

The Environment in Which You Work!©

Consider for a moment, the environment in which you currently work or will soon be working in the dental profession. You are subjected to on-going splattering and aerosolizing of debris from patient's mouths. It has been established that this material travels at least six feet or until it lands onto your hair, face, neck, arms, and chest. In addition, the debris that is aerosolized remains in the air for up to 30 minutes. The aerosolizing and splatter contains tooth particles, blood, saliva, tissue, bacteria, viruses, and anything else that might be in that particular patient's mouth. This process is created in part by:

High Speed Hand pieces, Ultrasonic Scalers, and Air/water Syringes



You also submerge your hands directly into oral debris and then contaminate every surface you touch including:

- counters
- patient records
- pencils/pens
- chairs/ units/light handles
- x-ray equipment, etc.

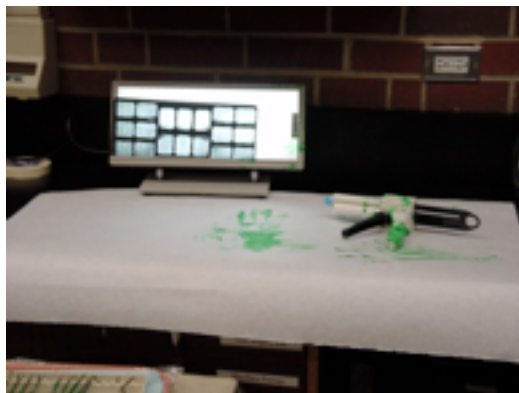
In this manner, you are consistently challenging your immune system with anything and everything the patient might have, ranging from the common cold to herpes, hepatitis B and C, tuberculosis, and HIV. The risk factors of transmission of all these diseases within the dental environment has been well documented, with the exception of HIV.

Dr. J. Campbell should be given credit for the first series of slides which helped dental professionals visualize their environment. The slides were called, " If Saliva Where Red". At Sacramento City College Dental Health Department, we also have done a similar series of slides. Our mannikin has green dye which represents saliva, and any microbes that the patient has, including anything that can be transmitted by airborne or blood-borne modes of transmission. We then had two dental professionals perform a routine dental procedure on the

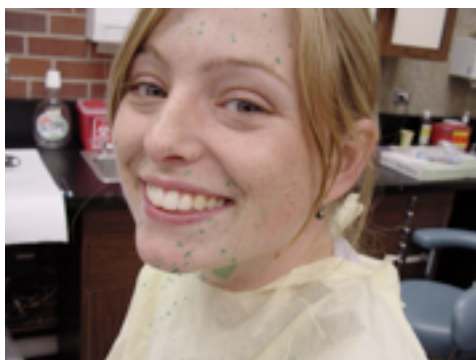
mannikin, using an ultrasonic scaler, highspeed handpiece, and air/water syringe. The procedures were performed in a similar way that you might perform them in your dental office, except that they did not wear a mask. You will notice in some of the close-up photographs that follow, you can see how safety glasses protected the individual from splatter, but because she was not wearing a mask, splatter is on the lower portion of her face, and above the safety glasses, including in her hair. Think about the fact that these two dental professionals are only working on one patient. Imagine what they (and you) look like at the end of the day after treating many patients.



Contaminated counter, x-ray view box, resin mixing gun, instruments and cassette.



Contaminated light and light handle. Dental professional has debris on her face, neck, chest, hair



Contaminated Dental Assistant's stool and contamination of surgical gown by hands, (which is a routine occurrence.)



This contaminated dental chart is being handed to an unsuspecting and unprotected receptionist.



Whether you are new to the dental profession or have been a dental professional for a long time, it is always a great visual reminder to view photographs like these to keep motivated to use “Universal Precautions” with all patients.

A very important point to remember is that not only are we exposed to this environment ourselves, but we carry many of these pathogens home with us to share with our family and loved ones if we don't practice good infection control procedures.

Completing this class should help you understand why both OSHA and the California Dental Board have put together mandatory guidelines to protect both you and your patients.

Disease Transmission

The world's population is increasing all the time but disease transmission is also increasing and at a disproportionate rate.

Why do we have new diseases and the return of old diseases we thought were no longer in our world ? What changes in our world can help us understand the concept of new and emerging disease and the return of some old diseases.

World Travel

One way diseases are increased or spread is through world travel. With modern air travel, you can be on a completely different continent within a matter of hours. Not only do we see new sites and cultures, but we may also encounter diseases for which our immune systems have not developed protection (antibodies). We can then carry these diseases along with us and share them with many other people both at home and in other countries.

Immigration

Heavy increases in immigrants from third world countries has also helped change our environment. Many immigrants have not had the benefit of modern medicine and carry diseases that have not been previously or commonly seen in this country before. An excellent example of this phenomenon, is the tremendous and steady increase in tuberculosis in the United States, especially in California. California has two major international airports, major coastal sea ports, and borders Mexico. All these factor lend themselves to large immigrant populations from countries where TB and other diseases are at high rates.

DayCare and ElderCare Centers

Many other factors are contributing to increased disease. We have far more children placed in day-care centers at a young age and more elderly adults in care facilities. The grouping of individuals in this manner with shared living environments can help increase disease transmission through shared food supplies, sleeping, restroom facilities, etc. and cross contamination of patients by poorly trained care providers.

Birth Control Pills

The use of "the pill" instead of barriers and a more open sexual society has also helped increase sexually transmitted diseases (STD's). And remember that diseases like Hepatitis B that can be contacted through unsafe sex, can then be shared with others through dental treatment, sharing household items, and any other way you might exchange blood or other body fluids. Consider that sexually transmitted diseases such as herpes, syphilis, and gonorrhea have been with us for thousands of years and are still a major health problem worldwide. In fact, they are on an increase in this country. A good case in point is that over 2 1/2 million teenagers each year are reported to have some type of sexually transmitted disease.

Large Prison Population

Another factor that has contributed to disease transmission is the extremely large prison populations in our country. It is well known that diseases like Hepatitis B and C, Tuberculosis, and HIV are at extremely high rates among prison populations. When an individual is released from prison they bring those diseases with them.

Problems With Blood Supplies

In America we have developed very high standards of medical care and many patients are living much longer. With this, has come the wider use of blood and blood products. This too has increased disease transmission. Two of the largest groups to manifest Hepatitis C are transfusion or dialysis recipients, because prior to 1991, our blood banks did not test for Hepatitis C.

Widespread Use Of Drugs

We often think of the I.V. drug user, but recreational drug use is extremely high as well and is found in all levels of society. Even the sharing of a rolled up paper or straw during Cocaine use is suspected to be a mode of transmission of Hepatitis B and C. The I.V. drug user, has added to disease transmission through the sharing needles which is a very efficient way to transmit many diseases.

What are Universal Precautions?

Let's start with a little quiz. I have listed a few patients below. See if you can choose the patients you might be concerned about treating in the dental office because of possible high risk diseases. Take a second to write down their names as you go through the list.

1. Sally Senior- 85 years old, comfortably retired. She is active, exercises daily, has good eating habits, and enjoys life. Did you choose Sally?
2. Paul Parolee- 54 years old. Was just released from prison for robbery. He has been in prison for 4 years and was released for good behavior. Paul has a wife and two grown children. Did you choose Paul?
3. Billy Braces- 17 years old. Billy is having orthodontic treatment. He is active in sports and is popular with the girls. Did you choose Billy?
4. Irena Immigrant- 25 years old. Irena has been in this country for 5 years. She has a steady boyfriend, one child and works as a nurse in a local hospital. Did you choose Irena?
5. Debbie Dental Professional- 32 years old. Debbie is divorced, has two young children, likes boating and is active in her community. Did you choose Debbie?

Have you decided who might potentially be a high risk patient ? Well before we talk about the correct answer, we should define the term **“Universal Precautions”**.

If we simply assume that all of our patients have a serious disease that could be transmitted to us in the dental office and we used correct procedures and barriers to protect ourselves from that disease..... we would be practicing **“Universal Precautions”**. In others words, we really don't know anyone's true health history, lifestyle or habits. So treat everyone the same.

So let's go back to our patient list. Who did you pick? Sally, Paul, Billy, Irena, or Debbie. Or maybe you picked several of them.

If you picked everyone, you're correct, and this is why.

Sally Senior had surgery in 1989 and had a transfusion. Because blood banks at that time did not screen for Hepatitis C, millions of people contracted the disease. Sally was one of them. She has not had any clinical illness, so she doesn't even know that she has the disease. Therefore she didn't write it on her health history.

Billy Braces, like many other teenagers, decided to get a tattoo. The tattoo parlor he choose did not sterilize it's equipment nor did the tattoo artist wear gloves. In addition, Billy parties with his friends on the weekends, has been sexually active with several partners and does not always use

protection. Billy has Hepatitis B from the tattoo parlor and a STD (sexually transmitted disease). Billy knows about the STD, but he is too embarrassed to put it on his health history. He is currently unaware of his Hepatitis B status and therefore did not list that either.

I could continue, but I think you understand the point I am trying to make. You never know about someone.

Even when we do have a known high risk patient in our clinic, we don't treat them any differently in regards to infection control than any other patient. That is the whole point of **universal precautions**.

You can review this material, or close this document and return to the Assignment page to complete parts B and C.

j Productions Dental Seminars