



# BAYOU TECH

Louisiana Society for Clinical Laboratory Science  
An Affiliate of American Society for Clinical Laboratory Science

Volume 4 Issue 2

Spring 2005

## How Fast Time Flies....

**Norma Bivona**  
LSCLS President

It is hard to believe that 2 years have gone by. It has been my pleasure to have served as your president for 2 terms. A special thank you to the LSCLS leadership who were dedicated enough and willing to serve for these past 2 years. I could not have done it without you. To the Bi-State meeting committee, you are all working so hard and I know we will have a great meeting. Thank you for taking on this huge job.

I will soon be the past president, but I am just going to change hats and continue to work with the leadership of LSCLS to keep our society moving

forward. My plans are to continue providing Voice, Value and Vision for clinical laboratory professionals everywhere!!!! You too can be the Voice, Value and Vision of our profession. Remember ASCLS/LSCLS is the **ONLY** organization that represents our profession, your profession.

Again I say thanks.....



## ASCLS Legislative Symposium Advocacy in Action

**Cheryl Caskey**  
LSCLS GAC Chair

The annual ASCLS Legislative Symposium was held March 21-22, 2005; CLMA again joined the group and participated in the program. There were a variety of topics impacting Clinical Laboratory Science discussed and then those attending the meeting went to Capitol Hill to discuss issues with our House and Senate members. Norma Bivona and I represented Louisiana this year.

Judy Yost, Director, Division of Laboratory Services for the Centers for Medicare and Medicaid (CMS) CLIA accreditation program discussed updates related to the CLIA program. CMS has implemented a partners for laboratory oversight group that includes representatives from accrediting organizations, exempt states, the CDC, CMS, state agencies with laboratory regulatory programs, and the Veterans Administration. This group:

- Has a goal to improve information sharing and develop more effective survey protocols.
- Has developed a plan to improve communication and to implement a better survey process.
- Will have ongoing meetings to share best practices, resolve differences among the groups, etc.

The serious quality issues at Maryland General

Hospital Laboratory identified through a former employee's complaint following CAP accreditation with distinction were highly visible with public health implications. While this laboratory has now been inspected numerous times and determined to be in compliance, the situation has created the partners for laboratory oversight group and brought the laboratory accreditation process under close public and Congressional scrutiny. For more information regarding the CLIA program, visit the CMS/CLIA website at [www.cms.hhs.gov/clia](http://www.cms.hhs.gov/clia).

One issue discussed during the Hill visits was the critical clinical laboratory personnel shortage. House Bill H.R. 1175, the Medical Laboratory Personnel Shortage Act of 2005, was introduced to amend the Public Health Services Act with respect to the shortage of medical laboratory personnel and is sponsored by Representatives Shimkus, Jackson, and Bilirakis.

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## Region VII Report

**Debbie Faubion**  
Region VII Director

### ASCLS Issues Update

The ASCLS Board of Directors met in Washington D.C. on March 20<sup>th</sup>. Below are some of the issues that we discussed. Several of these will be discussed at the Annual meeting.

For more detailed information on all the topics please visit the ASCLS website. Those instructions are listed at the end. Send all suggestions for changes in wording, semantics, etc. to your Regional Director ASAP. ([faubion4801@msn.com](mailto:faubion4801@msn.com)).

#### Mission/Value Statement

ASCLS serves as the voice of clinical laboratory professionals, creating a vision for the advancement of the clinical laboratory practice field, and advocating the value and the role of the profession in ensuring safe, effective, efficient, equitable, and patient-centered healthcare. To this end ASCLS advocate for the following issues deemed vital to our mission:

- ◆Value of the profession to healthcare and the public
- ◆Professional development
- ◆Expanded contributions to the healthcare team
- ◆Professional independence
- ◆Workplace safety
- ◆Uniting the profession to speak with one voice
- ◆Quality standards and patient safety

#### Regulatory Issues

ASCLS will continue to lobby in support of the following:

- ◆Monitoring competitive bidding project
- ◆No co-pay
- ◆Relief of CPI freeze
- ◆Title VII/VIII funding for Allied Health Education
- ◆Coalition to stop Medicaid competitive bidding in Florida

#### Position Papers in Development

- ◆Value of the Profession - Used to demonstrate the value of lab services to legislators and the public
- ◆Licensure for Lab Professionals - Used to support state licensure bills
- ◆Quality Control - Used to state our position about the need for quality control and disagreement with the CMS EQC program

Available for review over the next 3 months on the ASCLS Web Site, Members Only, Board of Directors, Interim Board Meeting agenda March 2005, Task Force reports.

*ASCLS: Voice, Value, Vision. Together we can achieve it.*

## Student Forum News



Fellow Students,

As LSCLS Student Forum President, I would like to take this time to remind you all of the upcoming annual meeting in New Orleans, Louisiana, April 25-28th. It will be a week full of exciting events such as the student quiz bowl, job fair, certification exam review sessions, as well as a very informative session on state licensure! We will also be electing new LSCLS student forum officers, so if any of you are natural leaders and have plans for taking our organization to new heights, please make sure that you are registered for the annual meeting.

To help with your preparation for the annual meeting, I would suggest bringing many copies of your resume to hand out to the different vendors and institutions that will be present at the job fair. Make sure that you study hard for the quiz bowl and be prepared to purchase a copy of the LSUHSC Review Book. This is a great reference to have on hand for your certification exam preparation! I look forward to meeting you all "down in the bayou"!

Tiffany Brinkley, BS, CLS(NCA)  
LSCLS Student Forum President

# CHAOS

Cheryl Caskey, MA, CLS, CLSpIH(NCA)

**Chaos**, according to *Webster's Dictionary and Thesaurus*, is "total disorder." A recent motivational speaker defined chaos (tongue in cheek) as the "chief has arrived on site." Both definitions could be a concern for some work sites, including laboratories.

**There is also a Chaos Theory that attempts to explain the fact that complex and unpredictable results can and will occur in systems sensitive to their initial conditions.** A common example would be fluttering butterfly wings in China could actually affect weather patterns in New York City (the Butterfly Effect). In other words, it is possible that a very small occurrence can produce unpredictable and sometimes drastic results by triggering a series of increasingly significant events. Stated differently, a small change in the initial conditions can drastically change the long-term behavior of a system.

The natural world has always had a chaotic way about it and the mathematical world has always been amazingly complex. Chaos Theory evolved as a critical part of science, mathematics, art and the computing world because of computers. Chaotic systems appear to be random, but they are deterministic (something determines their behavior). These systems are very sensitive to initial conditions making the system fairly unpredictable but the systems have a sense of order and pattern. There is a strong link between chaos and fractal geometry, the geometry that describes the chaotic systems found in nature.

A fractal is a geometric shape similar to itself at different scales; it has self-similarity (e.g, a tree with branches of differing sizes). Fractals lack a well defined scale. The human body's veins, nerves, parotid gland ducts, and the bronchial tree show some of this type of organization. Fractals are also found in the regional distribution of pulmonary blood flow, pulmonary alveolar structure, mammographic parenchymal pattern as a risk for breast cancer, regional myocardial blood flow heterogeneity, and protein surfaces.

Stock markets are non-linear, dynamic systems and Chaos Theory is the mathematics of studying such non-linear, dynamic systems. Chaos analysis has determined that market prices are highly random, but with a trend. As you move in closer and closer in time frames (from annual to monthly to intra day bar charts), the structure has a similar appearance and you see more detail. Chaotic markets also have "sensitive dependence on initial conditions," which makes dynamic market systems so difficult to predict.

How then does chaos relate to the clinical laboratory science (CLS) world? Is it only in those disorderly laboratory environments? When the supervisor is at the workstation? Or, does Chaotic Theory have a place in CLS? All three can clearly apply depending on the situation. Certainly, there are disorderly workplaces and workstations and this type of environment injects chaos into that laboratory's work life and environment. There are, unfortunately, laboratories in which the supervisor's presence at the workstation is problematic (see tongue in cheek definition); intimidation, fear, unrealistic expectations are things that might make the supervisor's presence disruptive—the staff might then be more prone to errors, be afraid to bring quality issues and other problems to management's attention, have higher turnover, and/or not work to full potential. This creates another type of chaotic laboratory environment.

**How does Chaos Theory apply to a laboratory? Think ripple effect. A co-worker with a negative attitude** can create a negative workplace or work area by affecting co-worker attitudes. **An event** can also create unpredictable and sometimes drastic outcomes or effects. **Work conditions** affect laboratory professionals and laboratory professionals affect each other and the work produced, the work produced affects patient outcomes and patient outcomes affects the facility reputation right down to the bottom line. Work conditions also can affect attitudes, productivity, employee health—the list is long.

**It is, therefore, important that laboratories create a good work environment—free of clutter and disorder, one with a supportive management staff, and a place where the ripples produced are positive.** People will always be unpredictable individually, but laboratories can be workplaces where chaos does not reign.

**Each laboratory professional has a role in the laboratory environment and can contribute to an enjoyable workplace. If there is disorder, work to restore order.** If there is an oppressive management situation or quality issues, take a professional stand and bring the issues forward through the proper channels inside the facility or outside the facility, if necessary. If there are conditions in the laboratory creating unpleasant ripples, work with co-workers and management to identify the root causes and constructively address them. Set the bar high in your laboratory!

#### References:

1. "History of Chaos." <http://library.thinkquest.org>; January 26, 2005.
2. "Chaos Mathematics." <http://library.thinkquest.org>; January 26, 2005.
3. "Fractals." <http://library.thinkquest.org>; January 26, 2005.
4. "Chaos and the Stock Market." <http://library.thinkquest.org>; January 26, 2005.
5. *Webster's Dictionary & Thesaurus*. Landoll, Inc. 1997; p. 28.

# Test Your Knowledge

## Case Study 1

by Patsy Jarreau, MHS,CLS(NCA)

A 42 year old female complained to her family physician of fatigue, dry skin, memory impairment, and muscle pain. She stated that her fatigue had become progressively worse over the past few weeks. Results of her electrocardiogram were within normal limits. The physician ordered the following laboratory tests.

Laboratory Test	Patient Result	Reference Range
Glucose	84	70 – 105 mg/dL
BUN	11	5 – 17 mg/dL
CO2	26	24 – 32 mmol/L
Chloride	101	96 – 107 mmol/L
Sodium	139	135 – 145 mmol/L
Potassium	4.4	3.6 – 5.0 mmol/L
Calcium	10.1	8.4 – 10.2 mg/dL
Phosphorus	3.8	2.5 – 4.8 mg/dL
Total Protein	6.6	6.0 – 8.0 g/dL
Albumin	4.5	3.4 – 5.0 g/dL
AST	22	0 – 44 IU/L
ALT	19	0 – 45 IU/L
ALP	77	20 – 120 IU/L
Hemoglobin	12.5	12 – 16 g/dL
Hematocrit	38	37 – 47 %
RBC	$4.2 \times 10^6$	$4.2 - 5.4 \times 10^6 / \mu\text{L}$
WBC	$5.8 \times 10^3$	$5.0 - 10.0 \times 10^3$
MCV	90.5	80 – 94 fL
MCH	29.8	27 – 31 pg
MCHC	32.9	32 – 34 g/dL
PLT	$225 \times 10^3$	$150 - 375 \times 10^3$
CRP	4.2	<5.0 mg/dL
ESR	12	0 – 20 mm/hr
EBV anti-early antigen	no reaction	no reaction
EBV anti-VCA IgM	no reaction	no reaction
EBV anti-VCA IgG	1:320	no reaction
EBV anti-nuclear antigen	1:80	no reaction
TSH	8.6	0.5 – 5.0 mIU/L
FT4	0.5	0.6 – 1.15 ng/dL

1. What is the most likely diagnosis?
2. What treatment would be recommended?

## Case Study 2

eMedicine Image Case 56

by Peggy Wu, MD

An anxious father reports that he found a worm in the diaper of his 2-year old son, who has had diarrhea for 2 days. The boy has no history of fever, irritability, loss of appetite, or blood in the stool. The father states that the family has not traveled recently, but that his sister and her family, including their 3 year old child, have been visiting from Costa Rica for the past 6 weeks.

The child's vital signs are normal, with no abnormality on lung examination. The abdomen is soft, with no tenderness to palpation. The child generally appears well and has no history of weight loss. The worm was sent to the lab for identification.



1. What is the diagnosis?
2. What is the route of transmission?
3. What is the treatment of choice?

*For answers see page 7.*

## Advocacy in Action

*continued from page 1*



The Bureau of Labor Statistics estimates:

- 12,000 additional qualified laboratory professionals will be needed annually until 2010.
- The accredited clinical laboratory science (baccalaureate degree) and clinical laboratory technician (associate degree) programs in the U.S. are currently graduating 4,200 new professionals annually.
- This gap will incrementally create greater shortages each year if the trend is not reversed.

H.R. 1175 includes provisions:

- For scholarship and loan repayment programs for Clinical Laboratory Science.
- Preference for making Title VII awards of grants and contracts to meeting the costs associated with expanding or establishing programs that will increase the number of individuals trained as medical laboratory personnel.
- For grants to provide training to increase the number of cytotechnologists.

Symposium attendees (representing 40 states) lobbied for support of this bill and co-sponsorship for it in the House and for Senators to sponsor a companion bill in the Senate.

A second issue addressed during the Hill visits was the Clinical Laboratory Fee Schedule. Over the past 2 decades, reimbursement of laboratory services for the Medicare Part B services has been cut significantly. Two of the major factors in determining Medicare payment for laboratory services have been cut or reduced during this time period:

- The National Limitation Amount (NLA)
- The Consumer Price Index (CPI) update

In 1984, the CPI update has all but been eliminated as a means to ensure laboratory reimbursement keeps pace with the economy. During the past 15 years, the full CPI update has been applied only twice. The fee schedule was developed in 1984 to address reimbursement that was vastly different for many tests in different parts of the country. The median for each test was taken to develop the fee schedule and payment was implemented at 115% the first year. Since that time, however, cuts have now put the fee schedule amounts at 74% of those 1984 median amounts. These are real cuts while other segments of healthcare have experienced cuts to their UPDATES. Currently, there is a five year freeze to the Medicare laboratory fee schedule CPI updates (ends in 2008). During the Hill visits we discussed:

The history of the clinical laboratory fee schedule.

- The impact the cuts and CPI update freezes have had on the laboratory and its ability to deliver quality services.
- The need to prevent further reductions by removing the CPI freeze from current law.
- The impact that the continued CPI freeze will have on the capabilities of laboratories and the possibility of endangering patient ability to be diagnosed accurately and expeditiously.

In addition to making these points about the clinical laboratory fee schedule, we shared that the laboratory profession has begun discussions on developing potential alternatives to the fee schedule. The profession has decided this is more favorable than having alternatives developed through an open forum process, such as negotiated rulemaking, where all interests are represented. An initial meeting occurred at the symposium and a task force was put together to work on alternatives.

Are you interested in making a difference for the profession through advocacy? If so:

- Lobby one-on-one with your House and Senate leaders when asked (visits, letters, emails, faxes, etc.)
- Educate yourself on the issues and stay current on issues affecting the clinical laboratory
- Do fundraising events for elected officials for friends, colleagues or attend such events
- Get involved in the political campaigns for candidates favorable to the clinical laboratory
- Visit elected officials when they are in the home district
- Invite elected officials to visit your laboratory and educate them about the complexities of clinical laboratory testing and the need for adequately educated and trained professionals

Each of us has the opportunity to make a difference through advocacy!



# LSCLS/MSCLS Joint Annual Meeting & Exhibits

Hampton Inn & Suites  
New Orleans, LA  
April 25-28, 2005

**Excellent Educational Programs, Student Bowl, Exhibits, and Job Fair**

For registration form and additional information visit our website at [www.lscls.org](http://www.lscls.org)

## Welcome New Members

A special welcome to the following members who have  
joined ASCLS/LSCLS since October 2004.

***We are very happy to have you in our organization!***

Debra Blum  
Demetria Bryant  
Jennifer Cole  
Catherine Cooper  
Elizabeth Dauzart  
Jennifer Haywood  
Charlotte Hubbard  
Maria Leazer  
Christina Kae Lee

Lisa Lowery  
Kelli Melancon  
Michale Morris  
Emily Myers  
Rebecca Nash  
Diamond Paten  
Michael Pettingill  
Thai Pham  
Manuel Readore

Heido Sanderson  
Neeral Shah  
Smrity Shubha  
Verlyn Steffenson  
Raven Steward  
Neo Tran  
Kimberly Traylor  
Elizabeth Vallot

### *Upcoming Calendar of Events*

April 24-30.....National Medical Laboratory Week  
April 25-28..... LSCLS/MSCLS Bi-state Meeting, New Orleans, LA  
July 26-30.....ASLCS National Meeting, Orlando, Florida

**Editor's Note:** *If you would like to receive this publication in living color via email rather than snail mail, please email me at [afoley@lsuhsc.edu](mailto:afoley@lsuhsc.edu). Thanks to everyone who submitted articles, information and/or pictures for this edition of the Bayou Tech. If you have any ideas for articles or would like to share some information, pictures, or any noteworthy events from your area or laboratory, please email me or FAX to Angela Foley at (504) 568-6761. This is your newsletter so please let me hear from you!*

***Lab Managers - Please post this publication in your laboratory***



In this 30th Anniversary year, it is important to reflect on the important history of National Medical Laboratory Week. NMLW originated in 1975 under the auspices of the American Society for Medical Technology, now called the American Society for Clinical Laboratory Science (ASCLS). In subsequent years, other organizations have served as cosponsors and campaign supporters.

There are approximately 300,000 practitioners of clinical laboratory science in the United States. Since the development of this career group in the 1920s, the clinical laboratory science professional has played an increasingly vital role in the diagnosis and prevention of disease. Today, the clinical laboratorian is a key member of a

As team members of one of the largest industries in the United States, the dedicated efforts of laboratory professionals often go unnoticed by the general public, as well as by the very institutions employing their services. With assurance of quality health care and professional accountability, organizations have a responsibility to ensure laboratory competency.

Beyond meeting this public need, the profession has a responsibility to ensure laboratory competency. Beyond meeting this public need, the recognition for the profession as it improves the individual practitioner's sense of self-worth. Further, as the various professional groups within laboratory practice work together on this project, the sense of unity and purpose necessary to further the goals of all laboratorians are reinforced.



largest industries in the United States, the professionals often go unnoticed by the general institutions employing their services. With assurance of quality health care and professional representing practitioners of this critical science that the public is well informed about clinical

celebration of NMLW will help increase recognition for the profession as it improves the individual practitioner's sense of self-worth. Further, as the various professional groups within laboratory practice work together on this project, the sense of unity and purpose necessary to further the goals of all laboratorians are reinforced.

### **Laboratory Professionals: The Heart of the Medical Investigation Team**

*To order promotional items please visit the ASCLS website at [www.ascls.org](http://www.ascls.org)*

#### *Test Your Knowledge*

*continued from page 4*

#### **Case Study 1**

The hematology results are essentially normal and do not suggest anemia. According to the results of the Epstein Barr virus (EBV) specific antibody panel, the patient is not currently infected but had a past EBV infection. These results rule out chronic fatigue syndrome.

A decreased free T4 and increased TSH support a diagnosis of hypothyroidism. Hypothyroidism may be primary (autoimmune) or secondary dysfunction of the pituitary or hypothalamus. Primary hypothyroidism is an autoimmune disease in which antibodies may be produced against several thyroid antigens including thyroglobulin, thyroid peroxidase, and second colloid antigen (CA-2). Almost all patients with autoimmune thyroiditis will produce high titers of antibodies to one of these three antigens. This disease, also known as Hashimoto thyroiditis, chronic lymphocytic thyroiditis, or autoimmune thyroiditis, is six times more prevalent in women than in men and usually occurs between the ages of 30 and 60 years. Approximately 4% of the population has been diagnosed with primary thyroiditis. Goiter, or enlarged thyroid, may or may not occur. Daily treatment with L-thyroxine resulted in elimination of this patient's symptoms.

#### **Case Study 2**

The diagnosis is Ascariasis. *Ascaris lumbricoides* is the cause of the most common helminthic infection worldwide. The infection is transmitted in a fecal-oral manner, primarily from the ingestion of food contaminated with parasite eggs. *Ascaris* larvae hatch after ingestion and are released into the intestine. They eventually migrate through the circulation to the lungs. After 1-2 weeks, the partially developed larvae ascend the trachea and are reswallowed. They then develop into mature worms and produce eggs that are excreted in the stool. The most common presentation is the passage of a worm in the stool. Drugs of choice are oral mebendazole or oral albendazole.

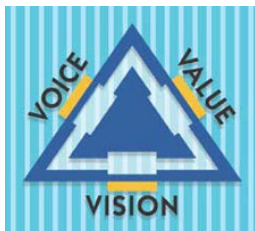


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**ASCLS** represents the clinical laboratory profession by promoting:

## *OUR VALUE*

- as an integral part of the healthcare team
- as a source of continuing education
- as a source of information to our patients, other professionals and the public



## *OUR VOICE*

- as a spokesperson for the entire profession
- on legislative and regulatory issues that affect our profession
- as an advocate for every professional

## *OUR VISION*

- in defining the changing role of the laboratory
- in fostering collaboration among laboratory organizations
- in preparing ourselves for exciting new roles



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