Department of Microbiology
University College of Medical Sciences &
Guru Teg Bahadur Hospital
Dilshad Garden, Delhi – 110095

CLINICAL MICROBIOLOGY NEWSLETTER

Vol I (APRIL - SEPT 2010)

Message from Principal's Desk
Dr OP Kalra

I am happy to note that the Department of Microbiology is launching a newsletter highlighting the antibiogram pattern existing in various clinical areas in our hospital. As we know the pattern of prevalence and sensitivity of microbial flora is dynamic and may vary from time to time and is peculiar to each health care setting. Knowledge of the current trends of prevalence and sensitivity pattern of pathogens is of vital importance to the treating clinicians and can help in guiding the choice of appropriate antimicrobials. The Newsletter will help in providing a vital interface between the clinician and microbiologists in overall improvement of patient care. This will also help in formulating antibiotic policy specific to our hospital and rational use of antibiotics and would be of great help to the faculty, residents and post graduate students

Message from Medical Superintendant
Dr Rajpal

It brings me great pleasure in announcing that the Department of Microbiology of UCMS is launching its first newsletter depicting the antibiogram pattern of bacterial pathogens prevailing in our hospital. There is a constant dynamism in the prevalence of pathogens in community and health care settings. Information about the present trend of prevalence and sensitivity pattern of bacterial pathogens is decisive in patient management. This newsletter besides providing an essential interface between the clinician and microbiologists will also help in formulating antibiotic policy specific to our hospital and rational use of antibiotics and would be of great help in lowering morbidity and mortality of our hospital. I would like to congratulate the editorial team and the department for this step and I would hope that this newsletter is brought out on a regular basis

Message from Head, Department of Microbiology
Dr Iqbal R Kaur

Emergence of bacterial resistance has been a global concern. The situation is worse in our country due to non availability of resistance data and lack of antibiotic policies and guidelines. We are happy to release the very first newsletter from our department which is the first step towards formulation of Antibiotic Policy for UCMS and GTB Hospital. We sincerely hope that it will help in providing better patient care and bridging the gap between diagnosticians and physicians. Provision of reliable reports strongly depends upon valid patient details which must be provided on all requisition forms

Message from Editor, Microbiology Newsletter
Dr Sumit Rai

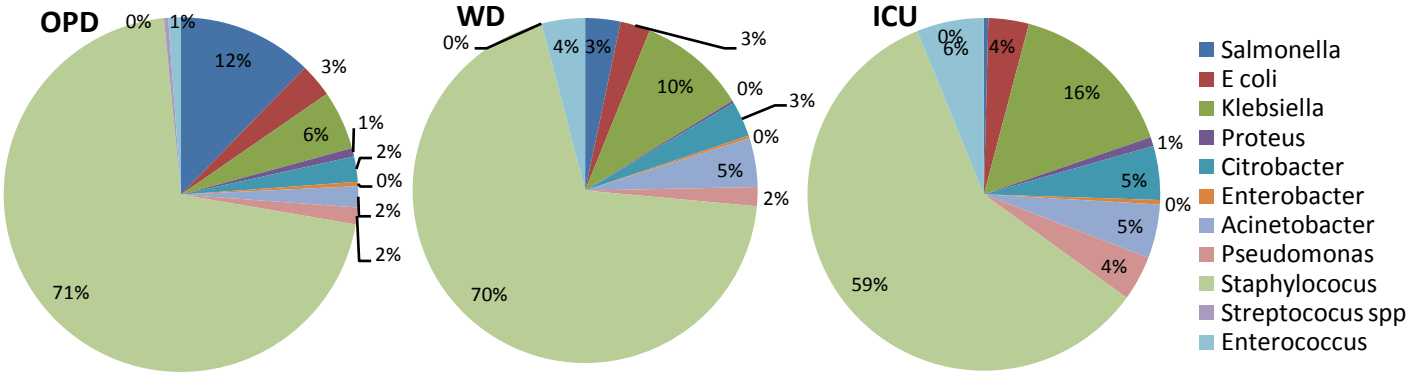
The objective of initiating a clinical microbiology newsletter is to provide the treating clinicians of GTB Hospital the current antibiogram pattern of so as to institute rational antibiotic prescriptions and for us to formulate an effective antibiotic policy . I would like to thank all the resident doctors of our department for ensuring the database update on WHONET software. I urge all clinicians to kindly cooperate with our department by providing all authentic patient details on requisition forms so as to have the correct data for a department. With your support we can contribute substantially more for patient care than what we already are.

WHONET Antimicrobial Resistance Data of GTB Hospital for April – September 2010

Blood

Dr Ashwani Kumar

Blood is a sterile fluid. Even a single bacterial colony may be significant. Kindly ensure complete skin asepsis to ensure that no contaminants grow. Always send sample before starting antibiotics.



Percentage Resistance: *An unusual high or low percentage may be due to low number of isolates, or an antibiotic disc being used for few isolates as per disc availability

Gram Negative Bacilli	Location	Isolates (N)	Ceftazidime	Cefotaxime	Imipenem	Amikacin	Carbenicillin	Tobraqmycin	Gentamicin	Ciprofloxacin	Chloram phenicol
E. coli	OPD	8	-	66.7	0	42.9	-	-	20	50	50
	WD	11	-	81.8	0	0	-	-	75	55.6	27.3
	ICU	9	-	85.7	0	37.5	-	-	50	75	44.4
Klebsiella spp	OPD	14	-	90	0	81.8	-	-	71.4	76.9	23.1
	WD	40	-	91.2	0	65.5	-	-	60	61.8	35
	ICU	38	-	88.5	2.5	56.7	-	-	100	75.8	18.4
Salmonella spp	OPD	32	-	4.8	0	-	-	-	-	28.1	31.8
	WD	13	-	8.3	0	-	-	-	-	16.7	33.3
	ICU	1	-	0*	0*	-	-	-	-	0*	0*
Citrobacter spp	OPD	6	-	40	0*	50	-	-	63	33.3	83.3
	WD	13	-	90.9	10	33.3	-	-	75	69.7	50
	ICU	12	-	100*	14.3	100*	-	-	80	91.7	91.7
Pseudomonas spp	OPD	4	100*	-	0	0	60	50	-	0	-
	WD	7	-	-	14.3	25	75	40	-	42.9	-
	ICU	10	-	-	20	37.5	88.9	87.5	-	60	-
Acinetobacter spp	OPD	5	100*	33.3	0	40*	-	-	33.3	60*	100*
	WD	18	66.6	81.8	0	28.6	-	-	38.8	29.4	66.7
	ICU	12	83.3	100	27.3	100	-	-	100	91.7	66.7

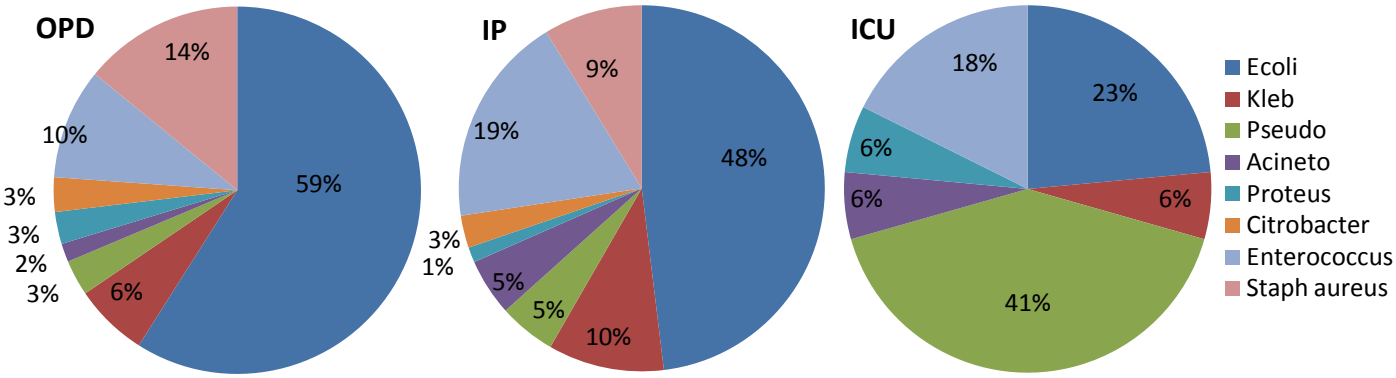
Gram Positive Cocci	Location	Isolate (N)	Amoxyclav	Vancomycin	Clindamycin	Erythromycin	Cefoxitin	Amikacin	Gentamicin	High Level Gentamicin	Ciprofloxacin	Chloram phenicol
Enterococcus spp	OPD	3*	-	0	-	-	-	-	-	0*	33.3	-
	WD	16	-	0	-	-	-	-	-	33.3	50	100*
	ICU	15	-	14.3	-	-	-	-	-	0*	46.2	25
Staphylococcus spp	OPD	184	0*	0	30.4	60.1	22.2	9.1	19.8	-	34.4	-
	WD	273	11.1	0	26.8	63.5	35.5	8.2	24.3	-	44	-
	ICU	143	50	0	63.6	68.5	66.7	33.3	43.6	-	56.7	-
Streptococcus spp	OPD	1*	-	0*	-	-	-	-	0*	-	0*	-
	WD	0	-	-	-	-	-	-	-	-	-	-
	ICU	0	-	-	-	-	-	-	-	-	-	-

WHONET Antimicrobial Resistance Data of GTB Hospital for April – September 2010

URINE

Dr Sumit Rai

Kindly note that Urine is not a normally sterile specimen. If the sample is not transported and processed immediately, bacteria may overgrow thereby altering the count. Always send Clean Catch Mid Stream Urine samples. Catheter tips are unsuitable for diagnosis of UTI and are not accepted.



Percentage Resistance: *An unusual high or low percentage may be due to low number of isolates, or an antibiotic disc being used for few isolates as per disc availability

Gram Negative Bacilli	Location	Isolates (N)	ESBL# *(footnote)*	Piperacillin+ Tazobactam	Ceftazidime#	Cefotaxime#	Imipenem	Meropenem	Amikacin	Gentamicin	Norfloxacin	Nitrofurantoin	Cotrimoxazole	Colistin	Polymyxin B
E. coli	OPD	544	68	23.9	53.2	61.6	0.6	9.8	21	55.6	77.9	15.1	77	-	-
	WD	286	88	70	67.6	83	16.7	20.9	36.5	66.7	85.3	27	80.6	0	0
	ICU	4*	100*	100*	-	100*	0	25	25	-	100*	25*	100*	0	0
Klebsiella spp	OPD	60	57.1	60	45.5	50	4.2	10.3	14.5	33.3	51.7	47.5	65	-	-
	WD	61	86.4	92.3	92.3	81.1	8.7	28.3	44.1	100	73.8	67.2	82	0	0
	ICU	1*	100*	-	-	100*	0*	-	0*	-	-	0*	100*	0	0
Proteus spp	OPD	26	57.9	0	60	45.5	0	5.9	30.4	-	65.4	65.4	84.6	-	-
	WD	8	80	0	100	60	25	40	71.4	-	87.5	87.5	87.5	-	-
	ICU	1*	-	0*	-	0*	0*	-	-	-	100*	100*	0*	-	-
Citrobacter spp	OPD	28	55	-	-	57.1	-	19.2	46.4	-	64.3	39.3	71.4	-	-
	WD	17	60	-	-	61.5	60	25	76.5	-	76.5	71.4	76.5	0	0
	ICU	0	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterobacter spp	OPD	26	31	33.3	-	46	-	-	13	-	65.4	-	65.4	-	-
	WD	9	85.7	100	-	88.9	-	-	66.7	-	77.8	-	88.9	0	0
	ICU	2*	100	50	-	100	-	-	100	100	100	-	100	0	0
Pseudomonas spp	OPD	29	-	22.2	31.8	-	20.7	-	23.1	45.8	51.9	-	-	-	0
	WD	30	-	22.7	35.7	-	17.2	-	22.2	36	37.9	-	-	-	0
	ICU	7*	-	50	41.4	-	71.4	-	100	-	100	-	-	-	0
Acinetobacter spp	OPD	15	-	-	42.9	71.4	-	-	33.3	-	42.9	86.7	-	-	-
	WD	30	-	-	37.5	100	64.7	-	80	86.2	-	89.7	100	-	-
	ICU	1*	-	100*	100*	100*	0	-	0*	100*	100*	100*	-	-	-

Gram Positive Cocci	Location	Isolates (N)	Norfloxacin	Nitrofurantoin	Vancomycin	Teicoplanin	Tetracycline	Penicillin G	Ampicillin	Cefoxitin	Cotrimoxazole	Clindamycin	Erythromycin	High Level Gentamicin
Enterococcus spp	OPD	90	71.6	19.3	1.1	7.4	68.2	-	0*	-	-	-	-	48.9
	WD	111	91.7	15.5	6.4	12.9	55	-	66.7*	-	-	-	-	80.4
	ICU	3*	100	33.3	0	0	66.7	-	0*	-	-	-	-	100*
Staphylococcus aureus	OPD	132	81.2		0	-	-	80.5	-	38.1	80.7	***26.9***	***53.7***	-
	WD	52	78		0	-	-	75.6	-	46.2	74.5	***44.7***	***78.2***	-
	ICU	5*	80		0	-	-	-	-	40	40*	***40***	***40***	-

*Erythromycin and Clindamycin discs are used for detection of inducible resistance (**D-Test**) and are not intended for therapeutic use. They are not reported in urinary isolates of S. aureus.*

Important Clinical Notes:

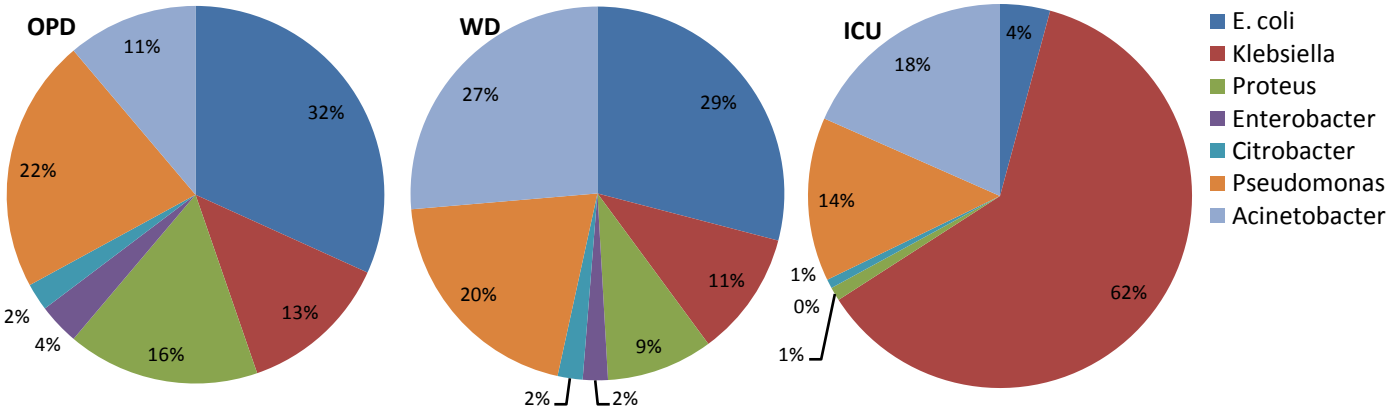
- #ESBL percentage may not correspond with resistance to 3rd generation cephalosporin's due to difference in denominator and number of isolates screened.
- Pan drug resistant isolates or isolates sensitive to Imipenem only are screened for carbapenemase activity by a large battery of tests.
- ESBL screening is done by double disc synergy test
- MRSA reporting is done on the basis of Cefoxitin resistance

WHONET Antimicrobial Resistance Data of GTB Hospital for April – September 2010

Pus & Purulent Fluids

Dr NP Singh

Aspirates, deep necrotic tissues yield true pathogens than superficial swabs. If possible send pus or swabs after debridement of the superficial necrotic tissue



Percentage Resistance: *An unusual high or low percentage may be due to low number of isolates, or an antibiotic disc being used for few isolates as per disc availability

Gram Negative Bacilli	Location	Isolates (N)	ESBL# *(footnote)*	Piperacillin	Ceftazidime	Cefotaxime	Imipenem	Amoxicillin/ Clavulanic Acid	Amikacin	Gentamicin	Ciprofloxacin	Carbenicillin	Tobramycin
E. coli	OPD	54	39	-	63.8	66.7	0	92.3	40.7	68.5	74.1	-	-
	WD	161	74.5	-	89.7	66.7	0	97.5	42.2	82.6	82	-	-
	ICU	11	100	-	100	0*	18.2	100	81.8	90.9	-	-	-
Klebsiella spp	OPD	22	22.7	-	46.7	71.4	0	81.8	22.7	40.9	45.5	-	-
	WD	60	78.3	-	98.3	100	3.6	100	79.7	96.7	61.7	-	-
	ICU	15	93.3	-	100	55.6*	66.7	100	86.7	86.7	-	-	-
Proteus spp	OPD	28	25	-	34.6	-	4.2	80.8	46.4	71.4	53.6	-	-
	WD	51	57	-	78	-	2.1	96.1	62.7	86.3	72.5	-	-
	ICU	3	95	-	100	-	100*	100	100	100	-	-	-
Enterobater spp	OPD	6	16.6	-	50	-	0*	66.7	33.3	50	33.3	-	-
	WD	12	41.6	-	63.6	-	100*	83.3	10*	33.3	50	-	-
Citrobacter Spp	OPD	4	25	-	100*	0*	0*	100*	25	25	25	-	-
	WD	12	58.3	-	100*	100*	100*	100*	0	63.6	83.3	-	-
	ICU	2	100	-	0*	100*	100*	100*	50	50	50	-	-
Pseudomonas spp	OPD	37	-	25	41.7	83.3	4.2	-	45.9	62.2	45.9	73.3	100*
	WD	112	-	66.7	100	83.6	50	-	22.7	79.5	100*	94.9	88.4
	ICU	36	-	96.6	100	85.7	93.3	-	87.5	91.7	100	94.3	91.7
Acinetobacter spp	OPD	19	-	-	82.4	50*	13.3	89.5	63.2	83.3	73.7	-	-
	WD	146	-	-	97.9	100*	17.5	100	95.9	98.6	93.1	-	-
	ICU	48	-	100*	100	100	63	100	93.8	95.8	95.8	-	100*

Gram Positive Cocci	Location	Isolates (N)	Penicillin G	Oxacillin	Gentamicin	Ciprofloxacin	Clindamycin	Erythromycin	Vancomycin	Ampicillin	Tetracycline	Teicoplanin	High Level Gentamicin
Staphylococcus aureus	OPD	217	94.2	21.4	38.9	63.4	28.6	50.2	0	-	-	-	-
	WD	157	100	49.3	58.6	80.6	47.9	71.7	0	-	-	-	-
	ICU	7	100	60	42.9	100*	28.6	85.7	0	-	-	-	-
Enterococcus spp	OPD	2*	-	-	-	-	-	50*	0	100*	50*	0	0
	WD	17	-	-	-	100*	-	86.7	0	61.5	63.6	0	35.3
	ICU	2*	-	-	-	-	-	100*	0	50*	0*	0*	100*
Streptococcus Spp	OPD	3*	-	-	0*	0*	-	33.3*	0*	0*	100*	0*	-
	WD	1*	-	-	-	0*	-	0*	0*	0*	0*	0*	-

Important Clinical Notes:

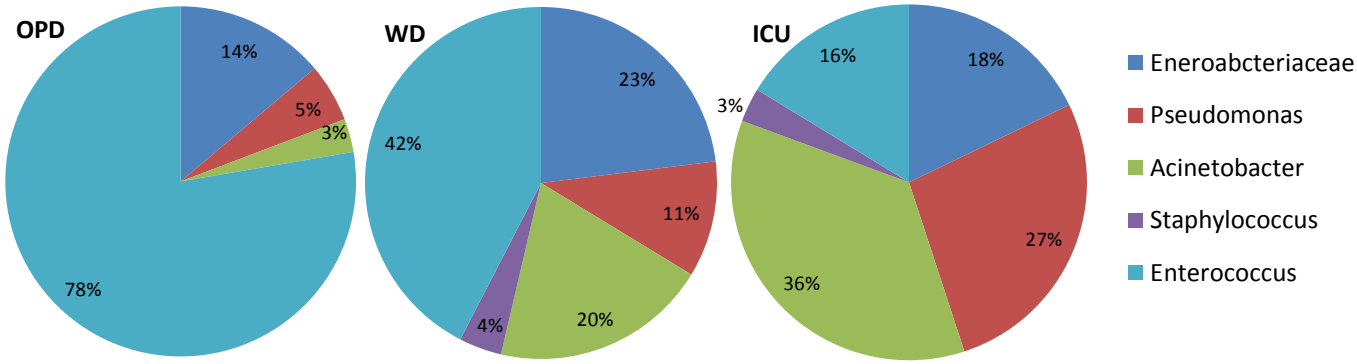
- #ESBL percentage may not correspond with resistance to 3rd generation cephalosporin's due to difference in denominator and number of isolates screened.
- ESBL screening is done by double disc synergy test
- MRSA reporting is done on the basis of Cefoxitin resistance

WHONET Antimicrobial Resistance Data of GTB Hospital for April – September 2010

Respiratory Samples

Dr NP Singh

The Upper Respiratory Tract is the niche for a number of commensal organisms. Interpretations should be made taking into account this wide gamut of commensals / colonizers, clinical picture and other investigations.



Percentage Resistance: ***An unusual high or low percentage may be due to low number of isolates, or an antibiotic disc being used for few isolates as per disc availability**

Gram Negative	Location	Isolates (N)	ESBL# (footnote)	Amoxicillin	Amoxicillin / Clavulanate	Piperacillin / Tazobactam	Ceftazidime	Cefotaxime	Imipenem	Meropenem	Amikacin	Gentamicin	Tobramycin	Netilmicin	Ciprofloxacin	Carbenicillin	Polymyxin B
Enterobacteriaceae	OPD	18	80*	100*	88.2	12.5	57.1	75	0	0	22.2	50	-	-	50		
	WD	82	93	100	100	26.8	93.3	83.3	9	50*	63	79.3	-	85.7*	70.7		
	ICU	23	#	100	100	39.1	100	100	50*	66.7*	69.6	87	-	88.9	87		
Most Common Enterobacteriaceae Isolate (*n*)	OPD	Klebsiella (8), E. coli (8), Misc (2)															
	WD	Klebsiella (49), E. coli (15), Enterobacter (8), Citrobacter (5), Proteus (4), Misc (1)															
	ICU	Klebsiella (15), E. coli & Proteus (3), Misc (2)															
Pseudomonas spp	OPD	7	-	-	-	0	20	-	0	-	14.3	42.9	-	-	0	28.6	0
	WD	38	-	-	-	47.4	100	-	26.5	-	92.1	100	-	-	84.2	100	0
	ICU	35	-	-	-	67.6	85.7	-	83.3	95.7	94.3	94.3	100	96.6	91.4	97.1	0
Acinetobacter spp	OPD	4	-	-	100	25	100	-	0	-	75	75	-	-	75		
	WD	71	-	-	100	15.5	98.5	-	21.5	-	95.8	97.2	-	-	98.6		
	ICU	46	-	-	100	54.3	100	100	63	80	91.3	93.5	-	91.7	93.5-		

Gram Positive Cocci	Location	Isolates (N)	Penicillin G	Oxacillin	Gentamicin	Ciprofloxacin	Norfloxacin	Clindamycin	Erythromycin	Vancomycin	Linezolid	Ampicillin	Tetracycline	Teicoplanin
Staphylococcus aureus	OPD	0	-	-	-	-	-	-	-	-	-	-	-	-
	WD	14	100	57.1	78.6	71.4	-	35.7	64.3	0	0	-	-	-
	ICU	4*	100	33.3	50	100	-	25	75	0	-	-	-	-
Enterococcus spp	OPD	101	-	-	-	33.3	71.6	-	50*	1	-	22.2	66.7	7.1
	WD	151	-	-	-	65.2	91.7	-	75.7	4.7	-	65.5	55.1	12.4
	ICU	21	-	-	-	46.2	100*	-	68.8	10	-	50*	50*	0*
Streptococcus Spp (Group A, B)	All	17	0	-	0	0	-	-	9.1	0	-	0	40	-
Streptococcus pneumoniae	All	10	0	-	0	0	-	-	0	0	-	0	100*	-

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IMPORTANT NOTES / DISCLAIMER FOR TREATING CLINICIANS: from EDITOR's DESK

- The in vitro tests are not exact replica of in vivo drug / bug interactions. There may be an in vitro / in vivo paradox associated with an AST report, the possibility of which are kept minimum.
- It is imperative for ***ALL REQUSITION FORMS*** to be ***COMPLETE*** containing following information: ***Name, Age, Sex, Correct CR Number, Specimen, Ward, OPD, ICU, Diagnosis and Treatment History.***
- This is the ONLY information we have while processing a bacterial isolate. *The report provided may be deleterious to the patient if these details are not provided*.
- This data may be used to formulate an empiric therapy but susceptibility report must be followed by escalation / de-escalation therapy
- Our common goal is to have minimal morbidity and mortality due to infections and keep bacterial resistance under check. We would appreciate if there is a greater interaction between physicians and clinical microbiologists

Clinical Interpretation and Relevant Features of AST Data

➢There is an alarming high percentage of resistance to carbapenem drugs among members of family Enterobacteriaceae with 1, 6.5 and 26.7% in OPD, Wards and ICU's respectiveyl, possibly due to novel carbapenemase enzymes being detected in Indian health care set ups

➢Only remaining options for such isolates are inhalational Colistin or possibly i.v. Tigecycline. Proteus, Morganella and Providencia spp are inherently resistant to Polymyxins and Tigecycline, further narrowing therapeutic options

➢Extended spectrum beta lactamase (**ESBL**) prevalence in OPD and wards is approximately 66.3% & 83.3% respectively. ESBL detection in ICU's was not calculated as there are multiple resistance mechanisms

➢An **ESBL** producing organism is resistant to All Penicillins, Cephalosporins and Aztreonam group of drugs (except cephymycins)

➢**Methicillin Resistane Staphylococcus aureus (MRSA)** are resistant to all Beta lactams, Beta Lactam+Beta Lactamase Inhibitor combinations, Cephems and Carbepenems

New Techniques / Methods Recently Introduced

Anoxomat Mark II

The Anoxomat is a system for culturing anaerobes and micro aerophiles. It is a complete and unique system creating rapidly and automatically anaerobic, micro-aerophilic or capnophilic conditions in an anaerobic jar. It uses precise pressure measurements to control the evacuation and refilling of the anaerobic jar. An embedded computer guides the process. The evacuated air is replaced by up to three different gases. The use of gas connections depends on the gas composition in the jars. Due to the high sensitivity of the pressure sensor, the incubation conditions can be created with precision. Such a system for anaerobic and micro-aerophilic work, the laboratory will benefit from the many advantages the system has over traditional culturing methods.

BACTEC 9120® Continuous Monitoring System for Normally Sterile Body Fluids

Our department recently started the BACTEC 9120 system. It is a continuous culture monitoring system for Aerobic and Anaerobic bacteria and fungi. Only samples from sites which are otherwise sterile are to be sent in BACTEC bottles for culture. These include Blood, CSF, Pleural Fluid, Ascitic Fluid, Joint Aspirates, and Deep Seated Abscess. They are to be sent only after complete skin asepsis as being an extremely sensitive system, it picks up contamination also very easily. Samples not to be sent for BACTEC 9120 include unsterile samples like: Stool, Urine, Open pus wounds, Tracheal aspirates etc. It automatically indicates when an organism grows and a preliminary culture report to the clinician is provided to start appropriate antibiotics. The conventional culture system continues to run in parallel. This system is not meant for Mycobacteria.

Microscan Walkaway Plus® Automated Identification & Antimicrobial Susceptibility System

Our department also acquired the MicroScan Walk Away 96 Plus (Siemens), which is an Automated Identification and Antimicrobial Susceptibility system. The organism under identification is inoculated on a tray which is loaded in the system that incubates the sample and automatically identifies it varying from 16 – 24 hours depending on the organism. If required, extended antibiogram (upto 24 antibiotics) of the organism can be done using this instrument. At one time upto 96 samples can be loaded. The result is provided in about 16 hours with an extended list of antibiotics. The trays can be read manually also in case of a long power failure using color coded charts

WHONET Software for Antimicrobial Susceptibility Testing Database

The Department of Microbiology has started doing all the entries of their Antimicrobial Susceptibility Data on WHONET software from April 2010 so as to have a department wise antibiogram database. It helps to retrieve and filter data for a particular Department, ICU, OPD or in-patients and even for a sample or an organism. It's a valuable software for implementation of infection control practices and formulation of antibiotic policy and recycling of antimicrobials in the hospital formulary. Therefore it's absolutely essential that all requisition forms from the hospital must mention the name, age sex, specimen, correct CR No, ward, unit, date of admission, provisional diagnosis of the patient and antibiotics received. We are hoping to release such data from the Department of Microbiology on a routine basis which will detail the treating physicians about the hospital antibiogram pattern. We will make an effort to make our next antibiogram pattern as per CLSI M-39 A3 guidelines.

List of Investigations Currently Being done in Department of Microbiology

Bacteriology Lab (Room No 325)

Culture and Sensitivity #	Blood*, Urine, CSF*, Pus and Other Body Fluids (joint*, peritoneal*, pleural*), Throat swabs, Endotracheal aspirates, I.V. cathter tips

#Microscan System used for MDR and difficult to identify isolates.
*BACTEC facility available for sites that are normally sterile.

Direct Microscopy	CSF, Pus, Sputum and Other Body Fluids (as required), Throat swab
Screening for	MRSA, ESBL's, Carbapenemase and MBL activity, HLAR, VRE

Parasitology & Enterobacteriaceae Lab (Room No 322)

Direct microscopy for:
- Stool for protozoan parasites (ova / cysts) and opportunistic pathogens
- Blood (Malaria, Microfilaria, Kala Azar)

Stool culture for bacterial diarrhea/dysentery
Antigen Detection: Malaria, Kala Azar, Hydatid disease (IF), E. histolytica, Cryptosporidium, Giardia, Toxoplasma
Antibody Detection for: Toxoplasma, E. histolytica, Hydatid disease
Fecal Occult Blood

Anaerobic Lab (Room 322)
Direct miroscopy, Culture and identification (Anoxomat System)

Mycobacteriology Lab (Room 317)
Culture +/- sensitivity (Sputum, EB, LN Aspirate etc)
Direct microscopy
Slit Skin Smear for leprosy
Serology (IgM & IgG for MTB)

Serology Lab (Room 314)
WIDAL, VDRL, TPHA, RF, ASO, CRP, IgG profiling, ANA +/- serology for Leptospira / H. pylori

Mycology Lab (Room 314): KOH & India Ink wet mount, Fungal culture and identification, Cryptococcal antigen detection and yeast antimicrobial sensitivity

Virology Lab (Room 311)
HIV surveillance (ICTC), Serology for HBV, HCV, Dengue, Chikungunya, Rubella, CMV, Herpes

Hospital Infection Control Lab (Room 322)
OT, ICU, NICU air and environmental sampling in outbreak situations and MRSA screening of Hospital staff

Infectious Disease Clinical Case: Dr Kaustuv De, Dr Shukla Das

A 36 year old female presented to the surgery OPD with discomfort in the right hypochondrium. Imaging studies revealed a cyst in the liver. She was admitted to the surgery ward and subsequently the cyst was removed. The aspirated fluid was sent to the dept of microbiology for confirmation of the etiology.

A serum sample was also provided for immunological studies which was positive by ELISA for IgG against Echinococcus . The aspirated fluid was centrifuged twice and then wet mounts were prepared with the deposits.

The wet preparations revealed armed scolices with complete whorls of hooklets. It also revealed numerous hooklets. The serum was tested for antibodies to Echinococcus by a commercially available immunofluorescent assay. The result of the test was positive.

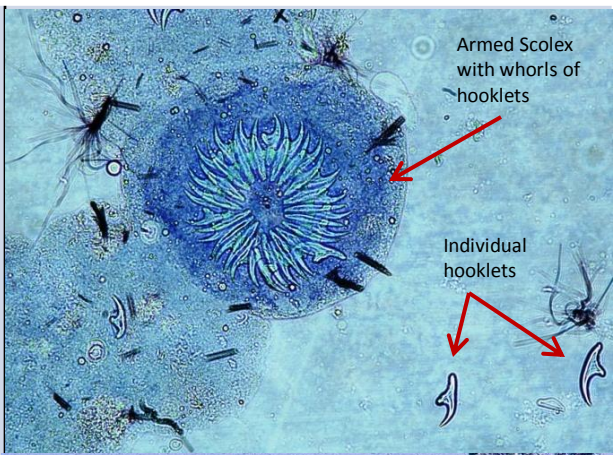
Though, it is suspected that diagnosis by antibodies in parasitic infections is often nonspecific due to widespread cross-reactivity, in this case the diagnosis was beyond doubt due to the direct demonstration of the worm components in wet mount.

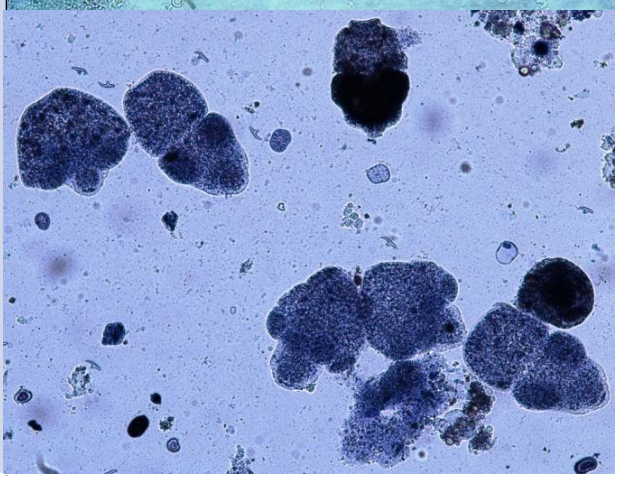
TREATMENT

The patient received tab. Albendazole along with other antibacterial drugs.

She responded to the treatment satisfactorily and was discharged after a week.

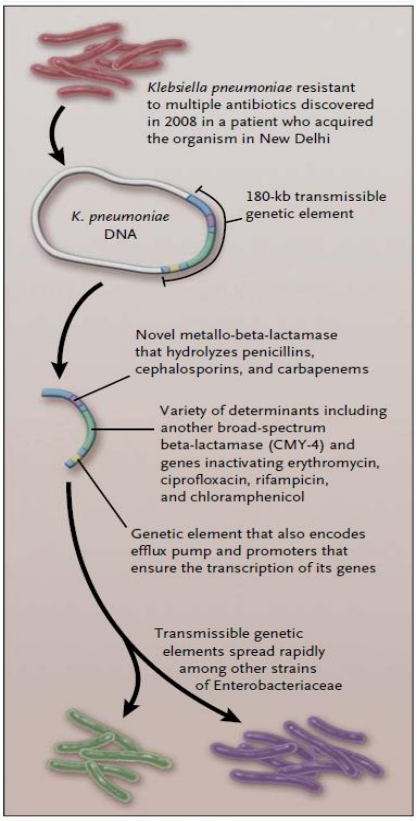
Direct demonstration of micro-organism whenever possible should be attempted for confirmation of diagnosis in case of parasitic infections.





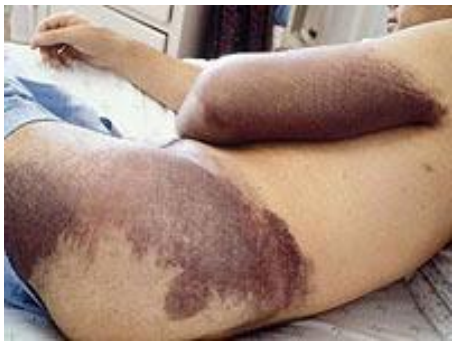
The New Delhi Superbug (NDM): Dr Sumit Rai

The past year witnessed the resurrection of a yet another novel drug resistance gene called the New Delhi Metallobetalactamase- 1 (NDM-1). The bacteria harboring this gene popularly came be known as the New Delhi Superbugs. This was found in the members of the family Enterobacteriaceae (comprising of E. coli, Klebsiella, Proteus etc) which are the most commonly encountered bacterial pathogens. Even though the gene was new but the mechanism has been known to be caused by other genes as well like IMP (1995 Japan), KPC (1996 USA), VIM (2003 Greece). The furor that arose was due to the name given and the fact that the publication in NEJM by Kumaraswamy et al directly attacked on medical tourism in India without confirming the origin of the gene. Recent scientific reports from Balkan countries have isolated the bacteria from patients who have never left their country. A recent publication suggests that NDM should be labeled as **PCM** (Plasmid Coded Metallobetalactamase) Keeping the controversies aside, the fact of matter is that the "superbug" is very much prevalent in India and unpublished studies done in our department have confirmed their presence by molecular methods, both in the OPD and In Patients of GTB Hospital. What needs to be interpreted by the clinician is that Enterobacteria harboring any of these genes are included under the category of **CRE** (Carbapenem Resistant Enterobacteriaceae), which means that any of the Carbapenem and lower category beta lactam drugs will be ineffective. The only options remaining would be Colistin and Tigecycline (and probably Ciprofloxacin and Minocycline). The bad news is that the moment these genes spread to Proteus, even these drugs would fail as Proteus is inherently resistant to these drugs , leaving us almost no therapeutic options. This gene has already spread in Acinetobacter and Pseudomonas. The need of the hour is very traditional: Compulsory hand washing, Patient cohorting, Strict/ Stringent Infection Control Practices, Active Surveillance of Patients/ HCW/ Environmental Sampling (as per CDC Infection Control Guidelines for CRE), Installation of Hospital Information System, formulation and implenetation of Hospital Antibiotic Policy and a greater interaction between treating clinician and Clinical microbiologist.

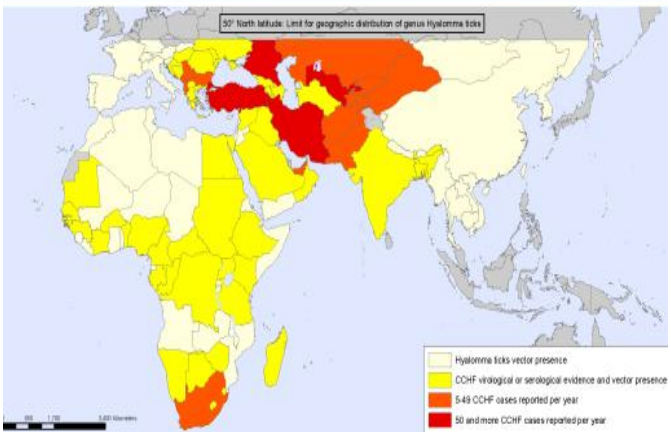


The Origin and Spread of NDM-1.

Source: Moellering, NEJM, 363(25): 2377 - 2379



Geographic distribution of Crimean-Congo Haemorrhagic Fever



Crimean–Congo hemorrhagic fever (CCHF): Dr Tarun Thukral

CCHF is a tick borne viral zoonotic disease. A recent outbreak erupted in Ahemedabad in January 2011. Environmental reservoirs usually include mammals like hare , hedgehogs and multi-mammate rats. Ticks carry the virus to sheep, goat and cattle. These domestic livestock remain asymptomatic in spite of developing high viral titers. Sporadic infection in humans is caused by *Hyalomma* tick bite (fig). Outbreaks may occur when people treat, butcher or eat infected livestock. In clinical settings infections may occur where health workers have been exposed to infected blood and fomites. The incubation period is 2-3 days after a tick bite or may be upto a week in blood and tissue exposure. Initially flu-like symptoms appear which resolve in a week. Signs of hemorrhage appear in 75% cases (fig). Mental confusion, agitation and mood instability occurs, which is followed by petechiae, epistaxis, haematuria, hematemesis and melena. Severe complications may occur with DIC, renal failure, ARDS and shock with 30% mortality in second week of illness. Treatment is primarily symptomatic and supportive. There is no established specific treatment. Ribavirin is effective *in vitro* and has been used during outbreaks but there is no trial evidence to support its use. De-ticking of farm animals and their regular inspection for adherent ticks is recommended. For personal protection, use of insect repellants and adequate clothing is a must, as is to follow standard precautions in healthcare settings.

Note

- This newsletter may be available at the UCMS website as a freely downloadable pdf file
- Any feedback / constructive criticism / errors may kindly be pointed / mailed at sumit_rai@yahoo.com (9650771813)