

# The Nature and Management of Dental Caries

Graham Mount, DDS and Rory Hume, DDS

*The following article was excerpted with permission from the UCLA School of Dentistry website.  
For further information on the subject visit the website at [www.dent.ucla.edu](http://www.dent.ucla.edu).*

**O**ur understanding of the nature of any disease determines how we diagnose it and how we treat it. This general principle applies to dental caries, just as it does for other diseases. As our understanding of the nature of caries has changed, so have the ways that we have diagnosed it and how we have treated it.

## History of the caries epidemic

Caries of root surfaces occurred in a small proportion of adults in ancient societies, just as it does in 'primitive' societies today. The disease can occur after periodontal disease has caused gingival recession, if the diet contains a high level of carbohydrates, such as plant starches. When such caries occur it usually causes few problems. The lesions tend to increase in size relatively slowly, over many years. The associated progression of periodontal disease usually causes the loosening and then loss of teeth before such caries progresses sufficiently to cause more severe infection. A very different kind of caries developed and became a problem for people in Europe and then in North America in the 1700's.

The manufacture, distribution and marketing of sucrose as a food additive

became common through the development of the sugar cane industry in North America, then the sugar beet industry in Europe.

A large proportion of people in the countries where sucrose became widely available developed rapidly-advancing dental caries which began in the tooth enamel. For reasons that we now understand well, these individuals experienced pain, severe localized infection within relatively dense bone and then systemic illness. Suddenly, a disease which could be extremely painful and even deadly became common in children and young adults.

When the epidemic began no one understood its cause. All that people could do at the time was treat its consequences. Treatment was by surgery, usually by extracting the tooth, and was very difficult for the surgeon (and very painful for the patient). Surgeons were not particularly admired at the time, because their work was crude, painful and often failed. A new type of surgeon, the dental surgeon, was needed. The dental profession began as a group of people who were also not very admired, but were very much needed.



## Our Present Understanding of the Disease

Throughout the late 20th Century an increasingly detailed concept of the nature of caries developed, because of scientific research. There is now very strong evidence that the disease is not gangrene. There are therefore strong grounds to change the ways that the disease is treated.

Many thanks to all of our members who sent us their updates for the 2003 Clinician's Migrant Health Directory! Look for a copy in your mail at the beginning of the New Year!"

A large body of data show that caries is the progressive loss of tooth mineral, followed by bacterial invasion into the demineralized tooth. It is a relatively complex disease. The nature of caries can be described in terms of five interrelated factors. In addition to helping explain the nature of the disease, each factor gives guidance to how to prevent it and to how it can be cured.

### **Factor 1. Caries is a bacterial disease**

There is abundant evidence that the initiation of caries requires a relatively high proportion of mutans streptococci within dental plaque. These bacteria adhere well to the tooth surface, produce higher amounts of acid from sugars than other bacterial types, can survive better than other bacteria in an acid environment, and produce extracellular polysaccharides from sucrose. When the proportion of *s. mutans* in plaque is high (in the range 2-10%) a patient is at high risk for caries. When the proportion is low (less than 0.1%) the patient is at low risk. Infection with *s. mutans* usually happens early in childhood by transmission from the mouths of parents or playmates. Because they are more acid tolerant than other bacteria, acid condition within plaque favor the survival and reproduction of mutans streptococci. Two other types of bacteria are also associated with the progression of caries through dentin. These are several species of *lactobacillus*, and *actinomyces viscosus*. These bacteria are also highly acidogenic and survive well in acid conditions.

### **Factor 2. Caries is dependent on dietary sucrose**

Dietary sucrose changes both the thickness and the chemical nature of plaque. Mutans streptococci and some other plaque bacteria use the monosaccharide components (glucose and fructose) and the energy of the disaccharide bond of sucrose to assemble extracellular polysaccharides. These increase the thickness of plaque substantially, and also change the chemical nature of its extracellular space from liquid to gel. The gel limits movement of some ions. Thick gel-plaque allows the development of an acid environment against the tooth

surface, protected from salivary buffering. Plaque which has not had contact with sucrose is both thinner and better buffered. A diet with a high proportion of sucrose therefore increases caries risk. Thicker plaque occurs in pits and fissures, just beneath the contact area, and, in patients with poor oral hygiene, near the gingival margin.

### **Factor 3. Caries is driven by frequency of eating**

Each time that plaque bacteria come into contact with food or drink containing simple sugars (monosaccharides such as glucose and fructose, and disaccharides such as sucrose, lactose and maltose) they use them for their metabolic needs, making organic acids as a metabolic by-product. If these acids are not buffered by saliva they dissolve the surface of the apatite crystals of adjacent tooth structure. This is called demineralization. In thick gel-plaque the pH falls within seconds of contact with dietary sugars, and it can stay low for up to 2 hours. When the pH is neutral the same crystals can re-grow, using calcium, phosphate and fluoride from saliva. This is called remineralization. Caries begins and progresses when demineralization outweighs remineralization. Caries therefore depends on the balance between demineralization and remineralization, i.e. on the frequency of eating (and on the microbial composition of the plaque and its chemical nature and thickness, on the local fluoride concentration and on the buffering capacity of saliva). A frequent pattern of eating therefore increases caries risk.

### **Factor 4. Caries is modified by fluoride**

The mineral of enamel, cementum and dentin is a highly-substituted calcium phosphate salt called apatite. The apatite of newly-formed teeth is rich in carbonate, has relatively little fluoride and is relatively soluble. Cycles of partial demineralization and then remineralization in a fluoride-rich environment creates apatite which has less carbonate, more fluoride and is less soluble. Fluoride-rich, low carbonate apatite can be up to ten times less soluble than apatite low in fluoride and high in carbonate. Topical fluoride also inhibits acid production by plaque bacte-

ria. Fluoride in food and drinks, fluoride in dentifrices and oral rinses and gels, and fluoride in filling materials can therefore all reduce the solubility of teeth, helping to reduce caries risk. These effects are very beneficial, but the amounts of fluoride which can be added to the diet or used topically are limited by safety considerations. High levels of dietary fluoride can cause mottling of tooth enamel during tooth formation, while swallowing even higher levels can cause symptoms of poisoning.

### **Factor 5. Caries is modified by saliva**

High flow-rate saliva is a very effective buffer. The balance between demineralization and remineralization can therefore be altered substantially by the rate of salivary flow. Flow is decreased by salivary gland pathology (as occurs in several connective tissue disease and which can follow radiotherapy and cancer chemotherapy), by many mood-altering drugs and some drugs used in other medical treatment, in dehydration and during sleep. Flow increases naturally during vigorous chewing. A maximum salivary flow rate (which can be tested by collecting all saliva when chewing wax or gum) of less than 0.7 mL/min. is associated with high caries risk.

### **How the disease is treated today**

Given this concept of the nature of the disease, the logical and ethical standards of care for both caries diagnosis and caries management (prevention, cure and repair) are now very different than they were during the time when caries was thought to be gangrene.

The present, molecular concept of the nature of caries leads us to very different concepts of management of the disease. This, coupled with the widespread use of fluoride and the development of restorative materials which adhere to tooth structure and which (in some cases) do not leak, has revolutionized the prevention and cure of caries, as well as the repair of carious defects in teeth. The key features of the new care paradigms are summarized below.

## Diagnosis

Since we understand caries to be a dynamic process which occurs at the molecular level we can diagnose the disease before irreversible loss of tooth structure occurs. It is now reasonable to state, on the basis of diagnosis, that some people do have the disease, while others do not. Detection of lesions at the macroscopic level can no longer be considered to be diagnosis, for two reasons - (1) the disease is present before lesions can be detected macroscopically and (2) large lesions remain after the disease is cured. Determination of risk state is a reasonable diagnostic goal, as is activity state.

## Management

### Treatment and cure

The goal of treatment is now to change the local biochemistry so that the patient is no longer losing tooth mineral so that the disease is then cured and the patient healed. This is logical, ethical, appropriate and achievable.

Caries can be treated by one or more of the following:

- Changing the microflora, using agents such as topical chlorhexidine and topical fluoride

- Reducing the amount of dietary sucrose, by dietary choice
- Decreasing the frequency of eating, by dietary choice
- Adding fluoride, particularly through daily application during tooth brushing
- Increasing salivary flow, using mechanical stimulation during vigorous chewing to enhance flow, by changing drugs which reduce flow, or by using drugs to enhance flow
- Cure is achieved when diagnostic tests show that the disease is no longer active and the risk is low.

### Repair

Restoration of defects, which was previously thought of as treatment of the disease, is now more reasonably considered to be repair. It will be desirable to stop using the term 'treatment' for such repair, because the standard of care for caries treatment is now behavioral and biochemical, not mechanical. If the disease is cured, restorations should no longer fail because of caries. Limitations on restoration longevity should be related only to failure by wear and fatigue under cyclic load.

## Prevention

Non-specific preventive strategies, such as education about the risks of high eating frequency, use of fluoride in the diet and in dentifrices, education about the benefits of fastidious daily tooth cleaning, are still appropriate. Fissure sealants are now best reserved for patients who are known (through accurate diagnosis) to be at high risk. Sealants need not be used in individuals who are known not to have the disease.

### Some predictions on treatment in the near future

It is very likely that we will develop more exact diagnostic tools for risk and activity assessment - bacterial diagnostics, mineral balance monitoring. The availability of these tools will mean that dentists will work to actively diagnose the disease at the molecular level before irreversible damage occurs, then treat the disease if it is present so that it will be cured, again before damage (i.e., 'cavities') occurs.

It is also very likely that we will develop new tools to cure the disease, such as *S. mutans* adherence inhibiting antibodies, better remineralizing solutions and improved ways of local delivery of fluoride.

# Pediatric Primary Care Providers and Early Childhood Caries

A study published in the May 2002 issues of *Pediatrics* looks at the accuracy of pediatric primary care providers in screening and referring for early childhood caries. The pediatric primary care providers were given a 2-hour training in early childhood oral health including how to recognize a cavitated carious lesion and when to refer. There was a final sample size of 258 pre-school-aged children. The researchers determined that:

"After 2 hours of training in infant oral health, the pediatric primary care providers in this study achieved an adequate level of accuracy in identifying children with cavitated carious lesions. Additional training and research would be needed to optimize pediatric primary care providers' identification of carious teeth if that were the goal of screening. However, the purpose of screening by nondental personnel generally is to accurately identify those in need of referral, which does not require a tooth-by-tooth

identification of cavities." (p. 3)  
The researchers also concluded that dental screenings can be done quickly enough to be incorporated into a busy pediatric practice.

For a copy of this article visit the

*Pediatrics* website at [www.pediatrics.org](http://www.pediatrics.org).

The citation is:

Pierce, K.M, Rozier, R.G., & Vann, Jr., W.F. (May, 2002) Accuracy of Pediatric Primary Care Providers' Screening and Referral for Early Childhood Caries. *Pediatrics*. 109(5), pp. e82

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## Joint Commission Resources Publishes How To Recognize Abuse And Neglect

Joint Commission Resources (JCR) has announced the publication of *How to Recognize Abuse and Neglect*. JCR is a subsidiary of the Joint Commission on Accreditation of Healthcare Organizations. This publication includes key information you need to recognize abuse and neglect in your hospital, psychiatric hospital, long term care organization, or behavioral health care residential facility. *How to Recognize Abuse and Neglect* includes case study examples showing effective programs in action, and information on how Joint Commission standards and the Sentinel Event Policy can help your organization implement a program that works in your organization.

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**Editor's note:** The following table was developed by David Noel, DDS to guide primary care providers in the prevention of tooth decay. If you need further information or assistance, Dr. Noel is happy to respond to questions. His contact information is as follows:

# How to Have No Tooth Decay

David Noel, DDS, MPH, Chief Dental Program Consultant, State of California, (916) 464-3793; dnoel1@dhs.ca.gov

<b>KNOW This Information</b>	<b>HAVE These Materials</b>	<b>DO These Actions</b>
<p>The first tooth erupts at about age 6 months. Upon eruption, the porous, living tooth is “soft” and matures by losing (demineralization) and gaining (remineralization) minerals every day during one’s lifetime. A “harder” tooth better resists decay.</p>	<p>Healthy diet, high in calcium and phosphates, and small amounts of topical fluoride.</p>	<p>Eat lots of dark green vegetables and milk products. Use appropriate calcium and phosphate supplements. Keep foods with fermentable carbohydrates (like sugars and cooked starches) to a minimum, especially as snacks.</p>
<p>Tooth Decay Bacteria eat fermentable carbohydrates (sugars), become sticky, and excrete acids that demineralize the tooth. Calcium, phosphate and fluoride remineralize the tooth. The balance needs to be on the remineralization side to prevent tooth decay. Since the germs excrete acid within ONE MINUTE after contact with food, brushing, flossing and fluoride protection must be done BEFORE THE MEAL TO PROVIDE MAXIMUM TOOTH DECAY PROTECTION.</p>	<p>Soft toothbrush, floss and approved fluoride toothpaste.</p> <p>Over the counter fluoride rinse.</p>	<p>Brush and floss (clean) every tooth surface correctly to move and flush the germs. Use approved fluoride toothpaste to promote remineralization and resist demineralization. The most important time to do this is UPON AWAKENING, and BEFORE BREAKFAST. The next most important time is before bedtime, since saliva flow, which also moves the germs and helps remineralization, is reduced during sleep. Of course, it is also fine to brush and floss as needed during the day, as well as swishing with fluoridated water or rinse.</p>
<p>Xylitol is a naturally occurring, sweet carbohydrate that looks like sugar, tastes like sugar, BUT when the nasty germs eat it they DO NOT get sticky, and their excrement is NOT acidic. This difference makes xylitol products another useful weapon in the fight against tooth decay.</p>	<p>Xylitol gum, lozenges, candy or in granulated form mixed with water or other sugarless liquids in drinks or baby bottles. Specially designed pacifiers that release xylitol from a dissolvable tablet are available.</p>	<p>Put xylitol in sugarless products that encourage chewing and sucking. Chew sugarless xylitol gum or suck on a sugarless xylitol mint for at least five minutes after eating. Best results are achieved if done four or five times per day, especially right after eating or drinking.</p>

If you KNOW, HAVE and DO all of the above, and you still develop tooth decay, you may need prescription fluorides, chlorhexidine or other interventions. Having no tooth decay makes you healthier, and these simple steps can work for you, your family and others. Breakthroughs are in the works, so be ready for news...

# Comunicación es Vida y Salud

A 12-day medical Spanish Intensive program offered by the Migrant Clinicians Network January 4-17, 2003 in the beautiful Pacific beach town of Mazatlán, Mexico. The Intensive is designed to provide health care professionals with an innovative learning opportunity to improve their medical Spanish and better understand the Mexican health system.

## Program Components

Medical Spanish • Cultural Awareness • Clinical

The language component is the main focus of the program and consists of 40 hours of medical Spanish classroom instruction for beginner level Spanish speakers. A pre-study package includes self-directed learning using a cassette, a work book and study guide which is completed before you go to Mexico.

To better understand the Mexican culture, participants will be placed with host families. Social and cultural activities are included to provide participants a broader understanding of Mexican life.

Prominent local physicians will provide lectures will be given on the organizational structure of health care delivery in Mexico, the use of herbs and home remedies, and cultural beliefs related to health and illness. Additionally, participants will visit a large city hospital, a county health department, and a small rural combination hospital/clinic. Program participants will meet with health professionals from a variety of clinical settings to network and learn more about the role of medical personnel in Mexico.

## Cost and Registration

The cost, which includes all instruction time, room and board (2 meals/day) with a host family, and all materials is \$2,000. Airfare is separate. The course runs 11 days with 2 extra days for round trip travel (January 4 and 17, 2003).

**Space is limited to only 12 participants so hurry and register today!**

For a registration form or for additional information contact Cidneye Godkin at 512-327-2017. You may mail your registration to MCN, PO Box 164285, Austin, Texas 78716, or you may fax us at 512/327-0719. You may also register online at [www.migrantclinician.org](http://www.migrantclinician.org).

A non-refundable deposit of \$250 is required to reserve your spot and to provide you with the pre-study materials you will need to complete before you go to Mazatlan.

## Continuing Education

Comunicacion es Vida y Salud is approved for:

- 33 CME Prescribed Credit hours (accepted as Category I by the AMA)
  - 56 CNE hours
  - 50 CHES hours

*I would like to thank MCN for this opportunity. I can't think of a better way to learn Spanish than to live in Mexico for two weeks of lessons."*

—Triage Nurse

This activity has been reviewed and is acceptable for up to 33 Prescribed credit hours by the American Academy of Family Physicians. AAFP prescribed credit is accepted by the AMA as equivalent of AMA PRA Category I credit for the AMA physicians recognition award.

The Migrant Clinicians Network is approved as a provider of continuing education in nursing by the Texas Nurses Association, which is accredited as an approver of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation. This approval meets Type I criteria for mandatory continuing education requirements toward relicensure as established by the Board of Nurse Examiners for the State of Texas.

Sponsored by the Migrant Clinicians Network, a designated provider of continuing education contact hours (CECH) in health education by the National Commission for Health Education Credentialing, Inc. This program is a designated event for the CHES to receive up to 50 Category I contact hours in health education.

# A New MCN Partnership!

Community-Campus Partnerships for Health (CCPH) and the Migrant Clinicians Network have recently entered into a partnership. Through this new collaboration, the effectiveness of our many shared goals will be multiplied. These include such issues as increasing the diversity and cultural competency of the health workforce, eliminating racial and ethnic health disparities, and advancing the Healthy People 2010 goals for the nation.

The Yakima Valley Farm Workers Clinic, an active member of CCPH and the Migrant Clinicians Network, provides an example of how migrant health centers can take advantage of CCPH programs and services. The Clinic recently tapped into the CCPH Mentor Network for training and technical assistance to support its goals of building partnerships with local K-12 schools, colleges and universities. A mentor with experience in such partnerships provided two days of workshops for Clinic staff and their partners. The Clinic will be serving as a community-based teaching site for students as part of its

strategy to recruit and retain a diverse health workforce.

As collaboration increases between MCN and CCPH, we anticipate more of these types of activities taking place. Below is an overview of CCPH. For more information we invite you to visit our website at [www.ccp.h.info](http://www.ccp.h.info).

## CCPH Overview

Founded in 1996, the mission of Community-Campus Partnerships for Health (CCPH) is to *foster partnerships between communities and higher educational institutions that build on each other's strengths and develop their roles as change agents for improving health professions education, civic responsibility and the overall health of communities*. We are a growing network of over 1,000 communities and campuses that are collaborating to promote health through service-learning, community-based research, community service and other partnership strategies. CCPH members are affiliated with colleges and universities, community-based organizations, health care delivery systems,

foundations and government, and represent the full scope of health professions disciplines.

## Principles of Good Community-Campus Partnerships

One of the most significant contributions CCPH has made to the field is a list of "Principles of Good Community-Campus Partnerships." Developed through conference sessions, focus groups, surveys, interviews and literature reviews, these principles of partnership serve as helpful guidelines for any organization considering entering into a partnership with a college or university. For more information about these principles please visit our website at <http://futurehealth.ucsf.edu/ccph/principles.html#principles>. The site also includes a brief article on each of the principles.

## Opportunities for You!

We invite you to become involved in CCPH. There are a number of ways to do this:

- Subscribe to our biweekly electronic newsletter, *Partnership Matters*, a

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## CALENDAR

### 7th Annual Ambulatory Care

October 11-12, 2002  
Chicago, IL  
Mark Forstneger  
Media Relations Specialist  
630.792.5914  
E-mail: [mforstneger@jcaho.org](mailto:mforstneger@jcaho.org)

### 33rd IUATLD World Conference on Lung Health

International Union Against TB and Lung Disease  
Montreal, Quebec, Canada  
October 6 - 10, 2002  
Sorelcomm (1985) Inc.  
625 President-Kennedy, Suite 1010  
Montreal (Quebec) Canada H3A 1K2  
514.499.8920, Fax 514.499.8921.  
<http://www.iuatld2002.org>

### East Coast Migrant Stream Forum, Líderes: Leading the Way to Healthy Farmworker Communities

October 25-27, 2002  
Savannah, Georgia at the Savannah Marriott Riverfront  
Stephanie Triantafillou at the North Carolina Primary Health Care Association  
(919) 297-0066 or email ([triantafillous@ncphca.org](mailto:triantafillous@ncphca.org))

### Women of Color Network National Leadership Training Institute

November 5-7, 2002  
Miami, Florida  
(614) 995-1429  
[drbrown@gw.odh.state.oh.us](mailto:drbrown@gw.odh.state.oh.us)

### Midwest Farmworker Stream Forum, Creating a Vision for Tomorrow's Leaders

November 20-23, 2002  
New Orleans, Louisiana at the Le Meridien hotel  
Scholarship information: Gabriella Zuniga ([zuniga@ncfh.org](mailto:zuniga@ncfh.org))  
Exhibit information: Josh Shepherd ([shepherd@ncfh.org](mailto:shepherd@ncfh.org))  
Coordinator contact information: Lisa Hughes ([hughes@ncfh.org](mailto:hughes@ncfh.org))  
(512) 312-2600

### North American Agromedicine Consortium 15th Annual Meeting

"Agromedicine in the 21st Century"  
November 17-19, 2002  
Hilton San Diego Resort on Mission Bay, San Diego, CA  
[www.agromedicine.org](http://www.agromedicine.org)  
Contact: Gwen Oliver  
[gaoliver@ucdavis.edu](mailto:gaoliver@ucdavis.edu)  
530-752-5253

# New Spanish Language Pesticide Resource Available

**E***l Terror Invisible: Pesticide Safety for North Carolina* is a new Spanish language pesticide safety education video developed by health researchers and health educators at Wake Forest University School of Medicine. This video has three segments – one each dealing with basic pesticide safety for fieldworkers, being a pesticide handler, and green tobacco sickness.

- **Seguridad con pesticidas: Riesgos de los pesticidas y el terror invisible (Safety with Pesticides: Pesticide Risk and the Invisible Terror).** This 27 minute section provides the basic pesticide safety information required for field workers to meet US-EPA Worker Protection Standard. It also includes additional information on home pesticide safety.
- **Manipulador ¿Qué significa ser un manipulador de pesticidas? (Pesticide Handler: What's Important to be a Pesticide Handler).** In combination with Safety with Pesticides, this 17.5 minute section provides an introduction to the US-EPA requirements for pesticide handlers and applicators.

- **El monstruo verde: Enfermedad del tabaco verde (The Green Monster: Green Tobacco Sickness).** This 9 minute section informs workers about the causes, symptoms and prevention of green tobacco sickness.

The language used by the characters reflects the normal language of Latino migrant and seasonal farmworkers. Other special features of the video include an emphasis on exposure to pesticide residues on crops as a major route of exposure among field worker; addressing the health beliefs of Latino workers, such as Hot-Cold Theory; and encouraging workers to take control of workplace safety and to solve safety problems by devising their own solutions and working with their employers.

The video was produced by Tom Arcury, Sara Quandt, Chan Lane, Tony Marin, and Pamela Rao, all with Wake Forest University School of Medicine. Major funding for the video came from the Pesticide Environmental Trust Fund, Pesticide Board, and North Carolina Department of Agriculture & Consumer

Services. Additional funding came from Syngenta, Inc., Aventis CropScience, Inc., the National Institute of Environmental Health Sciences (Grants R21/R01 ES08739), and the National Institute of Occupational Safety and Health (Grant R01 OH03648).

The initial 500 copies of the video are being distributed at no cost to county health departments, migrant health clinics, other farmworker health and service providers, and county cooperative extension offices in North Carolina. While the title of the video makes reference to North Carolina, the content of the video should make it useful throughout the Southeast and Eastern Migrant Stream.

Additional copies of the video are available for \$15 to cover reproduction, handling and postage. If you or your colleagues would like copies of the video, please contact Ms. Leah McGrady, Department of Family and Community Medicine, Wake Forest University School of Medicine, Winston-Salem, NC 27157-1084, e-mail: [lmcgrady@wfubmc.edu](mailto:lmcgrady@wfubmc.edu).

## EDUCATIONAL OPPORTUNITY

Earn 1 Hour of CME/CE credit:  
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### CLINICAL BREAKTHROUGHS IN BIPOLAR DEPRESSION

Wednesday, October 9th @ 1:00 PM ET

Tuesday, October 15th @ 12:00 ET

Thursday November 7th @ 1:00 PM ET

Register by Phone: 1-800-973-0362  
or on line: [www.OptimaEd.com](http://www.OptimaEd.com)  
Registration Code: 33-1105

Presented by Dr. Gerald Maguire, MD Assistant dean of CME,  
University of California, Irvine College of Medicine.

Jointly sponsored by the University of California,  
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## National Cholesterol Education Program

The National Cholesterol Education Program (NCEP) has a new web-based kit with a wealth of educational materials for use in community-based programs or clinical practices. The kit includes tip sheets, feature articles, patient worksheets, and more. These are all in the public domain and may be reformatted, photocopies, or otherwise reproduced without any further permission. You can access the kit at <http://hin.nhlbi.nih.gov/cholmonth>.

## ATSDR Toxicological Profiles

The ATSDR Toxicological Profiles are now available on CD-ROM. The CD contains 159 toxicological profiles and 5 interaction profiles. To order a free copy of ATSDR ToxProfiles 2002, contact the ATSDR Information Center toll-free at 1-888-42-ATSDR (1-888-422-8737) or e-mail requests to [atsdric@cdc.gov](mailto:atsdric@cdc.gov).



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**A New MCN Partnership!**

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convenient summary of health-related news, conferences announcements, funding opportunities, and new resources.

- Become a member of CCPH. For more information about CCPH membership please visit our website at <http://future-health.ucsf.edu/ccph/members.html>.
- Join us for CCPH's 7th annual conference, *Taking Partnerships to a New Level: Achieving Outcomes, Sustaining Change* from April 26-29, 2003 in San Diego, CA. Dr. David Satcher, who completed his term as Surgeon General of the United States earlier this year, will be a keynote speaker on the morning of April 27th. The conference "call for proposals" will be released in fall 2002.

For information on any of the above opportunities, or CCPH in general, please contact Catherine Immanuel at [csi@itsa.ucsf.edu](mailto:csi@itsa.ucsf.edu) or (415) 514-3522.

MCN would like to acknowledge the expertise, generosity, and excellent vision of long-time editorial board member Sheila Pickwell, FNP, PhD. Dr. Pickwell will be leaving her position at the University of California, San Diego at the end of this year and unfortunately this means that she must also resign as an editorial board member for MCN. Dr. Pickwell has provided us with many years of support and clear insight. She will be greatly missed by all of us at MCN.

We will be looking for someone to take Dr. Pickwell's place on the editorial board. If you or anyone you know is interested in this volunteer position please send your resume to Sidney Godkin at PO Box 164285, Austin, TX 78716 or via e-mail [sgodkin@migrantclinician.org](mailto:sgodkin@migrantclinician.org).



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