## ORAL SURGERY CARE

# BRENT L. FLORINE, D.D.S.

4151 Knob Drive, Suite 101
Eagan, MN 55122
(651) 688-8592

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Happy Summer!

Please enjoy our quarterly newsletter reviewing current dental literature.

I had the recent honor of being asked to join the Editorial Advisory Board of Northwest Dentistry (NWD), the Journal of the Minnesota Dental Association. My initial involvement with the team responsible for bringing NWD to us drove home the—less than stunning—reality that our journal is not a force of nature that just happens, like daily sunrises or the coming of spring (in most years). Northwest Dentistry, a benefit of membership in the MDA, is the cumulative product of many individual efforts and contributors. This could be you. Do you have a story, article, photo or observation you would like to share? Clinical? Practice management? Reflection? Poem? Humorous? Other?

Oral Surgery Care

NWD depends on our individual contributions to remain one of the best dental journals in the country, as evidenced by the frequent national awards it garners. If you are interested, instructions for submissions are in each edition and on the MDA website.

The sense of creativity and accomplishment that accompany your offer to share work with your peers is the main payoff. Having it published can make it even better. We are fortunate to have such a well-respected journal come to us every couple of months. Contributions from all of us will keep it a vibrant and relevant treasure.

As always, thank you for trusting us with the oral surgery care for your patients. We really appreciate it!

Best Regards,

*Brent Florine, DDS*

## Addressing the Opioid Epidemic: Impact of Opioid Prescribing Protocol at the University of Minnesota School of Dentistry

Nadeau R, Hasstedt K. et al.
*Craniomaxillofac Trauma Reconstr. 2018 Jun;11(2):104-110*

Prescription opioid medications continue to be abused on an epidemic level and have been shown to be a "gateway" drug to heroin abuse. Individuals experimenting with opioids commonly fall in the 10- to 19-year age range in which dentists are the highest prescribers. To reduce the number of excess opioids, the Department of Oral and Maxillofacial Surgery, University of Minnesota, developed and implemented an evidence-based opioid prescribing policy. Data were collected via electronic health record for the previous year and compared with the year following the protocol implementation.

The results showed a drastic decrease (>46%) in the number of prescriptions given over a 1-year period. All departments reported a decrease in opioid prescriptions and the average number of tablets per prescription. The concern of undertreating pain was not found to be significant, as there was no increase in after-hours calls, recall appointments, or documentable emergency room visits. *The results support the efficacy of an opioid prescribing policy's ability to lower the frequency and number of opioids given to patients, while still adequately treating patients' pain. Continued evaluation and modifications of the protocol and close monitoring of prescriber habits will enhance patients' pain control while also limiting the number of opioids available for abuse.*

## Dentists' Prescribing of Antibiotics and Opioids to Medicare Part D Beneficiaries: Medications of High Impact to Public Health

Koppen L, Suda KJ, et al.
*J Am Dent Assoc. 2018 Jun 18*

Gaining a better understanding of dental prescribing can help identify opportunities for intervention regarding optimal medication use. The purpose of this study was to characterize opioid and antibiotic prescribing patterns of dentists in the United States for Medicare Part D beneficiaries. The authors conducted a retrospective cross-sectional analysis of national 2014 Medicare Part D Prescriber Public Use File data. Providers in the data set with dental-related disciplines were included (n = 99,797).

Dr. Brent Florine received his undergrad degree from the University of Minnesota College of Liberal Arts and attended the University of Minnesota School of Dentistry. He received postgraduate dental and oral and maxillofacial surgery training at Louisiana State University and Charity Hospital in New Orleans, and the University of Minnesota Hospitals and Clinics. He is certified as a Diplomate of the American Board of Oral and Maxillofacial Surgery and has practiced oral surgery in Eagan since 1987.

## Prescribing of Antibiotics...*continued*

Outcomes of interest were mean days' supply and mean number of claims reported per claim, beneficiary, and prescriber discipline.

Of the 6,724,372 dental prescription claims submitted, 3,947,848 (58.7%) and 1,312,796 (19.5%) were for antibiotics and opioids, respectively. Sixty-nine percent of dentists in the highest quartile of opioid prescribers were also in the highest quartile of antibiotic prescribers. The mean (standard deviation) days' supply per claim was 6.9 (5.3) for antibiotics and 3.6 days for opioids. Of the 33,348 dental providers who prescribed opioids, 18,971 (56.9%) prescribed a mean opioid days per claim greater than the recommended duration of 3 days for acute pain. Opioids and antibiotics are the medications most prescribed by dentists. *On the basis of national recommendations and results of studies from other countries, the length of therapy prescribed may be excessive. Dentistry should be considered for antibiotic and opioid stewardship interventions along with medicine.*

## The Influence of the Crown-Implant Ratio on the Crestal Bone Level and Implant Secondary Stability: 36-Month Clinical Study

Hadzik J, Krawiec M, et al.
*Biomed Res Int. 2018 May 16*

When the era of dental implantology began, the pioneers defined some gold standards used in dental prosthetics treatment for implant-supported restorations. Referring to traditional prosthetics, it was taken for granted that the length of an implant placed in the alveolar bone (the equivalent of the root) should exceed the length of the superstructure. The purpose of this study was to determine whether implant length and the crown-to-implant (C/I) ratio influence implant stability and the loss of the surrounding marginal bone and whether short implants can be used instead of sinus augmentation procedures.

The patients participating in the study (n = 30) had one single tooth implant, a short (OsseoSpeed™ L6 Ø4 mm, Implants) or a regular implant (OsseoSpeed L11 and L13 Ø4 mm, DENTSPLY Implants), placed in the maxilla. The evaluation was based on clinical and radiological examination. The crown-to-implant ratio was determined by dividing the length of the crown together with the abutment by the length of the implant placed crestally. Mean crown-to-implant ratios were calculated separately for each group and its correlation with the MBL (marginal bone loss) and stability was assessed. The authors compared the correlation between the C/I ratio values, MBL, and secondary implant stability.

Positive results in terms of primary and secondary stability were achieved with both (short and conventional) implants. The MBL was low for short and conventional implants being 0.34 mm and 0.22 mm, respectively. No significant correlation was found between the C/I ratio and secondary stability as well as the C/I ratio and the marginal bone loss. *Short implants can be successfully used to support single crowns. The study has revealed no significant differences in the clinical performance of prosthetic restorations supported by short implants*

## Machine Learning to Predict the Occurrence of Bisphosphonate-related Osteonecrosis of the Jaw Associated with Dental Extraction

Kim DW, Kim H, et al.
Bone. 2018 Apr 23. (18)30174

The purpose of this study was to build and validate five types of machine learning models that can predict the occurrence of BRONJ associated with dental extraction in patients taking bisphosphonates for the management of osteoporosis. A retrospective review of the medical records was conducted to obtain cases and controls for the study. A total 125 patients consisting of 41 cases and 84 controls were selected for the study. Five machine learning prediction algorithms including a regression model, decision tree, support vector machine, artificial neural network, and random forest were implemented. The outputs of these models were compared with each other and also with conventional methods, such as serum CTX level. The area under the receiver operating characteristic (ROC) curve (AUC) was used to compare the results.

The performance of machine learning models was significantly superior to conventional statistical methods and single predictors. The random forest model yielded the best performance (AUC = 0.973), followed by artificial neural network (AUC = 0.915), support vector machine (AUC = 0.882), logistic regression (AUC = 0.844), decision tree (AUC = 0.821), drug holiday alone (AUC = 0.810), and CTX level alone (AUC = 0.630). *Machine learning methods showed superior performance in predicting BRONJ associated with dental extraction compared to conventional statistical methods using drug holiday and serum CTX level. Machine learning can thus be applied in a wide range of clinical studies.*

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4151 Knob Drive, Suite 101
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online@oralsurgerycare.com