



The New Childhood Immunization Landscape: Vermont's Act 37

SUBMITTED BY THE VERMONT DEPARTMENT OF HEALTH



In May, Vermont lawmakers voted to remove the immunization philosophical exemption during the 2015 legislative session. In June, the California legislature followed, and went one step further by also voting to eliminate the religious exemption, which leaves parents whose children do not qualify for a medical exemption with a choice: to vaccinate or homeschool.

"Giving vaccines, like the MMR vaccine that protects against measles, mumps and rubella, is the most important action parents can take to protect their children from illness or death," said Vermont Health Commissioner Harry Chen, MD. "The purported link between vaccinations and autism was simply bad science done by a now completely discredited physician, and there is no evidence of major safety concerns associated with adherence to the childhood immunization schedule."

The Health Department collects immunization data annually from schools and licensed and registered child care facilities. While most children in Vermont are fully vaccinated, the rate of philosophical exemptions among children entering kindergarten is 5.8 percent.



CDC/Amanda Mills

Unvaccinated children can put others, especially those with weakened immune systems, at risk for infectious diseases. Statewide aggregate data is available on the Health Department website www.healthvermont.gov.

Policy change is one way to improve immunization rates, and subsequently protect more people from infectious disease. Over the next six months, the Health Department will develop rules that address the statutory requirements, and the public will have an opportunity to provide input during this process. Some of the modifications outlined in this year's Act 37 (formerly known as House Bill 98 that included a legislative mandate to remove the philosophical exemption) will impact primary care providers in daily practice, including:

Philosophical Exemption

Removal of the philosophical exemption was covered extensively in the media, but what does it mean for you? After July 2016, parents will not be

From the Editor

This issue of *Primarily Vermont* includes an update from the Vermont Department of Health (VDH) about the impact of Act 37 passed by the Vermont Legislature in May which removes the philosophical exemption used increasingly by parents to avoid vaccinating their children. Vermont's childhood immunization rates remain lower than other New England states; the VDH goal is to have 80% of babies age 19 to 35 months receive their entire vaccine series; 95% of kindergartners with two or more doses of MMR vaccine; and 90% of youth ages 13-15 who have one does of Tdap vaccine.

UVM medical student Molly Markowitz, a member of the CDC-sponsored Lyme Corps, provides an update on Lyme disease which is now being tracked in all 14 Vermont counties. Please post the Lyme disease insert in your office.

Other articles address physician burnout, elderly driving, and "Ask Dr. Amidon" features diabetes; our regular news briefs round out the contents of this issue.

I'd like to take this opportunity to applaud the staffs in the three regional AHECs for the hard work they have completed in working with 150 Vermont young people in experiential learning opportunities through MedQuest, Advanced MedQuest and CollegeQuest summer programs.

Vermont AHEC Network will be highlighting health care career possibilities during October's observance of Health Care Career Awareness Month; watch for a summary in the next issue of *Primarily Vermont*.

Elizabeth Cote, Director, UVM College of Medicine, Office of Primary Care and AHEC Program

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able to claim a philosophical (or personal belief) exemption for children entering school (public and private) or child care. The medical exemption form can only be signed by a licensed health care practitioner who is authorized to prescribe vaccines.

If you have determined that a vaccine is or could be harmful to a patient's health, then you should sign the medical exemption form that can be found on the Vermont Department of Health's website www.healthvermont.gov/hc/imm. You need to specify the required immunization(s) in question, and the probable duration of the condition or circumstance that is or may be harmful to the child's health. Medical exemptions will terminate when the cited condition or circumstance no longer apply.

The religious exemption, to be completed by parents, will remain unchanged. Both of these forms must be filed with the school nurse or child care facility director.

Vermont Immunization Advisory Council

The legislation creates a Vermont Immunization Advisory Council to provide education policy, medical and epidemiological expertise and to advise the Health Department on immunization

safety and recommended schedules. This Council will include a member of the Vermont Board of Medical Practice, a practicing pediatrician, and a public/independent schools representative, all appointed by the Governor; the Secretaries of Human Services and of Education or their designees; the State Epidemiologist; and any others deemed necessary by the Commissioner of Health.

Required VAERS Reporting

The Vaccine Adverse Event Reporting System (VAERS) is a national vaccine safety surveillance program co-sponsored by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). Act 37 requires that health care practitioners who administer vaccines must report all significant adverse events to VAERS, even in cases when you are unsure about the cause of the adverse event. All reports can be filed online at the VAERS website <https://vaers.hhs.gov/index>.

Immunization Registry

The Vermont Immunization Registry is a confidential, population-based, computerized database that contains a record of immunization doses administered by health care providers to people in Vermont. In a clinical setting, the registry can provide consolidated immunization

histories to help you determine appropriate vaccinations. At the population level, a registry provides aggregate data on vaccinations for use in surveillance and program operations, and in guiding public health action to improve vaccination rates and reduce vaccine-preventable diseases.

Act 37 maintains the requirement that Vermont providers report all immunization data to the registry within seven days of the immunization. The Health Department can now give confidential registry information to health care provider networks serving Vermonters and, with the approval of the Health Commissioner, to researchers who have approval from the institutional review board (IRB). It also allows for the exchange of confidential registry information between Vermont and registries in other States.

Mandatory Immunization of School Personnel

State laws dictate vaccination requirements for children entering school and child care. Recently there has been discussion about whether immunization requirements should apply to adults who work in schools. Act 37 requires the Health Department to assess the appropriateness of requiring school personnel to meet immunization requirements. A report of this assessment will be submitted to committees in both the House and Senate by January 15, 2016.

The Health Department expects that these changes will positively impact efforts to protect more Vermonters from vaccine-preventable diseases. Your contributions are critical to the success of all efforts to increase immunization rates. ■



Students and counselors in a 2015 Southern Vermont AHEC MedQuest camp gather outside Rutland Regional Medical Center.

PRIMARYLY VERMONT

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Physician Burnout Documented

Studies by the American Medical Association, Rand Institute, and the Urban Institute as well as a survey by the Mayo Clinic indicate burnout symptoms in an increasing number of primary care physicians. Causes cited include working longer and harder because of discounted insurance payments, stagnating rates of pay, pressures to spend less time with patients, and electronic medical records which many insist have slowed them down. Many experienced primary care physicians are joining large groups or becoming hospital employees in an attempt to reduce stress.

A recent Mayo Clinic study indicates early career physicians had the lowest satisfaction with overall career choice of being a physician, the highest frequency of work-home conflicts and the highest rates of depersonalization. Middle career physicians were most likely to plan to leave the practice of medicine for reasons other than retirement in the next 24 months.¹

The Healthy Work Place Study, which tried several interventions to improve work conditions and clinician burnout in primary care, indicates burnout, dissatisfaction and retention may be improved by addressing communication and workflow, and initiating quality improvement projects that target clinician concerns.²

Some primary care practices are using the Maslach Burnout Inventory (MBI), a recognized tool for measuring burnout, incorporating extensive research over 25 years since its initial publication. The MBI includes three questionnaires – the Human Services Survey, the General Survey, and the Educators Survey. They address three general scales in: emotional exhaustion which measures feelings of being emotionally overextended

and exhausted by one's work; depersonalization which measures an unfeeling and impersonal response toward recipients of one's service, care treatment or instruction; and personal accomplishment which measures feelings of competence and successful achievement in one's work. Tools and further information are available at <http://www.mindgarden.com/products/mbi.htm>. (note, fees may be associated with these resources³).

The Association of American Medical Colleges estimates the U.S. will be short 45,000 primary care physicians by 2020 compared to 9,000 today – a trend that will not be offset by a slight increase in the number of medical students who are choosing to pursue a career in primary care.⁴

Some Vermont primary care practices have expressed interest in the Maslach Burnout Inventory (MBI) tools. In addition to factors such as compensation, educational loan repayment incentives, personal and family match with the community, and others, work conditions and preventing burnout are ongoing considerations in health care workforce recruitment and retention efforts and discussions. ■

Sources:

1. Mayo Clin Proc. 2013 Dec;88(12):1358-67. doi: 10.1016/j.mayocp.2013.07.016
2. J Gen Intern Med. 2015 Feb 28. [Epub ahead of print]
3. <http://www.mindgarden.com/products/mbi.htm>.
4. <https://www.aamc.org/thecomplexitiesofphysiciansupplyanddemandprojectionsfrom2013to2022.pdf>

People in the News



Mary Kate FitzPatrick

The University of Vermont Medical Center welcomed **Mary Kate FitzPatrick, DNP, RN, NEA-BC, FAAN** as its new chief nursing officer in September. Currently the clinical director for Neurosciences and Women's Health and Neonatal Nursing Divisions at the Hospital of the University of Pennsylvania, she is also on the board of directors of the American Trauma Society. A

registered nurse with a bachelor of science degree in nursing from the University of Delaware, a master's degree in nursing from Widener University, and a doctor of nursing practice degree from Vanderbilt University, she is a board-certified acute care nurse practitioner, and a fellow of the American Academy of Nursing.

Two departments in the Vermont Agency of Human Services underwent leadership changes this year: **Susan Wehry, MD**, left the Department of Disabilities, Aging and Independent Living (DAIL) in July and was replaced by **Monica Caserta Hutt**, director of policy and planning at the department. **Paul Dupre**, Commissioner of the Department of Mental Health, retired in June and was replaced by Deputy Commissioner **Frank Reed**.

Beach Conger, MD, family physician at Mt. Ascutney Hospital in Windsor and Safe Harbor Clinic in Burlington, was honored by hospital staff and the public in Windsor as he ended his service to Windsor-area families. A founding member if the Mt. Ascutney Medical Group, he is the author of *Bag Balm and Duct Tape*, about the experiences of a small-town country doctor. A resident of Burlington, he will continue to work at the Safe Harbor Clinic.

Rob Trachtenberg, former Director of the Champlain Valley AHEC and now Chief Executive Officer of the National AHEC Organization, ran the Vermont City Marathon in Burlington on Memorial Day weekend, on a two-person relay team with first year UVM College of Medicine student **Brett Powers**. The event is a fundraiser for the UVM Cancer Center.

Robin Miller, RDH, MPH is the new Director of the Vermont Department of Health's Office of Oral Health. A dental hygienist, she has been with VDH for 14 years during which times she coordinated the Tooth Tutor Program and most recently served as Interim Oral Health Director.

Kim Fitzgerald is the new acting CEO at Cathedral Square Corporation in Burlington since the departure of **Nancy Eldridge**, who served as CEO for 16 years. Eldridge is now the executive director of the National Center for Healthy Housing in Columbia, MD. ■

The challenge of dealing with elderly drivers

By MIKE DONOGHUE, BURLINGTON FREE PRESS (REPRINTED WITH PERMISSION)

Vermont's population is aging and that is putting increased emphasis and questions on the number of elderly drivers and their driving habits.

The Vermont Department of Motor Vehicles continues to monitor the safety issue and is mandated under state law to deal with questions about the suitability of drivers on state highways.

Glen Button, DMV's director of enforcement since March 2000, recently told the Burlington Free Press that within 15 years about one in four licensed drivers in Vermont will be age 65 or older.

Button stressed it is the cognitive skills of a driver and not reaching a certain age that draws the attention of the DMV during any re-testing of drivers.

Button, a 26-year veteran with Burlington police, talks about the issues facing the retesting of drivers and efforts by the Vermont Department of Motor Vehicles to keep roads safe.



1. What trends do you see with the population and drivers both getting older?

An older driver is defined as a driver who is 65 years of age or older. The 2010 U.S. census estimated approximately 15 percent of Vermonters are age 65 or older. It is projected by the year 2030 this population will have grown to approximately 24 percent of all Vermont residents.

Due to the projected significant increase in this age group in coming years, it is important to be proactive in addressing potential safety

countermeasures for this population.

2. How often are older drivers retested in Vermont?

Vermont has no mandatory retesting after drivers receive their initial license. Last year 223 drivers were scheduled for a re-examination. Depending on the circumstances, a re-examination may include a full medical evaluation, vision screening, psychological screening, written test, driving test, or any combination of these.

3. Who or what can cause a retesting?

By statute the Commissioner of Motor Vehicles has the authority to require a

re-examination if he/she has "good cause to believe that any holder of an operator's license ... is incompetent or otherwise not qualified to be licensed." A request for a re-examination can come from a law enforcement officer, health care provider, family member or concerned citizen.

4. Does a retest necessarily result in a license suspension?

No. The re-examination may result in certain restrictions being placed on the individual's license. For example, a driver may be restricted to only driving during daytime hours or they may be required to have additional safety equipment installed in their vehicle.



Goals of this inter-professional conference are for primary care practitioners, dentists, and their practice teams to engage in discussion, learn together, and collaborate to enhance care and improve health. Continuing Education credits will be available.

REGISTER NOW!

The University of Vermont Office of Primary Care, in collaboration with VT AHEC, VT State Dental Society, VT Department of Health, VT Medical Society, Bi-State Primary Care Association, and the VT Oral Health Coalition, Present

Bridging the Divide: Medical and Dental Conference

November 13, 2015 • The Essex - Essex, VT

For more information, visit: <http://cme.uvm.edu>

5. Do doctors, public safety personnel or other professionals have requirements to report concerns about patients driving? Has Vermont attempted to require reporting?

There is no mandate for a health care provider or a law enforcement officer to request a driver have a re-examination.

The issue of medical assessment of older drivers and their ability to continue driving is a national priority of the American Automobile Association (AAA). A few years ago the Department of Motor Vehicles, in cooperation with AAA, submitted a bill to the legislature that would grant immunity for health care providers and law enforcement officers who reported a driver for re-examination. The discussions on this bill included mandated reporting by these groups. Unfortunately, the bill did not make it out of committee, but we suspect these issues will be raised again in the next few years.

6. Is there a certain age the DMV targets or just diminished cognitive skills?

A re-examination is never based on just age and is often the result of a noticeable reduction of cognitive and/or physical skills.

7. What educational opportunities are provided for drivers when

they reach 55, 60 or older?

The American Association of Retired Persons (AARP) and the American Automobile Association (AAA) have programs to educate older drivers and their families on the effect aging has on driving skills. The training offers tips to help boost safety awareness, refresh and improve driving skills, minimize crash risks, increase confidence, prolong mobility, and maintain independence.

8. What is the best way for a Vermonter to address a parent who is still driving, but showing signs they should not be driving?

Both the AARP and AAA offer classes on how to address this issue with a parent.

9. How are Vermont police officers trained to identify drivers with diminished driving skills?

This past spring a new training block on identifying drivers with diminished driving skills was presented to the Basic Recruit Class at the Vermont Police Academy. The training provides officers with a screening tool to identify diminished driving skills, and instructs them on how to document their findings and request a re-examination through DMV. The class also covers what resources are available for the driver and their families. The training will be provided to all new police officers and will be offered

as in-service training at police departments throughout the state.

10. Who besides the Vermont DMV is part of addressing this issue? Does the Vermont Highway Safety Alliance or other groups monitor this issue?

The Vermont Highway Safety Alliance (VHSA) brings together a public/private partnership to lead the effort to reduce crashes on our highways by utilizing the “4 E’s” of highway safety: Education, Enforcement, Engineering and Emergency Services.

The VHSA members have worked collaboratively on the development of a consolidated Strategic Highway Safety Plan. This plan has six Critical Emphasis Areas, one of which is to improve older driver safety.

The goal is to reduce the number of major crashes involving older drivers by 5% by increasing education and outreach to older drivers, continuing to research statistics and trends, and striving to improve our infrastructure to meet the needs of all users.

For more information on the Vermont Highway Safety Alliance and its partners, please go to: <http://highwaysafety.vermont.gov/>. ■

Glen Button is a former deputy police chief in Burlington and heads the 45-member enforcement division for the Vermont Department of Motor Vehicles.

Web Site Resources

Healthcare Workforce Data for 18 Healthcare Professions is available now through the National Center for the Analysis of Healthcare Data; the information is intended to help with policy planning, research, medical education planning, advocacy, and grant writing. Go to: www.ncahd.org.

The National Campaign to Prevent Teen and Unwanted Pregnancy released a report, “Sex in the (Non) City: Why Rates of Childbearing are Higher in Rural Areas,” which includes recommendations for prevention. Go to: www.thenationalcampaign.org/resource/sex-non-city.

The Department of Health and Human Services developed Education and Training Resources on Multiple Chronic Conditions to fill an identified gap in interprofessional education and training materials. The searchable training database, training framework, and web-based courses are meant to assist health professionals with education to care for people living with multiple chronic conditions. Go to: <http://www.hhs.gov/ash/initiatives/mcc/education-and-training/index.html>.

The Disability Adjusted Life Years measurement examines disease burden in the U.S. and comparable countries as one of many ways to measure the performance of the U.S. health system. Although the disease rate dropped 14 percent between 1990 and 2010, comparable countries saw an average decrease of 18 percent. In the U.S., mental health disorders and musculoskeletal disorders are the leading cause of years lost to disability, while cancer and circulatory diseases are the leading causes of years of life lost. Go to: <http://www.healthsystemtracker.org>.

Parent Tools to Discuss Substance Abuse developed by the Vermont Department of Health are available. Physician offices, schools, community centers and others can request posters, rack notes, note pads and stickers to promote this service from the Vermont Alcohol and Drug Information Clearinghouse at <http://www.vadic.org>. ■

Ask Dr. Amidon:

What is New in the World of Insulin?

By JOEL JERRY SCHNURE, MD, MEDICAL DIRECTOR OF ENDOCRINOLOGY AND DIABETES, AND ENDOCRINOLOGIST AT THE UNIVERSITY OF VERMONT (UVM) MEDICAL CENTER; PROFESSOR AND CO-DIRECTOR OF ENDOCRINOLOGY, DIABETES AND METABOLISM AT THE UVM COLLEGE OF MEDICINE



The world of diabetes management continues to change. Not only are there new agents but also new classes of agents used in diabetes management.

Are there new concentrations available for insulin?

For insulin management, the hallmark of diabetes care is a basal (long-acting)/bolus (short acting) prandial insulin regimen. More of our type 2 diabetes patients with insulin resistance require insulin therapy. These patients may require large doses of insulin because of their insulin resistance. To decrease the volume of injection, maintain adequate absorption of insulin and avoid the need for two injections because the dose is so high, these insulins are now available with higher concentration than the usual 100 units per cc (U100).

A more concentrated glargine preparation called Toujeo is now on the market. This insulin is 300 units per cc (U300). It provides blood-sugar lowering activity that lasts beyond 24 hours, with no pronounced peak or wear-off. It is available in a pen and for patients on large doses of basal insulin it might be appropriate.

Lispro (Humalog) is now available in a 200 units/cc (U200) formulation. It is available in the KwikPen which now contains 600 units of mealtime insulin-1.

The caveat is that patients, providers and pharmacists must know which concentration of insulin patients are taking since everything is no longer U100.

What are some of the new non-insulin treatments for diabetes mellitus?

Much excitement is now directed towards “incretin therapy.” These modalities enhance the action of glucagon-like peptide-1 (GLP-1). This hormone which is secreted by the L cells of the large intestine enhances first phase insulin secretion, inhibits glucagon secretion and slows gastric emptying. In other words, it enables the patient to secrete more first phase insulin, decreases the amount of hepatic glucose output by inhibiting glucagon and because it slows gastric emptying the patient feels satiated thereby decreasing their appetite and enabling them to lose weight.

Glucagon-like peptide-1 receptor agonists also known as GLP-1 receptor agonists or incretin mimetics are agonists of the GLP-1 receptor. This class of drugs is used for the treatment of type 2 diabetes. One of their advantages over older insulin secretagogues, such as sulfonylureas

or meglitinides, is that they have a lower risk of causing hypoglycemia as GLP-1 action is glucose dependent, as these are analogues of a protein hormone and therefore must be injected.

Approved GLP-1 agonists:

- exenatide (Byetta/Bydureon), approved in 2005/2012
- liraglutide (Victoza, Saxenda), approved 2010
- lixisenatide (Lyxumia), approved in EU 2013
- albiglutide (Tanzeum), approved in 2014
- dulaglutide (Trulicity), approved in 2014

Native GLP-1 however has a very short half-life. It is destroyed by the enzyme dipeptidyl peptidase (DPP 4). There are now available oral medications that inhibit DPP 4 allowing for prolonged action of someone's endogenous GLP-1.

There are 3 DPP-4 inhibitors approved by the FDA: Sitagliptin, Saxagliptin and Linagliptin (does not need dose adjustment for renal insufficiency).

What about the new medication that allows for glucose passage through the urine?

The newest class of agents are the sodium-dependent glucose cotransporters (SGLT-2) inhibitors. The glucose transporters are found in the intestinal mucosa (enterocytes) of the small intestine (SGLT1) and the proximal tubule of the nephron (SGLT2 in PCT and SGLT1 in PST). They contribute to renal glucose reabsorption. In the kidneys, 100% of the filtered glucose in the glomerulus has to be reabsorbed along the nephron (98% in PCT, via SGLT2). In case of too high plasma glucose concentration (hyperglycemia), glucose is excreted in urine (glucosuria), because SGLT are saturated with the filtered monosaccharide. Glucose is never secreted by a healthy nephron.

SGLT2 inhibitors, also called gliflozins, are used in the treatment of type 2 diabetes; these include dapagliflozin, canagliflozin and empagliflozin. The agents allow for glucose disposal in the urine just leading to less hyperglycemia, decreasing hemoglobin A1c and some weight loss. ■

In memory of one of UVM's finest teachers, Dr. Ellsworth Amidon (1906-1992). When difficult questions arose, the response often was "Ask Dr. Amidon." Dr. Amidon was the first chair of the Department of Medicine at the UVM College of Medicine and at Mary Fletcher Hospital, where he was also the medical director.



News Briefs

Raising the Sale of Tobacco Products to Age 21

A recent article published by the Centers for Disease Control (CDC) indicates four out of five Americans (including seven out of ten smokers) favor raising the minimum age for sale of tobacco products to 21. In most states, the minimum age for sale of tobacco is 18; in four states the minimum is 19, and in Hawaii, the age is 21. Several cities and counties have adopted laws raising the minimum age to 21. Given that about 96% of adult smokers first tried cigarettes by age 21, people who begin smoking at a young age are more likely to become addicted, to progress to daily use, to smoke more as they grow into adulthood, and to have trouble quitting. The Institute of Medicine found that increasing the legal age of sale for tobacco will likely prevent or delay tobacco use initialization by adolescents and young adults; they estimate a 12% decrease in cigarette smoking prevalence by 2100 which would translate to nearly 250,000 fewer premature deaths from cigarette smoking among people born between 2000 and 2019.

New Shorewell Clinic Opens as an FQHC

Residents of Addison County celebrated the reopening of the Shorewell Clinic in a new building in Shoreham recently, as part of the Community Health Centers of the Rutland Region (CHCRR). Five years ago, the clinic was burned out of its location when lightning struck the historic building where it was located. Allan Curtiss, MD, was joined in the clinic this summer by Marguerite Dusha, a nurse practitioner. A dentist is on site a few days a week and eventually a limited number of medications will be available there, too. CHCRR now operates six clinics and a dental clinic.

VTC Launches New Paramedic Training This Fall

Vermont Technical College is launching a three-semester paramedic training program this fall that runs for 12 months. Following course completion, students must arrange and complete a hands-on internship in the field, supervised by a working paramedic. The U.S. Bureau of Labor Statistics predicts a 23 percent growth in the number of paramedics employed in the U.S. VTC's other health programs train nurses, dental hygienists, and respiratory therapists.

Southern Vermont College Nursing Program Accredited

Southern Vermont College's Nursing Program which has transitioned from a two-year to a four-year program, has earned accreditation from the Commission on Collegiate Nursing Education through 2020. The bachelor's degree nursing program now offers two tracks: a direct bachelor's degree program and one for registered nurses who want to earn their bachelor's degree.

VT Agricultural Medicine Series

The Vermont Farm Health Task Force will present a course on "Agricultural Medicine: Occupational and Environmental Health for Rural Health Professionals" from September 11 through October 30.

Based in Middlebury but also delivered through six 1.5 hour weekly webinars, the course opens September 11 at the Middlebury Inn and concludes with a final 3.5 days of on-site training October 27-30 at the Middlebury Inn. Registration online is available at www.cvahec.org.

University of Vermont Goes Tobacco-Free

The University of Vermont (UVM) became a tobacco-free campus this summer, joining over 1,500 campuses nationwide that have become smoke and tobacco-free. The new UVM policy follows four years of discussion, research, public comment and revisions guided by a Tobacco-Free Steering Committee. Regionally, UVM joins the University of Vermont Medical Center and Burlington's Church Street Marketplace as well as public school properties in prohibiting the use of tobacco products.

Plastic Bottle Experiment at UVM

In an effort to reduce waste, a student-led initiative caused UVM to ban bottled water on campus. They encouraged students to bring refillable water bottles with them and 75 water stations were established. It was an experiment with good intentions, but when the "study" aspect of "Plan, Do, Study, Act," came about two years later, it revealed there was an increase in the number of plastic bottles entering the waste stream, and students were drinking less healthy drinks because bottled water was not available in the vending machines. Rachel Johnson, Professor of Nutrition at UVM, said they surveyed plastic use in 2012 before the ban went into effect, and again in 2013 after the ban was in place. It showed students were drinking more soda without the bottled water option. Dr. Johnson thinks the University needs to make more water available, which has already been done at fountain drink machines on campus, and she encourages a stronger education campaign to help people understand why bottled water has been banned. UVM states it will maintain the ban.

New PA Program in Rutland Accepting Applications

The College of St. Joseph in Rutland is accepting applications for the first class of physician assistant students that will begin in June 2016, pending provisional accreditation from the Accreditation Review Commission on Education for the Physician Assistant. The college has received regional accreditation from the New England Association of Schools and Colleges. The 24-month course will culminate in a Master of Medical Science Physician Assistant Studies degree. The program will be the first in the state to train physician assistants. ■

Calendar

OCTOBER

- 16 *Jeffords Quality Symposium.**
UVM Davis Center,
Burlington, VT.
- 16 *Neurology for the Non-
Neurologist.** Portsmouth
Conference Center,
Portsmouth, NH.
- 17 *Vermont State School Nurses
Association Conference*
- 23 *Transforming Primary Care and
Behavioral Health**
The Essex, Essex, VT.

OCTOBER

- 28 *Vermont State Nurses'
Association Fall Conference.*
Shelburne Museum,
Shelburne, VT.
Call: 802-651-8886.

NOVEMBER

- 6-7 *Vermont Medical Society
Annual Meeting.* Topnotch
Resort, Stowe, VT.
Contact: 802-223-7898 or
www.vtmd.org.
- 13 *Bridging the Divide: Medical
and Dental Conference.**
The Essex, Essex, VT.

JANUARY 2016

- 28-31 *Physician Assistant Academy of
Vermont Winter Conference.*
Stowe Mountain Lodge,
Stowe, VT. Register at:
www.paav.org/registration.html

APRIL

- 13 *Vermont AHEC 2016
Geriatrics Conference.**
The Essex, Essex, VT.

* For more information call: UVM College of Medicine Continuing Medical Education at (802) 656-2292, or go online to <http://cme.uvm.edu>.

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The Ticks Are Out! Get the Facts About Lyme Disease

By MOLLY MARKOWITZ



Lyme disease is on the rise in Vermont. According to the Vermont Department of Health, over the last decade the number of cases reported has steadily increased.

Diagnosis and Testing

There is sometimes confusion regarding Lyme disease diagnosis and testing. According to the Centers for Disease Control (CDC) recommendations, Lyme disease should be diagnosed based on a combination of: signs and symptoms and a history of possible exposure to an infected tick. Testing is NOT required for patients who present with an erythema migrans rash in Lyme disease endemic areas. In these cases, the patient can be presumptively diagnosed with early stage Lyme disease and prescribed antibiotic treatment. In all other cases, laboratory testing should be used because other signs of Lyme disease such as atypical rash, facial palsy, arthritis, and meningitis are nonspecific and could be caused by other conditions.

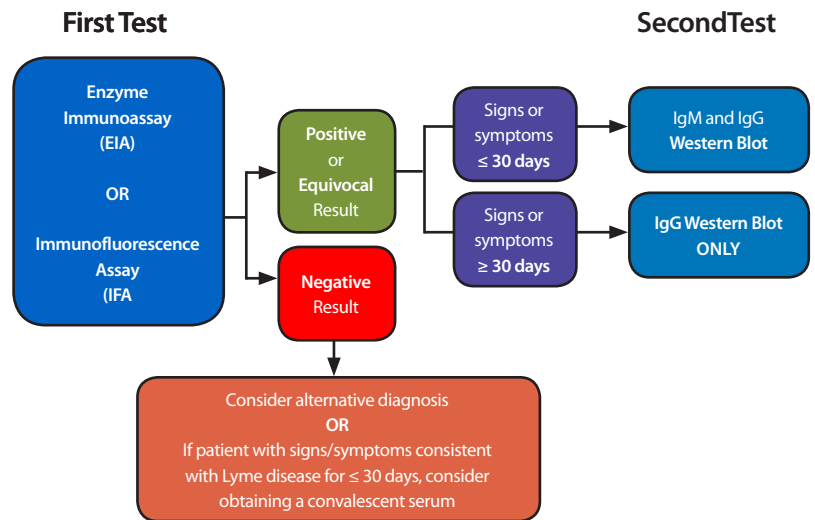
When testing is indicated, the CDC recommends serology using a two-tiered (two-step) approach. The first step is an EIA (enzyme immunoassay). If this first test is negative no further testing is needed. If the first test is positive or equivocal then the second step test, a Western blot, should be performed. The overall results are only considered positive for Lyme disease if the Western blot is positive. The CDC does not recommend skipping the first step due to the increased frequency of false positives.

The Western blot tests for two types of antibodies, IgM and IgG. IgM antibodies are produced by the host immune system during early stage Lyme disease. Therefore, it is only appropriate to order testing for IgM antibodies during the first 30 days of symptoms. After 30 days, testing for only the IgG antibody is sufficient since the host's full immune response should be detectable by then. At this point IgM testing is unnecessary and may be cross-reactive, leading to false positives. Labs will often report both IgM and IgG even after 30 days of symptoms -- in this case it is best to exclude the IgM results to avoid misdiagnosis.

There are some limitations to the two-tiered approach. It

PLEASE
POST

Two-Tiered Testing for Lyme Disease



Graph Credit: National Center for Emerging and Zoonotic Infectious Diseases, Division of Vector Borne Diseases / Bacterial Diseases Branch. US Centers for Disease Control.

may take the host immune system up to four weeks to develop detectable levels of antibodies, thus early testing may have low sensitivity. As the infection progresses into later stages, however, test sensitivity is 87-100%. The two-tier approach is > 95% specific. If used appropriately, serologic testing can be helpful and effective for diagnosis of Lyme disease. ■

Sources:

- Hu LT. In the clinic. Lyme disease (review). Ann Intern Med. 2012 Aug 7;157(3):ITC2-2 - ITC2-16
- <http://www.cdc.gov/lyme/treatment/prolonged/index.html>
- <http://www.cdc.gov/lyme/>
- http://healthvermont.gov/prevent/lyme/lyme_disease.aspx

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Lyme Disease In Vermont

What is Lyme Disease?

- A bacterial infection transmitted to people through the bite of an infected blacklegged tick (aka deer tick) (Figure 1).
- The tick must be attached to a person for at least 24 hours to transmit the infection.



Figure 1:
Blacklegged tick (deer tick)

Where is Lyme Disease in Vermont?

- Lyme Disease has been reported from every county, though the risk is highest in southern Vermont
- According to the Vermont Department of Health, over the last decade the number of cases reported has steadily increased (Figure 2).

What are the early signs and symptoms of Lyme Disease?

- In 70% of cases people will develop a gradually expanding, circular rash (often with a bull's-eye appearance) at the tick bite site (Figure 3).
- Flu-like symptoms: headache, fever, and muscle pain.

How can Lyme Disease be prevented?

- **Avoid Ticks:** When outdoors, walk in the center of trails and avoid wooded areas.
- **Repel Ticks:** Use 20-30% DEET on skin/clothing. Treat clothing and gear with permethrin.
- **Remove Ticks:** Bathe or shower within 2 hours after spending time outside in tick prone areas. Conduct a full body tick check using a mirror. Inspect pets and gear for ticks.

Information in this article was adapted from the following sources:

<http://www.cdc.gov/lyme/>

http://healthvermont.gov/prevent/lyme/lyme_disease.aspx

Lyme Disease in Vermont 2014:
Incidence Rate of Confirmed and Probable Cases

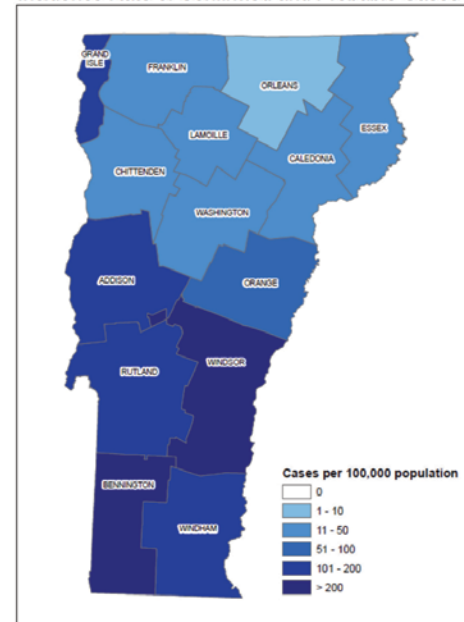


Figure 2: Reported cases of Lyme disease in 2014 in Vermont



Figure 3: Typical Lyme disease rash

BE TICK SMART
REPEL • INSPECT • REMOVE