



## McLaren Regional Medical Center: Setting the Bar for Patient Satisfaction!

By Raymond Rudoni, M.D., FA.C.E.P.

The McLaren Regional Medical Center Emergency Department is delighted to report the Patient Satisfaction Data for the first three quarters of 2004. To summarize, we are setting the bar! Our facility has contracted with P.R.C., a national patient satisfaction company which contacts emergency department patients on a daily basis, and then compiles the responses into data sets. This data is benchmarked against similar sized emergency departments in the community and is also compared to other departments within the hospital.

We have been following trends in four major areas and are specifically interested in those patients who responded, "EXCELLENT," to the items listed below:

1. How would you rate your emergency department doctor's understanding and caring?
2. How would you rate your doctor in total time spent?
3. How would you rate overall team work between doctors, nurses and staff?
4. How would you rate the overall quality of care?

With these topics in mind, the emergency department management team, including doctors, extenders, nurses, techs, clerks, registration, and managers, along with hospital administrators, created several educational endeavors designed to improve our scores.

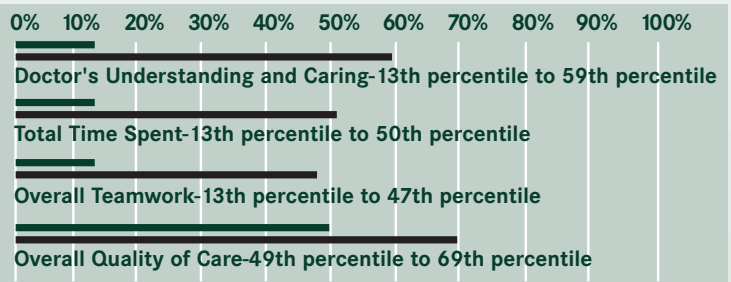
### Examples include:

- Scripted responses for staff to use when answering phones, talking with visitors, and explaining wait times
- Emergency Department information cards which allow patients to write the names of their nurses and doctors with space to write comments (both good and bad) which the staff review

- McLaren embroidered scrub tops, which are given to staff members who have received verbal and written compliments, as a token of appreciation
- Memorandums and reminders, along with examples were sent to emergency department team members re-iterating the importance of customer satisfaction and service

Following the education and implementation of these and other ideas, third quarter data for the above four questions were again tallied and compared to data from the first quarter.

### The results were astounding:



The results were presented at the Medical Center Board of Trustees meeting and then compared to other areas of the hospital. The emergency department was the leader in all categories! To celebrate this accomplishment, the McLaren Regional Medical Center Department of Reward and Recognition will soon plan a special event for the staff and publish the data in the McLaren Regional Medical Center newsletter, *The Connection*.

The entire Emergency Department team has contributed to these accomplishments. Though there is always room for improvement, I am extremely proud of the department, who in the midst of a census increase of almost 6%, found the time and energy to make a difference in the eyes of our patients, the hospital, and the community. ♦

Inside:

### Tuberculosis Management in the U.S.

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# St. John North Shores with Harrison Township Fire Department on Have a Heart for Harrison

By Claudia Cartwright, Community Relations Specialist, SJNSH

Recently St. John North Shores Hospital (SJNSH) had the opportunity to partner with the Harrison Township Fire Department on their Have a Heart for Harrison campaign. The hospital's commitment was to help the fire department place an Automatic External Defibrillator (AED) in the Tucker Senior Center. "Because we have the opportunity to do programs at the Senior Center and our hospital is very involved with the senior community, we felt this was the perfect place to start," says David Sessions, administrator at SJNSH. St. John North Shores Hospital recently upgraded its emergency department. The Emergency Department is now staffed by St. John



Dr. Anthony Southall presents Chief Carl Seitz with a check from St. John North Shores Hospital to purchase the AED for the Tucker Senior Center.

Hospital and Medical Center Board Certified Emergency Medicine physicians on a 24-hour a day basis, so should a serious medical emergency occur, the staff at SJNSH is prepared to help. "We have always been able to provide quality medical care to the community," says Dr. Anthony Southall, Medical Director of Emergency Services at SJNSH. "However, with our upgrades we'll be in a better position to care for the more acute cases coming through our emergency department doors and provide backup for the Harrison Township paramedics." ♦

For more information on the **Have a Heart for Harrison** campaign, please contact Carl Seitz, Fire Chief at 586.466.1450.

## Research Update

By Sandeep Gupta, M.D.

With the supervision of Dr. Charlene Irvin, the Department of Emergency Medicine at St. John Hospital and Medical Center continues to update our colleagues with advances in medicine. Recently Dr. Vito Rocco and Dr. Robert Sills were congratulated as they presented a poster presentation on Gastric Decomination in the Emergency Department: What is the consensus? at the Annual American College of Emergency Physicians Scientific Assembly in San Francisco.

In addition, several individuals headed out to Georgetown University to present at the Annual Mid-Atlantic Regional Society of Academic Emergency Medicine conference in Washington D.C. The oral presentations were as follows:

Frequency of Positive STD Cultures in Female and Male Patients Treated Presumptively for STD's in the Emergency Department by Dr. Gjon Dushaj; Emergency Department Level of Service as a Function of Age by Dr. Sandeep Gupta; Seasonal Variation in Gunshot Related Emergency Department Visits by Dr. Aaron Holley; and Variation of Patients Leaving Without Being Seen by Day of the Week by Dr. Alistair Macneil.

In addition, the Emergency Department is actively enrolling patients in the Quantitative D-Dimer Study for Patients with Presumed Pulmonary Embolism. This study is being conducted by Drs. Don Benson and Sandeep Gupta along with the Departments of Pathology and Internal Medicine. The faculty and residents in the Emergency Department at St. John Hospital and Medical Center look forward to a plethora of new research projects for the upcoming year. Thank you Dr. Irvin! ♦

# McLaren Regional Medical Center Prepares for a Face Lift!

By Raymond Rudoni, M.D., F.A.C.E.P.

The McLaren Health Care Corporation, which is comprised of four major hospitals (McLaren, Lapeer, Ingham and Bay City), has approved a 100 million dollar facilities upgrade package and will soon begin renovation of all hospitals. Of the 100 million dollars, McLaren is allocated 40 million dollars, of which 13.5 million is marked for the emergency department. The emergency department renovation will be the first of several to occur at McLaren. Though the construction will not begin until September 1, 2005, we are beginning to prepare for a project which will nearly double the size of the present emergency department. Construction will occur in three phases and should take upwards of eighteen months.

When completed, the emergency department will contain the following:

- 33 private rooms
- 6 triage stretcher rooms for a total of nearly 40 beds (not including fast track/observation)
- A new 8 bed fast track unit
- A new 9 bed observation unit (McLaren's first Emergency Department Observation Unit)
- A complete radiology area, which includes a new CT scanner and plain film room with PAX technology
- A new patient and bed tracking system
- Dual emergency department entrances, one for ambulatory patients and one dedicated to ambulances
- New and improved emergency department security system, with metal detectors and lock down capabilities
- 24/7 patient greeter services located in the emergency department lobby

Though the above are just highlights, the facility plans to purchase new equipment, and all the amenities which will provide the Flint community with a state of the art emergency department designed for 60,000 visits per year. The 2003-2004 census was 43,600. We are very proud of the investment McLaren plans to make in the next few years. We believe the emergency department is the front door to the hospital, and look forward to the renovation, and associated challenges. I am confident that upon the completion, McLaren's emergency department will be the finest in Genesee County. ♦

# Lapeer Regional Medical Center: Express Minute

By Kenneth Parsons, M.D., M.P.H., F.A.C.E.P.

Continued progress is being made with respect to emergency department efficiency as well as Express Care. Since the last article several concepts have come to fruition. We have opened our new triage area allowing easier access to emergency department care. Besides a fresh look and an open floor plan, we now have two triage bays that allow us to triage multiple patients. With the average monthly growth of 5%, we have utilized this space with great success.

Express Care continues to strengthen the services provided at Lapeer Regional Medical Center. We have consistent daily volumes of approximately two patients per hour. We have met our goal of a 90-minute average turn-around with many days at or below 60 minutes. With this success, there are plans to increase the available space from the current 4 beds to 8, as well as expand the hours of operation from 8 to 12.

Scott Mango RN, MBA joined our team November 15th as the emergency department Nursing Director. He comes to us from Crittenton Hospital. His transition was seamless and has already had positive impact with nurse scheduling, process improvement, nurse recruitment, and interdepartmental relations. He is not afraid to lend a hand with both critical and non-critical patients.

Over the past several months, patient satisfaction tools have been implemented with the most recent being cable television. Thirteen-inch televisions were mounted on a swing arm in each patient room. They have been instrumental in alleviating tension while patients wait for their work-up to be completed. Patient complaints are a rare occurrence and we look forward to a more comprehensive assessment of patient satisfaction, as JD Powers will become our new vendor for this service.

With the start of the New Year, we will continue to provide an unsurpassed quality of care to patients requesting our service. I thank the entire Lapeer Regional Medical Center emergency department team for their efforts. ♦

# Update of Tuberculosis Management in the U.S.

By Renéé A. King, M.D.

In the early 1980's, after steady declines in new tuberculosis cases, ambitious plans were put forth regarding the elimination of TB from the US. These plans were not realized due to shortcomings on the part of the public health sector as well as the clinical community. The number of TB cases stopped declining. In fact there was a resurgence of tuberculosis in the late 1980's and the early 1990's. This review will touch on clinical aspects of the disease including diagnosis and treatment. It will also highlight the important role of the public health system in management of the disease for individual patients as well as for the public at large.

## Clinical Consequences and Epidemiology of Tuberculosis

The sharp increase in tuberculosis during the 1980's and 1990's could be attributed to five main things. These factors included 1) the deterioration of public health programs. 2) poor institutional control of the infection 3) the new and increasing presence of HIV 4) urban growth and crowding and 5) immigration. As the 1990's progressed, there were decreasing numbers of tuberculosis cases reported. This decline of TB could likely be due to a comprehensive strengthening of control activities which considered how best to face and tackle the elements contributing to the spread of this disease.

As the health care community met and faced the challenges of active TB with increasing success, a new challenge presented itself. The increasing presence of latent TB was due to the resurgence of primary active TB in the general population, the increase of TB in the HIV population (HIV itself was rapidly increasing in numbers), and immigration from parts of the world where tuberculosis is prevalent.

Primary tuberculosis is a mild, self-limited disease of the lung, and the diagnosis of this disease can often be missed. Almost all infections with *Mycoplasma tuberculosis* are transmitted by airborne particles 1 - 5 micrometers in diameter. Factors that strongly influence transmission are the number of bacteria excreted in an airborne sample, the closeness of the encounter, and the duration of exposure. Regardless of method of transfer, it is thought that as few as five *Mycoplasma tuberculosis* bacteria deposited in a terminal alveolus can lead to an infection. Once the *Mycoplasma* is in the alveolus they can appear to lie dormant, while seeding of other organs may actually be occurring. This covert dispersion of *Mycoplasma* particles can lead to later reactivation within the lung itself or in extrapulmonary sites. About 5% of patients with latent TB progress to active disease within 2 years of initial exposure. About another 5% develop active TB after the initial 2 years.

Symptoms of tuberculosis tend to be nonspecific and are classified as either systemic or organ specific. The classic symptoms of TB are fever, night sweats, anorexia, weight loss, and weakness. These symptoms are vague and are seen in many disease processes, so it is understandable how a diagnosis of TB can often be missed.

The lung is the primary site of a tuberculosis infection in 80 - 84% of cases in the US. Organ specific symptoms of pulmonary TB include cough, pleuritic pain, and hemoptysis. The chest radiograph of primary TB often shows infiltrates in the middle or lower lung areas with hilar adenopathy. This finding differs from radiographs seen in reactivation TB which may demonstrate upper lobe infiltrates, often with cavitation. It should be noted that clinical signs in patients with HIV (or other immunodeficient states) vary widely and are much less specific.

Extrapulmonary manifestations of TB are being seen more largely as a result of co-infection with HIV. The most commonly reported extrapulmonary sites of TB are the lymph nodes or joints. Other sites include the GU system, the CNS, the abdomen and the pericardium.

## Tuberculosis Treatments

It is important to note that complete and adequate treatment of TB is a combination of clinical evaluation and treatment of the patients as well as implementation of public health policies and procedures. All states are required to report a diagnosis of TB to public health authorities even when medical care is provided by a private physician. Public health officials are charged with ensuring compliance with treatment, evaluation of all patient contacts, and finding out about drug resistance patterns in local communities. The involvement of the public health care system in the management of TB allows for patients and their families to receive education about the disease. Another benefit of involving public health officials is that resistant-strain outbreaks can be readily identified and managed appropriately.

## Anti-TB Medicines and Current Treatment Recommendations

There are five antimicrobial agents that are considered first line therapies for tuberculosis. These medicines include isoniazid, rifampin, pyrazinamide, ethambutol, and streptomycin. There are several acceptable drug protocols available for effective treatment of TB. For example, if rifampin is not part of the treatment regimen, then 18 months is the minimal duration of treatment that has been sure to be curative. If resistance is not an issue, then the combination of isoniazid and rifampin is found to be curative at nine months. Adding pyrazinamide to the group for the first two months of treatment decreases total treatment time to six months. No regimen less than six months has been shown to successfully cure culture-confirmed TB. Current recommendations also suggest that whenever possible isoniazid is to be used (in combination with other first line drugs) for the duration of the treatment because of its efficacy, low cost, and tolerability. The goal is to find a regimen that the patient can tolerate and is conducive to compliance.

The most common regimen is isoniazid, rifampin and pyrazinamide used daily for eight weeks followed by isoniazid and rifampin daily or twice a week (at a higher dose) for 16 weeks. It has been suggested that unless resistance in a community is shown to be less than 4%, then ethambutol or streptomycin should be added until the organism is shown to be fully susceptible to all first line drugs.

Second line medicines are available but are less effective and more toxic, so these second-line drugs should be used only when a patient cannot tolerate the first line medicines or if a strain of *Mycoplasma* with multiple resistances is cultured.

Attempts should always be made to get adequate specimens for culture and sensitivity testing because drugs regimens are adjusted depending on the sensitivity of the *Mycoplasma* organism. Besides cultures, certain baseline laboratory studies should be obtained from adult patients. The lab studies include hepatic enzymes, bilirubin, creatinine, and CBC with platelets. If pyrazinamide is part of the treatment plan, then a uric acid level should be obtained. If ethambutol is part of the treatment plan then a visual acuity test should be documented and a red-green color perception test should be documented, especially in the pediatric patient. Throughout treatment for tuberculosis patients should be asked about symptoms and screened for side effects of these medications. A baseline chest radiograph is also necessary for diagnostic purposes and also for later comparisons.

Once treatment has begun, resolution of symptoms can vary in each patient. In a patient with positive sputum cultures the conversion to negative cultures is the only objective measure of effective treatment. Cultures should be obtained monthly until conversion is documented. Over 85% of patients treated with both isoniazid and rifampin will have converted to negative cultures within two months after the initiation of treatment. If cultures continue to be positive after three months consider noncompliance, malabsorption of medicines, drug resistance or some combination of these factors.

## CME Questions

### Treatment in HIV Patients

HIV patients who receive an appropriate regimen and adhere to it should have successful treatment of TB without an increased risk of failure or relapse. Rifampin should not be used with protease inhibitors and reverse transcriptase inhibitors because the levels of HIV medicines can decrease to subtherapeutic levels and rifampin will increase to toxic levels. Rifabutin is often used instead because it has fewer interactions. The exceptions are ritonavir (a protease inhibitor) and delavirdine (a reverse transcriptase inhibitor). These two medicines should not be used with either rifampin or rifabutin.

### Treatment of Extrapulmonary TB

The 6 month regimen is usually efficacious for extrapulmonary TB due to excellent tissue penetration of these medicines. In infants and children with TB meningitis, miliary TB, or bone and joint involvement, TB treatment is recommended for one year.

### TB Skin Testing

The gold standard for diagnosing latent tuberculosis infection is the Mantoux method where purified protein derivative (5TU) is intradermally injected into the volar or dorsal aspect of the forearm. After 48 to 72 hours the diameter of induration (not erythema) is measured. Three diameters of induration are indicative of a positive test for latent infection with TB. For patients with HIV (decreased immune responsiveness) or persons recently exposed to active TB a diameter of 5mm is considered positive. For patients at low risk a diameter of 15mm is considered a positive test. For person with some risk factors but not high risk, such as the healthcare worker without HIV, then a diameter of 10mm is positive.

Previously infected persons may lose the ability to react to the tuberculin skin test which could result in a false negative result. This initial test, even though it may not react, could lead to an immune response resulting in an increased reaction called the booster response. A positive booster response is considered a long term latent infection rather than a new conversion. Patients with a history of past TB infection should undergo two step testing - which is repeating a skin test within 2 weeks if the initial skin test was negative. Any increase in the diameter of induration is considered a positive result. Serial testing is effective because a patient without TB will not test positive with repeated skin testing.

The BCG (bacilli Calmette-Guerin) vaccine is not used in the US, but it is widely used throughout the rest of the world. The size and persistence of reaction to skin testing depends on the type and dose of the BCG vaccine. Due to this variation, the CDC recommends ignoring a history of receiving vaccination when interpreting the TB skin test.

### Treatment Regimens for Latent Tuberculosis

The American Thoracic Society and the CDC recommend several options for treatment of latent TB. The preferred regimen for adults is Isoniazid for 9 months with doses of either 5mg/kg/day with a maximum of 300mg or a 15mg/kg/biweekly with a maximum of 900mg. Isoniazid at the same dose but reduced to 6 months instead of 9 months is the preferred treatment for persons under 18 years old. Patients should be encouraged to maintain adherence to their treatment regimens. If a regimen of six months or longer is interrupted, then three additional months of treatment with isoniazid is warranted. If a two month regimen is interrupted and a lapse of three months has occurred then the regimen must be started over.

Before starting therapy a complete physical exam and history should be done. The history should include information about previous TB exposure, past medical history, and current medications (including HIV drugs). Again, baseline laboratory values and chest radiograph should be obtained.

### Conclusion

After a resurgence of tuberculosis in the 1980's and 1990's, TB is once again on the decline. To continue the trend clinicians must continue to be vigilant about diagnosing active tuberculosis as well as identifying appropriate persons to be screened for latent TB. The emergency physician is a unique figure in the varied, and at times complex, aspects of comprehensive management of TB. The emergency physician is often on the frontline of diagnosing tuberculosis and initiating appropriate treatment, while at the same time involving the specialist physician (such as the infectious disease specialist). Emergency physicians also initiate the public health aspects of managing TB by providing preliminary education for the patient and family members as well as coordinating communications with local public health officials so that appropriate and effective management can be sustained throughout the treatment period. ♦

1. All of the following are classic signs of tuberculosis EXCEPT?
  - a) Weight loss
  - b) Fever
  - c) Anorexia
  - d) Papilledema
  - e) Night Sweats
2. What does the chest radiograph in primary tuberculosis often show?
  - a) Infiltrates in the middle or lower lung zones with ipsilateral hilar adenopathy
  - b) Upper lobe infiltrates
  - c) Middle lobe infiltrates with cavitation
  - d) Diffuse interstitial infiltrates
  - e) Often it is normal appearing
3. Which state(s) require that a diagnosis of tuberculosis be reported to public health authorities?
  - a) Michigan
  - b) States with large urban areas ie New York and California
  - c) Tennessee
  - d) No state is required to report TB
  - e) All states are required to report TB to public health authorities
4. Which of the 5 anti-tuberculosis medicines is used whenever possible because of its efficacy, low cost and tolerability?
  - a) Rifampin
  - b) Pyrazinamide
  - c) Isoniazid
  - d) Streptomycin
  - e) Ethambutol
5. If a patient is started on pyrazinamide as part of the treatment regimen then which lab value must be measured along with the usual baseline labs?
  - a) Creatinine
  - b) Uric acid level
  - c) Bilirubin
  - d) Complete blood count
  - e) Hepatic enzymes

**References:** Article reviewed is "Management of Tuberculosis in the United States." Authors are Smalland Fujiwara in New England Journal of Medicine Vol. 345, No. 3 7/19/01

St. John Hospital and Medical Center, an organization accredited by the MSMS Committee on Continuing Medical Education Accreditation, certifies that this activity meets the criteria for a maximum of one credit hour in Category I towards the requirements for Michigan licensure and of the Physician's Recognition award of the AMA provided it is completed as designated.

**EMS hosted its annual holiday parties during December 2004 as a thank you to its hard working physicians and dedicated emergency department staff.**

*EMS wishes you a healthy new year.*



(Left) Anthony Southall, M.D., F.A.C.E.P. and Joseph Romain. (Right) Steve Ellegood and Kenneth Parsons, M.D., M.P.H., F.A.C.E.P.



Dave Sessions, V.P. Affiliated Services, St. John Hospital and Medical Center, Frank Poma, President, St. John River District, Joseph Romain, and Mark Taylor, President/CEO, St. John Hospital and Medical Center.



(Left) Bart P. Buxton, EDD, President/CEO Lapeer Regional Medical Center, and James M. Fox, M.D., F.A.C.E.P. (Right) Mrs. Jackie Fox, and Raymond Rudoni, M.D., F.A.C.E.P.

## January Calendar

- 4) McLaren Regional Medical Center, Department Meeting 8:00 am, ED Conference
- 6) Lapeer ER Section 7:30 AM Dining Room A&B
- 20) EM/Surgery Trauma Conference, St. John Hospital and Medical Center  
7:00 Lower Level Conference Room
- 20-23) MCEP, Midwest Winter Symposium, Boyne Highlands Resort, Harbor Springs, MI
- 26) St. John Hospital EM Staff Meeting 8:30 Classroom C
- 26) St. John Hospital EM Faculty Meeting 10:00 Classroom C
- 29) McLaren Regional Medical Center, Club 401, Holiday Inn Gateway Centre
- 29-30) MCEP, EMRAM In-Service Review Course, William Beaumont Hospital, Royal Oak, Michigan

## February Calendar

- 10) McLaren Regional Medical Center, Staff Meeting 6:00 PM, Ballenger Auditorium
- 17) EM/Surgery Trauma Conference, St. John Hospital, 7:00 Lower Level Conference Rm
- 23) St. John Hospital EM Staff Meeting 8:00 Classroom C
- 23) St. John Hospital EM Faculty Meeting 10:00 Classroom C
- 28) Lapeer Department of Family Medicine Meeting 6:00 PM ACR 4&5 A&B
- 28) Lapeer Quarterly Medical Staff Meeting 7:00 PM ACR 4&5

## March Calendar

- 1) McLaren Regional Medical Center, Department Meeting 8:00 am, ED Conference
- 3) Lapeer ER Section 7:30 AM Dining Room A&B
- 17) EM/Surgery Trauma Conference, St. John Hospital 7:00 Lower Level Conference Room
- 19) MCEP, Oral Board Review Course, Sinai-Grace Hospital, Detroit, Michigan
- 22) St. John Hospital Quarterly Staff Meeting 6:30 Hospital Auditorium
- 23) St. John Hospital EM Staff Meeting 8:00 Classroom C
- 23) St. John Hospital EM Faculty Meeting 10:00 Classroom C

### Questions & Comments:

If you have any questions or comments regarding this publication, please contact us at:

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*The information contained within this journal is not intended to establish the standard of care for any physician or employee of EMS, or St. John Health, but only to provide generalized education with respect to healthcare issues which arise in our profession.*



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