Oral Cancer Screening

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The title of the paper is:

"Oral Cancer Screening"

Dr. Gyula Ficsor
Biological Sciences

Dr. Frederick Oppel

Joan Westendorp
Cancer Center
Oral Cancer Screening

by

Damon Omar Watson

Honors College Thesis
Spring 1997
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Joan Westendorp
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Abstract

Cancers of the oral cavity and pharynx have increased throughout the decades. Since oral cancer represents a small percentage of the total cancers in the United States, it is often overlooked. Though this is the case, the results of this cancer can be devastating. To address this issue, an Oral Cancer Screening was organized on August 14, 1996 at the West Michigan Cancer Center in Kalamazoo. This was a joint collaboration between myself, the West Michigan Cancer Center, and the Kalamazoo Valley Dental Society. This event allowed research to take place on my part concerning the data obtained.

Confidential results and information concerning the screening were compiled, analyzed, and compared to national statistics about oral cancer. Furthermore, the screening provided a reference for future screenings for cancers of the oral cavity. By providing access to a free screening opportunity, participants were able to address their health concerns as related to oral cancer. Likewise, the data also enhanced health awareness, possibly influencing people in the community to consider oral cancer as a more serious cancer-related cause for death in the United States.

Background Information on Oral Cancer

Cancer is a disease characterized by the abnormal growth and spread of malignant tumors (8). More specifically, oral cancer is a term identifying malignant tumors which originate in the mucous membrane lining the oral cavity. All of these cancers are of the carcinoma type, which simple stated is a malignant tumor of epithelial origin. These occur on the skin, lip, tongue,
stomach, thyroid gland, rectum, uterus; in fact, any organ composed of epithelial tissue (3).

Nevertheless, cancers of the oral cavity and pharynx are a major cause of death from cancer in the U.S., accounting for about 3% of cancers in men and 2% in women (7). In addition, oral cancer represents 4% of all cancers in this nation. In 1995, an estimated 28,150 new cases were diagnosed along with 8,370 deaths (1). According to the National Cancer Institute, an estimated 29,490 new cases of oral cancer are expected to be diagnosed in the U.S. in 1996, along with an expected mortality close to the toll in 1995 (4). Over 90% occur in patients above age 45 (7).

African Americans tend to be diagnosed more frequently with cancers in general with about 8% difference in reference to 1991 statistics. In this year, approximately 1,174 African American males and females were diagnosed with cancer of the oral cavity. This is compared with a yearly approximation of 28,000 newly diagnosed oral cancer cases. So in simpler terms, roughly 4% of the total diagnosed cases of cancer of the oral cavity, represent African Americans, while general minority groups (not Caucasian) are 5% of total diagnosed oral cancers (1).

These statistics are consequences of physical and chemical factors which may make individuals more susceptible to cancer. Excessive exposure to sunshine tends to be related to high incidence of skin and lip cancer. In addition, tobacco use and tobacco smoke are definite causes for oral cancer. These factors are carcinogens or agents that help activate metabolic processes to promote cancer in the host by genetic mutation. When the precancerous and/or cancerous process is directly stimulated, it often
produces leukoplakia, hyperplasia, and cancer in susceptible individuals. 
*Leukoplakia* is a whitish patch inside the mouth which is regarded as a 
dangerous precancerous lesion (4). These white patches are a type of 
dysplasia, which is an abnormal change in size, shape, and organization of 
cellular tissue (2). Warty lumps or thickening oral mucosa are other signs for 
which to look. Tobacco use - smoking cigarettes, cigars, or pipes; chewing 
tobacco; or dipping snuff - accounts for 80-90% of oral cancers (5). 
Furthermore, excessive or heavy use of alcohol also increases the risk of oral 
cancer (5). 

Perhaps the most surprising factor involved in the etiology of cancer in 
oral cancer is syphilis. About 20-30% of all male patients with cancer of the 
tongue have chronic syphilis. Also, syphilis tends to be associated in some 
cases of cancer of the lip, the floor of the mouth and the buccal surface. In 
addition, there are dental factors which make oral cancer more likely in 
susceptible individuals. Some examples include: irritation from jagged, sharp 
or decayed teeth, malfitting dentures, crowns, and fillings, and oral sepsis. 
Other etiological factors are exogenous agents, known as chemical 
carcinogens, x-rays, and radium. These play an important role in the 
causation of tumors as well (3). 

These physical and chemical carcinogens previously mentioned act 
synergistically with genetic factors. *Oncogenes* are genes that encode proteins 
capable of transforming cells in humans (2). Their precursor *proto-oncogenes* 
mutate into oncogenes to cause uncontrollable cell growth associated with 
cancer. Activation of these genes are the result of carcinogens, viruses, or 
gene mutation. Humans possess *tumor suppressor genes* which exist in 
normal cells to control cell growth and play a role in cancer. When mutations
in these genes occur, runaway cell growth is allowed. Two main tumor suppressor genes are p53 and Rb. The p53 gene is most frequently mutated suppressor gene in neoplasms, present in 50% of all human cancers (1). Rb can bind to proteins that promote cell division, also. Environmental exposure and lifestyle accounts for 80-90% of cancers while acting together with genetic factors (2). Also, a history of cancer in the family can be a factor in susceptibility to cancers.

Initiation of cell proliferation results in signs and symptoms of oral cancer manifestation. Oral cancer usually occurs over age 40, but may develop at any age (4). Pain is frequently absent in small cancers, while it is prominent in small ulcerated inflammatory lesions in the mouth. Another sign of oral cancer is a sore in the mouth that does not heal (3). A fleshy-looking bud of tissue or a leukoplakic plaque may actually be cancerous. Moreover, difficulty swallowing, chewing, or moving the jaw or tongue are all warning signs of oral cancer. Further symptoms include, numbness of the tongue or areas of the mouth or thickening in the cheek (4). These signs and symptoms may or may not be related to oral cancer. By seeing a dentist or doctor, diagnosis can be more thorough.

When observing symptoms, there are common sites of origin for the various types of oral cancer. The bottom lip is a frequent site where lesion may begin. Also, carcinomas occur in the palate; primarily the soft palate at a 3 to 1 ratio. The gingiva (gums) represent another site where the lower jaw and molar region are consistently the common point of origin. The buccal surface (inner lining of the cheek) tends to be another frequent site for cancer near the occusal line at the second premolar and the first and second molar teeth. Cancer of the floor of the mouth arises at either side of
the midline. Finally, the tongue is encounter often as an oral cancer site. The most common cancerous area of the tongue seems to be the lateral edges (3).

Since, the causes and common sites of oral cancer are known, prevention of this disease can be discussed. Being that excessive alcohol and tobacco use are primary causes of oral cancer, the cessation of the use of these items can greatly reduce the risk of this disease. Also, avoidance of prolonged sunlight exposure can reduce the chance of lower lip cancers. By eating a balanced diet, the oral mucous membranes will be healthy, thus minimizing oral cancer risk (8). Also, early diagnosis of this disease is vital to identifying and decreasing the threat of cancer of the oral cavity (5).

It is for this reason that it is extremely important to visit the dentist on a regular basis. Furthermore, one must practice good oral hygiene to decrease susceptibility to oral cancer (8). Most small early cancers can be treated by simple laser excision surgery or radiotherapy, while more advanced tumors are treated with a combination of surgery and radiotherapy. Current reconstruction techniques and prosthetic replacement can also offer reduced morbidity and proficient functional results (5). Premalignant lesions need a biopsy and follow-up to determine if cancer is present (8).

A biopsy is the microscopic study of a tissue specimen removed from a suspected lesion for the purpose of diagnosing cancer. This procedure is useful in planning and checking the progress of treatment and determining the stage of the disease. Moreover, a biopsy may vary from the removal of a
small representative portion of a lesion to removal of the whole tumor, followed by primary closure of the site (3).

Also, through immunotherapy, oral cancer is hoped to be controlled by enhancing the body's own disease-fighting mechanisms. Interferon and interleukin-2 (IL-2) are two biological proteins which are capable of defending against cancer cells (1). Also, the twice application of dinitrochlorobenzene (DNCB) to the subject activates cytotoxic T-cells to bind to tumor associated antigens, causing tumor cell-lysis. Another immunotherapeutic agent involves BCG and/or levamisole. Deep scratches are made in the tumor, then this substance is applied to activate macrophages which migrate to the tumor site (2). Despite the potential of immunotherapy, it has not proven to be very successful.

**Organization of the Cancer Screening**

Dentistry has been my career goal for quite some time, so I decided to focus my independent work in some aspect of this field, be it research or practice. Through the direction of Dr. Reish of WMU's Lee Honors College, I was referred to a general dentist, Dr. Oppel, to discuss possible avenues for the thesis. Immediately a letter was sent to Dr. Oppel introducing myself and asking for assistance in the development of my thesis (appendix B-1).

Dr. Oppel was very enthused about my interest in dentistry and decided to help in any way possible. Through brainstorming, we decided that an Oral Cancer Screening Day would be a good focus for the thesis, while promoting health consciousness. This was an innovative thought since an
oral screening was generally rarely done as a public service, nor was there one ever performed in Kalamazoo. To get support for this project, Dr. Oppel presented the idea to a board of health officials and doctors at Borgess Hospital of Kalamazoo. The idea was accepted by Joan Westendorp, the director of research and community outreach programs at the West Michigan Cancer Center. She made herself available as a resource to ensure the success of the screening.

My role in the screening became more defined at this point. The effective and complete organization and planning of the screening was my responsibility. To fulfill this duty, I met with Joan for guidance. She connected me with various resources, such as: addresses and phone numbers to the American Cancer Society and National Cancer Institute, examples of correspondence and public service announcements to radio stations, example of flyers, and general brochures on oral cancer. The Cancer Center performs various types of cancer screenings and exams, including prostate, skin, breast, and others. The registration forms, public service announcements, and results of each corresponding screening were made available.

Ideally, I intended to follow a previous model of an oral cancer screening. Since, the West Michigan cancer Center had not performed any screenings of this nature, I explored alternatives to accomplish my goal. I researched the internet, medline, and also called the American Cancer Society and National Cancer Institute. Unfortunately, these options did not have any documentation pertaining to an oral cancer screening. So, I used the cancer screening models as references to create the correspondences for the Oral Cancer Screening Day. Joan gave me the guidance and support
needed to create the necessary forms, letters, and advertisements that were essential to put together the screening.

Next, I researched to thoroughly familiarize myself with the subject of oral cancer. Medline, the internet, books, and National Cancer Institute brochures were the main means of literary review. A concrete understanding was needed to create the screening registration form (appendix D1). The screening form included sections for demographic information, personal dentist information, and for consent of the participant to let licensed dentists perform general observation of the oral cavity. Another section included a list of possible concerns of participants which may be related to a precancerous or cancerous condition. In the final section of the registration form, the dentists would mark abnormalities on a diagram of the oral cavity, write comments, and specify if a biopsy and other exam is recommended for the participant.

Advertisements and other public relation correspondences were created by myself. However, Joan assisted in mailing of correspondence and also created some of the promotion to the newspaper. An Oral Cancer Screening Update was mailed by Joan to every dentist in the Kalamazoo area to notify their office of the screening date and time (appendix C-1). Also, I created a flyer which was printed in bulk at the Cancer Center (appendix C-5a,b). These flyers were also sent the dentists in the Kalamazoo area and were advertised all over campus and other public places. A newspaper advertisement was created and then edited by Joan (appendix C-2). The final draft was mailed to the Kalamazoo Gazette Metro Briefs, Almanac, Health Calendar, and the Health Editor of the newspaper (appendix B-3).
Furthermore, correspondence were sent with public service announcements (PSAs) to all local radio stations. In appendix B-2, a letter to WKZO along with the PSA is showed as an example. In addition, an electronic mail message was sent to First of America corporate employees in reference to the screening (appendix C-3). Since I was an employee at this time, I was able to take advantage of this type of advertisement. All advertisements explain when and where the screening would take place. It was the responsibility of the interested person to call the West Michigan Cancer Center to schedule an appointment (appendix D-3).

After all was thoroughly organized, the actual screening took place August 14, 1996 from 6-9 p.m. I ordered 50 free oral cancer screening pamphlets from the National Cancer Institute which were made accessible to all the participants (appendix D-4). This pamphlet provided a means of awareness and education for the participants about oral cancer. At the screening, I served as receptionist, making sure participants names were checked off as they arrived for their appointments. Also, Cancer Center staff along with myself were responsible for instructing patients on how to fill out registration forms and answering general questions (appendix F). The dentists performed general oral observatory screenings for abnormalities in the mouth cavity.

Following the screening, the confidential results were kept by the Cancer Center as their property. Also, any abnormal cases observed were planned for follow-up in three months time. When this time came, Joan and myself called abnormal participants to ask a series of follow-up questions that Joan generated (appendix D-2). In the meantime, I sought approval from
the Human Subjects Institute Review Board (HSIRB) for thesis credit through Bios 499, Independent Research.

Dr. Ficsor, my thesis chair, advised me to talk to Loreene Broker to be informed on the logistics of submitting a proposal. Since, I did not have direct contact with the "human subjects" but was indirectly involved with participants, I was able to file under "exempt" proposal. I completed an application along with a protocol outline and submitted it before the Winter 1997 semester (appendix E-1). Approval for this came through phone contact and a letter (appendix E-2). This approval allowed me to get credit for my Oral Cancer Screening Day thesis/project during Winter 1997 in the Biological Sciences Department.

Results

(see next page)
RESULTS
AGE OF PARTICIPANTS

How did participant hear about screening?
Concerns of Participants

- relative with Oral Cancer
- any other cancer
- Oral cancer
- leukoplakia
- numbness of lip
- irritation of improperly fitting dentures
- soreness of mouth or throat
- difficulty with speech, swallowing, or mouth
- neck swelling
- Sore inside or around mouth

# of Participants experiencing concern
ABNORMAL CASES

Normal Oral cavity 78%

Abnormal Oral cavity 22%
The following describes specific areas of concerns for the participants who represent abnormal screening cases:

Participant 1

Participant 1 does not indicate excessive sun exposure, use of tobacco, nor alcohol. One concern noted is a history of leukoplakia.

*Abnormality found: White lesions on lip*

Participant 2

Participant 2 has experienced a sore inside or around the mouth, soreness of the mouth or throat, and leukoplakia.

*Abnormality found: White areas (leukoplakia) on inferior lateral borders of tongue*

Participant 3

Participant 3 has a brother who has had oral cancer. The participant has also experiences numbness of the lip and skin cancer.

*Abnormality found: Occasional numbness of lower lip*

Participant 4

Participant 4 indicates excessive tobacco use. Also, he/she has experiences a sore inside or around the mouth, soreness of the mouth or throat, irritation of improperly fitting dentures, and numbness of the lip.

*Abnormality found: Fibrous inside lip and left buccal surface (inside cheek)*

Participant 5

Participant 5 indicates that he/she chews tobacco and has experienced leukoplakia.

*Abnormality found: Leukoplakia on lip and lower gingiva (gums)*

Participant 6

Participant 6 has a grandfather who has had oral cancer. This participant has experienced a sore inside or around the mouth.

*Abnormality found: Occasional soreness of palpable lymph node anterior to right cervical*
<table>
<thead>
<tr>
<th>ABNORMALITY OBSERVED</th>
<th>BIOPSY OR REFERRAL</th>
<th>FOLLOW-UP</th>
<th>BIOPSY OR</th>
<th>RESULT</th>
<th>TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RECOMMENDED</td>
<td>CONTACT</td>
<td>TYPE OF EXAM</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BY SCREENING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PARTICIPANT 1</strong></td>
<td>White lesion on lip</td>
<td>Biopsy recommended</td>
<td>Contacted</td>
<td>No appointment</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td><strong>PARTICIPANT 2</strong></td>
<td>Leukoplakia on inferior lateral borders of tongue</td>
<td>Biopsy recommended</td>
<td>Contacted</td>
<td>Oral exam</td>
<td>Leukoplakia, Ulceration myo-solution</td>
</tr>
<tr>
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<td></td>
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<tr>
<td><strong>PARTICIPANT 3</strong></td>
<td>Occasional numbness of lower lip</td>
<td>Referred</td>
<td>Contacted</td>
<td>Panaromic view of mandible</td>
<td>Negative results</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PARTICIPANT 4</strong></td>
<td>Fibrous inside lip and left buccal surface</td>
<td>Biopsy recommended</td>
<td>No contact</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PARTICIPANT 5</strong></td>
<td>Leukoplakia on lip and lower gingiva</td>
<td>Biopsy recommended</td>
<td>No contact</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>PARTICIPANT 6</strong></td>
<td>Occasional soreness of palable lymph node anterior to rt. cervical</td>
<td>Referred</td>
<td>No contact</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>
Discussion and Conclusion

Approximately 40 people scheduled to attend the Oral Cancer Screening Day, however 27 actually participated. Out of this number 33% were male and 67% were female, corresponding to 9 men and 18 women. More demographic information includes racial background of participants 92% of participants represent Caucasian background; 4% represent African American; 4% were of other racial background; and their were no Oriental or Spanish participants.

The age of participants were also compiled in the results. There were three participants in their 20's; no one was in there 30's or 50's; four participants were in their 40's; nine were in their 60's; and ten were 70 years of age and older. Also, only one participant did not specify age. So, approximately 70% of participants were over age 60. According to the data, it was also discovered how participants heard about the screening from various forms of advertisements. The newspaper reached 20 participants; two were informed through the radio; one read about it from a flyer; three were informed from other sources; and one gave no response. Obviously, the newspaper was the major form of advertisement, informing 74% of participants. This information can be useful when organizing cancer screenings in the future.

At the time of the screening, many participants had concerns regarding the health of their oral cavity. These concerns are possible risks or symptoms of oral cancer. A total of 16 participants had a sore inside or around the mouth, representing approximately 59% of total participants. Also, 11 participants had a soreness of the mouth or throat, which was
approximately 41% of the participants. These seem to be the major concerns of the participants. In addition, five participants has leukoplakia, which is considered a precancerous lesion. Also, five had a type of cancer other than a diagnoses oral cancer case. Three participants experienced numbness of the lip and three experienced irritation of improperly fitting dentures. Only one participant had difficulty with speech, swallowing, or the mouth. No one had any neck swelling. Also, no one had oral cancer, but four participants had a relative with oral cancer.

The screening discovered six abnormal cases, representing 22% of the total number of people participating in the event. Since people who were interested in the oral screening scheduled their own appointments as opposed to a random screening, this is a probable account for the seemingly high ratio of abnormal cases. According to the screening release form, the dentists were to try to discover abnormalities, not necessarily oral cancer, and help to set up a follow-up exam for more thorough diagnosis of the concern (appendix D-1) So, the patients who scheduled appointments more likely had concerns or suspicions before abnormalities were found.

Each abnormal participant had specific areas of concern as seen on page 16. After they were screened by dentists, some abnormality was found in the oral cavity of each one of those particular individuals. Biopsies were recommended for participants 1, 2, 3, and 5, while participants 3 and 6 were referred to physicians. Through follow-up, only three participants were contacted, which included participants 1, 2, and 3. Out of these three, two had followed up with an exam by a doctor or dentist. Participant 1 never set up an appointment. Participant 2 had a biopsy where leukoplakia and ulceration were discovered on the side of the tongue. This individual had previously
experienced leukoplakia and soreness inside the mouth. His treatment was a prescribed myo-solution which contained tetracycline to help to heal the sore on the tongue. Participant 3 had a panoramic view of the mandible (lower jaw) as he/she experienced occasional numbness of the lower lip. The results were negative but participant 3 was referred to another physician to get an ultrasound of the carotid artery. This is to check if not enough blood flow is getting to the head causing numbness. If nothing is found there, he/she will see a neurologist.

Since the screening was not set up for dentists to make definite diagnosis of oral cancer through means of biopsy, no adequate comparison can be made to national statistics on oral cancer. However, it can be concluded that age is a definite risk factor to cancers of the mouth, since approximately 85% of participants were over the age 40. Since, about 90% of cancers occur in people over age 45, shows that the individuals concerned about their oral health in this screening were around the usual age of oral cancer onset (7). Furthermore, the various concerns of the participants indeed corresponded with the signs and symptoms of the disease.

In a screening study of second malignant tumors after initial therapy, 64% of the patients were documented smokers and 53% were consumers of alcohol (6). According to this, it is clear that these habits greatly contribute to the risk of oral cancer. Many participants from the Oral Cancer Screening Day forgot to indicate if these lifestyles pertained to them. Of the abnormal cases, only two out of six indicated that tobacco use applied to them. No one indicated excessive alcohol use. One reason for this could be that only three out of the six abnormal case were actually contacted for follow-up information, so the participants were not able to give us the information.
However, alcohol consumption and tobacco use are not the only major risk factors of cancer, hence other factors were prevalent in abnormal individuals. Some of these include, a history of oral cancer in the family, leukoplakia, soreness inside the mouth, and malfitting dentures.

Obviously, the screening benefited its participants by providing access to a free oral cancer screening opportunity to those concerned about this disease. Likewise, the data obtained serves the West Michigan Cancer Center as a reference for the prevalence of oral cancer in Kalamazoo. The gathered statistics also enhanced the awareness of health concerns, particularly in the area of oral health. Even though participation was not extremely high, other avenues of advertisement can be explored for future screenings. Also, to ensure follow-up by the participants who may have an abnormal screening, a system can be set up to schedule an appointment on the spot for a biopsy or an additional examination by a doctor or dentist. The innovation of the first Oral Cancer Screening Day in Kalamazoo directly influenced people in the community to consider oral cancer as a more serious cancer-related cause for death in the United States.
Appendix
Appendix

Appendix A: Works Cited

Appendix B: Correspondence
1- Contact Letter
2- WKZO
   a. letter
   b. public service announcements (PSA's)
3- Kalamazoo Gazette Letters
4- Letters to Dentists in Grand Rapids
5- Thank You Letters from Joan Westendorp
   a-e. dentists
   f. D. Omar Watson

Appendix C: Advertisements
1- Oral Cancer Update to all Local Dentists
2- Newspaper Advertisement (rough draft)
3- First of America Employees Advertisement (e-mail)
4- Kalamazoo Gazette Newspaper clippings
5- Flyers

Appendix D: Cancer Screening Forms
1- Registration Form
2- Follow-up Form
3- Appointment Sheet (example)
4- Brochure

Appendix E: WMU Human Subjects Institute Review Board (HSIRB)
1- Protocol Outline
2- Approval Letter

Appendix F: Pictures
1- Damon Omar Watson
2- Participating Dentists
3- Receptionist Duties
   a. registration forms and brochures for participants
   b. appointment scheduling
Appendix A:

Works Cited
Works Cited


------ "Onocogenes." Bios 570 notes. 18 March 1997.

------ "Host Defense Functions to Tumor." Bios 570 notes. 20 March 1997.


Appendix B: Correspondence
Dear Dr. Oppel:

My name is Damon Omar Watson and I am currently a junior at Western Michigan University. I have a Pre-Dentistry curriculum with a major in Biology, minors in Psychology and Chemistry. I am a student in the Honors College.

I am writing because I seek guidance for my Senior Thesis through the Honors College. Since dentistry has been my career choice for quite sometime, I would like to focus my independent work in some aspect of this field, be it research or practice. Through Dean Reish of WMU's Lee Honors College and his contact with Dr. Luis Toledo of Borgess Hospital, I received your name as a possible resource for my thesis project. At your convenience, I would like to talk with you about possible avenues to follow for the design and development of my thesis. Perhaps there is research in the area of dentistry in which you are involved that I might pursue under your mentorship or perhaps you may have in place or can design some type of practicum in which I can participate which will serve me in the preparation of my future career.

Past experiences in the field have prepared me well for the thesis project, but doing this independent work will require a mentor or advisor. While in high school, I participated in two consecutive internships with dentistry. During these internships, I observed various dental procedures and also researched different aspects of dentistry, such as: Laser Dentistry, Infection Control, Tooth Extraction, and the Business Aspect of Dentistry. Also, this past summer, I participated in a summer dental program at Marquette University School of Dentistry. This program included DAT preparation and a Dental Science course in which I learned some fundamental concepts in dentistry.

The enclosed resume reflects my experience and accomplishments as a student interested in the dental field. I will contact you in two weeks to arrange an appointment at your convenience. If you have any questions or concerns contact me at 353-7726. Thank you.

Sincerely,

Damon Omar Watson
June 17, 1996

WKZO
Attention: Dan Jaconette

Dear Mr. Jaconette

For over 10 years, West Michigan Cancer Center has participated in treatment studies for individuals in the Kalamazoo Area diagnosed with cancer. Community Outreach Programs is of high importance for the West Michigan Cancer Center. In the past, a variety of screenings has been conducted, but never for the field of Oral Cancer. I, D. Omar Watson, an Honor College Student at Western Michigan University, am organizing the first Oral Cancer Screening Day here in Kalamazoo with the help of the West Michigan Cancer Center and the Kalamazoo Valley Dental Society.

Attached are PSA's about the screening day, as well as a short paragraph for your use. It would be greatly appreciated if you could use these throughout the day.

It is vital that area men and women be aware of the opportunity to participate in this important screening examination.

If there is the possibility of an interview or should you have any questions, please contact me at (616) 353-7726. The other potential interviewer may be with the other two co-sponsors: Joan Westendorp - a director at the West Michigan Cancer Center and Dr. Frederick Oppel - a member of the Kalamazoo Valley Dental Society. They can be reached at (616) 373-7458 and (616) 327-7136, respectively.

Sincerely,

Damon Omar Watson
WMU Honor's Student

enclosures
Oral Cancer Screening Day

Oral cancer represents 3% of all cancers in the U.S. Twice as many men than women are diagnosed with this cancer, and it is most frequent in men over age 40. All men and women may be eligible for a screening sponsored by a Western Michigan University Honor's Student and the West Michigan Cancer Center. Local dentists of the Kalamazoo Valley Dental Society will conduct the screenings on August 14, 1996 at the Western Michigan Cancer Center on 200 N. Park, here in Kalamazoo. Call 363-7450 for additional information.

PSA

About 30,000 persons were diagnosed with Oral Cancer in 1995. A screening here in the Kalamazoo area may help prevent Oral Cancer. Call the West Michigan Cancer Center at 373-7450 for additional information.
July 18, 1996

Rebecca Pierce - Metro Briefs
Kalamazoo Gazette
401 S. Burdick Street
Kalamazoo MI 49007

Dear Ms. Pierce:

For inclusion in the Metro Briefs Section of the Gazette *during the week of July 29, 1996* if possible.

The West Michigan Cancer Center, along with Frederick Oppel, DDS and D. Omar Watson, an Honors College student at Western Michigan University, as well as other dentists from the Kalamazoo Valley Dental Society, will be conducting a free oral cancer screening program on Wednesday, August 14, 1996 from 6 PM to 9 PM. Call 373-7450 for an appointment.

Approximately 30,000 individuals will be diagnosed with oral cancer this year. Tobacco use, including smokeless (chewing/spit) tobacco, is associated with most oral cancer deaths.

Very truly yours,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education and Community Outreach

JW/mb
July 18, 1996

Judy Johnson - Almanac
Kalamazoo Gazette
401 S. Burdick St.
Kalamazoo MI 49007

Dear Ms. Johnson:

For inclusion in the Almanac Calendar Section of the Kalamazoo Gazette, 
August 4 edition.

Free oral cancer screening program from 6 PM to 9 PM on Wednesday, 
August 14, 1996 at the West Michigan Cancer Center, 200 N. Park St., 
Kalamazoo. Please call (616) 373-7450 to schedule an appointment.

Thank you, and for more information or questions, please contact:

Joan Westendorp, RN, BSN, OCN
Director, Research/Education and Community Outreach 
West Michigan Cancer Center
(616) 373-7458
July 18, 1996

Margaret DeRitter - Health Calendar
Kalamazoo Gazette
401 S. Burdick St.
Kalamazoo MI 49007

Dear Ms. DeRitter:

For inclusion in the Health Calendar Section of the Kalamazoo Gazette, August 6 edition.

Free oral cancer screening program from 6 PM to 9 PM on Wednesday, August 14, 1996 at the West Michigan Cancer Center, 200 N. Park St., Kalamazoo. Please call (616) 373-7450 to schedule an appointment.

Thank you, and for more information or questions, please contact:

Joan Westendorp, RN, BSN, OCN
Director, Research/Education and Community Outreach
West Michigan Cancer Center
(616) 373-7458
July 18, 1996

Bill Krasean - Health Editor
Kalamazoo Gazette
401 S. Burdick Street
Kalamazoo MI 49007

Dear Bill:

The West Michigan Cancer Center, along with Frederick Oppel, DDS and D. Omar Watson, an Honors College student at Western Michigan University, as well as other dentists from the Kalamazoo Valley Dental Society, will be conducting a free oral cancer screening program. Would you be able to assist our promotion of this program by including a small note about it in the Gazette between now and August 14th?

If this is possible, I have prepared a short piece that would be appropriate:

More than 29,000 individuals will be told that they have oral (mouth) cancer this year. To help diagnose these cancers at an earlier stage, the West Michigan Cancer Center, Frederick Oppel, DDS and D. Omar Watson, an Honors College student at Western Michigan University, as well as other dentists from the Kalamazoo Valley Dental Society, will be conducting a free oral cancer screening program on Wednesday, August 14, 1996 from 6 PM to 9 PM at the West Michigan Cancer Center, 200 N. Park St., Kalamazoo. Call (616) 373-7450 for an appointment.

When oral cancer is detected at an early stage, it is highly curable. However, the majority of oral cancers are well advanced at the time of diagnosis. With the exception of skin cancer, cancers of the oral cavity are probably the most easily detectable and accessible cancers. Dentists play a major role in the detection of early oral cancers. Take this opportunity to play an active role in your health. Call (616) 373-7450 for an appointment for your free oral cancer screening examination.

Very truly yours,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education and Community Outreach

JW/mb
June 19, 1996

Larry D. Russell D.D.S.
1919 Eastern S.E.
Grand Rapids, Mi 49507

Dear Dr. Russell:

For over 10 years, West Michigan Cancer Center has participated in treatment studies for individuals in the Kalamazoo Area diagnosed with cancer. Community Outreach Programs is of high importance for the West Michigan Cancer Center. In the past, a variety of screenings has been conducted, but never for the field of Oral Cancer. I, D. Omar Watson, an Honor College Student at Western Michigan University, am organizing the first Oral Cancer Screening Day here in Kalamazoo with the help of the West Michigan Cancer Center and the Kalamazoo Valley Dental Society.

Enclosed are flyers to advertise the screening. This letter and the flyers are basically to inform you of my progress thus far on my senior thesis. I have not sent any information to any other dentists in Grand Rapids because of the distance anyone willing to participate would have to travel if they live in that area.

Well, I hope business is fine an if you have questions or just want to talk, you can contact me at 616-353-7726. Thanks!

Sincerely,

Damon Omar Watson
WMU Honor's Student

enclosures
June 19, 1996

Juli S. Wemmer D.D.S.
455 Cherry St. S.E.
Grand Rapids, MI  49503

Dear Dr. Wemmer:

For over 10 years, West Michigan Cancer Center has participated in treatment studies for individuals in the Kalamazoo Area diagnosed with cancer. Community Outreach Programs is of high importance for the West Michigan Cancer Center. In the past, a variety of screenings has been conducted, but never for the field of Oral Cancer. I, D. Omar Watson, an Honor College Student at Western Michigan University, am organizing the first Oral Cancer Screening Day here in Kalamazoo with the help of the West Michigan Cancer Center and the Kalamazoo Valley Dental Society.

Enclosed are flyers to advertise the screening. This letter and the flyers are basically to inform you of my progress thus far on my senior thesis. I have not sent any information to any other dentists in Grand Rapids because of the distance anyone willing to participate would have to travel if they live in that area.

Well, I hope business is fine an if you have questions or just want to talk, you can contact me at 616-353-7726. Thanks!

Sincerely,

Damon Omar Watson
WMU Honor’s Student

enclosures
September 4, 1996

Lorraine Hanna, DDS
2031 Rambling Road
Kalamazoo MI 49008

Dear Dr. Hanna:

Thank you so much for volunteering your time to work on the Oral Cancer Screening Program held on August 14th. I have attached a brief report. For our first oral screening, things moved along well and I think everyone felt it was a success.

We do other types of screening programs at the West Michigan Cancer Center, and are always amazed and uplifted by the generosity of the Kalamazoo medical community. Physicians and nurses are always available, free of charge, on their own time, to volunteer for these programs. These services would not be available without people such as you.

Thank you again for your assistance with this valuable screening program.

In appreciation,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education & Community Outreach

JW/mb

closure
September 4, 1996

Fred Oppel, DDS
425 E. Centre Avenue
Portage MI 49002

Dear Dr. Oppel:

Thank you so much for volunteering your time to work on the Oral Cancer Screening Program held on August 14th. I have attached a brief report. For our first oral screening, things moved along well and I think everyone felt it was a success.

We do other types of screening programs at the West Michigan Cancer Center, and are always amazed and uplifted by the generosity of the Kalamazoo medical community. Physicians and nurses are always available, free of charge, on their own time, to volunteer for these programs. These services would not be available without people such as you.

Thank you again for your assistance with this valuable screening program.

In appreciation,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education & Community Outreach

enclosure

P.S. It has been a pleasure working with you and Omar on this project. We enjoyed the evening and meeting your colleagues as well as talking to your pleasant staff over the phone.
September 4, 1996

David Johnson, DDS
1617 E. Milham Road
Portage MI 49002

Dear Dr. Johnson:

Thank you so much for volunteering your time to work on the Oral Cancer Screening Program held on August 14th. I have attached a brief report. For our first oral screening, things moved along well and I think everyone felt it was a success.

We do other types of screening programs at the West Michigan Cancer Center, and are always amazed and uplifted by the generosity of the Kalamazoo medical community. Physicians and nurses are always available, free of charge, on their own time, to volunteer for these programs. These services would not be available without people such as you.

Thank you again for your assistance with this valuable screening program.

In appreciation,

Joan Westendorp, RN, BSN, GCN
Director, Research/Education & Community Outreach

JW/mb

enclosure
September 4, 1996

Maura Fichter, DDS
1634 Gull Road
Kalamazoo MI 49001

Dear Dr. Fichter:

Thank you so much for volunteering your time to work on the Oral Cancer Screening Program held on August 14th. I have attached a brief report. For our first oral screening, things moved along well and I think everyone felt it was a success.

We do other types of screening programs at the West Michigan Cancer Center, and are always amazed and uplifted by the generosity of the Kalamazoo medical community. Physicians and nurses are always available, free of charge, on their own time, to volunteer for these programs. These services would not be available without people such as you.

Thank you again for your assistance with this valuable screening program.

In appreciation,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education & Community Outreach

JW/mb

enclosure
September 4, 1996

Thomas Slack, DDS
8191 Moorsbridge
Portage MI 49024

Dear Dr. Slack:

Thank you so much for volunteering your time to work on the Oral Cancer Screening Program held on August 14th. I have attached a brief report. For our first oral screening, things moved along well and I think everyone felt it was a success.

We do other types of screening programs at the West Michigan Cancer Center, and are always amazed and uplifted by the generosity of the Kalamazoo medical community. Physicians and nurses are always available, free of charge, on their own time, to volunteer for these programs. These services would not be available without people such as you.

Thank you again for your assistance with this valuable screening program.

In appreciation,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education & Community Outreach

JW/mb

enclosure
September 4, 1996

Omar Watson
4612 Ridgeway Circle, Apt. F
Kalamazoo MI 49006

Dear Omar:

It has been a pleasure to work with you on the Oral Cancer Screening Program. You did an excellent job of organizing, coordinating, contacting, developing forms, and working with the dentists and the Cancer Center. The program was a success.

I have sent thank you letters and a copy of the enclosed brief report to the participating dentists. I hope work on your Masters paper is proceeding well and that the information, forms, newspaper clips and snapshots from the screening will be enough for an excellent presentation.

Let me know if you need any further assistance with your presentation, and good luck in finding another job to fill in between school and studying. Also, please thank your friend for assisting the evening of the screening!

Warm regards,

Joan Westendorp, RN, BSN, OCN
Director, Research/Education & Community Outreach

JW/mb

enclosure
Appendix C:

Advertisements
Head and neck cancer

Head and neck cancer constitutes a relatively small portion of all cancers, approximately 5%, but it is the devastation of this cancer in terms of dysfunction and body image changes that makes it vital to diagnose early. It is estimated that approximately 29,490 cases of oral cavity and pharynx cancer will be diagnosed in 1996.

Oral cancer is one of the head and neck areas for which screening is possible.

Signs and symptoms of oral cancer include: a sore that bleeds easily and does not heal; a lump or thickening; a red or white patch that persists. Difficulty in chewing, swallowing or moving tongue or jaws are often late symptoms.

Risk factors

- Age is a significant risk factor in oral cancer. The majority of oral cancers (75%) occur in persons over 60 years of age, and they occur twice as often in males as in females. They are most frequent in men over the age of 40.
- Smokeless tobacco (chewing or spit tobacco) has become popular recently and is associated with an increased incidence of oral carcinoma.
- In previous years an increased incidence of oral cancer,

Free Oral Cancer Screening

Wednesday, August 14, 1996
6 p.m. to 9 p.m.
at the
West Michigan Cancer Center
200 N. Park St., Kalamazoo
Call (616) 373-7450
to make an appointment
carcinoma. Alcohol is thought to facilitate local absorption of carcinogens that pool in and are flushed through the mouth.

- Long-standing malnutrition and anemia are related to mucosal changes and leukoplakia, which are often considered to be premalignant. Leukoplakia is associated with malignant change in up to 20% of the persons affected.
- Poor oral hygiene, ill-fitting dentures, and trauma to mucous membranes have all been implicated in the etiology of oral carcinoma.

Pathophysiology

Approximately 97% of the cancers that arise in the oral cavity are of squamous cell origin. Regardless of their origin, these cancers behave in a predictable manner, in that they tend to spread superficially to adjacent mucous membranes and thus commonly extend to neighboring structures.

When detected at an early stage, these cancers are highly curable. However, the majority of oral cancers are well advanced at the time of their diagnosis. An enlarged lymph node may be the first sign of a tumor in the oral cavity, and this indicates extensive disease. With the exception of skin cancer, probably no cancer is more easily detectable or accessible than cancers of the oral cavity. Dentists play a major role in the detection of early oral cancers, a factor that could significantly affect prognosis.

The West Michigan Cancer Center, along with Dr. Frederick Oppel, and D. Omar Watson, an Honors College student at Western Michigan University, as well as other local dentists, will be conducting a free oral cancer screening program on Wednesday, August 14, 1996. The screening will be held from 6 p.m. to 9 p.m. Call the West Michigan Cancer Center at (616) 373-7450 to make an appointment or for more information.
Free Oral Cancer Screenings at Cancer Center

Free oral Cancer screenings will be offered from 6 pm to 9 pm August 14 at the West Michigan Cancer Center, 200 N. Park St.

This event is sponsored by Damon Omar Watson - an Honor's student at Western Michigan University, the West Michigan Cancer Center, and the Kalamazoo Valley Dental Society. Screenings will be done by appointment only. To make an appointment call 373-7450.

"Detection of Oral Cancer is a relatively nonevasive exam," said Dr. Fred Oppel, a Kalamazoo dentist who will do the screening. "Detected early, it has an high survival rate."

The screening will be similar to a routine exam by certified dentists.

Free Oral Cancer Screening, August 14, 6pm - 9pm, at the West Michigan Cancer Center, 200 N. Park St., Kalamazoo. Screenings will be done by appointment only and you may schedule by calling the West Michigan Cancer Center at 373-7450. Screening conducted by Kalamazoo Valley Dental Society in cooperation with D. Omar Watson - WMU Honor's student and the West Michigan Cancer Center.
Attention All F.O.A. Employees

Free Oral Cancer Screenings at Cancer Center

Free Oral Cancer screenings will be offered from 6 pm to 9 pm August 14 at the West Michigan Cancer Center, 200 N. Park St., Kalamazoo. This event is sponsored by Damon Omar Watson - installment loan adjuster here at First of America Bank, the West Michigan Cancer Center, and the Kalamazoo Valley Dental Society. Screenings will be done by appointment only. To make an appointment please call 373-7450.

"Detection of Oral Cancer is a relatively nonevasive exam," said Dr. Fred Oppel, a Kalamazoo dentist who will do the screening. "Detected early, it has an high survival rate."

The screening will be similar to a routine exam by certified dentists.
Freescreening for oral cancer set for Aug. 14 at West Michigan Cancer Center

The screening will be led by Dr. Frederick Oppel, a University of Michigan student at Western Michigan University, and Omar Watson, an Honors College student at Western Michigan University. Other dentists will also participate.

Fees for oral cancer, a relatively rare—accounting for about 5 percent of all cancer—type of cancer that affects the head and neck, are often late symptoms include a sore that persists, a sore that bleeds easily, and does not heal, a lump or thickening of tissue, or difficulty in chewing, swallowing, or moving the tongue or jaw. Although it is relatively rare, oral cancer affects people age 60 or older.

To make an appointment, call 373-4590.
CAR! — Eliminate ne. Complete interior or detailing. Call Appearance Center for 372-9430.


AY BRUNCH AT n Schoolcraft, U Ave. um-1 pm. 679-2739.

TALES: Safari to stories & crafts! ulibary Library begin-18/6. All sits 2 p.m. for Info. Free fun for ers!


ROLLINS BOOKS tales filled with far- and adventure! Kids are welcome at our hour in the Kid's b.y. April 11 from 4:30 3:1421.

A'S BABIES Summ- to School! Guess in Dr. 2mi of 131.

ON SENIORS — occupancy available. sq. Apts. 344-1681.

ION SOFTBALL — Fall Leagues now nen, Women & Co-ed. e. 337-8191 for more

TIVE — Mazda, la service. Quality. & re is a difference! TOCARE. 372-7530.

S, AWNINGS, — pair & new! Classic Arrow, 375-9630.

E HEAT! — 5 visits ! SUNDANCE Tan- d Plaza 388-7622.

BACK TO SCHOOL SALE — 20% off all resale clothing, Aug 9 & 10. Children's Orchard (next to Target on Westnedge) 329-4397.

BERNHARD CENTER CAFE-TERIA, WMU — Offering Homemade soup from the kettle: Chicken Tetzazzini or Baked Vegetable Harvest, $4.50; Roast Beef, $4.95; Roast Pork Loin, $5.25; Swiss Steak with Vegetable Ora- vy, $5.55; Breaded Scallops, $5.95. All meals incl. choice of potato, veg., soup or salad, roll. Children's menu avail. Free dessert for every 20th customer. New Summer Hrs: 11:30 - 1:30 pm.

BERRNINA SEWING CENTER Factory sale. Select sewing mach. 1031 now $99; 1080 now $1099. 383-1244, 3928 Portage Rd.

BLUEBERRIES — At LEDUC FARMs. Picked/You Pick! Large Excellent Quality. Mon-Sat 8-8 pm. Sun. 10-6 pm. S. 30th. St. 9 1/2 mi. W of Kal. 657-3871.


BOWLING 50ENT HOT DOGS 50¢! — All participating bowling centers. August 9-18.

CAKE & CANDY SHOPPE Cake & candy classes. Sign Up! Maple Hill Mall. 344-2253.

CHIMNEY & ROOFING REPAIRS — Chimney cleaning. 30 yrs experience. 685-6181.

CLEAR THE CLUTTER! Clutter Cutters helps organize your home or office. Call 349-8875.

DIET! LOSE UP TO 30 LBS! — 30 day programs start at $30. MAGIC! Free Samples. 341-4306.

FAIR GROUNDS HELP NEEDED 3 week commitment 8/12/8/30. Apply in person this Mon., 8am at the Kalamazoo County Fair office, 2900 Lake St.

GOLFERS — Bobick's discount golf is having our annual tent sale! Biggest savings of the year!! Clubs! Bags! Shoes! Apparel & ac- cessories! Sale ends Sunday, shop early for best selection! 2 locations to serve you. 6936 Gull Rd. or 8536 Shaver Rd.

GOLFERS — End of Season clearance sale in progress! Best prices of the year on clubs, shoes, and bags! Great values on Titanium drivers! Milham Park Golf Club. 344-7639.

HALLMARK — Back to school calendars. 1 1/2 years of pocket pages & schooltime fun, plus student planners with stickers & pencils. Oakwood Pharmacy & Gifts, 381-3030.

ILLUSIONS — Tanning spe- cial, 5 visits $5.95! August special, $20 pedicure! Call 323-9370.

INCREASE YOUR SALES POTEN-CIAL — Visual Merchandiser with extensive experience wants to create or consult for you! Call for free consult., 616-644-4533.

IN-LINE SKATES SALE — Bauer CCM, Koho, all stock on sale now! BJ Sports, 4419 S. West- nedge & Kilgore, 342-2415.

J. BOWLER SCHOLAR-SHIPS — Available! Call your local bowling center for details!

KALAMAZOO COUNTY FAMILY YMCA fall program registration begins 8/14 (mem- bers), 8/21 (non-members) 345-9622.


LIGHT BULB SPECIALISTS — Where you can find the right one just as 1 price! 12 delicious choices.

MICHIGAN CLASSIC CHEVY CLUB 20th Annual Swap Meet, Flea Market and Open Car Show, Sun. Aug. 11, 7 am.- 4 pm. at the Elkhart County Fairgrounds, Goshen, IN. Admission $2, food available. Other events are RCC Racing, model car contest, 50's dinner. Mary 219-674-9198.

MOVING? Don't make a move without us! Mulder's Red Carpet Moving & Storage, 344-6603.

MOVING — We can move you as cheap as you can move your- self! Kuiper Bros. Moving & Self Storage. Insured & prof. 323-1425.

NEAR SIGHTED? Dr. Stephen Arrow, 375-9630.

DIET! LOSE UP TO 30 LBS! — All participating bowling centers. August 9-18.

O'S THE MILITARY - MONDAY NIGHT SPECIALS! — Military & non-Military. 310 N. Washington St. 3928 Portage Rd.

SWEET TREATS — Back to school calendars. 1 1/2 years of pocket pages & schooltime fun, plus student planners with stickers & pencils. Oakwood Pharmacy & Gifts, 381-3030.

YAR1
Cancer screening
The West Michigan Cancer Center and area dentists will conduct free oral cancer screening Wednesday from 6 to 9 p.m. at the center, 200 N. Park. Call 373-7450 for an appointment.
HEALTH CALENDAR

Listings for the weekly Health Calendar should be submitted in writing by noon Friday for Tuesday publication. Send listings to Health Calendar, Kalamazoo Gazette, 401 S. Burdick, Kalamazoo, Mich. 49007. A list of local support groups appears the first Tuesday of the month.

WEDNESDAY

Free information sessions on chemical dependency, 6 p.m., Gateway Services, 333 Turwill, 382-9627.

Cancer screening, 8:30 p.m., Wednesday, West Michigan Cancer Center, 200 N. Park. Call 323-7450 to schedule appointment.

Free pregnancy testing and prenatal information, 1:30 to 4:30 p.m. weekly, Family Health Center, 117 W. Paterson. No appointment needed, 349-2641.

Psychology Film Series, "Maturating and Aging," 7 p.m., Kalamazoo Valley Community College Aradia Commons campus, Room 128A. Repeats 12:30 p.m. Thursday. Free.

Spinal care class, 5 p.m., Abies Chiropractic Clinic, 1511 Portage. Free. 344-1133.

THURSDAY

Free pregnancy testing and prenatal information, 1 to 4:30 and 5 to 7 p.m. weekly, Portage Community Outreach Center, 7130 S. Westnedge. No appointment needed. 323-1942.

Free HIV testing, weekly, by appointment. Kalamazoo County Human Services Dept., 3299 Gull Road, 383-8881.

Partners in Wellness, 7 to 8:30 p.m., Reunion Whole Life Center, 2727 S. 11th. $5-$10 suggested. 372-0880.


FRIDAY

Red Cross blood drive, noon-5:45 p.m., Vicksburg United Methodist Church, 217 S. Main, Vicksburg. 382-6382.

MONDAY

Red Cross blood drive, noon-5:45 p.m., Borgess Medical Center's Lawrence Education Center. 382-6382.

BY CURT SUPLIE
THE WASHINGTON POST

Keanu Reeves and Morgan Freeman share top billing in "Chain Reaction," the new sci-fi chase flick, but the real hero is a laboratory phenomenon called sonoluminescence, a mystifying process in which sound energy is converted into bursts of intense light.

In the movie, a physicist discovers how to use sonoluminescence—SL for short—to crack water molecules, providing such an abundance of cheap and environmentally impeccable hydrogen fuel that all petroleum-based industries are instantly obsolete.

This premise is implausible—and unexplained in the script—though there are dark suggestions that SL is somehow causing nuclear fusion. But the filmmakers get away with it because the phenomenon—one of the few drop-dead mysteries of nature you can examine with $100 worth of equipment—is such an enigma that more than a dozen theories compete to explain it.

SL was observed 60 years ago, when researchers found bubbles in a jar of tap water will glow like a light bulb when exposed to sound waves just above the threshold of human hearing. That's weird, but nature does constantly convert one kind of energy to another.

But what confounds scientists is that the SL conversion mechanism doesn't make sense. Sound waves, which are alternating regions of compression and rarefaction, contain a tiny energy content compared with the enormous energy density of the water it displaces.

SCIENCE TEST

Science Test question

A Jellyfish are armed with weapons called nematocysts that literally can explode to shoot poison into enemies.

"The structure, in a nutshell, is a coiled harpoon containing poison within a missile silo," said Steve Bailey, curator of fishes at the New England Aquarium. The nematocysts can...
Oral Cancer Screening Day

* Free Oral Cancer Screenings *
August 14, 1996
6:00pm - 9:00pm

West Michigan Cancer Center
200 N. Park St.
Kalamazoo, Michigan 49007

To schedule an appointment please call the
West Michigan Cancer Center
373-7450

DID YOU KNOW?

* Approximately 30,000 person's are diagnosed with Oral Cancer each year

* Tobacco Use is associated with MOST Oral Cancer deaths

* Last year approximately 8,400 people died from Oral Cancer

* Oral Cancer is increasing in young patients

To Get More Info or Schedule Appointment
Call 373-7450

Sponsored by D. Omar Watson - WMU Honor's Student, West Michigan Cancer Center, and Kalamazoo Valley Dental Society
Oral Cancer Screening Day

* Free Oral Cancer Screenings *
August 14, 1996
6:00pm - 9:00pm

APPROVED
JUL 15 1996
MEETS WMU
POSTING GUIDELINES

West Michigan Cancer Center
200 N. Park St.
Kalamazoo, Michigan 49007

To schedule an appointment please call the
West Michigan Cancer Center
373-7450

DID YOU KNOW?

* Approximately 30,000 persons are diagnosed with Oral Cancer each year

* Tobacco Use is associated with MOST Oral Cancer deaths

* Last year approximately 8,400 people died from Oral Cancer

* Oral Cancer is increasing in young patients

To Get More Info or Schedule Appointment
Call 373-7450

Sponsored by Alpha Phi Alpha Fraternity, Incorporated, West Michigan Cancer Center, and Kalamazoo Valley Dental Society
Appendix D:
Cancer Screening Forms
SECTION I (to be completed by patient)

me: ____________________________ Date of Birth: __/__/____
Address: ________________________ city ________________________ state __ state __ zip __________
Home telephone: ( ) __________ Work: ( ) __________
Sex: Male ___ Female ___ Social Security Number _________-_____-_________ 

RACE: Black/African American
                      White/Caucasian
                      Spanish/Hispanic
                      Oriental/Asian
                      Other (specify) __________

MARITAL STATUS: Single Married
(circle one) Divorced Widowed

How did you hear about the screening? (circle)
*TV   *Radio   *Newspaper   *Flyer   *Other

When was your last complete Oral Exam by a Dentist?
within last year 1-2 years ago 2-5 years ago
more than 5 years never don’t know

PERSONAL DENTIST INFORMATION

Dentist Name: _______________________
Address: _______________________
Telephone: ( ) __________

*When was your last complete Oral Exam?
within last year more than 5 years
1-2 years ago never
2-5 years ago don’t know

*Circle which of the following pertain to you:
alcohol use excessive sun exposure tobacco use (smoking, chewing, etc.)

Have you had ANY of the following in the past?

1. a sore inside or around the mouth..............................................yes no not sure
2. neck swelling........................................................................yes no not sure
3. difficulty with speech, swallowing, or mouth opening..............yes no not sure
4. soreness of mouth or throat....................................................yes no not sure
5. irritation of improperly fitting dentures.................................yes no not sure
6. numbness of lip......................................................................yes no not sure
7. leukoplakia (white patches in the mouth)...............................yes no not sure
8. Oral Cancer.............................................................................yes no not sure
9. any other cancer.....................................................................yes no not sure
10. relative with Oral Cancer......................................................yes no not sure

*If you have had a relative with Oral Cancer, which relative? and approximate age diagnosed?

Father ______ yrs of age       Brother ______ yrs of age
Son ______ yrs of age          Uncle ______ yrs of age
Grandfather ______ yrs of age  Other ______ yrs of age
I hereby release the screening dentist, all other health care volunteers and the sponsoring agencies of Oral Cancer Screening Day from all responsibility in connection with this screening examination. I understand that the examination results will be given to me with recommendations and that I am responsible for any costs involved in following those recommendations. I also understand that this is a rapid screening and is not a complete oral cancer examination. The screening is voluntary and free of charge. I understand that:

1. This screening is not a complete substitute for a full oral examination by my own dentist.

2. The responsibility for any follow-up examinations to check abnormalities found during this Oral Cancer Screening examination lies with me and not with any participating organization, dentist, or other health volunteer. I am responsible for my own health.

3. Health care volunteers may contact me and may use my individual examination results to try to discover abnormalities and to help me set up a follow-up exam.

4. No other individual or agency may use my individual examination results for any other purpose without my express written permission, except that information (including pathology reports) from my examination results may be used in a program study as long as my name is not published with any study or examination results.

I have read, understand and accept the above paragraph:

Signature ___________________________ Date ___________________________

---

**EXAM RECORD COPIED FOR PARTICIPANT?** signature________________________

---

**EXAMINER: Complete Section II**

*indicate location of lesion on diagram below*

Please check all that apply below

1. ____ALL REGIONS NORMAL
2. ____ABNORMALITIES
   ___Lip
   ___Gums
   ___Buccal Surface
   ___Floor of Mouth
   ___Palate
   ___Tongue

COMMENTS

__________________________________________

__________________________________________

__________________________________________

RECOMMENDATIONS: biopsy recommended? Yes ____No ____ Referred?Yes ____No ____

I understand that I have a possible cancerous or precancerous condition that requires a follow-up examination... ______________________ (participant's initials)

Screening Examiner's Signature ___________________________ Print____________________

---
Participant's Name: ____________________________________________

ORAL CANCER SCREENING FOLLOW-UP, 1996

Introduce yourself and explain that you are doing follow-up on participants with abnormal exams from the oral cancer screening from this past August.

Do you have a few minutes for some questions?

1) Have you seen a physician for the abnormality noted?
   Yes -- Go to #2
   No -- recommend a contact and offer to set up an appointment

2) Who was the physician you saw? ________________________________

3) Was there a biopsy done?
   Yes -- Go to #4
   No -- What does the physician feel the abnormality is? ________________

4) What were the results of the biopsy?

5) What was the treatment for the abnormality?

Interviewer:

Signature ____________________________ Date: ____________
<table>
<thead>
<tr>
<th></th>
<th>Appointment Details</th>
<th>Time</th>
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<tbody>
<tr>
<td>6:00</td>
<td>Doebrs Carley</td>
<td>7:25</td>
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<tr>
<td>6:05</td>
<td>Jan Larkin</td>
<td>7:30</td>
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<td>6:10</td>
<td>Marjorie Qault</td>
<td>7:35</td>
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<td>6:15</td>
<td>Kelvin Varekamp</td>
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<td>6:20</td>
<td>Scott Joselsson</td>
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<td>Barbara Brooks</td>
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<td>6:30</td>
<td>Fay Hubert</td>
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<td>6:35</td>
<td>Chris Saffiega</td>
<td>8:00</td>
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<td>Frederick Nix</td>
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<td>Jim Biermeister</td>
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<td>6:50</td>
<td>Loree Carson</td>
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Appendix E:

WMU Human Subjects Institute Review Board (HSIRB)
Damon Omar Watson
377-92-8966
HSIRB Protocol Outline (Exempt)

Project Description

My Thesis/Project pertains to Oral Cancer Screening and will be presented as a Data Review. Its purpose is to compare results of the Kalamazoo Oral Cancer Screening of August 14, 1996 to national statistics and information on oral cancer. Also, general literary information will be included on the topic of oral health.

Benefits of Research

The data obtained from the screening has benefit to the community as well as myself. Obviously, the screening generally benefits its participants by providing access to a free screening opportunity for those concerned about their health as related to oral cancer. Likewise, the data obtained serves the West Michigan Cancer Center as a reference for the prevalence of oral cancer in Kalamazoo. The gathered data and statistics also enhance awareness of health concerns, particularly in the area of oral health. The innovation of the first oral cancer screening in Kalamazoo, could possibly influence people in the community to consider oral cancer as a more serious cancer-related cause for death in the United States.

The reviewed data of the screening will benefit myself through fulfilling my final requirement to graduate from the Lee’s Honors College. Also, with dentistry as my career of interest, this thesis/project on oral cancer will heighten my knowledge of the field.

Subject Selection

The data used in my thesis/project will be picked from information already existing from the results of the Oral Cancer Screening of August 14, 1996. Details of the results will be confidential and passed to myself with the consent of the West Michigan Cancer Center.

Risks to Subjects - Not applicable

Protection for Subjects - Not applicable
Confidentiality of Data

The privacy of participants and confidentiality of information obtained from the Oral Cancer Screening will be thoroughly enforced to ensure the complete anonymity. The original data obtained from the screening are currently in the possession of the West Michigan Cancer Center. Upon consent, this data will be passed on to myself with no identifying information on any participant. Therefore, any information such as: name, address, social security number, etc., will not be included. Race and age are the only factors which will be included to put together statistical results from the screening. In the thesis, data and results will be discussed from a statistical standpoint. Any abnormal cases will be coded by numbers (ie. Participant #1) and referred to as such in the data review. The original data will be securely filed at the West Michigan Cancer Center indefinitely. Also, the Cancer Center will keep a log of the information released to me.

Instrumentation

Since, my project is strictly a review of existing data, the West Michigan Cancer Center was responsible for procedures of collecting the data. This information will be compiled, analyzed, and presented by myself in the thesis/project. Anonymous information obtained from the screening registration form will be discussed in the report as well as represented in the form of statistics. Also, this information will be compared to national statistics in the discussion.

Informed Consent - Not applicable
Date: 13 January 1997

To: Gyula Ficsor, Principal Investigator
    Damon Watson, Student Investigator

From: Richard Wright, Chair

Re: HSIRB Project Number 96-12-23

This letter will serve as confirmation that your research project entitled "Oral Cancer Screening" has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you must seek specific approval for any changes in this design. You must also seek reapproval if the project extends beyond the termination date. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 9 January 1998
Appendix F: Pictures
Pictures
Not
Present