

Staph Infection Reports No Reason for Panic

According to officials from the Wyoming Department of Health and the Wyoming Department of Education, recent national media reports depicting a "deadly superbug" racing through America's schools are no reason for Wyoming students, parents, school employees or community members to panic.

Media stories have been focusing on reported school outbreaks in other states involving a form of bacterial staph infections known as Methicillin-Resistant Staphylococcus Aureus (MRSA). MRSA is resistant to many common antibiotics, making it more challenging to treat.

"MRSA is nothing new in the United States and has been present in Wyoming for many years," said Dr. Tracy Murphy, State Epidemiologist with the Wyoming Department of Health. "Historically, MRSA infections have been mostly found in persons with certain risk factors such as prior hospitalization, certain medical devices, and long-term care facility residency."

Murphy continued, "However, over the past few years MRSA has been increasingly found in persons without identified risk factors. These cases have been termed 'community-associated' MRSA. The Wyoming Health Department tracks these cases to identify clusters or outbreaks and to provide awareness for Wyoming's medical professionals."

So far in 2007, there have been 85 community-associated cases of "MRSA reported to the Wyoming Department of Health; there were 74 cases last year," Murphy said. "I expect this is an underestimation of the actual number of cases."

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Public Health Emergency Preparedness Program (PHEPP) Update

PHEPP has had some position changes in 2007. Probably the biggest change is the promotion of Angela Van Houten to the PHEPP Manager. Angie now oversees the entire program, which includes all aspects of preparedness. When Angie functioned as the BT Laboratory Supervisor she had an extensive involvement with the program overall, which made her the best candidate for this position. The PHEPP is in good hands with Angie at the helm, but the BT lab hated to lose her as their boss.

But as one door closes another opens and the BT Lab welcomed Shawna Dereemer, MT (ASCP) on as the new PHEPP/BT Laboratory Supervisor. Shawna comes to the program with a strong background in clinical laboratory practices and supervised the microbiology department at Cheyenne Regional Medical Center for four (4) years. Her knowledge of microbiology and of the Laboratory Response Network structure enhances her skills for this position. She looks forward to working with the laboratorians throughout the great state of Wyoming.

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Staph Infection Reports No Reason for Panic (continued from Page 1)

Local and state public health and school officials are aware of a current MRSA case involving an employee of a Fremont County school. "At this time, there is no reason to believe that students or other school employees are at any greater risk than anyone else in the local community due to this case," Murphy said. "If more information is received suggesting a greater risk within the school, appropriate action will be taken."

Murphy said it is not surprising, and should not be particularly alarming, that a school employee or student has a MRSA infection because of the widespread nature of the organism in the population and environment. MRSA outbreaks have been previously reported from around the nation involving school sports team members, prisoners, military recruits, and daycare centers. "Should such a situation occur in Wyoming, public health officials would work to identify specific risks and would take preventive measures to stop the spread of the infection," Murphy said.

State School Superintendent Dr. Jim McBride said, "School safety and health are, of course, important priorities in Wyoming. We will continue to take appropriate measures to ensure that students and employees are protected."

Murphy indicated most Staph skin infections are relatively minor and may be easily treated. Even in cases of MRSA, there are usually effective antibiotics available. At times, including with MRSA cases, Staph also may cause more serious infections, such as infections of the bloodstream, surgical sites, or pneumonia. In some instances, delays in recognizing and treating Staph infections can result in life-threatening situations. "Folks can acquire Staph, including MRSA, from many sources including other people in the community, family members, and pets," Murphy continued. About 20-40 percent of the population carries Staph aureus,

with approximately one percent carrying the drug-resistant MRSA variety.

MRSA can spread as a result of close skin-to-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions and poor hygiene. Staph skin infections typically look like pimples or boils. Skin infections caused by Staph may be red, swollen, painful, or have pus or other drainage. Occasionally Staph infections can cause more severe infections with rapid progression. People who believe they have a staph infection should seek medical attention.

Murphy offered the following suggestions to help prevent the spread of Staph infections:

- *Frequent hand washing or use of an alcohol-based hand sanitizer
- *Keeping cuts and scrapes clean and covered
- *Avoid touching other people's cuts or bandages
- *Avoid sharing personal items like towels or razors

*Wyoming Public Health Laboratory
2300 Capitol Avenue
Cheyenne, WY 82002
307-777-7431*

<http://wdh.state.wy.us/phsd/lab/index.html>

*Richard Harris, PhD
Laboratory Director*

*Shawna Dereemer
BT Response Lab*

*Tom Johnson
Chemical Testing Lab*

*Jim Walford
Microbiology Lab*

*Please direct comments to:
WPHL at 307-777-7431
Lab Loop Co-Editors*

Gale Stevens and Wanda Manley

Public Health Emergency Preparedness Program (PHEPP) Update (continued from Page 1)

Other new lab staff members include a new part time BT Microbiologist, Valerie O'Neill. Valerie worked for 12 years in microbiology in a clinical lab in Indiana. Her most recent job was in a soil chemistry lab for the United States Department of Agriculture in Fort Collins, Colorado. Val states that even though she enjoyed the research in the chemistry laboratory she is very happy to be back working in microbiology.

Robin Lieske joined our group the end of August as our new BT Laboratory Technician. Robin also comes to us from Cheyenne Regional Medical Center, and worked there as a laboratory assistant for over 11 years, with 4 years of her work experience in Microbiology. Robin has been in the medical field for many years and worked as a CNA for 13 years before her employment with CRMC. Some of you may get to chat with Robin from time to time, as she works sample accessioning in the morning in addition to the duties she will be doing with the BT Program.

DID YOU KNOW?

From 2004 to the present, invasive MRSA infections are monitored in nine sites across the United States representing a population of about 16.3 million persons.

Public Health Laboratory Website Under Construction

If you have gone on line and tried to access the Wyoming Public Health Laboratory's Website lately, you might have noticed that it has not been functioning for many weeks. Our Information Technology Department has installed new servers, new fire walls, and other technical improvements. Our old site will be removed and replaced with a better version. It is our intention to maintain the site with current information you may find useful.

New content will include current courier information. The courier links will include shipping instructions, pick-up locations, and contact information in case you have any issues or suggestions pertaining to the courier.

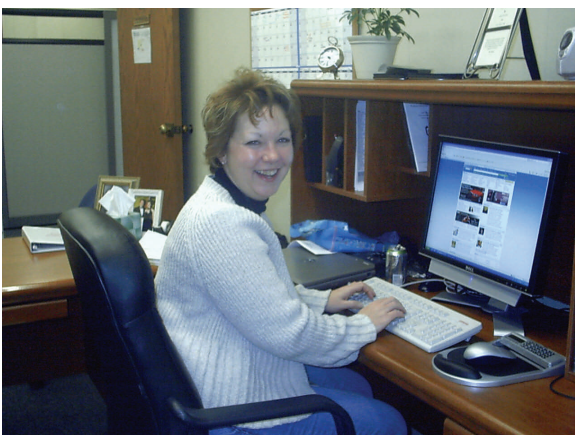
Past presentations and workshop lectures will be added with voice-over. It is hoped this feature will offer additional information and training to people who were unable to attend a workshop. We will also add a link to *WY Train*, a new educational website to help you find educational opportunities nationwide and track your transcripts.

You can find a link to download the WPHL Provider Manual on the website. General information on the home page includes a short overview of the laboratory sections here at the WPHL.

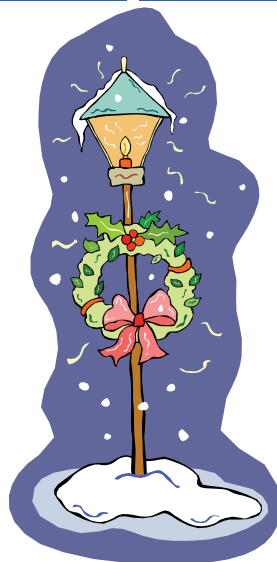
Please keep in mind that for the time being the site is still under construction. Much of the existing information is obsolete and needs updating badly, hence the make-over we are currently undertaking.

NEW LINK TO THE NEW WPHL WEBSITE:

<http://wdh.state.wy.us/phsd/lab/index.html>



Shawna Dereemer – PHEPP/BT Lab Supervisor



Valerie O'Neill – Bioterrorism Microbiologist
Robin Lieske – Bioterrorism Laboratory Technician

What is PH&TPP, you may ask? In typical government fashion it is alphabet soup for the Public Health and Terrorism Preparedness Program. I would like to announce a new program name – the Public Health Emergency Preparedness Program (PHEPP). The program name has undergone quite a metamorphosis since we were called the Bioterrorism Program. No matter what we are called, the Public Health Emergency Preparedness Program has always been in place to address any incident that may affect public health. It is because of this that “Terrorism” was taken out of the program name. It is felt that it is too narrow of a definition for what our program really does, which is to respond to any public health emergency, whether it is caused intentionally or occurs naturally in our communities.

With that said, the PHEPP places heavy emphasis on the preparedness realm. Pandemic Influenza is the big “buzz word” in preparedness, and this winter will be no exception. I hold to the idea that if you are prepared for one kind of surge event, it will serve your facility well in any kind of event.

One thing laboratorians have over the rest of the game is that we address surge at some level in every aspect of our daily jobs. We have the morning run to analyze and report before the

doctors come on staff. We have rushes and emergencies throughout the day, sometimes lasting all day and in to the night. We are required to prioritize our work, maintain supply levels, deliver customer service (usually under pressure) and address staffing issues. Our jobs require this to be done in a timely fashion and at the same time reporting with 100% accuracy.

We can utilize our lab skills to meet the needs of the coming challenges, be it a pandemic, naturally occurring disasters, or other emergencies. In the next 6 to 8 months our program, in conjunction with the National Laboratory Consortium Grant and the Community Laboratory Capacity Building Grant, will be offering some important training. In 2008 we want to focus on preparing our labs by analyzing what tools are needed for surge/preparedness. We want to take a look at existing plans in the lab and see what could enhance them. Our goal is to help our microbiology departments better understand their AST practices, which will allow you to deliver the quality service our patients need and deserve. We will take a closer look at our practices as sentinel laboratories and attain a deeper understanding of our roles within the Laboratory Response Network. Even though our program goes through many metamorphoses,

the main focus of my position as Bioterrorism Laboratory Program Advisor is still you – the laboratorians out there on the front line. I anticipate a good year for all and look forward to site visits and quality workshops throughout the year.

Be safe in your labs, take pride in your work, support each other, but above all, be sure to have the best of Holiday Seasons!

Gale ~



Gale Stevens – Trick or Treat!!!

DID YOU KNOW?

Approximately 32% (89.4 million persons) and 0.8% (2.3 millions persons) of the U.S. population is colonized with *S. aureus* and MRSA respectively.

Spotlight on the Wyoming Public Health Bacteriology Laboratory

The Bacteriology/Parasitology Laboratory is a reference/diagnostic laboratory receiving approximately 1100 to 1400 specimens and isolates annually. The lab supports many laboratories, outlying medical clinics, State Epidemiology, and other agencies throughout the State of Wyoming. The Bacti/Parasit-lab supervisor and staff is John Harrison.



John Harrison
MT (ASCP) / Microbiologist

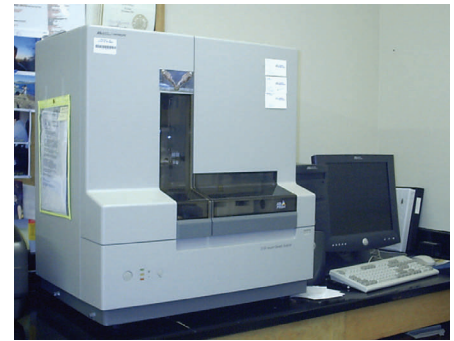
The Bacteriology lab provides advanced identification methods to all clinical laboratories in Wyoming when automated systems and phenotypic methods do not provide an accurate identification in the following instances:

Atypical, slow-growing, or biochemically inactive clinical isolates
When reliable diagnostic reagents, or expertise, are not available
During outbreaks, and occurrences of uncommon or exotic diseases

Isolates that have a low percentage (<95%) confirmation using an automated system can routinely be more accurately speciated using our 16S rDNA sequencing system. The Bacti/Parasit-lab does not have an automated AST system, so it cannot provide routine susceptibility testing; but, on referral, can provide confirmatory analysis for *Staphylococcus aureus* oxacillin and vancomycin resistance and Enterococcus vancomycin resistance.

The laboratory uses various tools for identification of the bacteria that are submitted; isolates are screened initially by 16s ribosomal-DNA sequencing or biochemical identification systems with inclusion of additional tube media, to

provide supplemental information. The time required for rDNA sequencing method identification has been reduced from 36 hours to, for most pure-culture isolates, 6 hours due to upgrades in reagents and software. One of John's favorite sayings is, "Just because the instrument identifies it as this or that, it doesn't mean that it is right. One has to use a bit of knowledge and common sense".



16S rDNA Sequencing System in the
WPH Bacteriology Laboratory

Some of the unusual bacteria submitted by WY clinical labs that were identified in the past year are:

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UPDATE ON 2007 AND 2008 COOPERATIVE AGREEMENTS

The 2007 Cooperative Agreement with the Centers for Disease Control and Prevention (CDC) came to a close on August 30, 2007. In regards to the requirements within the agreement pertaining to the laboratory, the majority of our goals for the year were met. We completed the educational proficiency testing in the ruling out process of select agents. Through the Laboratory Capacity Building Grant we continue to improve our microbiology departments and have updated our CDC required database for laboratories. We conducted an extensive workshop on biosafety and select agent identification that included a tabletop exercise on preparedness. The tabletop exercise served as a good format to introduce the chemical terrorism preparedness part of our program. The annual *Shipping of Infectious Substances* workshop was held again in August, which provides the mandatory training laboratorians need in order to ship these substances through commercial carriers. Through a grant awarded by the Association of Public Health Laboratories (APHL), a Pandemic Preparedness for Laboratories Seminar was held in the spring at 7 different locations throughout the state. And the National Laboratory Network Consortium (NLSC) Grant continues on and will serve

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Wyoming Public Health Bacteriology Laboratory (continued from Page 5)

Campylobacter upsaliensis
Burkholderia thailandensis
Arthrobacter nicotinae
Lactobacillus gossleri
Aeromonas caviae
Achromobacter xylosoxidans
Streptococcus mutans
Neisseriae elongata nitroreducens
Exiguobacterium acetylicum
Clostridium barati
Comamonas terrigena
Paracoccus yeeii
Bacillus licheniformis
Corynebacterium xerosis
Gordonia spp.

To name a few.....

Parasite examination for enteric Cestodes, Nematodes, Protozoa, and blood parasites are accepted. All specimens submitted for examination are also examined for Cryptosporidium sp. and Cyclospora cayatenensis. The lab is equipped with digital camera capabilities and linked to the Centers for Disease Control's Division of Parasitic Diseases diagnosis (DPDx) website whereby an unknown parasite can be photographed, emailed to DPDx, and identified within an hour of being photographed. A photographic record is kept of all parasites identified by the laboratory.



<http://www.dpd.cdc.gov/DPDx/Default.htm>

The Bacteriology Lab supports the State Epidemiology program by processing, isolating, and identifying pathogens involved in outbreaks throughout the State which include Salmonella, E. coli O157:H7, Shigella, Campylobacter, and Listeria monocytogenes. In conjunction with the Emerging Infectious Disease Laboratory (EID) using molecular techniques, is able to link these organisms not only state-wide but nationally. This past year the Bacti/Parasit-lab provided diagnostic support for outbreaks in Park, Lincoln, Fremont, and several other counties in the State. These outbreaks often involve a large number of individuals to be tested

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UPDATE ON 2007 AND 2008 COOPERATIVE AGREEMENTS (continued from Page 5)

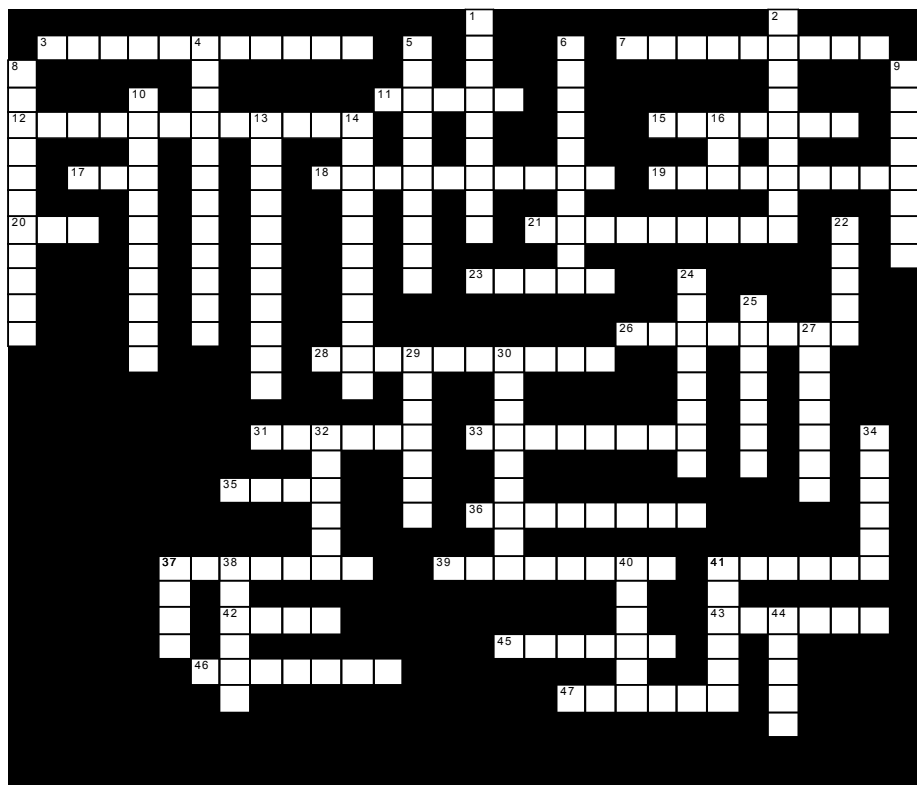
to improve our antimicrobial susceptibility test reporting practices in the state. This grant paid for the ASCP AST course that was offered on line to all laboratorians in the state. All in all, it was a busy year!

The 2008 Cooperative Agreement has been submitted and looks to be a busy year also! Even though the funding is not as "plentiful" as in years past, the Capacity Building Grant will continue on in to Year 5. The grant will be rolled out differently this year with plans tentatively hinging on a grant guidance retreat for managers or their grant designees. The retreat will serve to be a great place for all our labs to network with one another. Sentinel Lab certification will be discussed and existing plans will be shared and analyzed. Preparedness plans and procedures will be discussed. A deeper look at chemical terrorism preparedness will take place. If this workshop comes to fruition, it will be invaluable and will be a good place to start our year. Stay tuned for more information regarding this retreat!

Of course, proficiency exercises will continue. We will discuss the need to test our capabilities to submit samples to WY LRN Lab on the off hours of nights, weekends and holidays. An intermediate microbiology workshop with a different focus is still in the planning, and the NLSC grant is developing an AST workshop geared to best practices for Wyoming and will offer individual consultation to our labs. This workshop is directly linked to the information we gathered from the AST survey. Your participation in that survey was not in vain!

So please look forward in to the New Year knowing additional training opportunities will be offered. Think about your laboratory needs and if there is something you think that would be a good training opportunity, send your suggestions to Gale Stevens (contact information contained in this newsletter). Give it your best effort to represent your lab at these trainings. The workshops sponsored by the Cooperative Agreement will cover lodging expenses, and as always, workshops and C.E.U.s are free.

Sentinel Lab Terminology



Down

1. practice this when working with infectious agents!
2. Hospital name in Torrington
4. conveyance from one person to another
5. Hospital name in Afton (2 words)
6. used to "spin down"
8. a suspension dispersed in the air is -
9. disease globally distributed
10. a safeguard taken to prevent exposure
13. to cough up and eject by spitting
14. causative agent of spontaneous abortion
16. abbreviation for network the sentinel labs belong to
22. automated ID
24. enzyme that decomposes H₂O₂ to H₂O & O
25. get ready
27. sent through mail in 2001
29. not a select agent (2 words)
30. affecting the skin
32. black, ulcerative wound
34. to breathe in
37. biosafety cabinet
38. blood infection
40. an accounting of results
41. gram positive color
44. back up organisms usually kept in freezer

Across

- | | |
|---|---|
| <ol style="list-style-type: none"> 3. CDC monitored organism (2 words) 7. to live without oxygen 11. to "lift up" (or what our bosses should give us!) 12. WPHL (2 words) 15. to grow microorganisms on a medium 17. abbreviation for hospital in Casper 18. Rabbit Fever 19. not resistant, its - 20. A tech's hospital hang out 21. the lung system 23. when in doubt - 26. a sudden rise in the incidence of a disease 28. an instrument for veiwing what is small 31. detected with CLO Test 33. spore forming genus | <ol style="list-style-type: none"> 35. abbreviation for hospital in Cheyenne 36. to acquire by exposure to contagion 37. important part of patient information (helps to diagnose) 39. Hospital name in Cody (2 words) 41. causes bubos 42. gram negative color 43. obtained by testing 45. Hospital name in Newcastle 46. latex substitute 47. biologically moving spontaneously |
|---|---|

Wyoming Public Health Bacteriology Laboratory (continued from Page 6)

and may continue for several months. Often a single isolate submitted to the lab, although it may seem like a random case, can be linked to a larger outbreak occurring elsewhere in the state or country. So it is important that all labs submit these reportable isolates to the State laboratory (form on the WPHL website microbiology program at <http://wdh.state.wy.us/lab/Reportable%20Diseases1-03.pdf>). All these isolates are processed by the lab and frozen for future reference should the need arise.

MRSA Screening

MRSA has been a significant and increasing nosocomial pathogen from 22% of all hospital Staphylococcal infections in 1995 to 63% by 2004, and the recent attention to community-acquired MRSA places increased pressure for diagnostic screening testing by the clinical laboratory. Changes in Medicare reimbursement for certain inpatient conditions may also have an impact on screening decisions. A recent review in Clinical Laboratory News Aug 2007 discusses MRSA diagnostic screening systems. A major decision for clinical laboratories testing for MRSA carriage is the choice of culture screening methods or newer rapid molecular technology.

In the ClinLabNews article Janet Hindler made the point: "*Labs and hospitals considering rapid testing by a molecular method must determine if rapid molecular testing for MRSA is worth the extra cost for their facilities, as compared to less expensive, slower culture methods. Numerous factors must be considered, including the speed at which infection control and physicians receive and act on results. If they can't act soon after results become available, rapid testing may not be worth the added expense.*"

The tradeoffs of MRSA screening can include the significant impact of not detecting MRSA in a surgical patient that later develops a serious systemic staphylococcal infection compared to implement screening for carriage in often less than 5% of inpatients. There are examples of hospitals (see on-line lecture cited in final paragraph by Dr. Pasculle) that have made significant reductions in MRSA infections through a coordinated screening system.

Two of the systems discussed recently in the ASM Clinical Microbiology e-mail list serve and in ClinLabNews include the GenXpert from Cepheid and the GeneOhm from BD which are FDA-approved CLIA moderate and high complexity tests respectively. These systems do offer slightly different capabilities but involve initial purchase of moderately expensive systems \$25,000 - \$30,000 (which is the mean cost of one MRSA infection) that have significantly higher costs per test than culture but can provide results in less than 2 hours. Cost considerations should include the options of batching specimens compared to running samples every shift and the overall costs of reagents, which increases the cost per test significantly above culture. PCR results detect only genetic material and, therefore; can also detect material from dead organisms.

Several culture media specific for MRSA screening are available including Chromagar™ MRSA and MRSA*Select* both of which, in several recent comparison studies, provide greater sensitivity and specificity than mannitol-salt agars containing antibiotics due to the existence of both mannitol-negative SA strains and mannitol-positive methicillin-resistant CoNS strains. These newer screening agars are also able to grow strains within 24 hours. Some labs accept presumptive MRSA colonies on these media as specific enough for detection of MRSA colonization.

The decision making for determining what would be the most effective option includes a number of issues. Infection control surveillance of infections detects only a small percentage of total inpatient MRSA colonization. Regardless of the diagnostic method, expeditious notification of culture positive patients, and screening of patients by culture while implementing infection control infrastructure including putting colonized patients in isolation and following precautions must be part of the process for screening to be meaningful. In some facilities cost and personnel limitations may require screening to be limited to certain high risk patient groups such as pre-surgical patients.

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MRSA Screening (continued from Page 8)

Some interesting lectures on these subjects from the recent ASM meetings can be found at the BD website:

<http://www.bd.com/ds/learningCenter/asm/index.asp>

The Role of the Laboratory in Screening for MRSA by A. William Pasculle, Sc.D

Role of Real-Time PCR for MRSA in Control of Healthcare Acquired MRSA Infections
by Tobi B. Karchmer, MD

BBL™ CHROMagar™ Media in the Micro Lab by Ellen Jo Baron, Ph.D

Screening for MRSA... Importance and Methods by Karen C. Carrol

Implementing the 2005 CLSI Recommendations for Antimicrobial Susceptibility Testing and Reporting by Janet Hindler

What Can the Clinical Microbiology Laboratory Do to Help Control Transmission of MRSA and VRE?
by Janet Hindler

Downloadable MRSA Educational Materials are available at CDC MRSA web page:

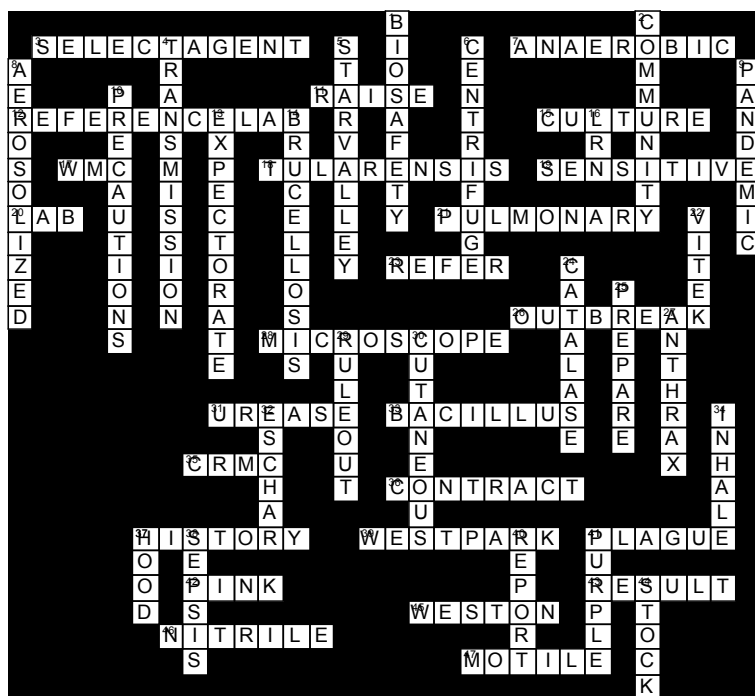
http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_posters.html



DID YOU KNOW?







The word "Staphylococcus" was coined in 1882 by Scottish surgeon and bacteriologist, Alexander Ogston. The word references the Greek word, "staphyle", meaning "bunch of grapes".

Crossword Puzzle Answer



Wyoming's Lab Loop

Information Available in this Issue:

-  *Staph Reports in the News*
-  *New PHEPP Staff*
-  *WPHL Website Reconstruction*
-  *Spotlight on WPHL Bacti Lab*
-  *More on MRSA Screening*
-  *Cooperative Agreement Update*



What's Coming Up?

Event	Location	Date
Lab Manager Retreat	Saratoga, WY	March 11-13
Legislative Days	Contact ASCLS member for details	March 17-18
AST Traveling Workshop	5 locations TBA	Late March & Early April
CLCC Meeting	Radison Inn at I-225 & Parker Road in Denver	April 30-May 2

Check out the BT Resources page at:
<http://wdh.state.wy.us/phsd/lab/btintro.html>

**WY Public Health Lab
 5th Floor Hathaway Bldg.
 2300 Capitol Avenue
 Cheyenne, Wyoming 82002**