



CHILDREN'S OUTCOMES



A Publication of the Children's Hospital Outcomes Program & Information Resource Group (IRG).

Bronchiolitis/Viral Pneumonia – 2004 Results!

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In January 2004 the Bronchiolitis/Viral Pneumonia Clinical Care Guideline (CCG) at TCH was completely revised. It contains new guidelines for clinical assessment and monitoring, laboratory and radiologic studies, therapeutics, parent education, and discharge criteria. In addition, it contains a number of new measures which we use to analyze TCH compliance with the CCG. Each measure contains a goal that was set by the Bronchiolitis/Viral Pneumonia CCG interdisciplinary task force. Separate measures exist for inpatients and outpatients.

The Bronchiolitis/Viral Pneumonia CCG Monitoring Report was also revised this year to reflect the changes in the CCG. In addition, it is now treatment area specific. The inpatient section is divided into the following areas: 1) TCH Short Stay Unit, 2) TCH Other Inpatient Units, and 3) TCH at Parker Inpatient Unit. The outpatient section is divided into the following areas: 1) TCH ED, 2) TCH Urgent Care Centers, 3) TCH at Parker ED, and 4) TCH Outpatient Clinics.

The CCG measures were monitored using internal TCH data from the hospital's decision support system called BOB. Our results were then compared to several other pediatric hospitals around the country. These data come from PHIS (Pediatric Health Information System) and are included in the one-page report. To view the entire 2004 Bronchiolitis/Viral Pneumonia CCG Monitoring Report, please go to Planet TCH, click on Policies and Procedures, and then click on Pediatric Clinical Care Guidelines <http://planettch/policies/general/pdf/1651.pdf>.

Fig. 1

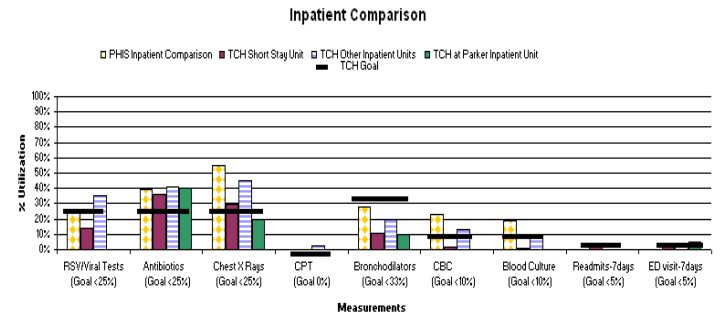
#	Measurements	TCH Goal	Inpatient Comparison	
			PHIS Inpatient Comparison	TCH - Locations Combined
			Otr 1 2003	Dec 2003 - Apr 2004
1	# Cases		658	397
2	% Admitted through ED		76%	87%
3	RSV/Viral Tests	<25%	26%	23%
4	Antibiotics (without coded rationale)	<25%	39%	36%
5	Chest Radiographs	<25%	55%	37%
6	Chest Physiotherapy (CPT)	0%	0%	1%
7	Bronchodilators (≥ 2 doses)	<33%	28%	15%
8	Meets Inter-Qual Admission Criteria*	100%		98%
9	CBC (patient age > 3 mo)	<10%	23%	8%
10	Blood Culture (patient age > 3 mo)	<10%	19%	6%
11	Average Length of Stay*	60 hr	67 hr	55 hr
12	Readmission Rate within 7 days	<5%		1%
13	ED visit within 7 days (same illness) **	<5%		3%

* p<.05 (significant difference between TCH Goal and TCH treatment area)
 * There have been no payment denials for these inpatients based on Inter-Qual status
 * PHIS ALOS in hours based on 2.78 days. Observation Patients removed for this measurement only
 ** Return ED visits may be planned or unplanned

During the 2004 respiratory season there were 397 Bronchiolitis/Viral Pneumonia admissions at TCH that met the CCG inclusion criteria. As shown in Figures 1 & 2, some of the inpatient analysis highlights are as follows:

- Bronchodilator use across all three inpatient areas was significantly lower than the TCH goal (p<.05) (see Fig. 2)
- Short Stay Unit inpatients were ½ as likely to receive RSV/viral testing as compared to the TCH goal (p<.05).
- Antibiotic use across all three inpatient treatment areas exceeded the TCH goal and the PHIS comparison.
- Non-Short Stay Unit inpatients were nearly 2 times as likely to receive a chest radiograph as compared to the TCH goal (p<.05).
- The readmission rate for each inpatient area was lower than the TCH goal.

Fig. 2



There were 1053 outpatient cases that met the CCG inclusion criteria. Some of the outpatient analysis highlights are as follows:

- About 50% of the outpatients were treated and discharged home from TCH Emergency Department (ED).
- The overall ED admission rate was approximately 39% in 2004.
- Utilization of antibiotics, chest radiographs, and bronchodilators in TCH ED was significantly lower than the TCH goal (p<.05).

Overall, clinicians should be pleased with the results in the Bronchiolitis/Viral Pneumonia CCG Monitoring Report. There will probably always be room for improvement and that is why we are producing this report. We should all take pride in our national reputation for these ongoing efforts to monitor and improve the care of children with bronchiolitis and viral pneumonia.

Recent Abstracts

Giesecker, K. E., T. Mackenzie, et al. (2002). "Comparison of two rapid *Streptococcus pyogenes* diagnostic tests with a rigorous culture standard." *Pediatric Infectious Disease Journal*. **21(10): 922-7.**

BACKGROUND: Comparisons of rapid antigen tests for the diagnosis of pharyngitis are often made between published studies but may not be reliable given differences in study design, sampling and reference standard definitions. Tests are rarely compared against each other in a single study. **METHODS:** The sensitivity and specificity of two rapid diagnostic tests were compared against a multiplate culture standard defined as the identification of on any of four culture plates. Paired swabs were tested for antigen using Genzyme's OSOM Ultra Strep A Test and compared with Biostar's Strep A OIA Max Test. **RESULTS:** Ninety-four (31.1%) of 302 matched samples were identified with The sensitivity of Genzyme's OSOM Ultra Strep A Test against the multiplate culture standard was 92.6%, significantly higher ($P= 0.001$) than that (75.5%) of Biostar's Strep A OIA Max Test. Specificities were 92.8 and 97.1%, respectively. Data analysis of culture results and statistical modeling showed that cultures of two or more samples are necessary for a sensitivity of 95% or greater for a comparison standard compared with true disease status. **CONCLUSIONS:** When comparing the performance of rapid antigen tests for pharyngitis, a rigorous culture standard should be used consisting of at least two separate samples (swabs and/or pledgets), ultimately plated on selective agar. Genzyme's OSOM Ultra Strep A Test was significantly more sensitive than Biostar's Strep A OIA Max Test in comparison with a multiplate culture standard and a same swab, single plate culture standard.

Simoes, E. A. and J. R. Groothuis (2002). "Respiratory syncytial virus prophylaxis--the story so far." *Respiratory Medicine*. **96(Suppl B): S15-24.**

Respiratory syncytial virus (RSV) is a common and highly contagious pathogen that infects nearly all children by the age of 2 years. It is responsible for significant morbidity and mortality worldwide among certain high-risk paediatric populations. Therapy is sub-optimal for RSV, thus treatment focuses on ameliorating symptoms. Since discovery of the virus in the 1950s, efforts have been ongoing to develop a safe and effective vaccine. These efforts have met with serious obstacles. Passive immunoprophylaxis presents a viable alternative to active immunization. In 1998, the genetically engineered humanized monoclonal antibody (palivizumab) was granted FDA (Food and Drug Administration) approval for prophylaxis of high-risk children in the United States; EMEA (European Agency for the Evaluation of Medicinal Products) approval followed in 1999 for Europe. It is now approved in over 45 countries worldwide. Palivizumab was shown to significantly reduce RSV-related hospitalizations in North America and Europe with few adverse effects. Clinical trial and outcomes data documenting experience with palivizumab to date continue to extend the initial safety and efficacy observations.

Stool, S., L. H. Carlson, et al. (2002). "Otitis media: diagnosis, management, and judicious use of antibiotics." *Current Allergy & Asthma Reports*. **2(4): 297-303.**

Otitis media continues to present a major challenge to practitioners in the clinical setting. With the ever-increasing trend toward the use of a sound research-structured approach to health care and the use of evidence-based guidelines, it is important to have an understanding of these findings related to otitis media. A review of research-supported literature regarding the diagnosis and management of this disease, and suggestions for the judicious use of antibiotics, are presented in this paper.

Wilson, P. E. (2002). "Exercise and sports for children who have disabilities." *Physical Medicine & Rehabilitation Clinics of North America*. **13(4): 907-23, ix.**

This article focuses on the exercise needs of children who have disabilities, how these needs differ from able-bodied children, and what medical concerns are relevant for a given disability. The information presented also discusses some preventative options related to individual sports and a discussion of various organized recreational and competitive opportunities available both nationally and internationally. In addition, a listing of major disabled sports organizations is provided for reference.

Stevens-Simon, C., M. Rudnick, et al. (2002). "Screening positive urine pregnancy tests for sexually transmitted diseases expedites the treatment of infected adolescent gravidas." *Journal of Maternal-Fetal & Neonatal Medicine*. **11(6): 391-5.**

OBJECTIVE: To test the utility of screening the urine samples used to diagnose pregnancies at urban teen clinics for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* by polymerase chain reaction (PCR). We hypothesized that urine screening would increase the proportion of teenagers treated for these two sexually transmitted diseases (STDs) before they initiated pregnancy-related care. **DESIGN:** A randomly selected subset of the urine samples used to diagnose 212 teen pregnancies were tested for *C. trachomatis* and *N. gonorrhoeae* by PCR. Endocervical testing was at the providers' discretion. Bivariate analyses were used to compare the teenagers randomized to the urine screening group ($n = 102$) and the non-screening group ($n = 110$). **RESULTS:** Of the 102 urine PCR tests, 14 (13.7%) were positive. Endocervical swabs were obtained in 31 (14.6%) of the 212 teenagers and five (16.1%) were positive. Since pelvic examinations were performed so infrequently, the net endocervical swab detection rate was significantly lower than the urine-based detection rate (1.8% compared to 13.7%; $p = 0.001$). Only one infected teenager was untreated when she initiated pregnancy-related care. Thus, the treatment rate was more than six times higher when urine samples were screened (12.7% compared to 1.8%; $p = 0.003$). **CONCLUSIONS:** Screening the urine samples used to diagnose teen pregnancies for two common STDs is a simple, non-invasive procedure that is acceptable to providers and patients, and significantly increases the number of teenagers who are treated for genital infection before they initiate pregnancy-related care.