

# The BEQR



WINTER 2011

**Mississippi Society of Radiologic Technologists  
Affiliated with the American Society of Radiologic Technologists**

## Letter from the MSRT President

Greetings MSRT family,

I want to start off first by saying that it is an honor and a pleasure to serve as your MSRT President for this upcoming year. I want to thank all of the people who had the confidence in my ability to do a great job with our society. I, along with the Board of Directors, am looking forward to and am planning on taking this society to an exciting new level. For some who may not know, the Board that we have is comprised of an excellent group of dedicated technologists who love our state, profession and society.

Since I began the journey in this profession as a student, I quickly recognized the importance of this society. By having dedicated instructors around me who were involved, I was introduced to a professional organization that not only helped me learn more about the inner workings of our profession, but also showed me how staying involved and making sure it flourishes could only benefit my career and all of the technologists in this state. Our main goal this year is two-fold: to retain the students that we have as they graduate and move into their careers, while also reclaiming technologists we have lost.

We are coming up with more attractive and innovative ways to keep everyone involved and welcome your suggestions and ideas. The MSRT website ([www.msrt.biz](http://www.msrt.biz)) has recently been updated...I encourage you to look through it to find a host of information about our society or even just to reconnect with an old classmate. A big thanks to Christy Thomas, Kristi Moore, and Mike Ketchum for putting in countless hours of hard work in getting this website up-to-par and up-to-date! This, too, is your state society...whether you are an active member or not...and we want everyone involved. Let's take MSRT to the next level by supporting the profession that is supporting us all!

Thank you,

John Melvin BSRT (R)

## Inside this issue:

Letter from the MSRT President	1
Letter from the Editor	2
Technologist of the Year	2
Business Meeting Minutes	3
Student Technologist of the Year	14
Student Manuscripts	15
1st Place - Student Manuscript	16
Student Exhibits	23
Student Prep Bowl	28
Life Member Breakfast	33
Conference Pictures	35
Presidential Luncheon	39
Costume Party	46
Student Paper	59
Student Paper	63
Closing Remarks from the Editor	67



## Letter from the Editor

Since the website has been updated, you will find that this issue of The BEAM is much smaller in size (or thinner if you print it). Some of the information that has historically been in The BEAM has now found its place as a permanent resident of the MSRT website. The Directory, Past Presidents list, Past Technologists of the Year list, etc. have all found a new home! Please click through the new website to see the changes that have been made.

Conference 2011 in Tunica, MS, was great! It was wonderful to be able to have two state societies come together for the same purpose. There were so many people who had their hands on bits and pieces of things for Conference 2011. Christy Thomas, Chuck Busby, and Kathy Stegall worked hard and put together an outstanding event. All of the speakers were wonderful...I think the students thoroughly enjoyed Dr. Bushong! Congratulations to all of the students who received various awards. The exhibits and manuscript presentations were extremely educational, as was the student prep bowl! Keep up the good work throughout the year, students, and I look forward to seeing you again at Conference 2012!

~Kristi Moore, M.S.,R.T. (R)(CT)



## Technologist of the Year: Mike Ketchum

I am very humbled and honored to be chosen Technologist of the Year. This profession has been good to me and the only way I can give back is through service. To be recognized for that service is a blessing. However, I could not do it without the MSRT Board of Directors – my friends who give of their time and their own money to make sure this organization is a strong voice for technologists in all modalities across the state. I could not do it without the unwavering support of my colleagues at the University of Mississippi Medical Center who make coming to work a joy. And I most especially could not do it without the inspiration of the students. Not just mine, but from every program in this state and across the country. They are my heart and my hope for our profession. I work hard alongside countless others in hopes of securing a better, brighter future for them. I will continue to work hard to live up to the title bestowed on me.

Thank You!

Mike Ketchum, M.S.Ed., RT (R)





**Mississippi Society of Radiologic Technologists**  
Affiliated with the American Society of Radiologic Technologists

The **MSRT Business Meeting** for the 70<sup>th</sup> Annual Conference was held at Sam's Town Hotel & Casino in Tunica, MS, on October 27, 2011. Suzanne Fisher welcomed those present and thanked everyone for attending Conference.

The invocation was given by Mark Gray, with the pledge of allegiance following.

A quorum was established and the meeting was called to order by President Suzanne Fisher at approximately 12:35 p.m.

The minutes from Conference 2010 were accepted as published in The BEAM.

***The following reports were given:***

**I. Treasurer:**

1. Please refer to **Appendix B** for the MSRT Annual Financial Report that was presented at the business meeting.

**II. Vice-President:** Nothing to report.

**III. Secretary:** Nothing to report.

**IV. Executive Secretary/Membership:**

1. As of October 23, 2011, there are a total of 381 MSRT members: (see **Appendix D**)
  - a. RTs...154
  - b. Students...211
  - c. Life Members...10
  - d. Associate Members...4
  - e. Honorary Members...2

**V. Editor of The BEAM:**

1. The total cost of printing and mailing was \$1,001.95. (see **Appendix F**)
  - a. This cost includes printing and mailing of postcards for two issues of The BEAM: winter 2010 and summer 2011.
  - b. Also included in this cost was the printing and binding of all past issues of the electronic editions of The BEAM, as well as 3 printed and bound summer issues that were mailed to the family of Laura Turner Cates (a special section was dedicated to this graduate of MS Gulf Coast Community College). A total of 8 sets were printed and bound.

2. Christy Thomas ordered a listing of all registered technologists in Mississippi.
  - a. Kristi Moore said that she plans to use this list to mail out a postcard to all of the registered technologists in Mississippi to direct them to the new website to view the winter 2011 issue of The BEAM.
  - b. This will result in more postcards being mailed out, but will allow the MSRT to reach out to all of the registered technologists and students in the state to bring awareness to the website and The BEAM.
  - c. The total cost of printing and mailing is expected to increase next year since more postcards will be generated and mailed.

#### **VI. ASRT Affiliate Delegates:**

1. Paula Young and Mike Ketchum represented the MSRT as ASRT Affiliate Delegates.
  - a. Paula stated that the Care Bill, which will set minimum standards for those applying ionizing radiation, is still getting more co-sponsors.
  - b. The ASRT Affiliate Delegate report can be found in the summer 2011 issue of The BEAM at [www.msrt.biz](http://www.msrt.biz).

#### **VII. President:**

1. Please refer to **Appendix E** for the President's Report.
2. A total of 67 student manuscripts were sent to 3 out of state judges for the manuscript competition, of which the top 6 were selected for oral presentation at Conference.

#### **VIII. Conference Coordinator/Conference Chair:**

1. 176 Conference attendees preregistered for Mississippi and about 140 for Tennessee (for a total of more than 300).
2. Excellent room rates (\$39 per night) were locked in.
3. MSRT and TSRT will share the costs of Conference.
4. There are a total of 4 sponsor booths, 2 of which signed up for 2 days.

#### **IX. Legislative Committee:**

1. Mike Ketchum said that, although we thought we had amended the law last year, he received an email a couple of weeks ago from the State Department of Health indicating that the state licensure division wanted to amend the state law.
  - a. The amendment would omit the hours for Radiation Protection required for LXMOs and require them to document 12 hours of CE credit.
  - b. Mike emailed the MSRT Board of Directors to give them insight into this situation. He spoke with the Clay Firm (lobbyist) and then informed the State Department of Health that the MSRT would not support this.
  - c. Mike said the law will sunset in 2013. Vicky Maddox, director of the State Department of Health, said she would like to get all parties involved together over the next year to get the state law where it needs to be.
  - d. Mike asked for support and said that information will be posted on the website should anything new arise.

#### **X. Education Committee/Student Liaison:**

1. People's Choice:
  - a. Mark Gray thanked the students for participating in the manuscript and exhibit competitions and reminded everyone to vote for their favorite exhibit.
  - b. He stated that the winner of the People's Choice Award for the exhibits will be declared at the Presidential banquet on Friday.

2. Student Prep Bowl:
  - a. The Student Prep Bowl was an excellent competition among 7 teams. The top 3 teams are as follows:
    - i. 1<sup>st</sup> place recipient – University of MS Medical Center
    - ii. 2<sup>nd</sup> place recipient – Pearl River Community College
    - iii. 3<sup>rd</sup> place recipient – Itawamba Community College
  - b. The Central District donated \$100 to the 1<sup>st</sup> place team. Additional money was donated to the Prep Bowl this year from anonymous donors for a total of \$550 to be awarded. The cash awards were distributed as follows:
    - i. 1<sup>st</sup> place - \$250
    - ii. 2<sup>nd</sup> place - \$175
    - iii. 3<sup>rd</sup> place - \$125
  - c. In addition to the cash awards, the top 3 teams were each awarded a plaque
3. MSRT Student Delegates:
  - a. Nominations for student delegate were taken at the student meeting and 2 students were elected by their peers. These individuals are Lee Brown and Jennifer Tucker, both from the University of Mississippi Medical Center.
  - b. Mark Gray thanked Kate Garner and Rasul Azeez, both from the University of Mississippi Medical Center, for their dedication and enthusiasm as MSRT student delegates for the past year.
4. Central District Educational Review Seminar:
  - a. The Central District of the MSRT will host an Educational Review Seminar for students on April 12-13, 2012, in Flowood, MS. Information for this seminar will be posted on the website in the near future.

**XI. Rules and Bylaws Committee:** Nothing to report.

**XII. Training Session:**

1. Refer to **Appendix G** for the full report from the Training Session Coordinator.
  - a. The total number of participants was 117 less in 2011 compared to 2010.
  - b. Total expenses for 2011 were \$10,047.08.
  - c. Profit was \$18,992.92.

**XIII. Operating Budget:**

1. Mike Ketchum, chairman of the board, presented the proposed operating budget that was approved by the Board. (see **Appendix C**)

**Old Business:** None.

**New Business:**

1. Nancy Adams made the following motion that was seconded by Christy Thomas: “I move that Chuck Busby, Conference Coordinator, should receive 10% of the net profit from the annual conference.” “Rationale: Chuck has served without compensation as conference coordinator since 1996. During that time, due to his dedication and diligence, he has ensured MSRT has demonstrated a profit annually.” (see **Appendix H**)
  - Membership voted and the motion passed.

2. Sandy Cochran asked that the Board revisit the structure of Conference to try to get more technologists to come. He suggested changing the days to something other than Wednesday, Thursday, and Friday. His suggestion was to consider Thursday, Friday, and Saturday instead.
  - The Board acknowledged this suggestion and will revisit the structure of Conference.

**Nominations:**

1. Nominations were as follows:
  - a. President – Suzanne Fisher and John Melvin
  - b. Vice President – Shazowee Edgerton and Robbie Nettles
  - c. Secretary – Kristi Moore
  - d. ASRT Affiliate Delegate – Diane Mayo, Kristi Moore, and Kathy Stegall
2. After the membership voted and results were counted, the elected positions for the upcoming year were announced as follows:
  - a. President – John Melvin
  - b. Vice President – Shazowee Edgerton
  - c. Secretary – Kristi Moore
  - d. ASRT Affiliate Delegate – Kristi Moore

With no further business to be discussed, the meeting was adjourned at approximately 1:45 p.m.

Respectfully submitted,

Kristi Moore, M.S., R.T. (R) (CT)

Appendix B

**M.S.R.T. Annual Financial Report  
October 25, 2011**

**Checking Account**

Balance as of October 24, 2010	\$50,754.46
Balance as of October 21, 2011*	\$42,312.40

\*Includes Student Account of \$2,657.45

**Investment Account**

Balance as of September 30, 2010	\$55,914.55
Balance as of September 30, 2011	\$56,483.50

**CD VALUES**

CD #3908 - \$11,890.95  
CD #2333 - \$20,968.22  
CD #3208 - \$15,282.45  
CD#1055 - \$10,000.00

**Total Assets as of October 25, 2011**      \$157,037.52

Respectfully Submitted

Paula Young, BS, RT (R)(M)

Appendix C

**MISSISSIPPI SOCIETY OF RADIOLOGIC TECHNOLOGISTS  
PROPOSED OPERATING BUDGET 2011-2012**

President*	\$2000.00	
Conference Coordinator	<del>1000.00</del>	2000.00
Vice-President	25.00	
Secretary	50.00	
Treasurer-Budget	50.00	
-Honorarium	599.00	
The Beam	3000.00	
ASRT Affiliate Delegate	1000.00	
ASRT Affiliate Delegate	1000.00	
Executive Secretary-Budget	400.00	
-Honorarium	599.00	
RT Exhibits	200.00	
	150.00	
	100.00	
Student Exhibits	200.00	
	150.00	
	100.00	
RT Manuscripts	200.00	
	150.00	
	100.00	
Student Manuscripts	200.00	
	150.00	
	100.00	
	300.00	
* Add Student Participants	300.00	
Student Technologist of the Year	300.00	
Student Scholarships	2000.00	
Internet	600.00	
Computer Supplies	300.00	
Accountant	1000.00	
Total	<del>\$17,723.00</del>	
	<del>\$18,023.00</del>	
	\$19,023.00	
*Includes expenses for alternate affiliate delegate to ASRT		

Appendix D

## Membership Report for as of October 23,2011

Membership Breakdown is as follows:

Students: 211

Life Members: 10

Honorary Members:2

Associate Members:4

Active Members(Techs): 154

Total Members : 381

We did gain 6 memberships from Meridian Community College.

Respectfully Submitted,

Christina Thomas  
Membership Chairperson

PRESIDENTS REPORT    OCTOBER 2011

Since July, I got the out of state judges tally sheets and mailed notices to the top six manuscript students.

I attended the July board meeting in Tunica,MS

I attended a MS State Med Assoc meeting for their Council on Legislation. I believe this was the first time we had been invited to this. They requested that we bring any issues our physicians (radiologists) in our field may have with legislation. I invited Jeff Crowley to attend with me. He spoke up about how we are concerned about nurse practitioners and physician assistants wanting to operate c-arms. They responded immediately and said they would not support this (the physicians from the Board of Medical Licensure).

That's about it folks!

Suzanne Fisher,BSRT( R )(CT)  
MSRT President

Appendix F

**The BEAM  
Editor's Report  
October 25, 2011**

**Budget: \$5,000**

**Printables and More:**

- 600 Postcards.....Set up charges and design.....Winter 2010.....\$111.00
- 600 Postcards.....Set up charges and design.....Summer 2011.....\$111.00
- Printed and bound issues of the BEAM (8 total).....\$184.56
  - Includes 3 summer issues for Laura Turner Cates' family

**Dearing Addressing:**

- 590 Postcards mailed.....Winter 2010.....\$307.85
- 590 Postcards mailed.....Summer 2011.....\$287.54

**Total Cost for Winter 2010 and Summer 2011 mailouts.....\$1,001.95**

Appendix G

**REPORT FROM TRAINING SESSION COORDINATOR  
For Membership  
YEAR – TO – DATE  
OCTOBER 26, 2011**

- |    |              |   |   |                                     |                           |
|----|--------------|---|---|-------------------------------------|---------------------------|
| 1) | Sessions     | - | 10  | There is one scheduled in November. |                           |
| 2) | Participants | - | 242 (down 117 from 2010)<br>242 x \$120.00= |                                     | <b><u>\$29,040.00</u></b> |
| 3) | Expenses     |   |   |                                     | <b><u>\$10,047.08</u></b> |

Amount of **PROFIT** year – to – date 2011 **\$18,992.92**

Respectfully submitted,

*Rita Fraser*

Rita Fraser  
Training Session  
Coordinator

Appendix H

**Mississippi Society of Radiologic Technologist  
MOTION FORM**

MOTION:

I move that Chuck Busby, Conference Coordinator, should receive 10% of the net profit from the annual conference.

Rationale: Chuck has served without compensation as conference coordinator since 1996. During that time, due to his dedication and diligence, he has ensured MSRT has ~~the~~ demonstrated a profit annually.

DATE:

10-27-11

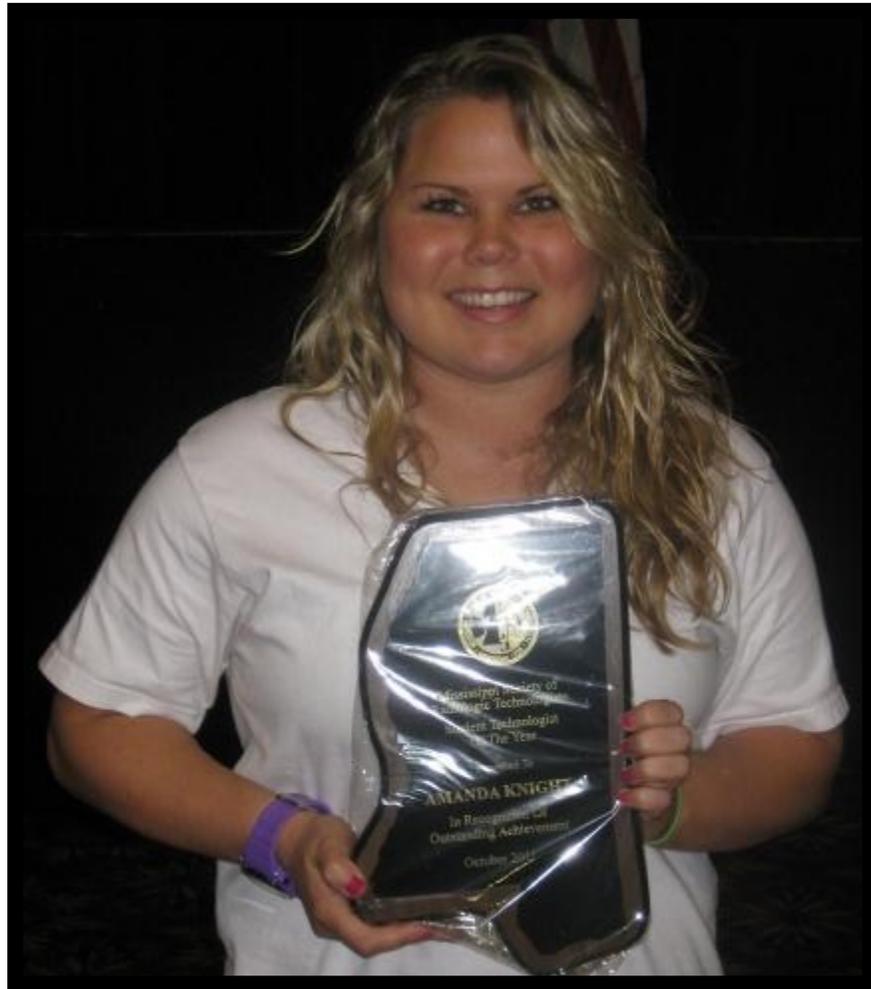
MADE BY:

Nancy Adams

2ND BY:

Christina M Thomas

# Student Technologist of the Year Amanda Knight



Amanda Knight is currently a senior Radiologic Sciences student enrolled at the University of Mississippi Medical Center (UMMC). She started working to earn points in October 2010. She entered an exhibit for competition at the MSRT 69<sup>th</sup> Annual Conference, attended District Meetings, wrote papers to be published in the Beam, made presentations at the District Meetings, and submitted a paper for the student manuscript competition for this year's conference. Amanda Knight was presented this award in recognition of outstanding performance.

# Student Manuscripts

Student papers were mailed to three (3) out-of-state judges for the student manuscript competition. Pictured below are the six (6) students whose papers were selected for manuscript competition.

- “Proton Therapy” by James Bender (UMMC) - **Received 1st Place**
- “Fibrodysplasia Ossificans Progressiva” by Nick Foster (UMMC) - **Received 2nd Place**
- “Positron Emission Tomography in the Treatment of Lung Cancer” by David Jeukens (UMMC) - **Received 3rd Place**
- “Self-Embedding Disorder in Teens” by Becky Nelson (UMMC)
- “Child Abuse” by Lee Hunt (UMMC)
- “Food Irradiation” by Michelle Shannon (UMMC)



*Pictured from left: Becky Nelson, David Jeukens, Michelle Shannon, James Bender, Lee Hunt, and Nick Foster*

## **“Proton Therapy”**

The use of protons for the treatment of cancer cells was first proposed by Robert Wilson in 1946 (Robert R. Wilson: Remembered as "Father of Proton Therapy"). Labeled by many as the “father of proton therapy,” he recognized the importance of high-dose radiation as a way of increasing the dose to the tumor while minimizing the dose to surrounding healthy tissue (Robert R. Wilson: Remembered as "Father of Proton Therapy"). As a result, much research and millions of dollars have gone into the development of advanced technology to improve the use of protons. This paper examines exactly what proton therapy is and how it works, the tumors that are treated, the advantages of proton therapy, as well as the cost, coverage, and location of proton therapy facilities across the United States.

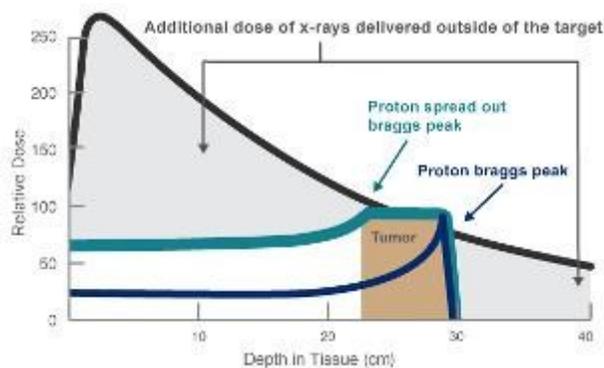
Proton therapy, often referred to as bloodless surgery, is an effective method of radiation therapy used to treat several types of tumors. Just as x-ray radiation, proton therapy destroys cancer cells by preventing them from dividing or growing. One of the most significant differences between proton therapy and standard x-ray radiation is that protons deposit much of their radiation directly into the tumor, but deliver no exit dose beyond the tumor boundary, unlike photons (Proton Therapy). This can be most effective because it allows patients to receive higher doses while reducing damage to surrounding healthy tissue. This concept is especially important when treating pediatric patients because it reduces the unwanted effects to growing and developing tissues (Proton Therapy).

Understanding how protons work provides patients and physicians better insight into how to treat a tumor. When treating a tumor, photons and protons deliver radiation in different ways because of their physical properties. According to How Proton Treatment Works, “Photons are electromagnetic waves which possess no mass or charge, therefore penetrating through tissue.” They release much of their radiation dose quickly throughout the body and beyond the tumor. This results in unnecessary damage to healthy tissues and organs preventing the physician from applying a large amount of radiation to the tumor site. Protons, on the other hand, are large and possess a positive charge that penetrates matter to a finite depth (Proton Therapy).

This allows protons to slow down and release much of their energy at precise depths targeting and depositing much of their radiation only at the tumor site. As a result, the treating physician can increase the radiation dose to the tumor and reduce the dose to surrounding healthy tissue. Therefore, the overall affects of proton therapy lead to fewer harmful side effects, increased tumor control, and accurate interaction with the tumor (Proton Therapy).

A comparison of radiation dose between proton therapy and x-rays is illustrated in Figure 1 in this paper. The black line is an illustration of how x-rays deliver a dose of radiation. X-rays must irradiate healthy tissue before reaching the tumor site, and they continue to penetrate through the tumor and irradiate healthy tissue beyond the tumor site. Protons deliver their dose in a different way and are more effective. The blue line in the figure illustrates a low dose entering the patient then depositing a large burst of radiation reaching what is known as the Bragg Peak. After reaching this peak, radiation stops completely. An additional number of protons are sent to the tumor site at lower doses to treat the entire tumor which is illustrated by the turquoise line. As a result, proton treatment delivers a more accurate and efficient radiation dose while minimizing damage to healthy tissue.

**Figure 1. A Comparison of Radiation Dose for Proton Therapy and X-rays**



Now that it has been established what proton therapy is and how it works, the next step is discussing the type of cancers treated. Although several cancers are treated using proton therapy, there are three that stand out and are more familiar than the rest. According to Proton Therapy takes aim in Prostate Cancer battle, each year more than 200,000 men are diagnosed with prostate cancer in the United States. One main concern when treating prostate cancer is the long-term side effects involving urinary complications and impotence.

In a study by Vargas (2008), compared with conventional radiation, proton therapy delivers 35% less radiation to the bladder and 59% less radiation to the rectum. This reduced the risk of long-term side effects, thus increasing the overall quality of life for prostate cancer patients. An additional study was conducted by Peters (2006), in which three different trials of dose escalation was used to determine the best control and lowest toxicity for prostate cancer. Results showed that only one of the random trials, PROG 95-09, used proton therapy for dose escalation. Figure 2 confirms that the use of proton therapy was the best option for treating prostate cancer. Treatments are usually given five days per week for a period of 6-8 weeks with a treatment session ranging from 15-30 minutes.

**Figure 2. Dose Escalation is safer and more effective with Protons (Vargas C., 2008)**

Randomized Trial	Boost Modality	Planning Technique	High Dose Arm	5-Year Control	GI Toxicity	
					≥G2	≥G3
CKVO96-10 n=664	X-rays	3-D	78.0 Gy	64%	32%	5%
MRC RT01 n=843	X-rays	3-D	74.0 Gy	71%	33%	10%
PROG 95-09 n=392	Protons	3-D	79.2 Gy	92%	17%	1%

Another type of cancer treated using proton therapy is lung cancer. Lung cancer is the leading cause of cancer death for both men and women (Proton Therapy now targets Lung Cancer). If treated early, more than half of lung cancer patients can survive before it spreads to other organs. A main concern for patients with lung cancer is that most of them are smokers or ex-smokers. Because of this underlying disease, the risk of using regular radiation therapy is even more harmful to healthy tissue. This also rules out the option of surgery, which is why proton therapy has proven to provide the greatest potential for recovery when treating these patients. Hidetsugu Nakayama (2010) conducted an experiment from November 2001 to July 2008 in which patients were treated with proton therapy and given different doses to centrally located tumors. The results determined the survival rate to be 89% at two years, whereas the survival rate for conventional radiotherapy ranged from 6-31% at five years, once again confirming proton therapy to be the method of choice. Currently, only a few patients can be treated using protons; however, research is expected to improve the knowledge of lung cancer treatment involving proton therapy.

The last but arguably one of the more dangerous cancers treated by proton therapy is brain cancer. Different brain tumors require different doses to control them. Most tumors are benign, arising from the meninges, or malignant, arising from the glial cells. They can vary from grade one, the best prognosis, to grade four, the worst prognosis. Because brain tissue is very sensitive and complex, using precise cancer treatment is extremely important. If too much radiation is applied to the brain, neurological dysfunction and sometimes death can occur (Treating Brain Tumors). The extra exposure to healthy brain tissue that standard x-ray radiation therapy delivers can equal the amount of receiving 75,000 to 450,000 dental x-rays (Treating Brain Tumors). This makes proton therapy the select choice for treating brain cancer. Compared with conventional radiotherapy, proton therapy will result in less radiation exposure to normal brain tissue, eyes, and the optic nerve giving patients a reasonable chance at retaining normal overall brain function. Treatment is usually given five days per week for a period of 4-8 weeks with a treatment session ranging from 30-45 minutes.

As discussed earlier, proton therapy is very beneficial to the patient when treating tumors and has many advantages over conventional x-ray. The most significant advantages when using proton therapy are fewer short and long term side effects, reduced risk of damage to healthy tissue, lower incidence of secondary tumors, proven effectiveness in children and adults, and improved quality of life during and after treatment (Lee C.T., 2005). With many patients, the treatment of cancer using conventional x-rays or intensity-modulated radiation therapy (IMRT) can lead to the development of secondary tumors. Chung C.S. (2008) analyzed and compared data of a study comparing conventional x-rays and IMRT with proton therapy. In this study, 1,591 patients treated with x-ray radiation were compared to 503 patients who were treated with proton therapy. Researchers concluded that 12.8% of patients treated with x-ray radiation developed secondary malignancies, while only 6.4% of proton therapy patients developed secondary malignancies.

Although proton therapy shows great promise for many cancer patients, facilities are limited but growing throughout the United States. Currently there are a total of nine proton therapy centers in operation and at least five more in development. There are also two state of the art proton therapy centers located in Oklahoma City and Chicago. Facilities in Florida, Michigan, New Jersey, and Washington are in development (Bringing

Proton Therapy To a City Near You). The cost for proton therapy treatment widely varies across the country, but most procedures are covered by private insurance companies, Medicare, and Medicaid programs. To get a better understanding of charges and fees associated with treatment, patients should discuss this with their doctor or medical staff members. Today, almost 70,000 people worldwide have received proton therapy treatment at centers in Europe, Asia, and the United States (National Association for Proton Therapy).

In conclusion, the use of protons for the treatment of cancer cells was first proposed by Robert Wilson in 1946. It is an effective method of radiation therapy used to treat several types of tumors including tumors of the prostate, brain, and lungs. Proton therapy, often referred to as bloodless surgery, is the preferred method of treatment over conventional x-ray because it reduces the risk of short and long term effects. It is safe, non-invasive, and painless. Although the benefits of using proton therapy outweigh the risks, it is still an ongoing research that shows great promise for the future.

## References

- American Society for Radiation Oncology. (2010). Proton therapy safe, effective for early-stage lung cancer patients, study finds. *Science Daily*. Retrieved March 15, 2011, from <http://www.sciencedaily.com/releases/2010/10/101019171805.htm>.
- Bringing Proton Therapy To a City Near You*. (n.d.). Retrieved February 28, 2011, from ProCure: <http://www.procure.com/OurLocations.aspx>
- Chung C.S., K. N. (2008). Comparative analysis of second malignancy risk in patients treated with proton therapy versus conventional photon therapy. *International Journal of Radiation Oncology Biology Physics*, *I* (72), S8.
- Hidetsugu Nakayama, H. S. (2010). High-dose conformal radiotherapy for patients with stage III non-small-cell lung carcinoma. *International Journal of Radiation Oncology Biology Physics*, *III* (78), 645.
- How Proton Treatment Works*. (n.d.). Retrieved February 28, 2011, from The National Association for Proton Therapy: <http://www.proton-therapy.org/howit.htm>
- Lee C.T., B. S. (2005). Treatment planning with protons for pediatric retinoblastoma, medulloblastoma, and pelvic sarcoma: how do protons compare with other conformal techniques? *International Journal of Radiation Oncology Biology Physics*, *II* (63), 362-372.
- Peters S.T.H., H. W. (2006). Dose-response in radiotherapy for localized prostate cancer: results of the dutch multicenter randomized phase III trial comparing 68 Gy of radiotherapy with 78 Gy. *Journal of Clinical Oncology*, *XIII* (24), 1990-1996.
- Proton Therapy*. (n.d.). Retrieved February 28, 2011, from Radiology Information: <http://radiologyinfo.org/en/info.cfm?pg=protonthera>
- Proton Therapy fact sheet*. (n.d.). Retrieved February 28, 2011, from National Association for Proton Therapy: <http://www.proton-therapy.org/facts.htm>

*Proton Therapy now targets Lung Cancer.* (n.d.). Retrieved March 15, 2011, from The National Association for Proton Therapy: <http://www.proton-therapy.org/pr08.htm>

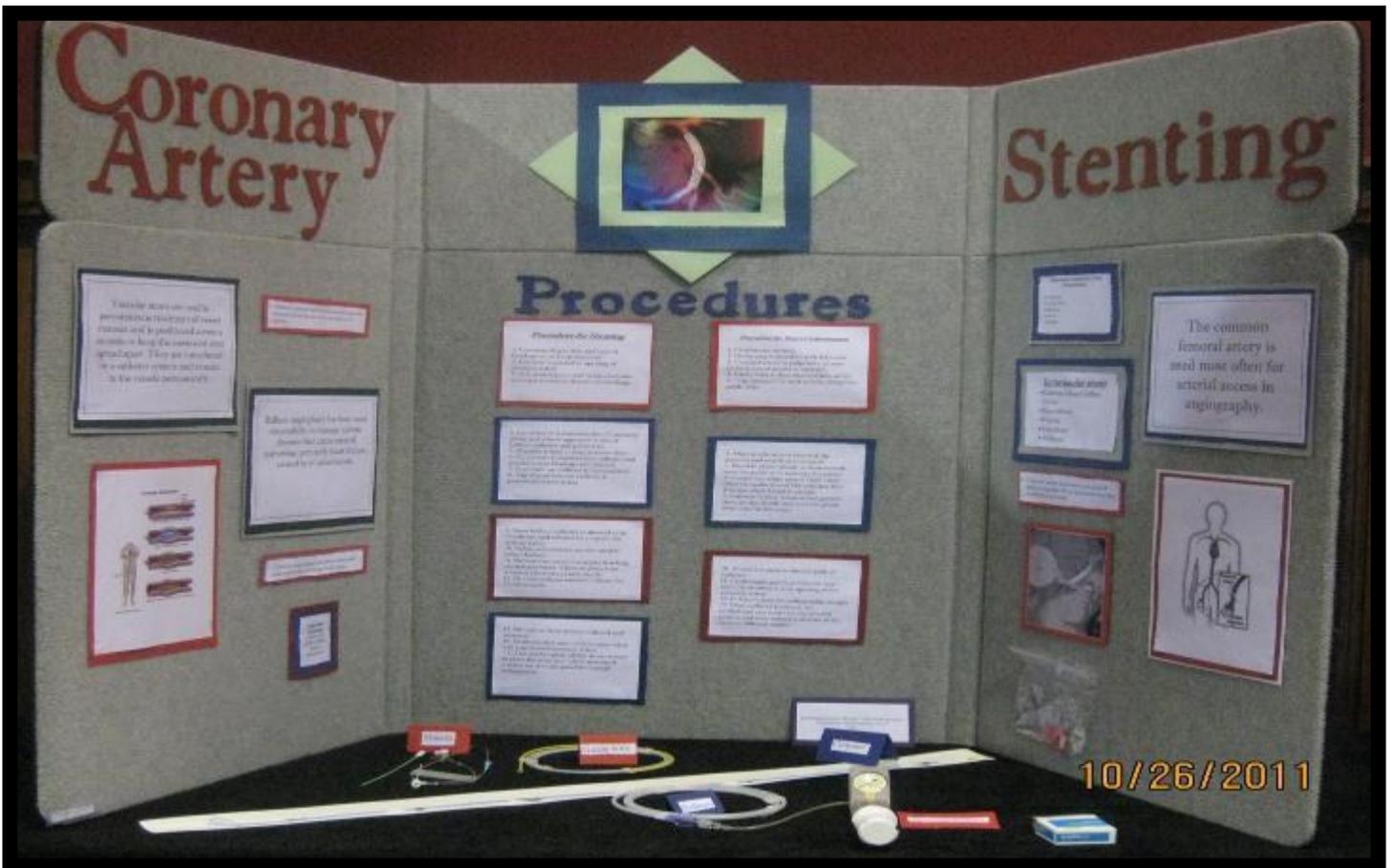
*Proton Therapy takes aim in Prostate Cancer battler.* (n.d.). Retrieved March 15, 2011, from The National Association for Proton Therapy: <http://www.proton-therapy.org/prostate.htm>

*Robert R. Wilson: Remembered as Father of Proton Therapy!"*(n.d.). Retrieved March 15, 2011, from The National Association for Proton Therapy: <http://www.proton-therapy.org/pr10.htm>

*Treating Brain Tumors.* (n.d.). Retrieved February 28, 2011, from ProCure: <http://www.procure.com/ProtonTherapy/TumorsTreated/BrainTumors.aspx>

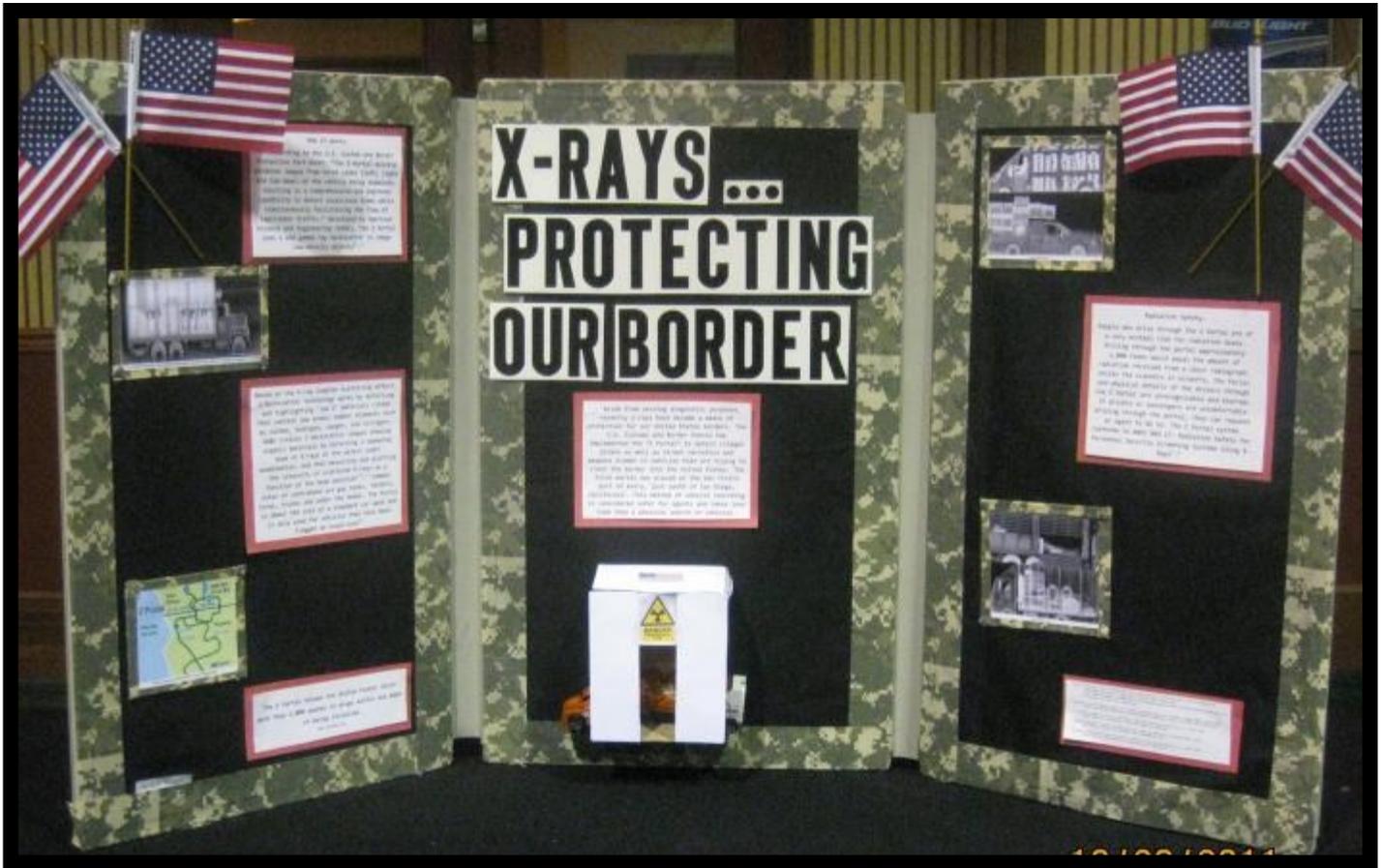
Vargas C., F. A. (2008). Dose-volume comparison of proton therapy and intensity-modulated radiotherapy for prostate cancer. *International Journal of Radiation Oncology Biology Physics* , III (70), 744-751.

# Student Exhibits



**1st Place**  
**“Coronary Artery Stenting”**  
Student: Jennifer Tucker  
(UMMC)

# Student Exhibits

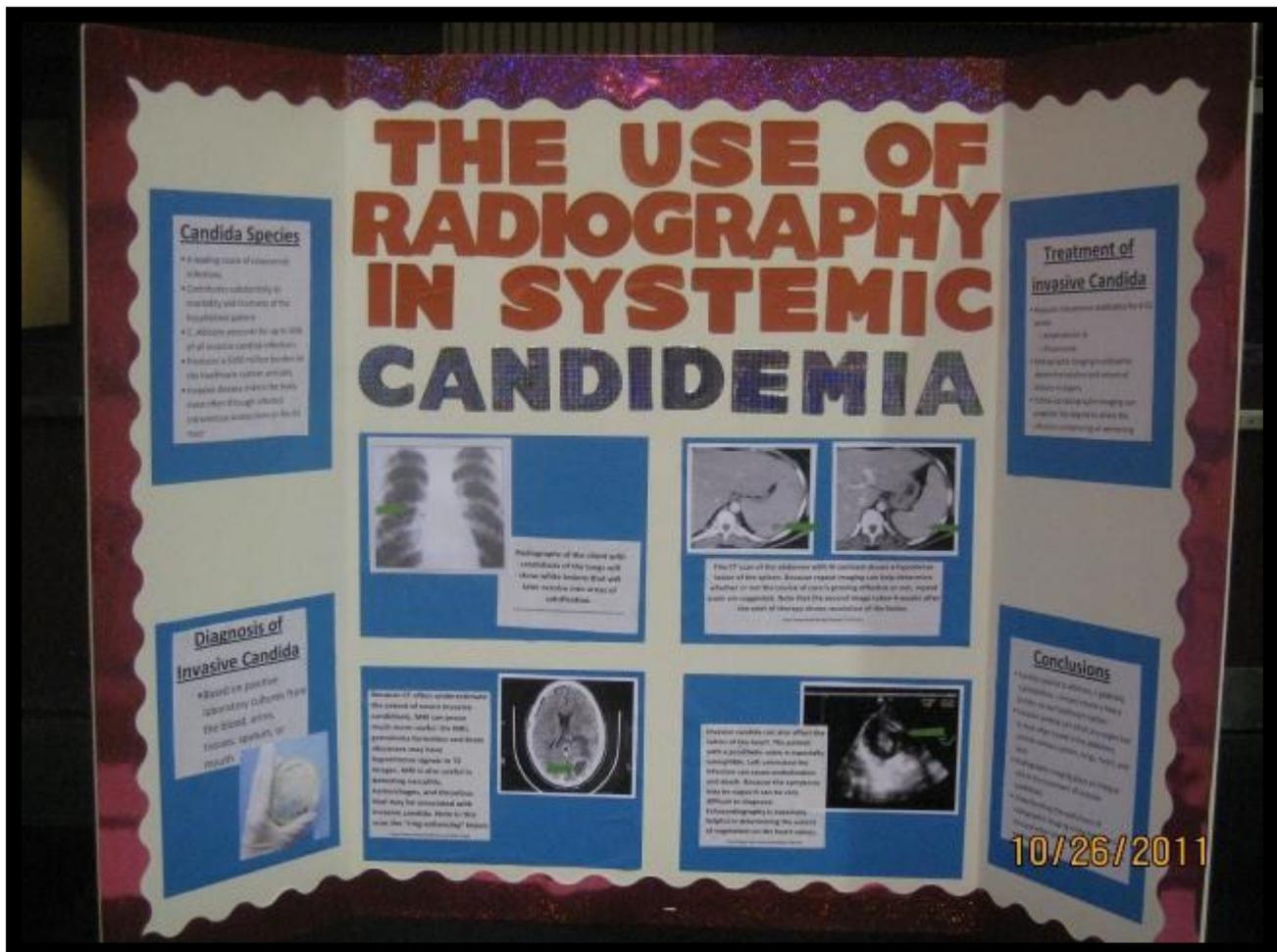


**2nd Place & People's Choice**

**"X-rays...Protecting Our Border"**

Students: Chelsey Edwards, Beth Floyd, Leila Jackson,  
Chelsi Smith, and Catherine Strader  
(Co-Lin)

# Student Exhibits

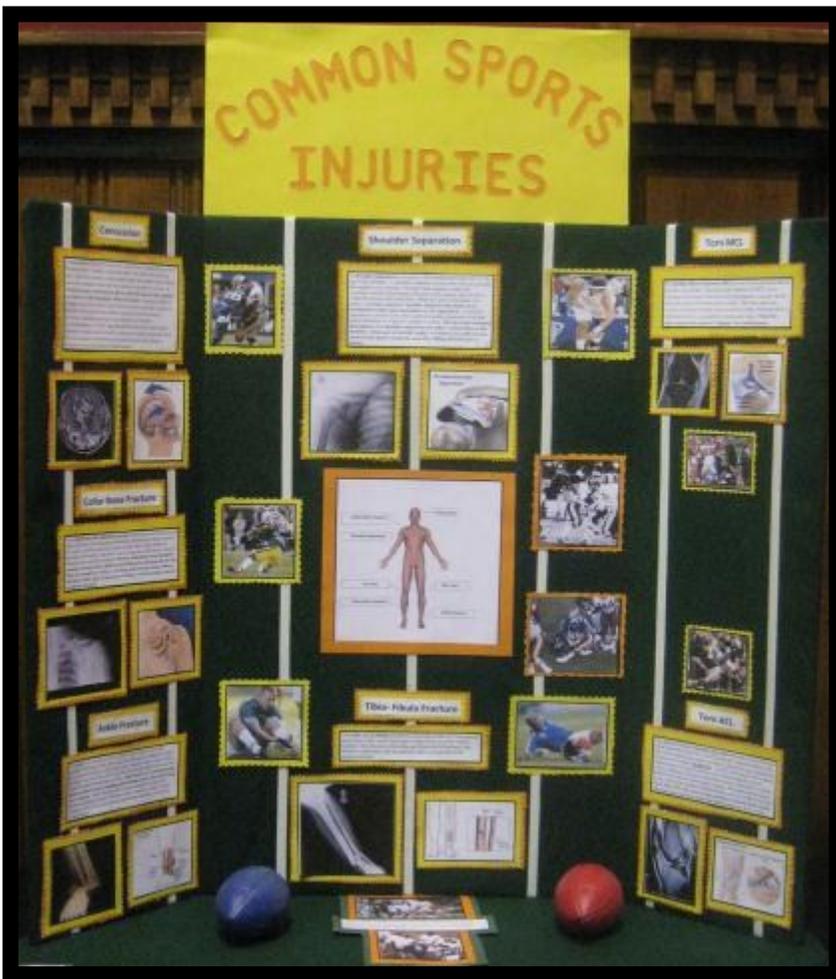


3rd Place

“The Use of Radiography in Systemic Candidemia”

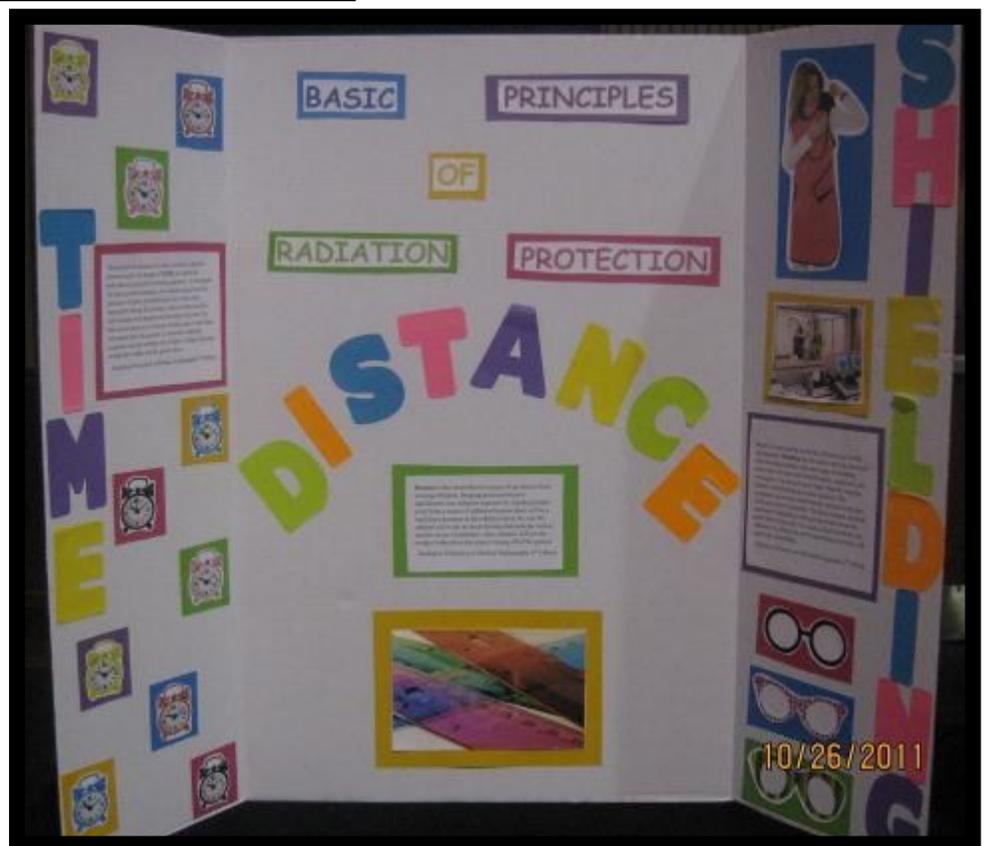
Student: Allison Eads  
(UMMC)

# Student Exhibits

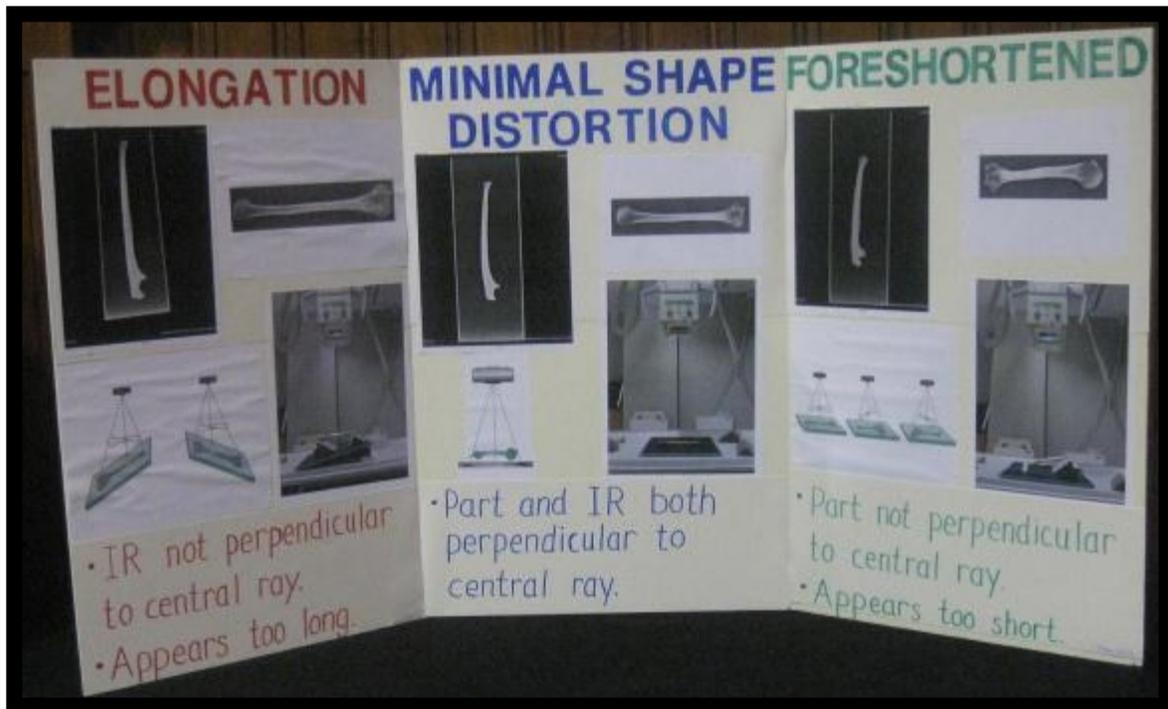


**"Common Sports Injuries"**  
Student: Jared Mullins  
(UMMC)

**"Basic Principles of  
Radiation Protection"**  
Students: Kylie Gardner,  
Christy Gilmer, & Steffi River  
(UMMC)

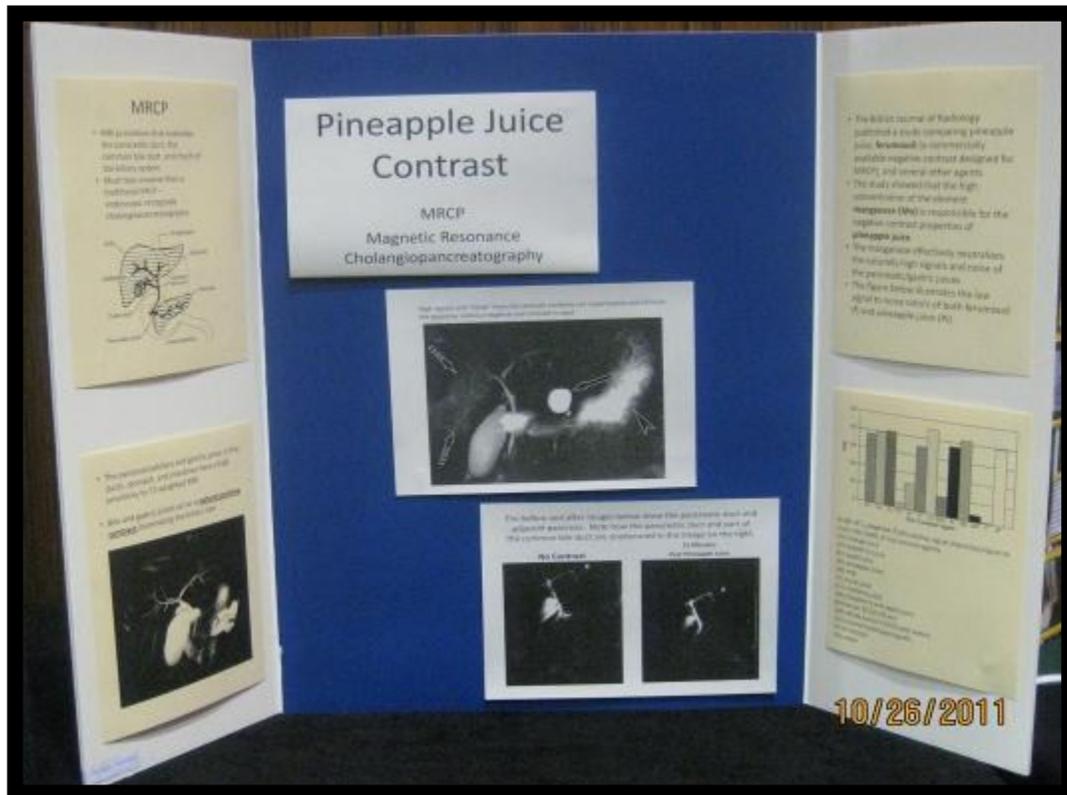


# Student Exhibits



## “Distortion”

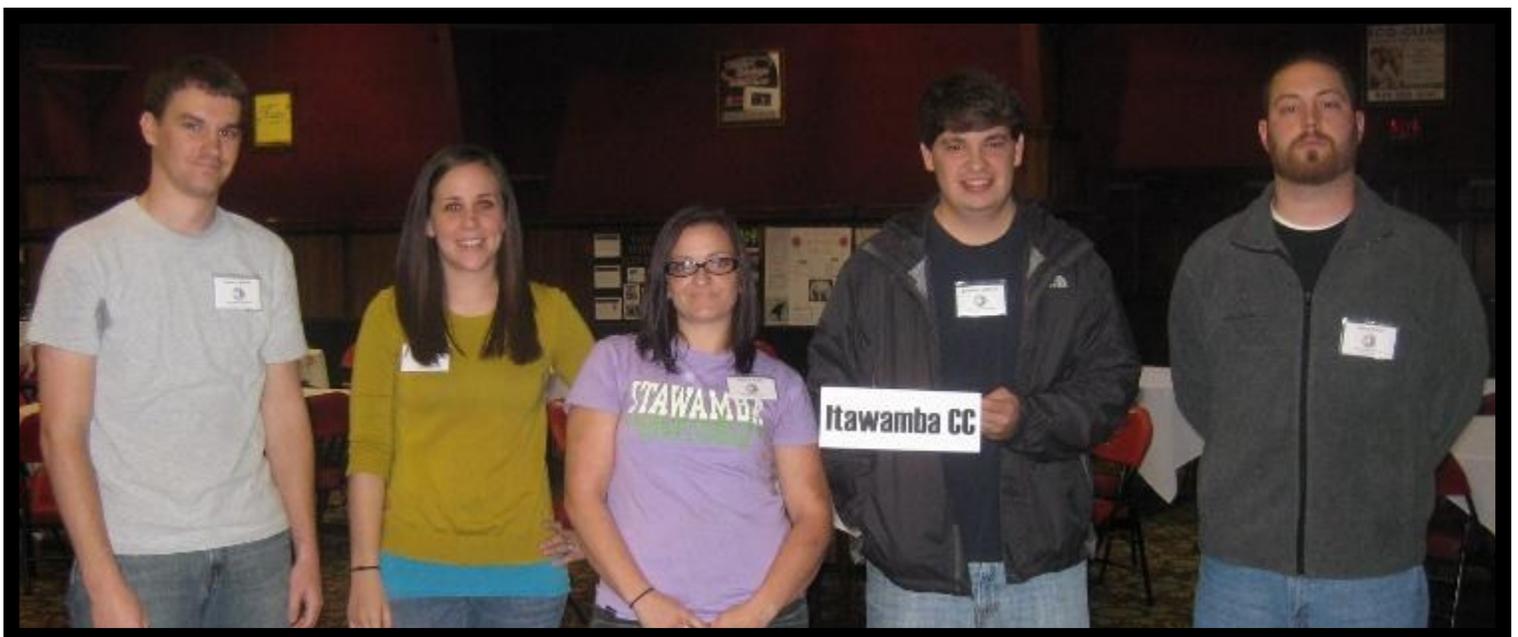
Student: Lee Brown (UMMC)



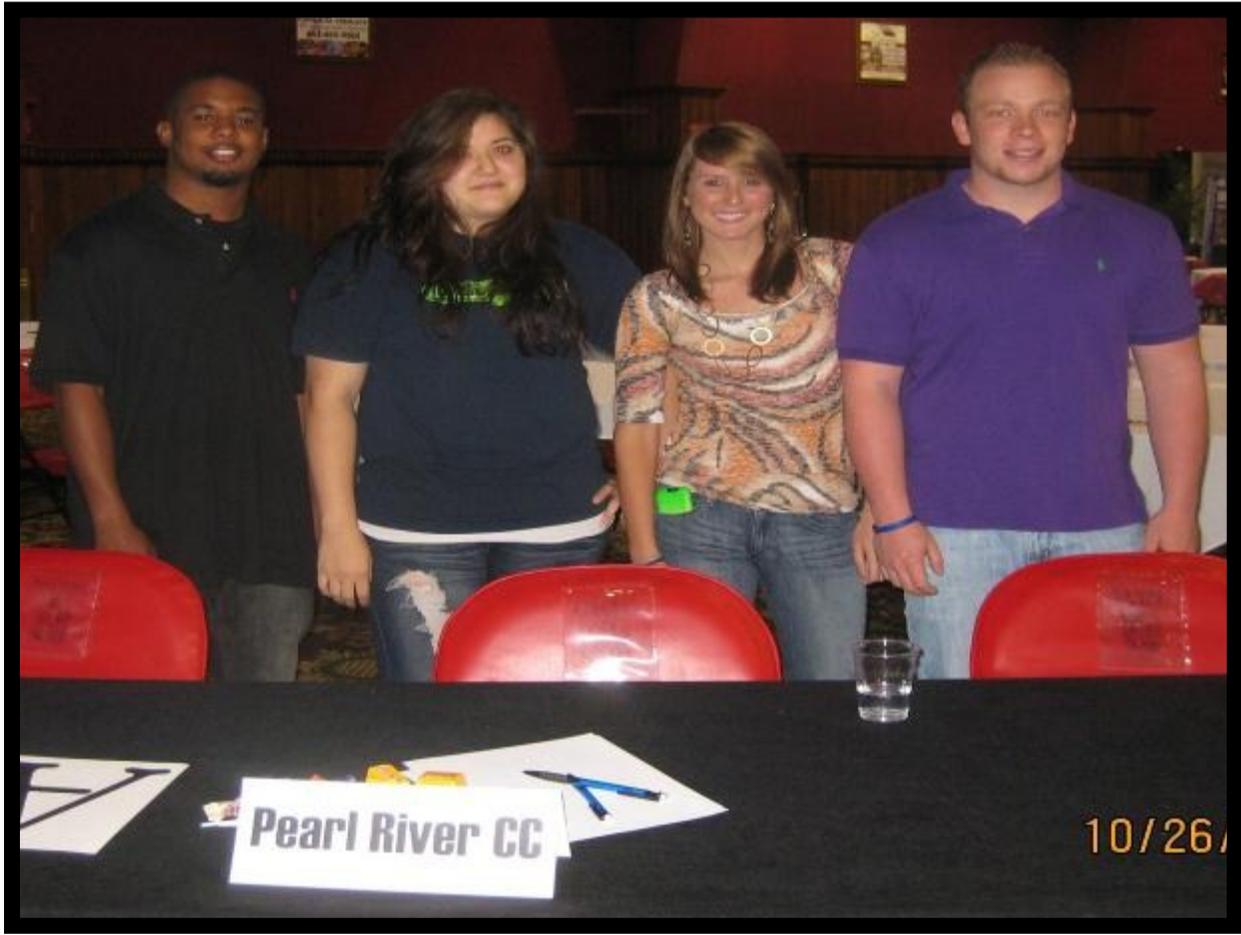
## “Pineapple Juice Contrast: Magnetic Resonance Cholangiopancreatography (MRCP)”

Student: Brad Norris (UMMC)

# Student Prep Bowl Competition







# Student Prep Bowl Results



## 1st Place - University of MS Medical Center

Students (from L to R): Rasul Azeez, Anne Davis, Melissa Porter, Lee Hunt, and Kate Garner



## 2nd Place - Pearl River Community College

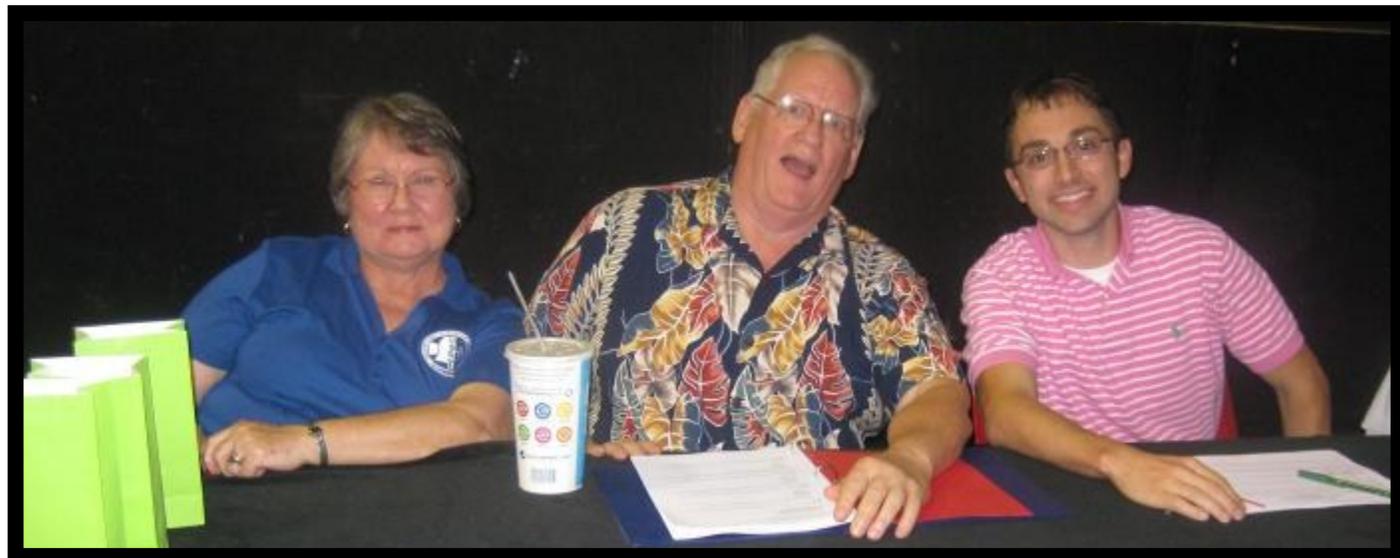
Students (from L to R): Laken Toarmina, Rebecca Laubscher, Logan Holden, and Rishawn Haynes



## 3rd Place - Itawamba Community College

Students (from L to R): Jessica Walts, Robin Nanney, Jason Klow, Brandon Wilburn, and Austin Burns

# Student Prep Bowl Support



A special thanks to Paula Young, “Fuge” Fucillo, and Jordan Johnson for helping out as Judges for the competition!



A special thanks to Sherrill Wilson for serving as Moderator for the Prep Bowl!

# Life Member Breakfast





# 2011 MSRT Conference...



Nancy Adams demonstrated the "BE Strut" during her presentation...hilarious!!!



Amber Nelms and Jennifer Davis  
from Northeast MS CC



Dr. Bushong having fun with Sherrill and Kathy...Looks like Kathy got to feed his chicken!







# Presidential Luncheon



Suzanne Fisher  
MSRT President - 2010



John Melvin  
MSRT President - 2011



Christy Thomas  
Executive Secretary/Membership



Chuck Busby  
Conference Coordinator



**Rita Fraser**  
**Training Session Coordinator**



**Kathy Stegall**  
**Conference Coordinator**



**Mike Ketchum**  
**Chairman of the Board**  
**2010**

# Ben Riley...Life Member...Sharing Memories with Long-Time Friends and Showing Support of New Ones!





John Melvin & Robbie Nettles

Cathy Parsons (TSRT)  
with Diane (above)  
& with Sherrill,  
Mike, and Paula (right)



Arlene Foushee...Life Member



Roy Haynes & Sherrill Wilson



**Kristi Moore presented the  
Technologist of the Year Award  
to Mike Ketchum**



**Mike Ketchum presented the  
President's Plaque to  
Suzanne Fisher**



**MSRT Student Delegates  
Jennifer Tucker & Lee Brown  
(UMMC)**



**Students...Fantastic job with your Exhibits!!!  
We appreciate your participation!!!**



**And the winners are...**

**(L-R): Jennifer Tucker: 1st Place; Allison Eads: 3rd Place;  
Chelsey Edwards, Catherine Strader, & Leila Jackson: 2nd Place  
*(not pictured Beth Floyd & Chelsi Smith: 2nd Place)***



**Students...Excellent presentation of your papers!!!  
We appreciate your participation!!!**



**Jordon Johnson (front, middle) with his new  
Mississippi Student Support System!**

# Costume Party!!!



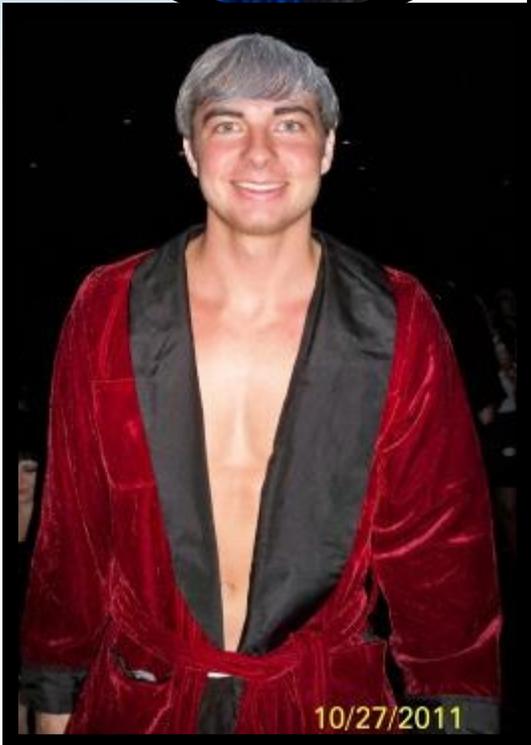
Be Afraid...  
Be Very Afraid!!!



Gilligan...  
Where's Ginger?



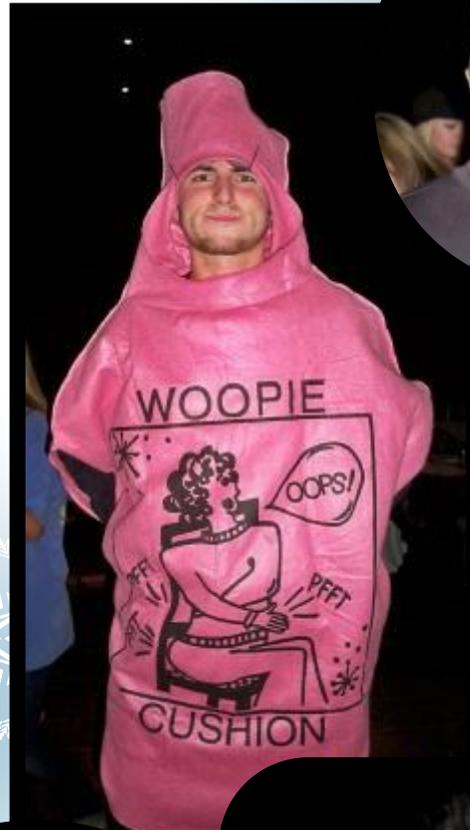
Drop it like it's hot...



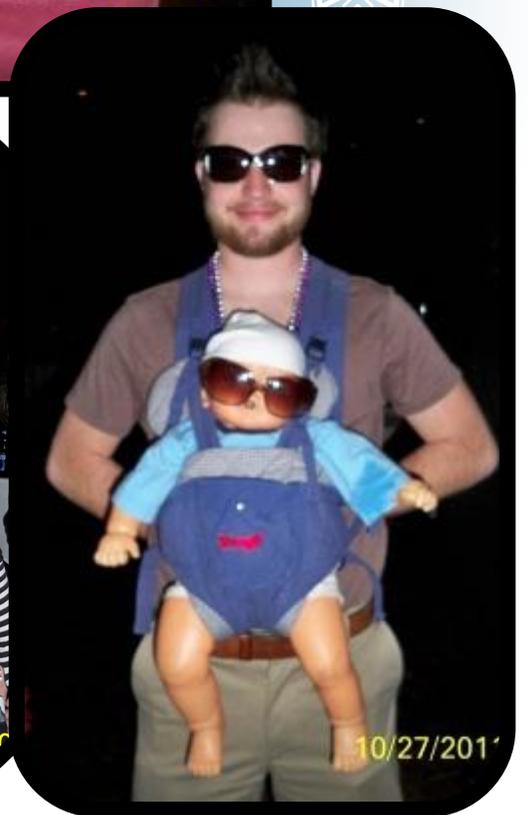
How many licks does it take to get to the tootsie roll center of a tootsie pop?



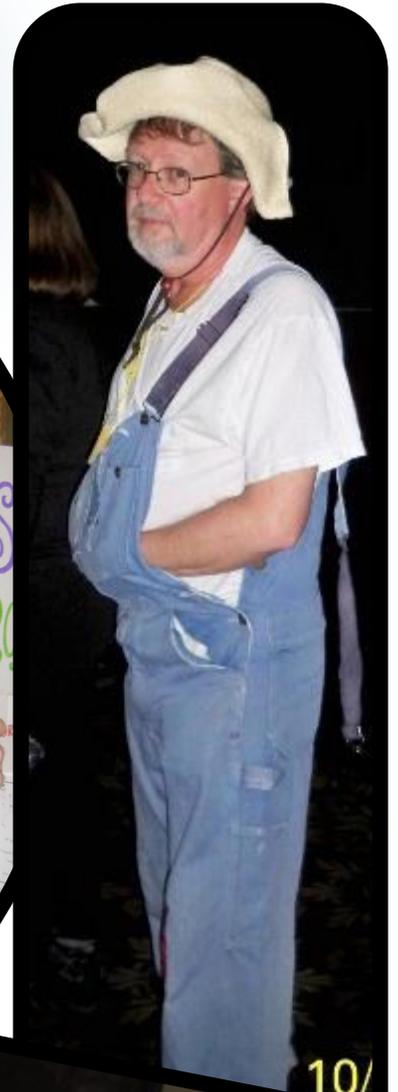
Let's find out...  
One...Two-hoo...Three...  
Crunch...Three!!!



Oops!



You might be a redneck if...





Barbie & Skipper!!!



???



Bieber Fever!!!

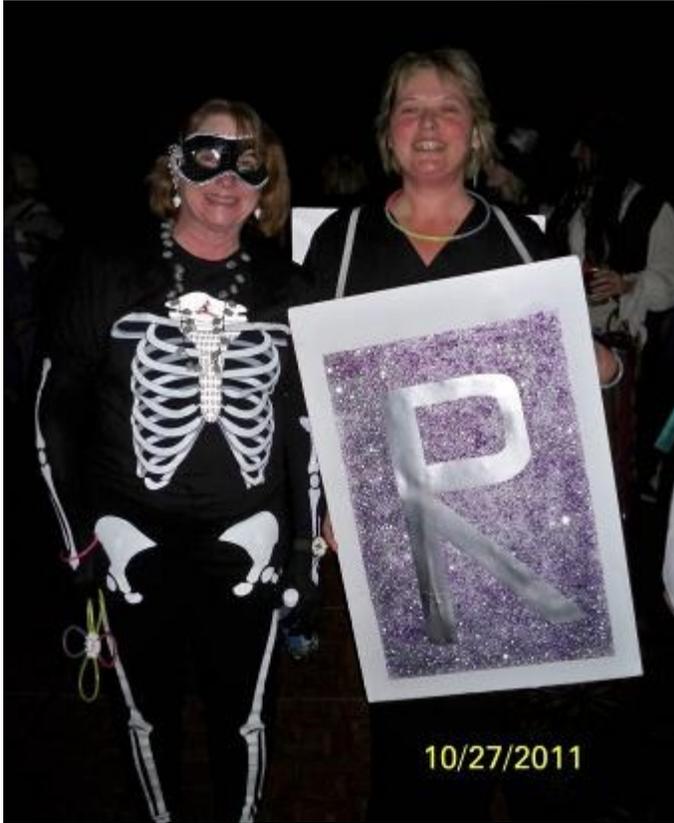


Captain Dan!!!



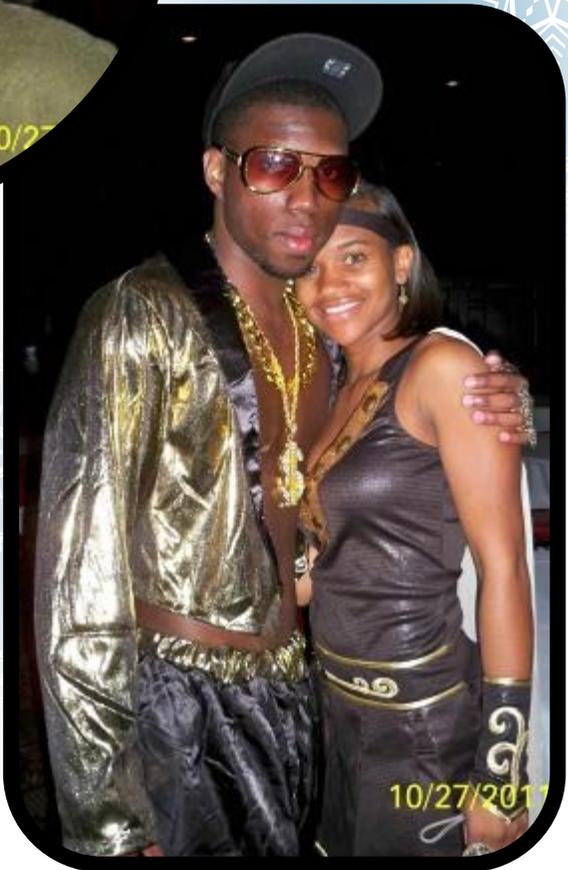
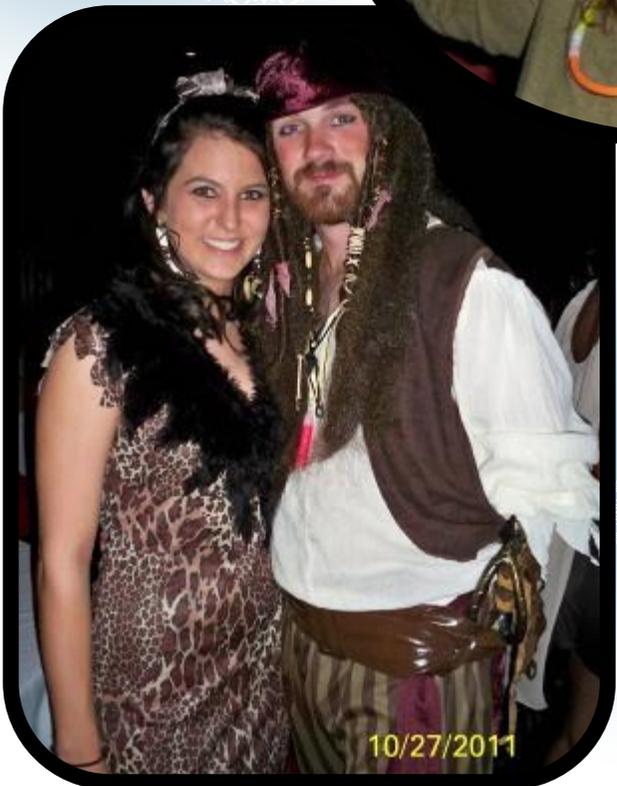
???

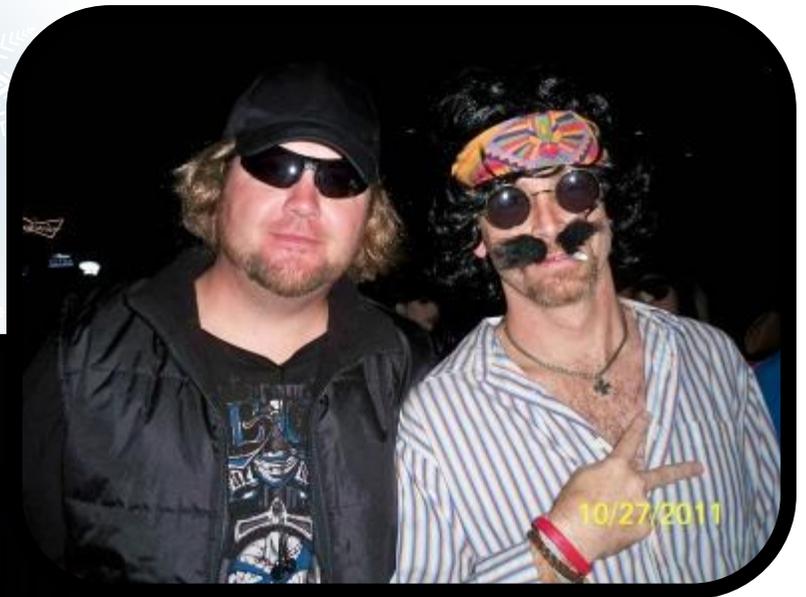
What's  
wrong  
with this  
picture???











As you can see...  
everyone had an  
awesome time!!!



# Costume Contest Winners



## **Pediculosis Capitis**

Pediculosis capitis is more commonly known as head lice. It is caused by the head louse known as *pediculus humanus var. capitis* which usually infests children between 3 and 12 years of age in the United States. It has a less common occurrence in African Americans possibly due to the diameter, shape, and twist-nature of their hair shaft (Martinez-Diaz, 2010).

Head lice infestation is not dependent on the factors traditionally associated with the condition. Therefore, factors such as poor hygiene, long hair, lack of hair brushing, or failure of the individual to wash their hair regularly do not cause an individual to become infested. Human head lice do not transmit disease; however, if left untreated the infestation may lead to secondary bacterial infection which could require medical attention (Martinez-Diaz, 2010).

The human head louse is usually about 1-2 mm long, wingless, and white-to-gray in color. It lives approximately 30 days. It has a long segmented body with 3 pairs of clawed legs. The louse buries its mouthparts into the host's scalp and feeds off of its blood every 4-6 hours (Martinez-Diaz, 2010). This also creates a situation where the louse's saliva is in contact with the scalp which can cause itching and inflammation. They generally remain close to the scalp and can move rather quickly. A typical female head louse will usually lay about 10 eggs each night which are normally deposited at the base of the hair shaft. These eggs are referred to as nits. Insoluble cement is used to hold the nit in place and it usually hatches within 8-10 days. The newly hatched head louse is now referred to as a nymph. The nymph goes through 3 growth stages and reaches adulthood within 8-10 days. "In general, nits located close to the scalp are viable and unhatched, although in warmer climates, viable ones may be found several inches away from the scalp" (Martinez-Diaz, 2010, p. 2).

Signs and symptoms of pediculosis capitis are few. Because of the louse's saliva irritating the scalp, there might be significant itching. However, itching may not present itself in every case. Although they are small, nits can be seen with close inspection but can often times be mistaken for dandruff. "The definitive di-

agnosis of a head lice infestation therefore requires the identification of live head lice in the hair. This may be done by detection (dry or wet) combing, using a comb with teeth less than 0.3 mm apart. It will be difficult to dry comb frizzy hair and application of conditioner will help this” (Goundrey-Smith, 2011, p. 123).

The primary reason that head lice are more prevalent in children is due to the transmission characteristics of the parasite. Head lice cannot jump, fly, nor swim; therefore, transmission is due to direct head-to-head contact or indirect contact where an individual uses an infected brush or comb. Also, head lice do not use vectors; meaning they cannot be transmitted via an animal such as a family’s pet (Goundrey-Smith, 2011). It stands to reason, that prevention should be fairly simple based on the way head lice are transmitted. If someone potentially has a head lice infestation, other individuals should not have head-to-head contact with that person. They should also avoid sharing brushes, combs, and ball caps. Prevention becomes more complicated, though, because the infestation generally appears in children. Unfortunately, it can be difficult to get younger children to recognize the potential of infestation or to demonstrate preventative measures that they do not fully understand.

There may be few symptoms and means of transmission, but there are many different treatments available. If a person acquires head lice, it is highly recommended that everyone in the household be treated at the same time as the infected individual to help minimize the potential of the infestation spreading to others. There is an abundance of chemical based treatments available for head lice. These include over the counter medications as well as medications that require a prescription. One of the most common over the counter medications is pyrethrin. Pyrethrin is created with the extract of chrysanthemum flowers combined with a synergistic agent called piperonyl butoxide. It has been used for over 100 years for the treatment of head lice. Pyrethrin, however, has no residual effects so it must be reapplied one week after the initial treatment (Stephens, 2000).

The most effective pediculicide is permethrin. The permethrin 1% cream rinse has consistently reported a 95% success rate when used correctly. Permethrin and pyrethrin work at the neuronal level of the louse which inhibits its respiratory system and essentially suffocates it. Lice are able to suspend respiration when

they are wet so it is advised to apply the pyrethrin or permethrin creams when the hair is dry (Stephens, 2000).

Lice can develop permethrin resistance which has led to the creation of prescription treatments for head lice. “Therefore, an overnight treatment of prescription-strength 5% permethrin topical cream under a shower cap is recommended for people with an infestation of permethrin-resistant head lice” (Stephens, 2000, p. 37).

Another prescription drug available for head lice is lindane. Its use has been diminished greatly because of the neurotoxic side effects it produces. If using lindane, special care must be used to avoid excessive cutaneous and mucous membrane exposure. The FDA suggests only using lindane when all other treatments have failed (Stephens, 2000).

Ivermectin is also effective in eradicating head lice. An initial dose of 200 mcg/kg is given orally and then repeated 7 days later. Trimethoprim/sulfamethoxazole is another effective treatment for lice. It does not directly kill the louse; instead, it destroys bacteria within the louse which causes it to lose its ability to digest human blood (Stephens, 2000). This, of course, causes the louse to starve to death.

In conclusion, pediculosis capitis is not necessarily a medical issue that requires elaborate treatments. Instead, it is more of an embarrassment and a nuisance. There are multiple treatments available that are extremely effective; and if one is quick to treat the infestation and follows the recommended procedures, the spread of the infestation should be kept to a minimum.

## References

- Goundrey-Smith, S. (2011). Looking at the life cycle and treatment of head lice. *British Journal of School Nursing*, 6(3), 123-126. Retrieved from EBSCOhost.
- Martinez-Diaz, G., & Mancini, A. (2010). CNE series. Head lice: Diagnosis and therapy. *Dermatology Nursing*, 22(4), 2-8. Retrieved from EBSCOhost.
- Stephens, M. (2000). Controlling head lice. *Patient Care for the Nurse Practitioner*, 3(9), 37. Retrieved from EBSCOhost.

## **Mycoplasma Pneumonia**

Mycoplasma pneumonia is the most common “atypical” pneumonia that primarily affects children between the ages of 5 and 15, college students and military recruits. Referred to as a community disease, mycoplasma pneumonia is often found to spread throughout closed communities due to its long incubation period and its inhabitation of the nasopharyngeal secretions which could cause infection to be spread over time (Ahmad, Drew, Plorde, 2010). Although mycoplasma pneumonia is most prevalent in fall and winter, it is not considered seasonal and can occur at any time of the year.

Mycoplasma pneumonia is caused by *M pneumoniae*, a type of mycoplasma and is difficult to diagnose due to the overlap of characteristics of other atypical illnesses. Mycoplasmas are the smallest free-living organisms, and are pathogens that affect only humans and spread through droplet transmission. They are rod-shaped bacteria, and their most striking feature is the absence of a cell wall, making diagnosis of the illness difficult (Levinson, 2010). *M pneumoniae* have filamentous forms which allow them to attach to respiratory epithelium. Once they attach they begin to produce hydrogen peroxide and superoxide causing damage to the epithelial cells and their associated cilia (Zaleznik & Vallejo, 2011). When bacteria have cell walls, they may be seen in Gram-stained sputum and the etiology of the illness may be identified. However, since *M pneumoniae* has no cell wall, it will not be seen in Gram-stained sputum as there is nothing to retain the dye, and while this alone may be a clue to the etiology of the pneumonia, it is not conclusive. Even though samples from throat swabs or sputum may be grown, it takes so long for the organism to colonize, that growing a culture is an inefficient means of diagnosing mycoplasma pneumonia. The best way to determine whether or not a patient has mycoplasma pneumonia is through serologic tests, and the most conclusive and recommended of serologic tests is a complement fixation titer (Ahmad, et al., 2010).

Mycoplasma pneumonia is spread in close communities, from person-to-person by infected respiratory droplets. Mycoplasma pneumonia is especially prevalent in school aged children, college students and military

recruits. This pneumonia has the ability to spread quickly and may also reoccur, as immunity is incomplete once there has been recovery (Ahmad, et al. 2010).

Baum (2011) illustrates how quickly *M pneumoniae* may spread in the following:

A report of an outbreak in a military unit of 91 trainees illustrates the high attack rate and identified risk factors for symptomatic disease. During a 12 day period, 41 trainees (45 percent) had respiratory illness; 10 (11 percent) developed pneumonia. Multivariate analysis identified two factors associated with symptomatic *M. pneumoniae* infection:

- Lower preexisting immunoglobulin G levels
- Smoking

If someone is hospitalized with mycoplasma pneumonia, the transmission of the disease can be controlled by following droplet precautions which should continue through the duration of the illness (Baum, 2011).

*Mycoplasma pneumoniae* is not diagnosed quickly; therefore, treatment begins with empirical antimicrobial therapy. The most common antimicrobial therapy for possible mycoplasma pneumonia in both adults and children is azithromycin, doxycycline, erythromycin or a fluoroquinolone, such as levofloxacin or moxifloxacin. Although the antimicrobials and fluoroquinolones used to treat mycoplasma pneumonia are the same for adults and children the dosages and duration of treatment vary slightly. According to Levinson (2010) mycoplasma pneumonia spontaneously resolves itself, but the use of a macrolide such as erythromycin or azithromycin shortens the duration of symptoms. Penicillins and cephalosporins are ineffective in the treatment of mycoplasmas since the organisms lack a cell wall (Levinson, 2010).

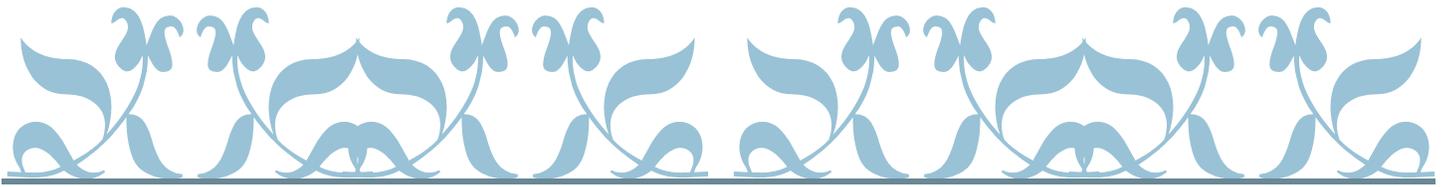
Radiographs are not definitive for diagnosing mycoplasma pneumonia. They may show radiographic patterns of pneumonia, but the patterns could be symptoms of pneumonia caused by any other agent other than *M pneumoniae*. Most radiographs show four frequently described chest patterns. They may show bronchopneumonia, plate-like atelectasis, nodular infiltration, and hilar adenopathy. The most common finding on a radiograph is the peribronchial pneumonia pattern. It consists of a thickened bronchial shadow, streaks of in-

terstitial infiltration, and areas of atelectasis, all of which have a predilection for the lower lobes of the lungs. High resolution computer topography is preferable to a chest x-ray since it is more sensitive for demonstrating abnormalities than a chest x-ray (Zaleznik & Vallejo 2009). According to Zaleznik and Vallejo (2009) “High resolution CT scan is more sensitive for demonstrating abnormalities than is chest radiography in cases of *M. pneumonia pneumonia*.” High resolution CT may, by contrast, show nodules and thickening of the broncho-vascular shadow which were commonly found in 82-89% of the HRCT’s respectively. The percentage of chest x-ray findings of the same conditions was considerably lower, 18-50% respectively. Radiographs also showed pleural effusion in about 20% of patients when a lateral decubitus film was performed. However, regardless of all the scans and chest x-rays may show, no distinguishing characteristics of mycoplasma pneumonia are shown. In fact, the main difference between mycoplasma pneumonia and pneumonia caused by pathogens other than *M pneumoniae*, is the gradual onset of symptoms. Patients with mycoplasma pneumonia demonstrate less respiratory distress, and a usually normal white blood cell count (Zaleznik & Vallejo, 2009).

*Mycoplasma pneumonia* is usually less severe than pneumonia caused by other pathogens. This type of pneumonia most commonly affects school aged children, college students, and military recruits, all of which are considered closed communities. The onset is insidious since the incubation period is long and symptoms are gradual. Immunity is short and incomplete and the disease may recur. However, it is empirically treated with macrolides and fluoroquinolones and most people make a full recovery.

## References

- Ahmad, N., Drew, W. L., & Plorde, J.J. (2010). *Mycoplasma Pneumoniae*. In *Sherris Medical Microbiology, 5e* (Chapter 38 part III.). Retrieved from <http://www.accessmedicine.com/popup.aspx?aID=6946446>
- Baum, S.G. (2011). Mycoplasma Pneumonia Infection in Adults. Retrieved from <http://www.uptodate.com/contents/mycoplasma-pneumoniae-infection-in-adults>
- Levinson, W. (2010). *Mycoplasma Pneumoniae*. In *Review of Medical Microbiology and Immunology* (Chapter 23). Retrieved from <http://www.accessmedicine.com/popup.aspx?aID=6453396>
- Zaleznik, D.F., Vallejo, J.G. (2009). Mycoplasma pneumonia infection in children. Retrieved from <http://uptodate.com/contents/mycoplasma-pneumoniae-infection-in-children>



## *Words of wisdom to live by...*

**SLOW** DOWN  
AND ENJOY  
**LIFE**



IT'S NOT ONLY  
THE SCENERY  
**YOU** MISS  
BY GOING  
TOO FAST,  
**ALSO** MISS

AND YOU OF  
THE **SENSE**  
OF WHERE  
**ARE**  
GOING  
**WHY.**

Please be sure to check out the MSRT website in late April for the next issue of **THE BEAM!!!**

*Kristi*

Submission deadline for the next issue is March 30, 2012.

