Introduction

Oral cancer is among the ten most common malignant tumors in people worldwide mainly with a poor prognosis (1). According to the data of GLOBOCAN, about 300,373 people in the world were affected by lip/oral cavity cancer in 2012. The highest frequency is recorded in the South-East Asia region (6.4 per 100,000) (2). Malignant diseases are among the leading public health problems in Croatia. In the year 2014, 21,434 new cancer cases in both sexes were registered among which 890 new cases of oral cancer out of which 746 were males (3).

More than 90% of oral cancers are squamous cell carcinomas (SCC), which may arise from the potentially malignant disorders (PMDs) which include oral leukoplakia, erythroplakia and erythroleukoplakia, or verrucous leukoplakia, but can also develop in apparently normal tissue (4). In addition to smoking and alcohol, which have long been recognized as major risk factors, increasing epidemiological significance is attributed to human papillomavirus (HPV) infection the high risk genotypes of which carry a high carcinogenic potential (5, 6).
Rak usne šupljine pojavljuje se učestalije u srednjoj i starijoj dobi (medijan 62 godine), no sve veća pojavnost u mlađim dobnim skupinama nameće potrebu ozbiljnijeg pristupa pregledu usne šupljine sa svrmom što ranijeg otkrivanja zločudnih promjena na oralnoj sluznici. Pravodobna dijagnostika u najvećem broju slučajeva omogućuje izliječenje i dugotrajno preživljenje obolijeh. Literaturni podaci pokazuju nedovoljno znanje o raku usne šupljine među studentima dentalne medicine i medicine, ali i među liječnicima obiteljske medicine pa čak i među doktorima dentalne medicine (7–10).

Iako je usna šupljina lako dostupna pregledu, istraživanja pokazuju da se u više od polovice slučajeva intraoralni karcinom otkriva kasno i da neki slučajevi ostaju neprepoznati. Zato je važno tijekom studija stići znanje o raku usne šupljine i razviti svijest o potrebi ranog otkrivanja potencijalno malog poremećaja na oralnoj sluznici, što uključuje rutinski pregled svih regija oralne sluznice i vratnih limfnih čvorova tijekom svakoga stomatološkog pregleda (8–17).

Zato je primarni cilj ovog istraživanja bio utvrditi znanje o raku usne šupljine, ali i svjesnost o prevenciji i ranom otkrivanju te bolesti među studentima viših godina studija dentalne medicine.

Specifični ciljevi bili su: usporediti znanje studenata četvrtog i pete godine studija, usporediti stajališta studenata pušača i nepušača o pušenju kao o rizičnom čimbeniku za razvoj raka, usporediti stajališta o prevenciji i liječenju raka studenata koji svoje znanje ocjenjuju dobrim u odnosu prema onima koji svoje znanje ocjenjuju lošim.

Ispitani i postupci

Ispitna skupina sastojala se od ukupno 83 studenta četvrte i pete godine studija dentalne medicine koji su pismeno odgovarali na 16 pitanja iz upitnika koji je sastavljen i modificiran prema upitniku Cartera i Ogdena (7) (prilog 1.). Uputnik se sastojao od triju skupina pitanja. Prva se odnosila na znanje studenata o etologiji i topografiji raka usne šupljine, druga na samoprocjenu informiranosti o ranijim dijagnostici i prevenciji raka usne šupljine tijekom nastave, a treća na postupke prevencije i liječenja tih bolesnika. Studenti su odgovorili i na pitanje jesu li pušači. Namjera pitanja bila je utvrditi prevalenciju pušenja među studentima i ispitati eventualni utjecaj pušačkog statusa na stajalište o pušenju kao o rizičnom čimbeniku za nastanak raka usne šupljine.

Provedbu istraživanja odobralo je Etiko povjerenstvo Stomatološkog fakulteta Sveučilišta u Zagrebu, a obavljalo se od travnja do srpnja 2016. godine. Svi ispitanici potpisali su prije početka informiranu suglasnost. Studenti su dobrovoljno i anonimno sudjelovali u anketi. Upitnici su im podijeljeni nakon nastave, a ispunjavanje je trajalo oko 15 minuta. Rezultati su analizirani primjenom chi-square testa u programu Medcalc (<v11, MedCalc software, Belgija), a statistička značajnost postavljena je na p < 0.05.

Most commonly, oral cancer occurs in middle aged and elderly adults (median 62 years), but the increasing occurrence among younger individuals imposes a more serious approach to the examination of the oral cavity with the aim of early detection of malignant changes in the oral mucosa. When patients are diagnosed in a timely manner they have the best chance for cure and long-term survival. The literature data show insufficient knowledge of oral cavity cancer among dental and medical students, but also among family physicians and even dentists (7–10).

Although the oral cavity is readily available for examination, studies show that over half of the cases of intraoral cancer are discovered late and that some cases remain unrecognized. It is important during the course of dental medicine study that students gain knowledge on oral cavity cancers and develop awareness of the need for early detection of PMDs on oral mucosa including a routine examination of all oral mucosa regions and cervical lymph nodes at each dental examination (8–17).

Therefore, the primary objective of this study was to assess the knowledge of graduating dental students regarding oral cancer and to assess their awareness of the prevention and early detection of oral cancer.

Specific objectives were to:
- compare the knowledge of students of fourth and fifth years of study
- compare attitudes of smokers and non-smokers among students towards the risk of smoking
- compare attitudes towards prevention and treatment of cancer of students who evaluate their knowledge poor in relation to those who consider their knowledge to be good.

Subjects and Methods

The study group consisted of 83 students of fourth and fifth years of dental medicine study of whom the informed consent was obtained who were expected to answer all items in a list in the original 16-item questionnaire that was developed by Carter and Ogden (7) and modified (Appendix 1). This questionnaire consisted of 3 groups of questions. The first group referred to the knowledge of the students on etiology and topography of oral cavity cancer, the second group referred to self-assessment of early diagnosis and oral cancer prevention during the course, and the third group referred to procedures for prevention and treatment of patients with oral cancer. The students were also asked whether they were smokers or not. The intention was to determine the prevalence of smoking among dental students and to examine a possible impact of smoking status on their attitude towards smoking as a risk factor for development of oral cancer.

This study has been approved by the Ethics Committee of the School of Dental Medicine University of Zagreb and was conducted from April to July in 2016. All participants had previously signed a written informed consent. The students participated in the survey voluntarily and anonymously. After the classes, the students were asked to fill in a questionnaire, which lasted about 15 minutes. The results were analyzed using a chi-square test in Medcalc (<v11, MedCalc software, Belgium) and statistical significance was determined with p < 0.05.
Rezultati

U istraživanju su sudjelovali studenti četvrti i peti godine studija dentalne medicine u dobi od 21 do 28 godina (median 24 godine) koji su popunili upitnik. Znanje o raku usne šupljine mogli su steći na predavanjima i vježbama iz opće patologije, onkologije, oralne kirurgije i oralne medicine.

Četvrtu godinu predstavljalo je 40 studenata – 7 mladića (17,5 %) i 33 djevojke (82,5 %), a prosječna dob bila je 23 godine (raspon od 21 do 26 godina). U skupini pete godine, od ukupno 43 studenata, bilo je 14 mladića (25,3 %) i 29 djevojka (74,7 %) u dobi od 23 do 28 godina (medijan 24 godine). Na pitanje jesu li pušači potvrdno je odgovorilo 26 studenata. Mladići su već pušači, a djevojčice (66,7 % vs. 19,3 %). Studenti pete godine također češće puše u odnosu prema studentima četvrte godine (39,5 % vs. 22,5 %).

U ovom istraživanju htjeli smo ispiti eventualni utjecaj pušačkog statusa na stajališta o pušenju kao o rizičnom čimbeniku za nastanak raka usne šupljine. Usporedbom odgovora pušača i nepušača nismo našli statistički značajnu razliku na stajalištu prema pušenju i njihovu znanju o pušenju kao o rizičnom čimbeniku za nastanak raka usne šupljine. Međutim, već postotak pušača u odnosu prema pušačima označio je prestanak pušenja kao važnu preventivnu mjeru (nepušači 91,2 %, pušači 84,3 %, p = 0,01).

Tablica 1. pokazuje distribuciju odgovora na pitanje o samoocjeni znanja o raku usne šupljine. Nešto više od polovice studenata svoje znanje smatra dobrim, četvrtniča se ocjenjuje lošom ocjenom, a samo dva studenta svoje znanje ocijenili su izvrsnim. Ostali studenti (15,66%) svoje znanje smatraju vrlo lošim, a samo dva studenta svoje su znanje ocijenili vrlo dobrim. Najveći postotak pušača u odnosu prema pušačima označio je prestanak pušenja kao važnu preventivnu mjeru (nepušači 91,2 %, pušači 84,3 %, p = 0,01).

Table 1. Self-assessment of students’ knowledge about oral cancer

| Ocjena Grade | Studenti 4. godine 4th year students | Studenti 5. godine 5th year students | Ukupno Total |
|--------------|------------------------------------|------------------------------------|--------------|
|              | N       | %      | N       | %      | N       | %      |
| Vrlo loše •  | 1       | 2.50   | 2       | 4.65   | 3       | 3.61   |
| Very poor    |                     |                     |                     |                     |
| Loše •       | 12      | 30.00  | 7       | 16.28  | 19      | 22.89  |
| Poor         |                     |                     |                     |                     |
| Dobro •      | 24      | 60.00  | 22      | 51.16  | 46      | 55.42  |
| Good         |                     |                     |                     |                     |
| Vrlo dobro • | 2       | 5.00   | 11      | 25.58  | 13      | 15.66  |
| Very good    |                     |                     |                     |                     |
| Izvršno •    | 1       | 2.50   | 1       | 2.33   | 2       | 2.41   |
| Excellent    |                     |                     |                     |                     |
| Ukupno •     | 40      | 100.00 | 43      | 100.00 | 83      | 100.00 |
| Total        |                     |                     |                     |                     |
Na šesto pitanje o potencijalno malignim poremećajima većina studenata navela je vlastastu leukoplakiju i oralni lihen planus (slika 1).

Među rizičnim čimbenicima studenti kao najčešće navode pušenje i alkohol te vlastastu leukoplakiju i infekciju HPV-om. Zanimljivo je da većina studenata obiju godina smatra benignu vlastastu leukoplakiju potencijalno malignim poremećajem. Također više studenata četvrte godine smatra HPV i vlastastu leukoplakiju važnim čimbenikom rizika u odnosu prema studentima pete godine. No ta razlika nije statistički značajna.

U pitanju koje se odnosi na zadovoljstvo dobivenim informacijama tijekom nastave o raku usne šupljine postoji statistički značajna razlika jer 39,5 % studenata pete godine smatra da su dovoljno informirani za razliku od 15 % studenata četvrte godine (p = 0,01).

Na deveto pitanje – Koliko ste tijekom studija imali mogućnost samostalno pregledati bolesnika s potencijalno malignim poremećajima i kanceroznim lezijama, većina studenata (81,93 %) odgovorila je – nikad. Četiri studenta četvrte godine i deset studenata pete godine pregledalo je bolesnike manje od pet puta, a samo dva studenta pete godine imala su mogućnost pregleda od pet do deset puta.

Studenti pete godine češće preventivno razgovaraju s pacijentima, u odnosu prema studentima četvrte godine. Većina studenata pete godine (58,13 %) pozitivno je odgovorila na pitanje broj deset u odnosu prema 14 studenata četvrte godine (41,3 %), što je značajno češće (p = 0,035). Velika većina studenta ćetvrte godine imala je mogućnost pregledati bolesnika manje od pet puta, a samo dva studenata pete godine imala su mogućnost pregleda od pet do deset puta.

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and fifth years. When asked the question three whether oral cavity cancer is among the ten most common cancers, 80% of respondents answered positively. Similarly, when asked the question four about the most common types of cancer, 82.5% of respondents answered correctly. When asked about the prognostic significance of localization of oral cancer, the majority of students marked the tongue.

According to students’ responses, the most common risk factors are smoking and alcohol consumption, hairy leukoplakia and HPV infection. Interestingly, when asked the question six, a large number of students of both years considered a benign hairy leukoplakia and oral lichen planus as PMD ((Figure 1). Also, a large number of the fourth year students considered HPV and hairy leukoplakia an important risk factor compared to the fifth year students. However, this difference is not statistically significant.

Regarding the satisfaction with the information obtained during lectures on oral cancer, there is a statistically significant difference since 39,5% of fifth year students stated that they were sufficiently informed as opposed to 15% of fourth year students (p = 0,01).

Regarding the question nine, “How many times during the study you had the opportunity for independent examination of patients with PMDs and cancerous lesions?” most of the students (81.93%) responded negatively. Four students of the fourth year and nine of the fifth year examined patients less than five times, and only two students of the fifth year had the opportunity to examine them five to ten times.
Rasprava

Rezultati ovog istraživanja pokazali su da studenti četvrte i pete godine ocjenjuju svoje znanje o raku usne šupljine u većini ocjenom dobar. Studenti pete godine bolje su informirani o raku usne šupljine, češće su pregledavali bolesnike i vodili preventivne razgovore s bolesnicima, u odnosu prema studenima četvrte godine. Zanimljivo je da je u teoretskom znanju studenti četvrte godine ne zaostaju za svojim starijim kolegama.

Primjerice, na pitanje o rizičnim čimbenicima studenata četvrte i pete godine podjednako ističu pušenje i alkohol, što je napredak u usporedbi sa sličnim istraživanjem doktora Lončar – Brzak i suradnika iz 2012. godine (15) kada je malo studenata četvrte godine prepoznalo alkohol kao rizični čimbenik. Također podjednako važnim rizičnim čimbenikom smatraju infekciju HPV-om. No zanimljivo je da su studenti objavljivu vlastitu leukoplakiju izdvojili kao potencijalno zločudni poremećaj, što upućuje na potrebu boljeg poznavanja i razlikovanja klinički sličnih lezija različitog uzroka i prognoze te na dopunu znanja tijekom nastavnog procesa. Soares i suradnici (17) također su ustanovili da studenti ne prepoznaju dovoljno kliničke značajke oralnih lezija i nužna dopuna znanja između ispitivanih skupina (slika 3.).

Posljednje pitanje odnosilo se na trajanje liječenja potencijalno zločudnih poremećaja. Studenti su skloniji dugotrajnom liječenju (za šestomjesečno liječenje odlučilo se 27,7 %, a za razdoblje dulje od godinu dana 38,6 %).

Discussion

The results of this study showed that students of the fourth and fifth year of study rated their knowledge on oral cancer mostly as good. The students of the fifth year were better informed about oral cancer, more often assessed the patients, and were having preventive conversations with the patients compared to the fourth year students. Concerning the theoretical knowledge, it is interesting that the students of the fourth year of study do not lag behind their more advanced fellow students.

For example, responding to the question of risk factors, the students of the fourth and fifth year recognized smoking and alcohol as equally important risk factors, which is a progress compared to similar research by Lončar-Brzak et al. from 2012 (15) in which only a few students of the fourth year recognized alcohol as a risk factor. They also considered a HPV infection to be an equally important risk factor. However, it is interesting that students of both years have identified benign hairy leukoplakia as PMD, thus pointing to a need for better knowledge and differentiation of clinically similar lesions during clinical lectures and oral examination. Soares et al. (17) have also found that students do not sufficiently recognize clinical features of oral lesions despite good knowledge of etiology of oral cancer and awareness of the need for a thorough oral examination. Therefore, a supplementation of knowledge of differential diagnosis of oral lesions is needed during the teaching process. It is equally important to gain knowledge from earlier referrals of patients with suspected lesions to facilitate further diagnostics and treatment if no healing of the lesion occurs within a week.

In this study, the students also responded to the question regarding their smoking habits. The purpose of this question

na studenata (97,6 %) smatra da je informiranost pacijenata o raku usne šupljine loša ili vrlo loša. Samo dva studenta pete godine misle da su pacijenti dobro ili vrlo dobro informirani o toj malignoj bolesti.

Kad je riječ o preventivnim mjermama, nešto veći broj studenata četvrte godine navodi prestanak pušenja i česte kontrole pregleda kod stomatologa kao važnu preventivnu mjieru (92,5 % vs. 76,8 %). U ostalim odgovorima nema razlike između ispitivanih skupina (slika 2.).

Velika većina anketiranih ispitanika smatra da treba preglrediti sve regije usne šupljine i palpirati vratne limfne čvorove. U pitanju 15 – “Komu biste uputili bolesnika s potencijalno zločudnim poremećajem, gotovo svi studenti odgovorili su specijalistu oralne medicine (slika 3.).

Posljednje pitanje odnosilo se na trajanje liječenja potencijalno zločudnih poremećaja. Studenti su skloniji dugotrajnom liječenju (za šestomjesečno liječenje odlučilo se 27,7 %, a za razdoblje dulje od godinu dana 38,6 %).
ženja među studentima i ispitati eventualni utjecaj pušačkog statusa na stajalište o pušenju kao o rizičnom čimbeniku za nastanak raka usne šupljine. Trećina studenata izjasnila se da su pušači, a među njima češći pušači su muškarci u odnosu prema ženama. Isto tako studenti pete godine češće puše u usporedbi sa studentima četrte godine. Udio pušača među studentima nešto je niži negoli u općoj populaciji odgovarajuće dobi, ali ipak zabrinjavajuće visok (4). Usporedbom odgovora pušača i nepušača nismo našli statistički značajnu razliku u stajalištu o pušenju kao o rizičnom čimbeniku. No veći postotak nepušača u odnosu prema pušačima označio je prestanak pušenja kao važnu preventivnu mjeru. Takvo staja lište potvrđuje da su studenti nepušači realniji u iskazivanju gledišta prema pušenju kao o rizičnom čimbeniku za nastanak rak usne šupljine. Stoga je potreban mnogo konstruktivnijih pristupa i edukacija studenata o štetnim učincima duhana te o prednostima prestanak pušenja u prevenciji bolesti i liječenju tijekom nastavnog procesa jer je nepušaća mnogo lako promicati i zagovarati apstinenciju od pušenja među pacijentima.

Nešto više od polovice studenata obiju godina svoje znanje o raku usne šupljine smatra dobrim, četvrtina se ocjenjuje lošom ocjenom, a tek malo njih daje vrlo dobru ili odličnu. Nismo našli statistički značajnu razliku u odgoovima između studenata koji svoje znanje smatraju lošim u odnosu prema onima koji svoje znanje ocjenjuju dobrim, vrlo dobrim ili odličnim.

Kad je riječ o zadovoljstvu nastavom o raku usne šupljine, značajno više studenata pete godine smatra da su dovoljno informirani za razliku od malobrojnih studenata četrte godine. Isto tako su studenti pete godine imali mnogo više mogućnosti pregledavati bolesnika s rakom ili lezijama oralne služnice te razgovarati s pacijentima o izbjegavanju rizičnih čimbenika i provođenju preventivnih mjera, u odnosu prema studentima četrte godine. Ta se razlika lako može objasniti činjenicom da studenti više godine imaju znatno veću sučivat kliničkih vježbi iz oralne medicine. Naši rezultati podudaraju se s rezultatima sličnih istraživanja koja pokazala da studenti viših godina imaju veće znanje o raku usne šupljine. Naši rezultati potvrđuju da su studenti više godine smatraju se slabo ili vrlo slabо, što na našu ocjenu značajnu razliku u stajalištu o pušenju kao o rizičnom čimbeniku. No veći postotak studenta smatra da je informiranost pacijenata slabo ili vrlo slabo, što naše stajalište o rizičnosti čimbenika većina studenta ne priznaje. Stoga je potreban mnogo konstruktivnijih pristupa i edukacija studenata o rizičnosti čimbenika.

Kad je riječ o preventivnim mjerama, većina studenata obiju godina navodi redovite stomatološke preglede, prestanak pušenja i održavanje oralne higijene. Većina studenata smatra da pri svakom oralnom pregledu treba pregledati sve regije usne šupljine. Potrebno je također palpirati vratne limfne čvorove. Gotovo svi studenti utipili bi bolesnika s poten-

was to determine the prevalence of smoking among students and to examine a possible impact of smoking status on the attitude towards smoking as a risk factor for development of oral cancer. One third of the students stated that they were smokers, and among them more common smokers were men than women. Likewise, the students of the fifth year were more likely to smoke compared with the fourth year students. The rate of smokers among the students is somewhat lower than that among smokers in the general population of the same age but it still remains worrisome (4). By comparing the smokers’ and non-smokers’ responses we did not find a statistically significant difference in the smoking attitude and their perception of smoking as a risk factor. However, a higher percentage of non-smokers than smokers considered smoking cessation an important preventive measure. This attitude confirms the attitude of students regarding smoking as risk factor for oral cancer. Therefore, a more constructive approach and education of students about the harmful effects of tobacco and benefits of smoking cessation in the disease prevention and treatment during teaching process should also be featured because it is much easier for non-smokers to promote and advocate smoking abstinence among patients.

More than a half of the students of both years rated their knowledge on oral cancer as good, a quarter of them rated it as poor, and only a small number of students considered their knowledge to be very good or excellent. We have not found a statistically significant difference in the responses among the students who considered their knowledge poor compared to those who evaluated their knowledge as being good, very good, or excellent.

Regarding the satisfaction with oral cancer education, a significantly larger number of fifth year students stated that they were sufficiently informed, unlike a small number of fourth year students. Likewise, the fifth year students had better opportunities to examine patients with cancer or those with oral mucosa lesions, as well as talk to patients about avoiding risk factors and taking preventive measures compared to the fourth year students. This difference is easily explained by the fact that students of more advanced years of dental study attend a considerably larger number of oral medicine clinical lectures. Our results coincide with those of similar studies, which also showed that students of more advanced years of study had greater knowledge of oral cancer. Also, they had a more developed awareness about risk factors and it is a well-known fact that awareness regarding risk factors is a prerequisite for the prevention of oral cancer (8–16).

The vast majority of students believed that patients were insufficiently or very badly informed, which implies the conclusion of the need for implementing better educational programs. Leaflet printing, video presentations as well as preventive interviews at each dental examination would significantly improve the knowledge and awareness of oral cancer patients. Students themselves can greatly contribute to these efforts through their active participation in specific activities, for example free examinations for early detection of oral cavity cancers organized at the School of Dental Medicine during the Oral Cancer World Awareness Week.
Cijalno zločudnim poremećajem specijalista oralne medicine, što je u skladu s rezultatima sličnih istraživanja (12 – 16).

Zaključak
Iako je usna šupljina lako dostupna pregledu, u više od polovice slučajeva rak usne šupljine otkriva se kasno i neki slučajevi ostaju neprometani. Pravodobna dijagnostika polovice slučajeva rak usne šupljine otkriva se kasno i neki uključuju ruznog otkrivanja potencijalno zločudnim poremećajima oralne sluznice i njihovu značenju u razvoju raka usne šupljine. Nadalje, treba poticati svijest o potrebi ra-
nog otkrivanja potencijalno zločudnim poremećajima, što uk-
sljučuje rutinski pregled svih regija oralne sluznice tijekom svakoga stomatološkog pregleda. Naše istraživanje pokazuje da je teorijsko znanje studenata bolje od njihovih praktič-
ih vještina. Zato bi trebalo povećati satnicu kliničkih vježbi. U nastavnom procesu treba razvijati komunikacijske vještini studenata uključivanjem u programe probira i savjetovanja pacijenata. Uključivanje studenata pušača u preventivne programe važno je zbog korigiranja njihova osobnog stajališta prema pušenju kako o rizičnom čimbeniku i zagovaranja prestanka pušenja kao preventivne mjere među budućim pacijentima.

Sukob interesa
Autori nisu bili ni u kakvom sukobu interesa.

Zahvale
Autori zahvaljuju svim studentima koji su dobrovoljno u gra-
prednostu bilo u procesu znanja, a većinu studenata odlučili ih je uključiti u studij.

Conclusion
Although the oral cavity is readily available for clinical as-
essment, a larger proportion of patients are diagnosed with
oral cancer at a late stage and some cases remain unidentified.
A timely diagnosis provides the greatest chance for cure and
long-term survival of the patients. Therefore, it is important
that students gain knowledge about PMD of the oral muco-
sa and their significance in the development of oral cancer
during the course of the study as well as to learn clinical criteria
to differentiate clinically similar lesions. Furthermore, they
need to develop awareness of the need for early detection of
PMDs including routine examination of all oral mucosa ar-
eas at each dental examination. Our research shows that
theoretical knowledge seems to be retained better than prac-
tical skills. Therefore, the level of practical clinical skills
should be elevated. In the teaching process, communication skills of
students should be developed by including them in patient
screening and counseling programs.

Inclusion of the students smokers in preventive programs
against smoking is important in order to self-correct their at-
titude towards smoking as a risk factor and advocate smoking
cessation as a preventive measure among their future pa-
tients as well.

Conflict of Interest
Authors declare they have no conflict of interest.

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