set of independent variables. In systematic reviews it can be used to explore the relationship between key characteristics of included studies and the results (observed effects) for each study.

### **Longitudinal designs**

A method of epidemiologic study in which subsets of a population are followed up over time, retrospectively or prospectively, to observe changes occurring over time.

### **Median**

Is the value on the scale that divides the distribution into two equal parts. Half of the observations have a value less than or equal to the median, and half have a value greater than or equal to the median.

### **MEDLINE**

This database corresponds to three print indexes: **Index Medicus**, Index to Dental Literature, and International Nursing Index. Additional materials not published in Index Medicus are included on MEDLINE in the areas of communication disorders, and population and reproductive biology. Medline is the NLM's premier bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, and the preclinical sciences. Each record is indexed using NLM's controlled vocabulary, MeSH (Medical Subject Heading). Coverage: 1966 to date. Produced by the National Library of Medicine (NLM), Bethesda, MD, USA.

### **MeSH (Medical Subject Heading)**

MeSH is a highly developed classification system and controlled vocabulary produced by the National Library of Medicine (NLM), used to index articles on Medline. Records are also indexed using MeSH on other NLM databases, such as AIDSLINE, AIDSTRIALS, AVLINE, BIOETHICSLINE, CATLINE, DIRLINE, **HealthStar** and POPLINE.

### **Meta-analysis**

A statistical technique which summarises the results of several studies into a single estimate of their combined result.

### **Meta-regression**

Meta-regression is a form of meta-analysis which investigates the importance and nature of relationships between study results and study characteristics, and can be used to explore reasons for heterogeneity.

### **Methodological Filter Search Strategy**

An electronic **search strategy** which has been designed to identify records of studies with specific methodologies, e.g. systematic reviews or meta-analyses.

### **Methodological quality**

The extent to which the design and methodology of a trial are likely to have prevented systematic errors (bias). Variation in quality can explain variation in results of trials included in systematic reviews. More rigorously designed (better 'quality') trials are more likely to yield results that are closer to the 'truth'.

**Methodological weakness**

Inherent flaws in a particular study design.

**Methodology**

The methods and principles used in a study. For example authors of a systematic review will explain its methodology in terms of their search strategy, criteria for including trials, statistical methods used, etc.

**Micro-organisms**

Very small unicellular organism such as bacteria, fungi, viruses or spores.

**Mixed dentition**

Dentition consisting of deciduous and permanent teeth during the period when the deciduous teeth are being shed.

**Modified Developmental Defects of Enamel**

Modification of DDE index (see Appendix I).

**Mottled teeth (synonym Dental Fluorosis)**

Enamel hypoplasia (defective development of tissue) caused by the ingestion of water containing excess fluoride during the time of enamel formation.

**Mottled enamel (synonym Dental Fluorosis)**

Enamel hypoplasia (defective development of tissue) caused by the ingestion of water containing excess fluoride during the time of enamel formation.

**Multiple regression**

Multiple regression is used to investigate the joint influences of several variables, taking account of possible correlations among them.

**Multivariate analysis**

Measuring the impact of more than one variable at a time while analysing a set of data, e.g. looking at the impact of age, gender, and occupation on a particular outcome.

**Naturally fluoridated water**

Water supplies that have fluoride occurring naturally in the water source.

**Negative effects**

Undesired impacts upon an individual's or population's health resulting from exposure to a factor.

**NNH**

**Number Needed to Harm.** NNH is the number of patient who need to be treated to cause one bad outcome (e.g. side effect). In a trial where side effects are one of the outcomes, if  $NNH = 10$ , for every 10 people treated one extra person will suffer the side effect.

**Non-milk extrinsic sugars**

Sugars arising outside the cellular matrix of food, not of milk origin.

**NTIS (National Technical Information Service)**

The database consists of summaries of U.S. government-sponsored research, development, and engineering, plus analyses prepared by federal agencies, their contractors, or grantees. NTIS enables the sale of unclassified, publicly available, unlimited distribution reports from agencies such as NASA, DOD, DOE, HUD, DOT, Department of Commerce, and some 240 other agencies. Coverage: 1964 to date. Produced by National Technical Information Service (Office of Product Management), U.S. Department of Commerce, Springfield, VA, USA.

**Occlusal surface**

Term describing the surfaces of the teeth that make contact with those of the opposing jaw.

**Odds ratio (OR)**

The ratio of the odds of an event in the experimental (intervention) group to the odds of an event in the control group.

**OLDMEDLINE**

OLDMEDLINE contains citations published in the 1960 through 1965 Cumulated **Index Medicus** and covers the fields of medicine, preclinical sciences, and allied health sciences. Coverage: 1960 to 1965. Produced by the National Library of Medicine (NLM), Bethesda, MD, USA.

Accessible free via the internet: <http://igm.nlm.nih.gov/>

**Outcome**

Result of an intervention.

**Outliers**

Observations differing so widely from the rest of the data as to lead one to suspect that a gross error may have been committed, or suggesting that these values come from a different population.

**P-value**

The probability (ranging from zero to one) that the observed results in a study could have occurred by chance.

**PAIS**

This database covers the full range of the social sciences, with emphasis on contemporary public issues and the making and evaluating of public policy. The database is the online version of the print publications PAIS Bulletin (1976-1990), PAIS Foreign Language Index (1972-1990), and PAIS International in Print (1991-present). Coverage: 1972 to date. Produced by Public Affairs Information Service, Inc. (PAIS), New York, USA.

**Parts per million (ppm)**

A measurement of the concentration of a solid dissolved into a liquid. In the context of fluoridation of water, it is the concentration of fluoride in water supplies, and is equivalent to milligrams per litre (mg/L).

**Pascal**

This bibliographic database contains references to scientific and technical literature. PASCAL corresponds to the print publication Bibliographie internationale (previously Bulletin signaletique). Coverage: 1973 to date. Produced by INIST, the Scientific and Technical Information Institute of the Centre National de la Recherche Scientifique (CNRS), Vandoeuvre-les-Nancy CEDEX, France.

**Permanent dentition (Synonym: Secondary dentition)**

The 32 teeth present in an adult mouth.

**Pit**

A small depression in the enamel of a tooth

**Plaque**

A highly variable and tenacious film composed of 70% micro-organisms and 30%.

**Pooled effect estimate**

Grouping together of statistical estimates.

**Population**

This describes the people that are being investigated.

**Posterior teeth**

Teeth situated at the back of the mouth including molars and premolars.

**Positive effects**

Beneficial or desired impact on an individual's or a population's health resulting from exposure to an intervention or agent.

**Prevalence**

The number of cases of the disease (or other outcome of interest) in a defined population at a specified point in time, taken as a proportion of the total numbers of people in that population during that time.

**Primary dentition (Synonym: Deciduous dentition)**

Primary dentition which starts to erupt about the age of 6 months and is complete at about 2½ years, when complete it consists of 20 teeth. Deciduous teeth are gradually replaced by the permanent dentition.

**Primary studies**

A study of other studies is called a review, or secondary study. A primary study is one of the individual studies within that review.

**Proportion caries-free**

The proportion, or percentage, of individuals who have experienced no caries.

**Prospective study design / retrospective study design**

In a retrospective study, the outcomes are examined in hindsight, using existing records. In a prospective study, the study is designed ahead of time, and people are then recruited and studied according to the study's criteria.

**Protocol**

The methods and procedures to be followed in the conduct of a study.

**Proximal surfaces**

Adjacent surfaces of teeth in the same dental arch.

**PsycLit**

This database provides access to the international literature in psychology and related behavioral and social sciences, including psychiatry, sociology, anthropology, education, pharmacology, and linguistics. PsycLit contains all records from the printed Psychological Abstracts, plus material from Dissertation Abstracts International and other sources. Publication types indexed include journal articles, dissertations, reports, books and book chapters. Coverage: 1887 to date. Produced by American Psychological Association, Washington, DC, USA.

**Q Statistic**

Statistic used to measure heterogeneity.

**Random Effects**

A method of meta-analysis (and general statistical modelling) which estimates the effect of an intervention, assuming that variation in the meta-analysis is a combination of random sampling error within studies and variation between studies. Random effects models are more conservative than fixed effects models, giving estimates with wider confidence intervals.

**Randomised Controlled Trial (RCT) (Synonym: randomised clinical trial)**

These are designed to measure the efficacy and safety of particular types of health care interventions, by randomly assigning people to one of two or more treatment groups and, where possible, blinding them and the investigators to the treatment that they are receiving. The outcome of interest is then compared between the treatment groups. Such studies are designed to minimise the possibility of an association due to confounding and remove many sources of bias present in other study designs. However, such studies are not infallible and there are areas of methodological concern: selection bias (bias in the way subjects are assigned to experimental groups), issues relating to reproducibility of results, bias introduced by co-interventions and bias in assessing the outcomes.

**Range**

The difference between the largest and smallest values in a distribution.

**Regression (Synonym: Regression analysis)**

A statistical modelling technique. Regression analysis is used to estimate or predict the relative influence of more than one variable on something e.g., the effect of age, gender, and educational level on the prevalence of a disease. There are different types of these models, including 'linear' and 'logistic' regression.

**Regression models**

Examples include the Linear regression model. A statistical model in which the value of the parameter for a given value of a factor,  $x$ , is assumed to be equal to  $a + bx$ , where  $a$  and  $b$  are constants (Last, 1988).

**Relative Risk (RR) (Synonym: risk ratio)**

Risk of an adverse effect with exposure to a treatment relative to risks for those who do not receive the treatment. A ratio of 1.0 indicates no increased risk over receiving no treatment. A ratio greater than 1.0 indicates the risk is higher in the group that did receive the treatment. A ratio less than 1.0 indicates the risk of the adverse effect is higher in the group that did not receive treatment.

**Relevance criteria**

Pre-determined yardsticks by which the papers were assessed for inclusion in the primary stage of the review.

**Remineralisation**

Restoration of mineral salts to a tissue, such as calcium salts to enamel or bone.

**Representative sample**

The sample resembles the population, particularly on key variables (e.g. age, gender, ethnic origin)

**Retrospective study design**

A study looking back in time.

**Risk**

Risk is used to describe the chances of something happening. Researchers often use the word risk to state the proportion of people in a group in whom an event is observed.

**Risk Difference**

The absolute difference in the event rate between two comparison groups. A risk difference of zero indicates no difference between the comparison groups.

**Risk factor**

An aspect of a person's condition, lifestyle or environment that increase the probability of occurrence of a disease. For example, cigarette smoking is a risk factor for lung cancer.

**Sampling**

The process of selecting participants for research.

**Search strategy**

A combination of queries or commands designed to retrieve relevant records on a specific topic from an electronic database.

**Secondary dentition (Synonym: Permanent dentition)**

The 32 teeth present in an adult mouth.

**Selection bias**

Selection bias occurs when individual subjects are assigned to experimental groups in a biased or non-randomised way.

### **SIGLE (System for Information on Grey Literature in Europe)**

This is a bibliographic database covering European non-conventional (so-called grey) literature in the fields of pure and applied natural sciences and technology, economics, social sciences, and humanities. SIGLE also includes the FTN database for German grey literature, published in the printed abstract journal *Forschungsberichte aus Naturwissenschaft und Technik/Reports in the Fields of Science and Technology*.

Coverage: 1976 to date. Produced by EAGLE (European Association for Grey Literature Exploitation).

### **Skeletal fluorosis**

Characterised by an increase in the X-ray density of trabecular bone in the lumbar spine, pelvis and elsewhere, and an increase in the thickness of long bone cortices due to endosteal and periosteal apposition. In more advanced cases, calcification of ligaments occurs, especially in the spine (Murray, 1991).

### **Standard Deviation (SD) / Standard Error (SE)**

The standard deviation measures the amount of scatter in results. Approximately two-thirds of values will fall within one standard deviation of the mean and 95% will fall within two standard deviations of the mean.

### **Statistical significance**

An estimate (usually expressed as a p-value or 95% confidence interval) of the probability of an association (effect) as large or larger than what is observed in a study occurring by chance. At the 95% certainty level, a p-value  $< 0.05$  is statistically significant. When considering the 95% CI of a ratio (e.g. relative risk) the estimate of effect is statistically significant if the 95% CI does NOT include 1.0. When considering risk difference, the estimate of effect is statistically significant when the 95% CI does NOT include zero.

### **Surveillance bias**

Surveillance bias is said to exist where one of the groups being studied is observed in greater detail than the other groups in the study.

### **Systematic review**

A review of studies in which evidence has been systematically searched for, studied, assessed and summarised according to pre-determined criteria.

### **Systemic**

Acting throughout the whole body (generally after being absorbed into the system).

### **Thylstrup and Fejerskov Index [TFI]**

One of the principal indices used to measure dental fluorosis (see Appendix I).

### **Tooth pulp**

Soft tissue lying within the dentine of a tooth, containing fibres, cells and structures such as blood vessels, sensory nerves and lymphatic system (Harty, 1994).

### **Tooth Surface Index of Fluorosis [TSIF]**

One of the principal indices used to measure dental fluorosis (see Appendix I).

### **Topical**

Pertaining to the surface. In the context of fluoride, topical refers to the application of a substance containing fluoride to the surface of the teeth.

### **TOXLINE**

This bibliographic database covers the toxicological, pharmacological, biochemical, and physiological effects of drugs and other chemicals. Coverage: c. 1940 to date. Produced by National Library of Medicine, Bethesda, MD, USA. Accessible free of charge from: <http://toxnet.nlm.nih.gov>

### **Validity**

The degree to which a result is likely to be 'true' and free of bias.

### **Variance**

A measure of the variation shown by a set of observations defined by the sum of the squares of deviations from the mean, divided by the degrees of freedom in the set of observations.

### **WATERNET**

This bibliographic database provides a comprehensive index of the publications of the American Water Works Association and the AWWA Research Foundation. Included are books and proceedings, journals, technical reports, newsletters, standards, manuals, handbooks, and water quality standard test methods. The database is the online counterpart to the index to the Journal AWWA from 1971 to the present, and all AWWA and AWWARF publications from 1973 to the present, with non-AWWA materials included on a selective basis. Coverage: 1971 to date. Produced by American Water Works Association, Denver, CO, USA.

### **Water Resources Abstracts**

This database offers a comprehensive range of water-related topics in the life and physical sciences, as well as the engineering and legal aspects of the conservation, control, use, and management of water. Coverage: 1968 to date. Produced by Cambridge Scientific Abstracts, Bethesda, MD, USA.

### **Weighted mean difference**

The mean difference between experimental groups, adjusted for the variance of the observations in the groups sampled, such that those with less variance are given more weight.

### **Weighting**

The importance of a measure in relation to a set of measures to which it belongs; a numerical coefficient attached to an observation, frequently by multiplication, in order that it shall assume a desired degree of importance in a function of all the observations of the set (Kendall, 1982).

### **ABBREVIATIONS**

BMI	Body Mass Index
CFI	Community Fluorosis Index
CI	Confidence interval
IP	Internet Protocol Address
Fl	Fluoride

MMWR	Morbidity and Mortality Weekly Review
NNH	Numbers Needed to Harm
Non-FI	non-fluoridated
NTIS	National Technical Information Service
OR	Odds ratio
PAIS	Public Airs Information Service
QOL	Quality of life
OPCS	Office for Population Census and Statistics (now called ONS = Office of National Statistics)
RCT	Randomised controlled trial
RR	Relative risk or risk ratio
SD	Standard deviation
SE	Standard error
SEER	Surveillance, Epidemiology and End Results
SIDS	Sudden Infant Death Syndrome
SIGLE	System for Information in Grey Literature in Europe
SIR	Standardised Incidence Ratio
SMR	Standardised Mortality Ratio
TCP	Transmission Control Protocol
TFI	Thylstrup and Fejerskov Index
TSIF	Tooth Surface Index of Fluorosis
WHO	World Health Organization