

## Statement from the Regional HTA Centre of the Region Västra Götaland in Sweden

### REMOVAL OF IMPACTED WISDOM TEETH

The Regional Health Technology Assessment Centre (HTA-centrum) of the Region Västra Götaland, VGR, in Sweden has the task to make statements on HTA reports carried out in VGR. The statement should summarise the question at issue, level of evidence, efficacy, risks, and economical and ethical aspects of the particular health technology that has been assessed in the report.

Mats Wallström, Clinical Director, Department of Oral and Maxillofacial Surgery Göteborg, Public Dental Service, and Chairman of the Council of Oral and Maxillofacial Surgery, Region Västra Götaland, Sweden requested the present HTA.

A working group under the chairmanship of Felicia Suska, Resident, Ph.D., Department of Oral and Maxillofacial Surgery in Göteborg, Public Dental Service, Region Västra Götaland, Sweden produced the HTA report. The other members of the working group were Göran Kjeller, Consultant, Ph.D., Associate professor, Department of Oral and Maxillofacial Surgery, the Sahlgrenska Academy, University of Göteborg, Sweden, and Anders Molander, Associate professor, Public Dental Service, Region Västra Götaland, Sweden.

The participants from the HTA centre were Ola Samuelsson, MD, PhD, Therese Svanberg, HTA-librarian, and Ann Liljegren, librarian.

Magnus Hakeberg, Professor, Department of Behavioral and Community Dentistry, Institute of Odontology, the Sahlgrenska Academy, University of Göteborg, Sweden, and Jüri Kartus, Professor, Consultant, Department of Orthopaedic Surgery, Uddevalla Hospital, Uddevalla, Sweden, have critically appraised the report.

The project lasted during the time period 2009-09-09– 2010-07-08.  
The literature search covered the time from May 2003 up to December 2009.

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### **Question at issue:**

Does removal of third molar teeth reduce the risk of infections and other local disease/pathological conditions in subjects with asymptomatic or symptomatic impacted third molars compared with no intervention?

### **Patients, Intervention, Comparison, and Outcome (PICO):**

- P1:** Healthy individuals of all ages with totally or partially impacted wisdom teeth without symptoms  
**P2:** Healthy individuals of all ages with totally or partially impacted wisdom teeth with any kind of symptom or condition (i.e. pain, pus, swelling, increased laboratory parameters, trismus, dysphagia, pericoronitis, crowding, or cysts)  
**I:** Extraction of third molar tooth  
**C:** No extraction or any other treatment of third molar tooth  
**O:** Primary outcome variable: Infection  
Secondary outcome variables: Root resorption, crowding, caries on adjacent tooth, loss of adjacent tooth, complications related to the surgical procedure

### **SUMMARY OF THE HEALTH TECHNOLOGY ASSESSMENT**

Impacted third molar teeth are frequently observed in the general population. In the great majority of subjects they do not cause any significant symptoms. However, prophylactic removal of the third molars to prevent possible future complications is sometimes advocated, and also performed, despite the absence of pathological changes or clinical symptoms.

### **Level of evidence**

The systematic literature search identified two systematic reviews, 16 studies that have reported the outcome following the extraction of third molar teeth, and one review article on unusual complications. All of the 16 studies were case series. The literature search did not find any randomised or non-randomised, adequately controlled trial in which prophylactic removal of third molar teeth has been compared with no intervention.

Both the systematic reviews were of adequate quality according to the AMSTAR criteria. The Norwegian HTA-report stated “removal of asymptomatic fully retained wisdom teeth is not recommended”, whereas the Cochrane review concluded that “no evidence was found to support or refute routine prophylactic removal of asymptomatic impacted wisdom teeth in adults.”

The level of evidence of prophylactic removal of asymptomatic third molar teeth as well as for removal of symptomatic third molar teeth is very low according to the GRADE system (GRADE ⊕).

### **Risks**

All the case series reported adverse effects and complications. Surgical removal of third molar teeth is associated with both short-term and long-term complications. The overall complication rate varied between 4.6 – 36 %. The frequency of postoperative infections varied between 0.5 – 2.8 %, and the frequency of nerve damages or symptoms varied between 0.4 – 1.5 %.

### **Ethical aspects**

To expose healthy asymptomatic young people to an oral surgical procedure in order to prevent disease or a pathological condition that may occur in the future must be seriously questioned when there is no documented evidence of a beneficial effect.

### **Economical aspects**

The total annual cost for removal of impacted third molars is estimated to be nearly SEK 103 millions. The patients themselves will have to pay the major part of these costs. The expenses for the dental insurance system are not available. From both the economical aspect of each individual as well as from a socio-economical aspect, the cost for prophylactic removal of asymptomatic impacted third molar would be high on the individual basis and substantial from the society point of view.

### **Concluding remarks**

Prophylactic removal of third molar teeth to prevent possible future complications is still frequently performed in Sweden. This intervention has been seriously questioned due to lack of supporting data of beneficial effects and the documented complications.

A systematic literature search and review of published data has revealed that there is still no scientific documentation available to either support or refute routine prophylactic removal of asymptomatic impacted wisdom teeth in adults.

On behalf of HTA-centrum Göteborg, Sweden, 2010-09-22.

Christina Bergh, Professor, MD.  
Head of HTA-centre