
Evidence-Based Caries Prevention

Ece Eden
Editor

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 Springer

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*This book is dedicated to my dear son,
Canberk Koparal.*

Foreword

Dentistry is continually evolving and improving. The treatment and management of dental caries is a major part of dentistry, with paediatric dentists and general dentists dealing with the results of the disease in numerous patients daily. Further, the prosthodontist has to deal with the aftermath of severe caries, sometimes necessitating major reconstruction in the mouth. If we are truly interested in the best interests of the patient and if we are to be part of the health-care team that promotes wellness, we have to think differently than traditional dentistry. Traditional dentistry “treats” the symptoms of the disease by physical intervention and surgery, but it does not treat the disease. We now have definitive evidence that placing restorations takes care of the physical integrity of the tooth involved, but it does not reduce the caries challenge nor the levels of cariogenic bacteria in the rest of the mouth. About 70 % of high risk patients who have restorative work done come back with new lesions within 2 years, unless chemical therapeutic intervention is added to the mix.

Our challenge for the future is to provide a wellness programme for our patients that identifies their risk of caries initiation or progression and deals with the disease in conjunction with minimally invasive restorative dentistry where necessary. The two go hand in hand as a minimal intervention package. This book addresses the components of this approach and sets the stage for a new era of dentistry that will provide much better oral health and general health for our patients. Each of the components is dealt with in a progressive fashion with each chapter building on the previous one.

We have been able to develop and apply a system of caries management by risk assessment over the last 15 years that provides reductions in new caries of over 40 % in high caries risk patients. This number may be as high as 80 % in private practice where compliance can be much better monitored and promoted. In my experience dental practitioners who adopt caries management by risk assessment as part of minimal intervention dentistry have success with patients, build their practice and are very happy with what they have achieved for the benefit of the patients.

The best approach is to have a basic understanding of the caries process, to adopt a proven caries risk assessment methodology, to provide chemical intervention therapy depending on the level of risk, to provide minimally invasive restorative care and to have a recall and prevention protocol depending also on the level of risk. The simple concept of the caries balance underpins all of this approach. Essentially, the guiding principle is to decrease the pathological factors and increase the protective

factors. In simple terms this means providing antibacterial therapy where the bacterial challenge is high, including dietary modification, and providing remineralisation therapy at all levels with the intensity depending on the level of pathological factors. Hyposalivation provides particular challenges and requires additional therapy and intensive care. There is now ample evidence for all aspects of this approach.

I challenge all who read this book to practice caries management by risk assessment, which includes caries prevention and intervention, as the basis of wellness for your patients. Practice evidence-based dentistry.

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Preface

Evidence-based dentistry may be defined as dentistry that uses scientific evidence to guide decision-making, which means that, after having identified a disease (in this case the disease is ‘dental caries’), this approach advocates searching for cogent evidence before attempting to treat the disease. This book has ten chapters, which deal with various aspects of caries prevention. The chapters (and the foreword) have been written by 14 distinguished authors from around the world. Together, we have tried to gather as much evidence as possible from systematic reviews and meta-analysis and sometimes have had to conclude that further research is needed for certain topics. We know that research and technological advancements constantly renew our knowledge and skills, which in turn lead to the revision and adaptation of treatments.

Dental caries has become a disease of socio-economically less advantaged groups in developed and developing nations, and prevention may have lost its popularity for privileged populations. However, the life expectancy at birth of today’s youth is anticipated to increase all around the world, particularly in developing countries in Asia and Africa. These countries will experience a massive increase in oral health problems along with increase in life expectancy. For this reason it is essential that the need for further search for the most appropriate management of the disease be recognised and that immediate efforts to stop inequalities in oral health care are made.

The authors of this book have gone to great lengths to gather up-to-date and useful information regarding dental caries and in Chap. 1 have tried to clarify the terminology and definition of the disease and its epidemiology. The detection of carious lesions, their activity and risk assessment, and caries assessment methods and devices are discussed in Chaps. 2 and 3. Remineralisation of carious lesions and the level of effectiveness of antimicrobials are dealt with in Chaps. 4 and 5. Chapter 6 discusses the effect of diet on preventing carious lesion development. Minimal invasive procedures such as sealant and resin infiltration applications are the topics of Chaps. 7 and 8, while the evidence and appropriateness of non-operative caries preventive measures are presented in Chap. 9. Chapter 10 presents example cases in which various clinical conditions that may be seen in everyday dental practice are treated.

The primary aim of the book is to discuss the evidence on caries prevention and to help clinicians use this knowledge in their routine work. I hope that the

expertise presented in the chapters in this book will guide practitioners in their endeavours to manage dental caries through carious lesion preventive measures in daily practice.

This book is for all practitioners who consider themselves dental healers rather than dental repairers. I hope you will enjoy the book as you read it.

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This book is dedicated to my son, Canberk Koparal, who once asked me whether ‘coffee teeth’ would erupt after ‘milk teeth’ exfoliated. I thank him for challenging me with such interesting and thought-provoking questions. This project could not have been possible without his love and support.

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