



CHACHA NEHRU BAL CHIKITSALAYA

(Affiliated to Maulana Azad Medical College)

Clinical Microbiology Newsletter

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One of the most important activities performed by a clinical microbiology laboratory is the reporting of cumulative and ongoing summaries of institutional patterns of antimicrobial susceptibilities, which are called "antibiograms." In addition to their critical role in monitoring patterns of antimicrobial resistance, antibiograms are vital for making informed decisions about empirical antibiotic therapy.

It gives us immense pleasure to announce that we are finally through with the much needed process of placement of antibiotic policy at our hospital. This data helps us to identify the problem statement and thus making its way to rational use of antibiotics in our hospital and nearby area. Our hospital will probably be the first Delhi government hospital to publish microbiology newsletter with analysis and presentation of cumulative antimicrobial susceptibility data (antibiograms).

An ideal antibiogram should have many components including (1) reporting of unit-specific susceptibilities, (2) exclusion of duplicate isolates, (3) reporting of temporal trends in susceptibilities, and (4) reporting of susceptibility results separately for different anatomical sites of culture (e.g., blood, urine, and non-urine). However, all the features could not be included at this point of time due to practical reasons. Many short comings that came to light while preparing data for this issue has been rectified and will be reflected in subsequent issues. For example, separating data of ICU from non-ICU patients for more effective implementation of antibiotic policy. Unit-specific susceptibility data may also permit more focused and prompt identification of changes in resistance patterns.

This newsletter will be published on half yearly basis and we are looking forward to have effective antibiotic policy for our hospital which will help our government to contain funds in terms of antibiotic usage, help our patients who will be saved from receiving undesired antibiotics with decreasing hospital days and help our society in containment of emergence of drug resistance among various bugs in the community.

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Achievements of Clinical Microbiology Division in last one year

- Successfully completed one year of External Quality Assurance Program in Microbiology run by IAMM from CMC Vellore.
- Rapid blood culture (Bactec 9050) has been installed and is being used for samples from ICU and emergency and other needful patients.
- Successfully running DOTS center exclusively for pediatric patients.
- Integrated counselling & testing center site has been approved and will be starting soon for proper counseling and diagnosis of suspected HIV patients.
- Microbiology division has been selected as sentinel surveillance laboratory for dengue fever diagnosis.
- Two MSc students worked on ESBLs & MBLs and completed their summer projects in clinical microbiology.

Salient features of the released antibiograms:

- Yield for blood cultures in OPD and in-patients is similar and varies between 9-11%.
- *S. aureus* is most common cause of bacteremia among gram-positive isolates.
- Among gram-negative bacteria, *S. typhi* and *P. aeruginosa* are the most common causes of bacteremia among outpatients and in-patients respectively.
- There is high incidence of fluoroquinolone resistance among *S. typhi* isolates. However none of the *S. typhi* isolate revealed multi-drug resistance (MDRST).
- High occurrence of ESBLs in community isolates causing bacteremia is cause of concern.
- *E. coli* and *Enterococcus spp.* are the most common causes of UTI among gram-negative and gram positive isolates respectively in community as well as hospitalized children.
- Similar rates of occurrence of ESBL producing *Escherichia coli* UTI isolates are observed in community and hospitalized patients.
- Occurrence of MRSA has increased from 9% (last year, unpublished data) to 13% in the community isolates.
- None of the *S. pneumoniae* isolate from any site revealed increased resistance to penicillin.

CHACHA NEHRU BAL CHIKITSALAYA



Concept behind the hospital

Chacha Nehru Bal Chikitsalaya is being developed as a State of the Art, Super Specialty Pediatric Hospital with a bed strength of 216 to provide comprehensive medical care for all pediatric related medical and surgical illnesses under one roof. This is the only hospital run by Govt. of NCT of Delhi completely dedicated to the health of children upto the age of 12 years. In the first phase OPD services were inaugurated on September 5, 2003. Indoor & medical emergency services have been started from 28th Jan 2005.

Infrastructure

It is located at Geeta Colony, Delhi in an area of 1.6 hectare. Construction of the building was started by PWD in June 2002. Hospital is centrally air-conditioned with four ultramodern operation theatres, State of Art Laboratory facilities, mini auditorium and Library with internet facility for medical literature search.

Ambience

Green ambience of hospital campus with fully air-conditioned OPD, Emergency and Indoor units de-stress the visiting children and there attendants. Beautiful paintings made by children all over the world bring the child near to this own wild creations and provide healing effect along with the friendly medical supporting staff. The hospital has been made children friendly, creating as near home environment.

Patient Care Facilities

As on date the hospital is functioning with 180 beds including PICU & NICU services. Video surveillance system is in place to monitor the security as well as functioning of various departments.

Hospital Services available as on date:

- OPD Services
- Indoor Services -180 beds, with 24hrs Medical emergencies
- Neonatal Intensive Care and Pediatric Intensive Care Services
- Pediatric nephrology including Dialysis Services
- Pediatric Surgery
- ENT
- Orthopedics
- Ophthalmology
- Pediatric Neurology with EEG & BERA
- Pediatric Hemato-oncology
- Pediatric Gastroenterology including GI Video endoscopy
- Immunization
- Pediatric Dermatology
- Pediatric Dentistry
- Radiology services including ultrasound and X-ray available
- Clinical Pathology Laboratory with facilities of microscopy of body fluids, haematology and FNA Cytology.
- Clinical Biochemistry Laboratory has more than 40 different chemistries available with many round the clock.
- Clinical Microbiology Laboratory has wide variety range of microscopy and culture and susceptibility testing facilities for bacterial,

fungal and special pathogens. It has rapid blood culture system and ample range of ELISA tests. It has been one of the sentinel surveillance laboratories for diagnosis of Dengue fever and has Integrated Counselling and Testing Center (ICTC) and DOTS center.

- Child Development clinic for early intervention and rehabilitation clinic (under development)

Academic and Research Activities

Besides providing medical facilities it is being developed as a Post Graduate Teaching/Training institute affiliated to Maulana Azad Medical College. DNB in Pediatrics has been started this year with joining of two candidates in July 2007. Process is on to start DNB program in Pediatric surgery also. Academic meets and CME programs are being regularly organized by different specialties and sub-specialties along with state chapter meetings.

Quality of Care & Patient Safety

Three departments- Clinical Pathology, Clinical Biochemistry and Clinical Microbiology have successfully completed there External Quality Assurance Programs. All the departments are striving hard to get an ISO/NABH accreditation.

Community Participation

Feeling the full responsibility towards our society and maintaining healthy bodies and healthy minds, drawing competitions and health awareness programs are regularly organized on days and holidays of national holidays and encouragement prizes are distributed among children to impart health education and inculcate healthy practices among our children.

Future Endeavors

Process has already been initiated to place State of Art - tuberculosis (P3) laboratory and molecular laboratory. Every effort is being made to equip the hospital with state of art technology to impart our patients best of technology and expertise available throughout the world.

Presence on Web

Hospital is available on World Wide Web at

<http://cnbc.delhigovt.nic.in>

Although a static site but it gives a good insight of facilities available in various departments and administration.

Battery of tests available in our laboratory

Bacterial tests

- Gram's Stain, Albert Stain
- Direct Microscopy
- Culture & Antimicrobial Susceptibility testing
- Rapid Blood Culture
- Rapid latex Agglutination tests for meningitis by 5 different bacterial agents
- Routine screening for MRSA, HLAR, ESBLs
- Streptococcal grouping by Latex agglutination
- Serological Tests:
 1. Mycoplasma IgG
 2. Widal Test
 3. Chlamydia IgM and IgA

Fungal Tests

- KOH
- Gram Stain
- Fungal Cultures
- Identification of Filamentous fungi
- Identification of yeast by Card tests and slide culture
- Susceptibility testing for yeast (Under standardization)

Parasitic

- Stool Microscopy
- Cryptosporidium Ag detection in stool
- Direct Microscopy
- Rapid malaria Ag detection
- Antigen detection for Leishmania donovani (Kala azar)
- Serological tests for diagnosis of :-
- E. histolytica
- Echinococcus granulosus
- Toxoplasmosis IgM avidity test

Viral Diseases

- HIV antibodies
- HBsAg
- HCV antibodies
- AntiHBe antibodies
- CMV IgG Avidity, IgM
- Measles IgG
- HSV 1 & 2 IgM
- Rubella IgG Avidity
- Dengue IgM

Mycobacteria

- TB Ag detection
- Has DOTS center - AFB stain
- Mycobacterial culture in blood

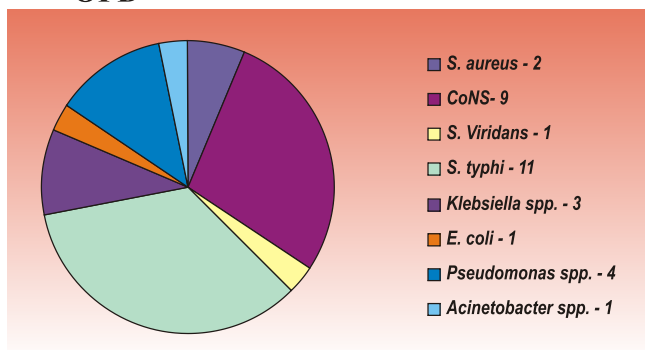
Immunology

- ASO, CRP, RA
- Procalcitonin test (limited tests)
- ANA, dsDNA
- VDRL
- FSH
- LH
- Lupus anticoagulant
- TTG IgA

Hospital Infection Control

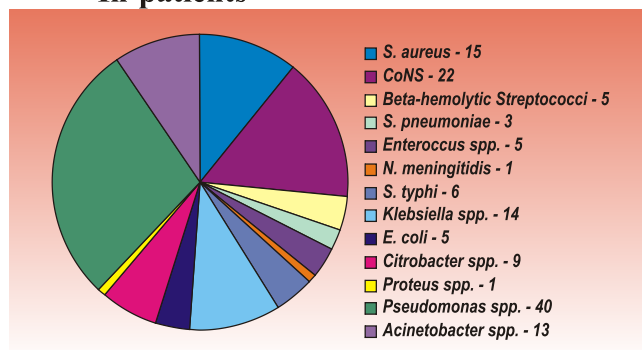
- Environmental samples from O.T. and critical care areas
- Water sampling for potable water, dialysis water.

OPD



TOTAL	342	%
POSITIVES	32	9
MIXED GROWTHS	17	5
NO GROWTHS	293	86

In-patients



TOTAL	1238	%
POSITIVES	139	11
MIXED GROWTHS	65	5
NO GROWTHS	1034	84

PERCENTAGE RESISTANCE

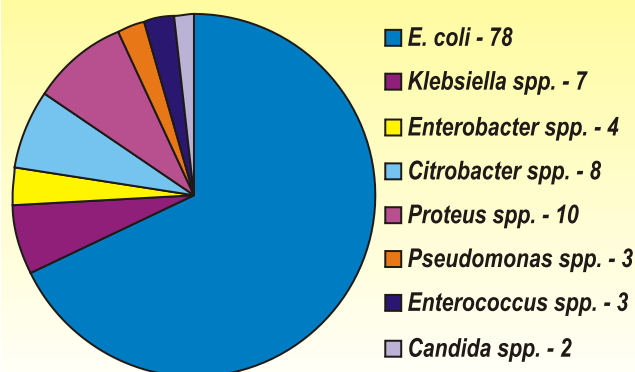
GPC	Total Number of isolates	Penicillin	Oxacillin	Erythromycin	Clindamycin	Chloramphenicol	Ciprofloxacin	Vancomycin
<i>S. aureus</i>	2	0	0	100	0	50	0	0
	15	75*	25*	47	7	14	27	0
<i>Enterococcus</i> spp.	0	-	-	-	-	-	-	-
	5	100*	-	100	-	0	75	0
CONS	9	-	-	-	-	-	-	-
	22	67*	50*	50*	13*	-	-	0*
<i>S. pneumoniae</i>	0	-	-	-	-	-	-	-
	3	0	-	0	0	-	-	0

OPD
In-patients

GNB	Total Number of isolates (ESBL)	Ampicillin	Cefazolin	Cephalothin	Amoxycillin + clavulanic Acid	Piperacillin + tazobactam	Cefotaxime	Ceftazidime	Aztreonam	Imipenem	Gentamicin	Amikacin	Tobramycin	Nalidixic acid	Chloramphenicol
<i>S. typhi</i>	11	9	-	-	-	-	0	-	-	-	-	-	-	64	0
	6	0	-	-	-	-	0	-	-	-	-	-	-	17	0
<i>Klebsiella</i> spp.	3(3)	-	100	100	100	67	100	-	-	0	-	67	-	-	100
	14(13)	-	100	93	79	21	86	-	-	0	-	0	-	-	25*
<i>E. coli</i>	1(1)	-	100	100	100	0	0	-	-	0	-	0	-	-	0
	5(3)	-	80	80	60	20	60	-	-	0	-	0	-	-	50*
<i>Citrobacter</i> spp.	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	9(4)	-	100	89	90*	11	90*	-	-	0	-	11	-	-	0
<i>Proteus</i> spp.	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1(1)	-	100	100	100	0	100	-	-	0	-	0	-	-	0
<i>Pseudomonas</i> spp.	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	40	-	-	-	-	3*	20*	15*	92*	0	58*	13	83*	-	-
<i>Acinetobacter</i> spp.	1	-	-	-	0	-	100	-	-	0	-	0	-	-	100*
	13	-	-	-	-	-	77	-	-	0	-	23	-	-	23

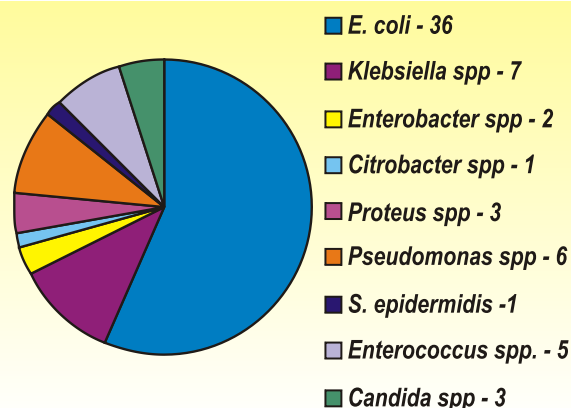
*the total number of isolates is variable as few antimicrobials are tested only as second line drugs or under special indications

OPD



TOTAL	331	%
POSITIVES	115	35
MIXED GROWTHS	27	8
NO GROWTHS	189	57

In-patients



TOTAL	1175	%
POSITIVES	64	5
MIXED GROWTHS	354	31
NO GROWTHS	757	64

PERCENTAGE RESISTANCE

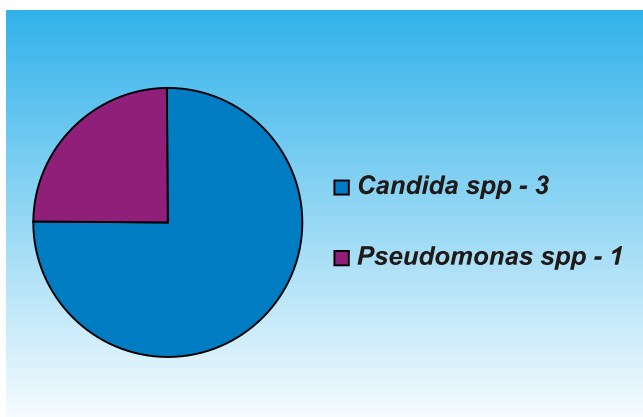
GPC	Total Number of isolates	Antimicrobials				
		Nitrofurantoin	Ampicillin	Ciprofloxacin	Vancomycin	Linezolid
<i>Enterococcus spp.</i>	3	67	67	100	0	0
	5	40	60	60	0	0

OPD
In-patients

GNB	Total Number of isolates (ESBL)	Antimicrobials										
		Nitrofurantoin	Cephalothin	Cefazolin	Cefotaxime	Amoxycillin + clavulanic Acid	Piperacillin + Tazobactam	Gentamicin	Netilmicin	Amikacin	Norfloxacin	Imipenem
<i>E. coli</i>	78(44)	35	99	97	80	94	28	47*	3	15	77*	0
	36(21)	33	92	97	83	94	22	33*	11	25	100*	0
<i>Klebsiella spp.</i>	7(4)	57	100	86	57	86	57	50*	25	0	50*	0
	7(2)	71	86	86	43	71	43	0	20	57	100*	0
<i>Citrobacter spp.</i>	8(7)	13	88	100	88	100	38	100*	-	0	-	0
	1	100	100	100	100	100	100	-	-	100	-	0
<i>Enterobacter</i>	4	75	75	100	0	100	0	-	-	0	0	0
	2	50	100	100	50	100	50	-	-	50	-	0
<i>Proteus spp.</i>	10(5)	40	90	90	80	100	40	0	-	20	-	0
	3(3)	67	100	100	100	100	67	-	-	0	-	0
<i>Pseudomonas spp.</i>	3	67	-	-	67	67	33	0	100*	0	0	0
	6	33	-	-	33	33	17	33	25	33	0	17*

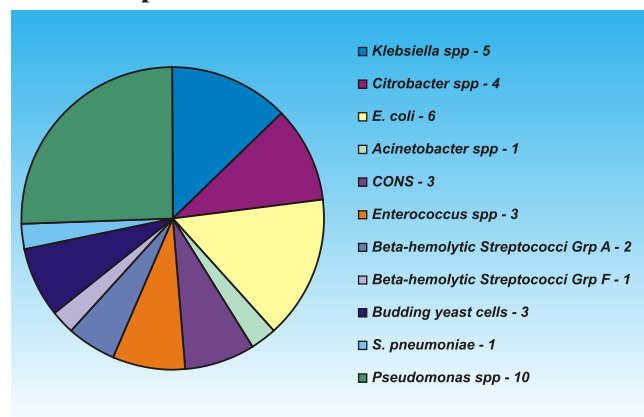
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OPD



TOTAL	19	%
POSITIVES	4	21
MIXED GROWTHS	1	5
NO GROWTHS	14	74

In-patients



TOTAL	108	%
POSITIVES	39	36
MIXED GROWTHS	4	4
NO GROWTHS	65	60

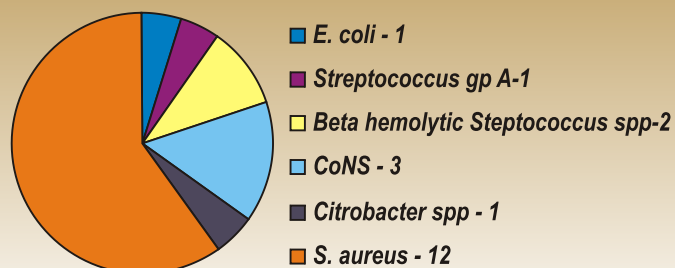
PERCENTAGE RESISTANCE

ENTEROCOCCUS SPECIES													
GPC	Total number of isolates	Chloramphenicol	Penicillin	Erythromycin	Clindamycin	Ciprofloxacin	Vancomycin	Linezolid	OPD				
									In-patient				
<i>S. pneumoniae</i>	0	-	-	-	-	-	-						
	1	0	0	0	0	0	0	-					
CONS	0	-	-	-	-	-	-	-					
	3	33	100*	50*	100*	-	0	-					
<i>Enterococcus spp</i>	0	-	-	-	-	-	-	-					
	3	100	100	100	-	67	0	0					
GNB	Total number of isolates (ESBL)	Cephalothin	Cefazolin	Amikacin	Amoxycillin + clavulanic Acid	Piperacillin + Tazobactam	Cefotaxime	Imipenem	Chloramphenicol	Gentamicin	Tobramycin	Aztreonam	Netilmicin
<i>Klebsiella spp.</i>	0	-	-	-	-	-	-	-	-	-	-	-	-
	5(4)	100	100	60	80	60	80	0	-	-	-	60	100*
<i>Citrobacter spp</i>	0	0	0	0	0	0	0	0	0	0	-	-	-
	4	0	0	0	0	0	0	0	25	0	-	25	-
<i>E. coli</i>	0	-	-	-	-	-	-	-	-	-	-	-	-
	6(3)	67	67	0	67	17	67	0	17	33	-	-	-
<i>Acinetobacter spp</i>	0	-	-	-	-	-	-	-	-	-	-	-	-
	1	100	100	100	100	0	100	0	-	-	-	-	-
<i>Pseudomonas spp</i>	1	-	-	0	-	0	-	0	0	0	100	-	100
	10	-	-	30	-	30	-	0	30	100*	0	100*	70

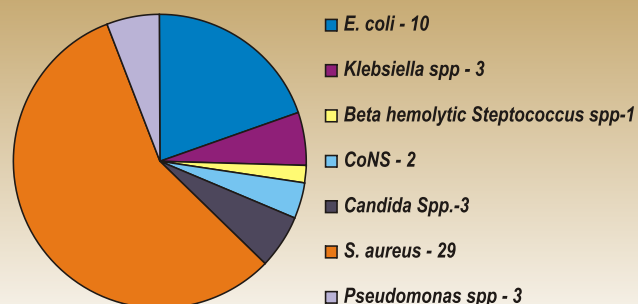
OPD
In-patients

*the total number of isolates is variable as few antimicrobials are tested only as second line drugs or under special indications

OPD



In-patients



TOTAL	37	%
POSITIVES	20	54
MIXED GROWTHS	2	5
NO GROWTHS	15	41

TOTAL	106	%
POSITIVES	51	48
MIXED GROWTHS	9	9
NO GROWTHS	46	43

PERCENTAGE RESISTANCE

GPC	Total number of isolates	Penicillin	Oxacillin	Erythromycin	Clindamycin	Ciprofloxacin	Chloramphenicol	Vancomycin
<i>Beta haemolytic Streptococcus spp.</i>	1	0	-	0	0	-	100	0
	1	0	-	0	0	-	0	0
<i>S. aureus</i>	12	100*	13*	17	17	0	33*	0
	29	50*	13*	14	0	14	50*	0
CONS	3	100*	-	33	33	-	0	0
	2	-	-	50	50	-	0	0

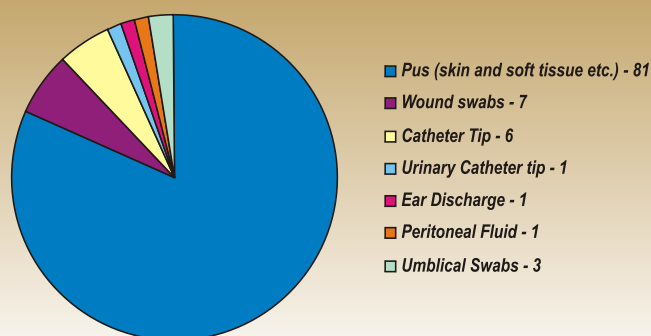
OPD
In-patients

GNB	Total number of isolates (ESBL)	Cephalothin	Cefazolin	Cefotaxime	Ceftazidime	Chloramphenicol	Amoxycillin + clavulanic Acid	Piperacillin + Tazobactam	Gentamicin	Netilmicin	Amikacin	Imipenem
<i>E. coli</i>	1	0	0	0	-	0	0	0	0	-	0	0
	10(3)	60	80	60	-	40*	80	60	50*	10	30	0
<i>Klebsiella spp.</i>	0	-	-	-	-	-	-	-	-	-	-	-
	3(1)	33	33	33	100*	0	33	67	67*	33	33	0
<i>Citrobacter spp</i>	1 (1)	100	100	100	-	-	100	0	-	-	0	0
	0	-	-	-	-	-	-	-	-	-	-	-
<i>Pseudomonas spp</i>	0	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	33*	-	-	0	67*	100	0	0

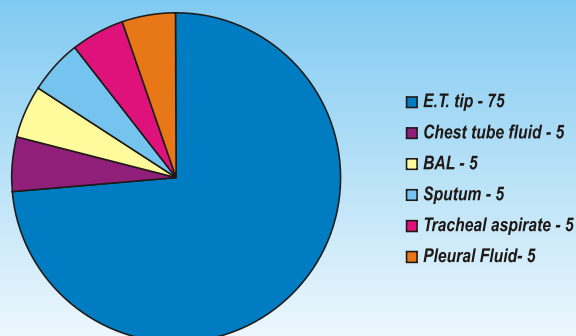
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PERCENTAGE ISOLATES

PUS AND OTHER Related SITES



RESPIRATORY SITES



Publications in last one year from Clinical Microbiology Division

1. Nicolas P, Manchanda V, Bhalla P. Emergence of non-ceftriaxone-susceptible *Neisseria meningitidis* in India. **J Clin Microbiol.** 2007 Apr;45(4):1378
2. Sardana K, Manchanda V, Rajpal M, Garg VK, Chauhan DS. Bacterial pyoderma in children and therapeutic options including management of community-acquired methicillin resistant *Staphylococcus aureus*. **Int J Dermatol.** 2007 Mar;46(3):309-13.
3. Sardana K, Manchanda V, Garg VK. Community-acquired methicillin-resistant *Staphylococcus aureus*: different populations, different results. **Br J Dermatol.** 2006 Dec;155(6):1298-9
4. Manchanda V, Bhalla P. Emergence of non-ceftriaxone-susceptible *Neisseria meningitidis* in India. **J Clin Microbiol.** 2006 Nov;44(11):4290-1.
5. Manchanda V, Singh NP, Shamweel A, Eideh HK, Thukral SS. Molecular epidemiology of clinical isolates of ampc producing *Klebsiella pneumoniae*. **Indian J Med Microbiol.** 2006 Jul;24(3):177-81.
6. Manchanda V, Singh NP, Eideh HK, Shamweel A, Thukral SS. Liver abscess caused by *Edwardsiella tarda* biogroup 1 and identification of its epidemiological triad by ribotyping. **Indian J Med Microbiol.** 2006 Apr;24(2):135-7.
7. Manchanda V, Bhalla P, Sethi M, Sharma VK. Treatment of enteric fever in children on the basis of current trends of antimicrobial susceptibility of *Salmonella enterica* serovar typhi and paratyphi A. **Indian J Med Microbiol.** 2006 Apr;24(2):101-6.
8. Sardana K, Garg VK, Manchanda V, Rajpal M. Congenital candidal onychomycoses: effective cure with ciclopirox olamine 8% nail lacquer. **Br J Dermatol.** 2006 Mar;154(3):573-5
9. Manchanda V, Gupta S, Bhalla P. Meningococcal disease: history, epidemiology, pathogenesis, clinical manifestations, diagnosis, antimicrobial susceptibility and prevention. **Indian J Med Microbiol.** 2006 Jan;24(1):7-19.

Words of encouragement

I would like to congratulate the team for bringing out this newsletter. I hope this will of immense help to our clinicians to take their decision regarding appropriate use of various antibiotics. This newsletter, I hope, will help every clinician to play some role in containment of emerging drug resistance in the community bugs.

Dr. A.K. Agarwal
Dean (MAMC) & Director (CNBC)

I am very pleased that our clinical microbiology division has come up with this very useful document. I congratulate the department for this effort. I wish this newsletter should be published on regular basis helping our clinicians in their decision to choose empirical antibiotic therapy. This is another step towards practicing evidence based medicine.

Dr. K.K. Kalra
Medical Superintendent (CNBC)

I congratulate Dr. Vikas Manchanda for bringing out the 1st Clinical Microbiology Newsletter which highlights all the information that will be most useful for our consumers-the clinicians!! I also hope that CNBC will have an antibiotic policy in place soon which will be strictly enforced and will go a long way in preventing emergence of antimicrobial resistance in our bacterial isolates.

Dr. P. Bhalla
Director, Professor & Head
Department of Microbiology (MAMC)