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MICROBIOLOGY NEWSLETTER

Department of Microbiology
Dr. Ram Manohar Lohia Institute of Medical Sciences
Lucknow

Department of Microbiology

Prof. Jyotsna Agarwal, Head
Virology/COVID Lab & Hospital Infection Surveillance Incharge

Prof. Vineeta Mittal
Mycobacteriology & Immunology Incharge

Prof. Manodeep Sen Bacteriology, Parasitology & Hospital Infection Surveillance Incharge

Prof. (Jr.) Anupam Das
Bacteriology & Mycology Incharge

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Serology, Immunology, Virology/COVID Lab & Hospital Infection Surveillance Incharge

Cover page features Covid-19 sample boxes waiting in to be processed, on one of the quieter days when they are singly stacked; and Agar Art winning entry by Dr. Himanshi S., JR1, titled **"Covid Warrior** "

डा० राम मनोहर लोहिया आयुर्विज्ञान संस्थान,
विभूति खण्ड, गोमतीनगर, लखनऊ–226010
Dr. Ram Manohar Lohia Institute of Medical Sciences
Vibhuti Khand, Gomti Nagar, Lucknow-226010

प्रो० ए०के०सिंह
निदेशक
Prof. A.K.Singh
MS, M.Ch, MNAMS, MNASc
DIRECTOR

Message from Director

I am happy to know that Department of Microbiology, Dr. Ram Manohar Lohia Institute of Medical Sciences is organizing a CME on the theme 'Mutations in SARS-CoV-2' on 13th February 2021and are publishing their 8th Annual NEWSLETTER for the year 2020. 'Mutations in SARS-CoV-2' is a very pertinent topic chosen by the Department of Microbiology, at the right time, when everyone has a question about the impact of mutations in the ongoing Covid-19 pandemic & the vaccine efficacy. The speaker Prof. Gagandeep Kang is an authority on the subject. It will be a pleasure to listen to her.

In the ongoing pandemic Department of Microbiology has played a pivotal role in management of Covid 19 Diagnostic facility including sample collection and Covid 19 infection control. Starting from scratch the Department has come a long way in being the torch bearers in exemplarysample testing in the state level. They have performed more than 8 lakhs RT-PCR tests, which is third highest in the state. In TrueNat facility, they have proved themselves to be the leaders with the highest number of TrueNat tests done by any institute in the state with almost 24 thousand tests till date.

Antimicrobial resistance develops when microbes resist the effects of antimicrobials, which makes common infections difficult to treat and increasing the risk of disease spread, severe illness and mortality. Antimicrobials are critical tools for fighting infectious diseases in humans, and include antibiotic, antiviral, antifungal and antiprotozoal medicines.
The aim of this News Letter, which contains the annual antibiograms of the institute is to increase awareness of global antimicrobial resistance (AMR) in general and our institute in particular and to encourage best practices among the health workers and policy makers to avoid the further emergence and spread of drug-resistant infections.

I am sure this 8th Annual Microbiology News Letter will serve as a benchmark tool to aid them in assessing empirical management with antimicrobials based on local antibiogram data of our institute.

I congratulate all the Faculty members, Residents & staff of Department of Microbiology for managing to bring out the annual News Letter and maintain their continuity in this endeavor in the midst of the present challenging Covid-19 pandemic.

Prof. A. K.Singh
(Director)

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Message from Dean

I am glad to know that Department of Microbiology, Dr.Ram Manohar Lohia Institute of Medical Sciences organizing a CME on the theme 'Mutations in SARS-CoV-2' on 13th February 2021 and are bringing out their Annual NEWSLETTER for the year 2020.

A pertinent topic has been chosen by the Department of Microbiology for the CME, I am sure the discussions arising out of the CME 'Mutations in SARS-CoV-2' will bring some clarity to doubts regarding this subject.

Global antimicrobial resistance is a burning problem these days. Antimicrobial resistance (AMR) threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria. The annual Microbiology Newsletters from Department of Microbiology have consistently served as a reference tool for our clinicians and residents in effective management of patients with drug resistant infections.

The efforts in this direction are especially commendable since the department is at forefront of the containment of Covid 19 in the ongoing pandemic, functioning on large scale from sample collection to diagnostics of the Covid 19.

I congratulate all the faculty members, residents & staff of Department of Microbiology for managing to bring out the annual Newsletter and maintain the continuity in this endeavor in the midst of the present challenging Covid-19 pandemic.

Prof. Nuzhat Husain
(Dean)

डा0 राम मनोहर लोहिया आयुर्विज्ञान संस्थान

विभूति खण्ड, गोमती नगर, लखनऊ–226010
फोन नं0–0522-4918555, 4918504 फैक्स नं0–0522-4918506

Message from Chief Medical Superintendant

I am happy to note that Department of Microbiology, Dr.Ram Manohar Lohia Institute of Medical Sciences is organizing a CME on the apt theme 'Mutations in SARS-CoV-2' on 13th February 2021and are bringing out their 8th Annual NEWSLETTER for the year 2020.

A right topic for thought provoking discussion at the right moment of the ongoing Covid 19 pandemic, I am sure this CME will clear the air regarding the mutations in SARS Cov-2 and its consequences and impact on all of us.

Starting from scratch in April 2020 to reach the top slot in TrueNat testing facility in the state with highest number of Covid 19 TrueNat tests done (–24,000 tests till date) & in being third amongst the institutions of the state in performance of Covid 19 RT-PCR tests with more than 8.2 Lakhs tests done till date, they have come a long way in managing the diagnostic facility of Covid-19 right from sample collection to timely reporting. The entire department is praise worthy for their contribution in these tough pandemic times.

Every year department of Microbiology is helping the clinicians in day to day management of patients with infectious diseases, by bring out the annual local antibiogram of the institute in the NewsLetter. This is relevant in the present era of multidrug resistant infections in health care settings which has compromised the repertoire of antimicrobials with us leading to possiblility of an era of 'Beyond antibiotics'.

My best wishes and congratulations to all the Faculty members and residents, of the Microbiology department for their continued efforts in contributing to the academic mileu of the Institute.

(Prof. Rajan Bhatnagar)
Chief Medical Superintendent

From Editor's Desk

In March 2020, when Lockdown was announced by the Honorable PM, we at Microbiology department at RMLIMS, Lucknow, unfortunately had no facility to start Covid-19 diagnostics which needed a minimum of BSL-2 laboratory. To identify an area and develop it in to a BSL-2 lab during the lockdown was extremely challenging yet gratifying. We were finally able to get ICMR nod for COVID RTPCR testing on 11th of April 2020. What started with 50 samples a day soon evolved in to >5000 RT-PCR/day. Needless to say that unwavering support of Administrators at the helm, Prof. A. K Tripathi, Prof. Nuzhat Husain and Prof. A. K. Singh has been pivotal.

We are one of the top performing laboratories not only in the state but entire country (having tested >8.3 lakh samples for RT-PCR) and the credit for this outstanding work goes to the my committed team of colleagues Prof. Manodeep Sen, Dr. Anupam Das and Dr. Jaya Garg, supported by an army of enthusiastic residents and laboratory staff some of whose faces unfortunately I may not recognize since they joined pandemic times and have been in masks ever since! But I want each of you to know how indebted I am, for your dedication and selfless work. You all are the REAL HEROES.

Apart from diagnostics, in pandemic times, Department of Microbiology played the most crucial role of managing Infection prevention and control not only for COVID hospital but entire hospital premises under the guidance of Dr. Manodeep Sen; while Dr. Vineeta Mittal played the key role in imparting training for specimen collection and infection prevention related to COVID-19. Meanwhile MBBS and PG teaching continued in 'online' and later in 'hybrid' mode and we conducted our First MD batch's exit exam successfully, along with the MCI inspection. I'm happy to share that our MD microbiology seats are recognized. We did manage to participate and organize a few academic events online as well, the details of which you will see in the picture gallery. . This year we are releasing the newsletter with a CME on SARSCov-2 mutation, and keynote speaker is none other than Prof. Gagandeep Kang. As the current pandemic situation demands, we are conducting it in hybrid mode: part online and part onsite!

I can look back at the year gone by with immense gratitude and satisfaction that we could contribute in some way to the nation, in these exacting times; though there always is scope for improvement!!

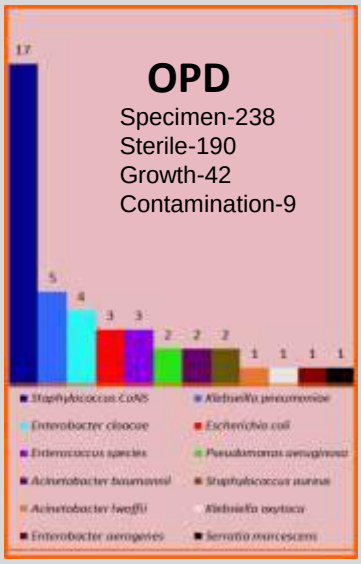
Thank you all

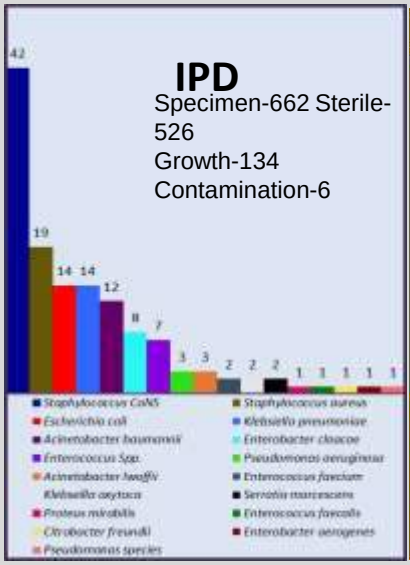
Dr Jyotsna Agarwal

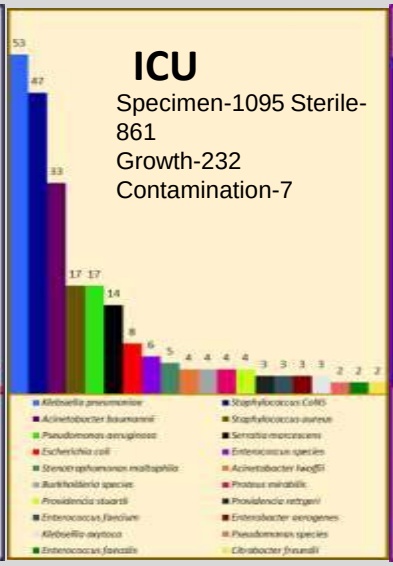
Complete list of investigations carried out in our department, along with volume of sample & type of container is available at http://www.drrmlims.ac.in/hostipalservices.php.php in ***click here*** segment of Microbiology

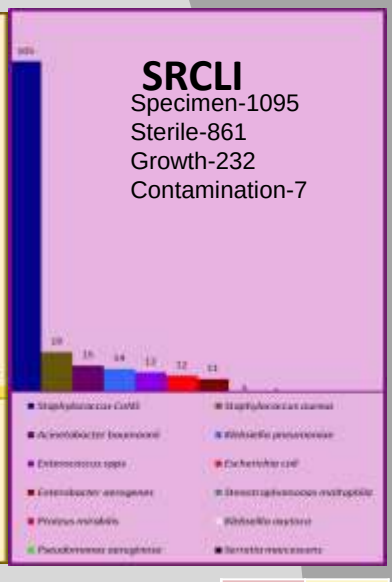
Blood (January-December 2020)

Total sample received and analyzed = 2391, 15 samples showed polymicrobial growth









Percentage sensitivity

OPD | ICU
IPD | SRCLI

	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
Lactose fermenters	40	5	7	20	19	15	6	16	17	22	11	9	7	17	2	7	13
	66	2	5	34	25	10	4	7	10	8	6	5	4	11	1	4	8

	Number	AS	CAZ	DORI	NETIL	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
Acinetobacter spp.	37	3	3	4	4	5	10	6	5	6	2	1	3	3	5	5

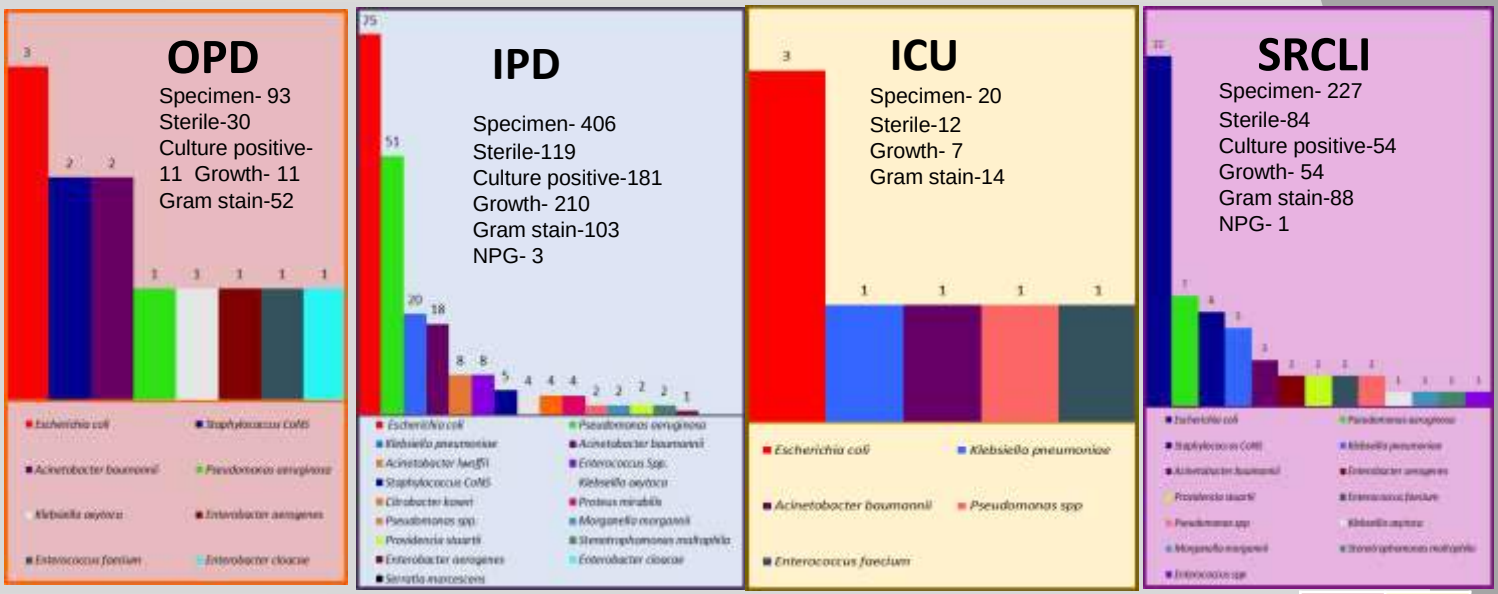
Staphylococcus spps	Number	CX	CD	GENTA	NETIL	OFLOX	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO
	61	16	20	20	43	1	10	13	10	45	42	34	53	42	13
	64	6	8	14	26	3	1	2	5	39	25	38	45	38	7
	66	20	36	28	46	4	14	11	15	52	44	38	59	39	20

IPD	In-Patient Department	OPD	Out-Patient Department
ICU	Intensive Care Unit	SRCLI	State Referral Centre for Laboratory Investigation

Contamination	Growth of skin flora: diphtheroids, spore formingbacilli
NPG	No Pathogenic growth
NSG	Non-significant growth

*Body fluids (January-December 2020)

Total sample received and analyzed=746; 42 samples showed polymicrobial growth



Percentage sensitivity

	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
Lactose fermenter	101	9	14	26	25	23	11	41	43	52	19	9	11	57	3	6	37
	30	7	10	12	15	13	10	14	14	16	11	10	6	20	5	8	13

	Number	CAZ	DORI	NETIL	OFLOX	AT	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
Pseudomonas Spp.	53	21	24	19	17	22	32	23	21	18	21	26	23	22	33

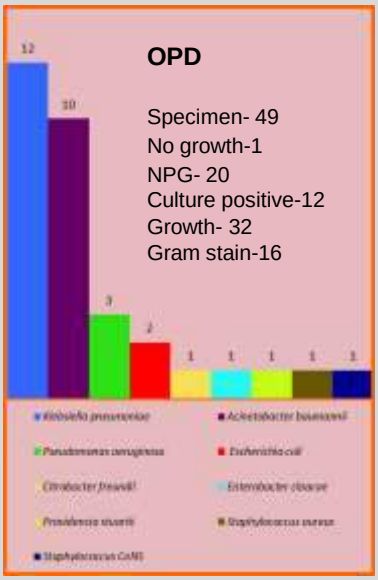
*Sterile body fluids including CSF

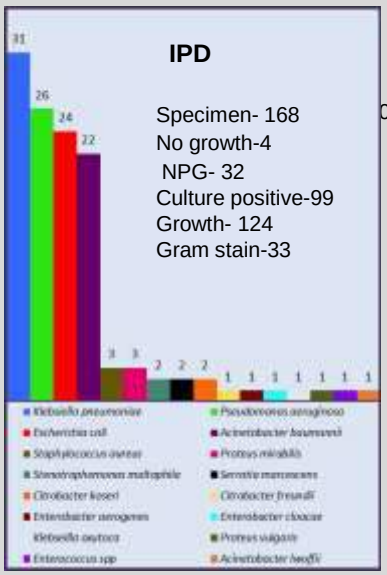
Abbreviations used

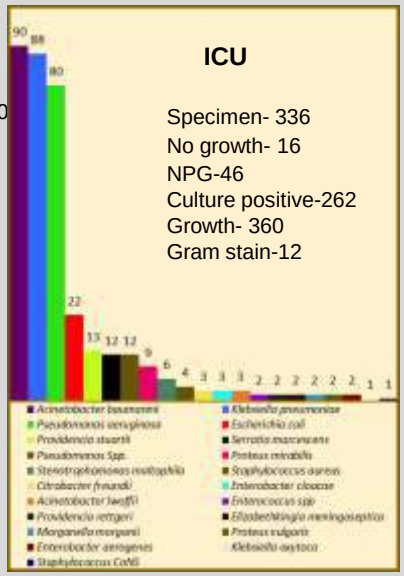
AS	Ampicilin-Sulbactam	DOX	Doxycycline	NOVO	Novobiocin
AT	Aztreonam	E	Erythromycin	NF	Nitrofurantoin
AMIKA	Amikacin	ETP	Ertapenem	NETIL	Netilmicin
AB	Amphotericin B	FLU	Flucytosine	OFLOX	Ofloxacin
CAS	Caspofungin	FLC	Fluconazole	PIT	Piperacillin-Tazobactam
CAZ	Ceftazidime	FOS	Fosfomycin	PENI	Penicillin
CX	Cefoxitin	GENTA	Gentamicin	TOB	Tobramycin
CZ	Cefazolin	HLG	High level Gentamicin	TET	Tetracycline
CPM	Cefipime	IMI	Imipenem	TEICO	Teicoplanin
CHLOR	Chloramphenicol	LZ	Linezolid	VRC	Voriconazole
CD	Clindamycin	LEVO	Levofloxacin	VA	Vancomycin
CIPRO	Ciprofloxacin	MERO	Meropenem	NOR	Norfloxacin
DORI	Doripenem	MYC	Micafungin		

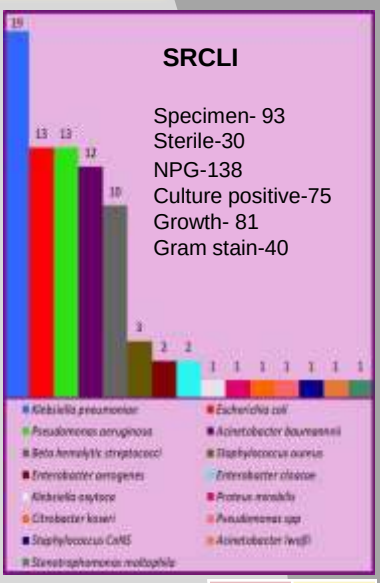
*Respiratory specimen (January-December 2020)

Total sample received and analyzed= 815, 149 samples showed polymicrobial growth









Percentage sensitivity

OPD ICU IPD SRCLI

Lactose fermenters	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
	59	7	7	25	20	19	7	21	26	27	11	6	7	26	4	10	11
	119	6	9	54	39	20	8	26	24	26	10	11	5	24	3	11	23
	37	10	12	19	18	14	12	18	17	18	15	12	12	21	7	10	16

Acinetobacter Spp.	Number	AS	CAZ	DORI	NETIL	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
	93	3	3	10	3	10	17	4	2	5	5	6	5	4	4	7

	Number	CAZ	DORI	NETIL	OFLOX	AT	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
Pseudomonas Spp.	92	23	21	15	17	24	36	22	27	30	23	31	26	18	30

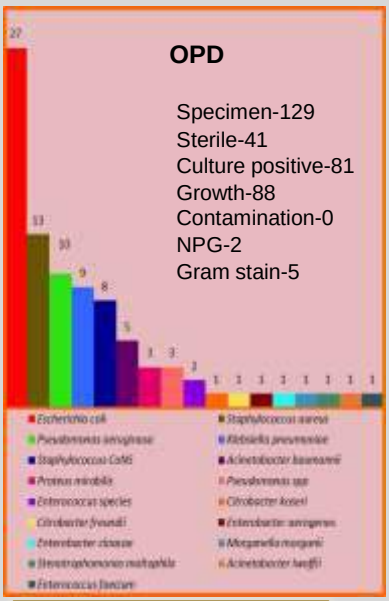
*Sputum, BAL, Throat swab, Nasal swab, Bronchial aspirate, Endotracheal aspirate

For statistically significant antibiograms,as per recommendations by CLSI, antibiotic susceptibility profile of **at least 30 organisms** should be available. Thus we have clubbed some bacteria in groups in order to get sufficient numbers

Lactose fermenters	*Escherichia coli, Citrobacter* spps, *Klebsiella* spps, *Proteus* spps, *Providencia* spps
Non Lactose fermenters	Pseudomonas spps., Acinetobacter spps.
Staphylococcus spps	*Staphylococcus aureus*, Coagulase Negative *Staphylococcus* spps (CoNS)

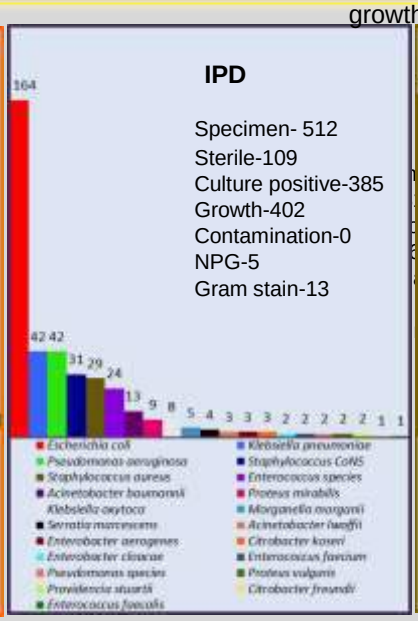
*Pus (January-December 2020)

Total sample received and analyzed =1611, 37 samples showed polymicrobial growth



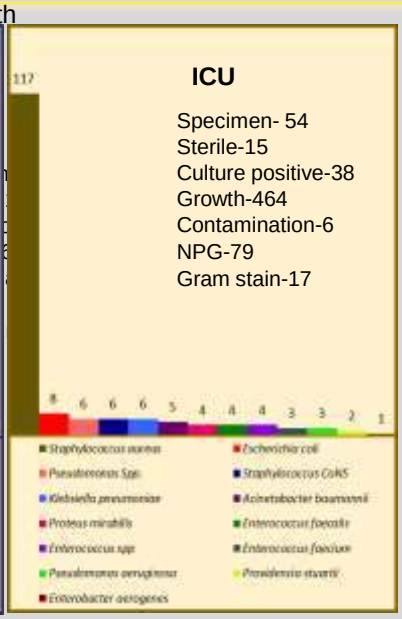
OPD

Specimen-129
Sterile-41
Culture positive-81
Growth-88
Contamination-0
NPG-2
Gram stain-5



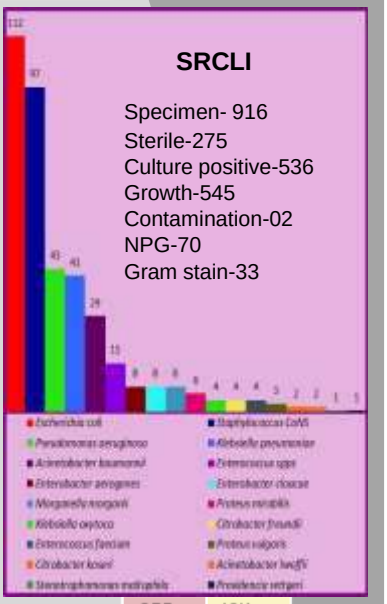
IPD

Specimen- 512
Sterile-109
Culture positive-385
Growth-402
Contamination-0
NPG-5
Gram stain-13



ICU

Specimen- 54
Sterile-15
Culture positive-38
Growth-464
Contamination-6
NPG-79
Gram stain-17



SRCLI

Specimen- 916
Sterile-275
Culture positive-536
Growth-545
Contamination-02
NPG-70
Gram stain-33

OPD ICU IPD SRCLI

Percentage sensitivity

Staphylococcus spps	Number	CX	CD	GENTA	AMIKA	NETIL	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO
	117	52	71	50	18	80	17	36	5	83	73	70	105	85	12

CoNS	Number	CX	CD	GENTA	AMIKA	NETIL	PENI	E	CIPRO	DOX	TET	TEICO	LZ	CHLOR	LEVO
	31	8	12	7	7	19	5	4	5	19	17	18	26	17	5
	97	40	47	39	24	70	23	26	19	67	62	64	89	62	25

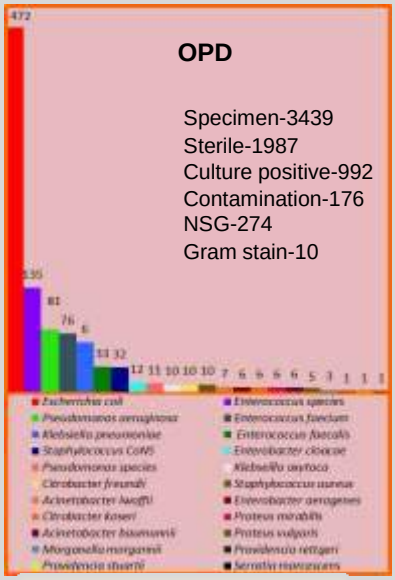
Lactose fermenters	Number	AS	AT	TET	DOX	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA	CZ	CX	ETP
	39	6	3	14	13	14	5	17	20	19	10	5	4	18	0	6	16
	220	29	37	59	55	68	20	71	99	107	47	32	17	107	9	40	73
	177	37	39	68	68	82	40	72	91	100	58	47	38	92	18	48	82

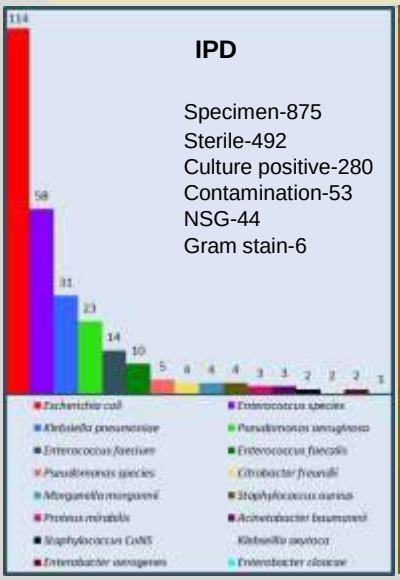
Pseudomonas Spp.	Number	CAZ	DORI	NETIL	OFLOX	AT	PIT	CIPRO	GENTA	MERO	IMI	TOB	CPM	LEVO	AMIKA
	42	19	18	14	15	17	25	14	16	22	22	19	14	14	23
	43	30	31	18	17	27	35	28	28	33	32	29	23	24	32

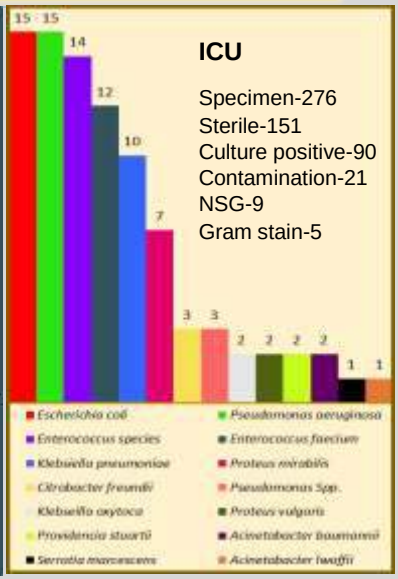
*Pus, Pus swab, Catheter tip, CVP line, Shunt, Tissue, Bone marrow, Vaginal fluid, Semen, Ear discharge, Ear swab, Endometrial discharge, Vaginal swab, Stool, Urethral swab

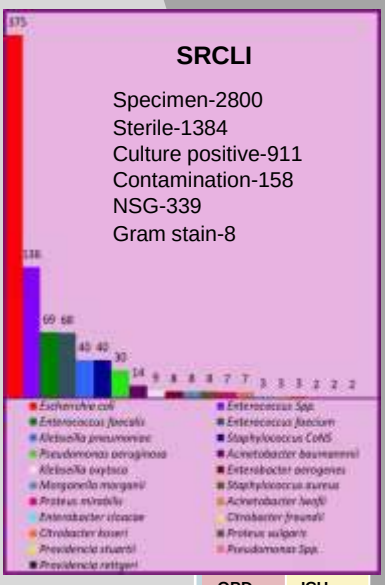
Urine (January-December 2020)

Total sample received and analyzed = 7390









OPD ICU
IPD SRCLI

Percentage sensitivity

	Number	CX	NOVO	GENTA	NETIL	OFLOX	PENI	DOX	TET	TEICO	NF	LZ
Staphylococcus spps	42	10	22	11	32	4	2	21	17	36	33	35
	48	12	28	10	37	5	3	25	22	34	40	44

	Number	AS	AT	TET	DOX	PIT	GENTA	MERO	IMI	TOB	CPM	AMIKA	CZ	CX	NF	ETP	NX	FOS
Escherichia coli	472	128	132	129	134	273	245	345	362	167	132	304	74	252	340	322	58	316
	114	9	10	24	25	43	89	59	64	34	15	66	6	37	69	57	2	87
	375	113	124	116	120	254	208	282	303	168	123	277	80	217	280	277	59	279
Klebsiella Spp.	75	14	18	41	29	29	32	32	34	26	19	33	14	21	21	29	14	36
	33	1	2	21	10	5	5	6	6	3	4	5	2	5	6	5	1	18
	49	14	19	32	25	27	23	25	26	22	21	24	7	13	17	24	13	35

	Number	AS	CAZ	DORI	NETIL	OFLOX	AT	PIT	GENTA	MERO	IMI	TOB	CPM	AMIKA	NX	TET	FOS
Pseudomnas Spp.	92	-	40	30	32	21	40	48	35	38	34	34	37	41	19	-	-
	32	-	20	20	19	15	19	23	21	18	20	19	20	22	12	-	-

Continued from previous page; Urine antibiogram

	Number	PENI	DOX	TET	TEICO	NF	VA	LZ	HLG	NX	FOS
Enterococcus faecium	76	31	42	19	63	52	59	73	22	7	10
	68	39	20	8	65	58	55	66	26	6	10
Enterococcus faecalis	33	21	8	2	30	29	29	32	11	1	24
	69	51	31	11	65	64	62	65	29	9	56
Enterococcus Spp.	135	80	52	24	120	100	110	125	55	11	86
	58	13	22	10	40	32	42	47	12	2	65
	136	78	40	23	115	98	119	120	42	11	86

Note- Norfloxacin disk diffusion and MIC breakpoints have been reinstated for urinary isolates *(Enterobacterales, Staphylococcus spp, Enterococcus spp*) in 2020.

Dr. RMLIMS Hospital Surveillance for Infection Control, 2020

S. No.	Site	Number of Air Culture	Total Swab
1	Onco OT 1	24	84
2	Onco OT 2	24	84
3	Onco HDU	24	72
4	Gastro OT 3	16	64
5	Gastro OT 4	16	64
6	Gastro HDU	16	64
7	ICU 1st Floor	8	84
8	Uro OT 1	16	64
9	Uro OT 2	16	64
10	Uro HDU	16	64
11	Neurology Ward	4	72
12	Neuro ICU	8	32

S. No.	Site	Number of Air Culture	Total Swab
13	Neuro Surgery Ward	16	64
14	Medical Oncology Ward	12	48
15	Neuro OT 1	20	80
16	Neuro OT 2	20	80
17	Neuro HDU	20	80
18	Gastro Medicine Ward	6	42
19	CVTS ICU	6	24
20	Pain OT 1	7	28
21	Emergency OT	7	28
22	CVTS OT	16	64
23	Urology Ward	8	40

Surveillance work from District Hospitals of Lucknow and Adjoining Areas

S. No.	Center	Total Swabs
1	VeerangnaJhalkariBai Referral Center, Lucknow	281
2	Avanti Bai Nodal Center, Lucknow	88
3	Maharaja Suhel Dev Swashasi Rajya Chikitsa Maha Vidyalaya & Valmiki chikitsalaya, Bahraich	29
4	District Hospital Raebareilly	96

Surveillance work from Maternal & Child 200 bedded Hospital and Erstwhile Dr. RML Combined Hospital

S. No.	Site	Number of Air Culture	Total Swab
1	Optha OT	12	48
2	Ortho OT	12	48
3	E.N.T. OT	12	48
4	Gynae OT	12	48
5	General Surgery OT	12	48
6	General Surgery OT	12	48
7	EMG OT	6	24
8	EMG Gynae OT	6	24
9	SNCU I	12	48
10	SNCU II	12	48
11	Dialysis Unit	12	48
12	Blood Bank	12	48
13	Ventilator Unit	6	24
14	Labour Department	6	24
15	USG Unit	12	36
16	X-Ray Unit	-	12
17	Digital X-Ray Unit	-	4
18	M.R.I. Unit	-	24
19	CSSD	-	72

Vancomycin Susceptibility of Staphylococcus spp. by VITEK 2® COMPACT (BioMérieux); January-December 2019

Organism	Detectable MIC range lower than susceptible MIC breakpoint (µg/ml)		Susceptible (µg/ml)	Intermediate (µg/ml)
	<0.5	1	2	4
Staphylococcus aureus	1	5	4	-

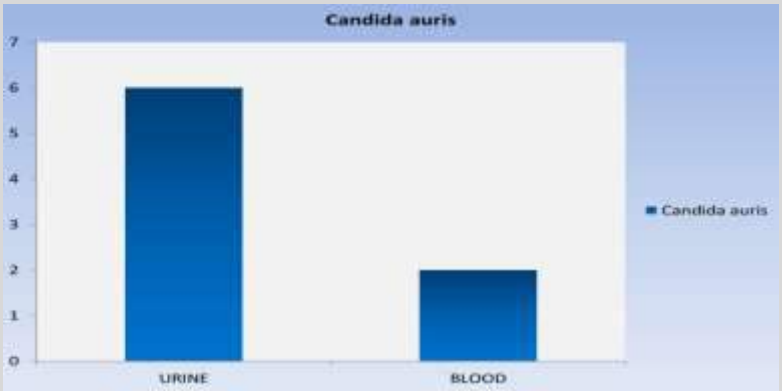
Organism	Detectable MIC range lower than susceptible MIC breakpoint (µg/ml)			Susceptible (µg/ml)	Intermediate (µg/ml)	
	<0.5	1	2	4	8	16
CONS	6	19	3	4	-	-

Colistin Susceptibility in Gram Negative isolates by VITEK 2® COMPACT (BioMérieux); January-December 2020

Micro organisms (Number)	Detectable MIC range Lower than Intermediate MIC breakpoint		Intermediate	Resistant	Detectable MIC range Higher than resistant MIC breakpoint	
	≤ 0.5 µg/ml (% of Isolates)	1µg/ml (% of Isolates)	2µg/ml (% of Isolates)	≥ 4µg/ml (% of Isolates)	8µg/ml (% of Isolates)	≥ 16µg/ml (% of Isolates)
Escherichia coli (27)	93.0%	---	---	---	---	7.0 %
Klebsiella pneumoniae (91)	76.0%	3.0%	7.0%	1.0%	4.0%	13.0%
Acinetobacter baumannii (74)	85.0%	---	1.0%	1.0%	---	12.0%
Pseudomonas aeruginosa (49)	61.0%	2.0%	2.0%	---	---	35.0%
Pseudomonas Spp. (14)	57.0%	7.0%	---	---	---	36.0%

❖ Clinical and PK-PD data demonstrate Colistin and Polymyxin B have limited clinical efficacy for isolates with MIC <2mg/L. Alternative agents are strongly preferred. CLSI 30th ed 2020 has therefore removed susceptibility category for Colistin and Polymyxin B for *Enterobacterale, P.aeruginosa* and *Acinetobacter spp*- Now only 2 categories <=2 µg/ml (Intermediate) and >=4 µg/ml (Resistant).

Mycology data

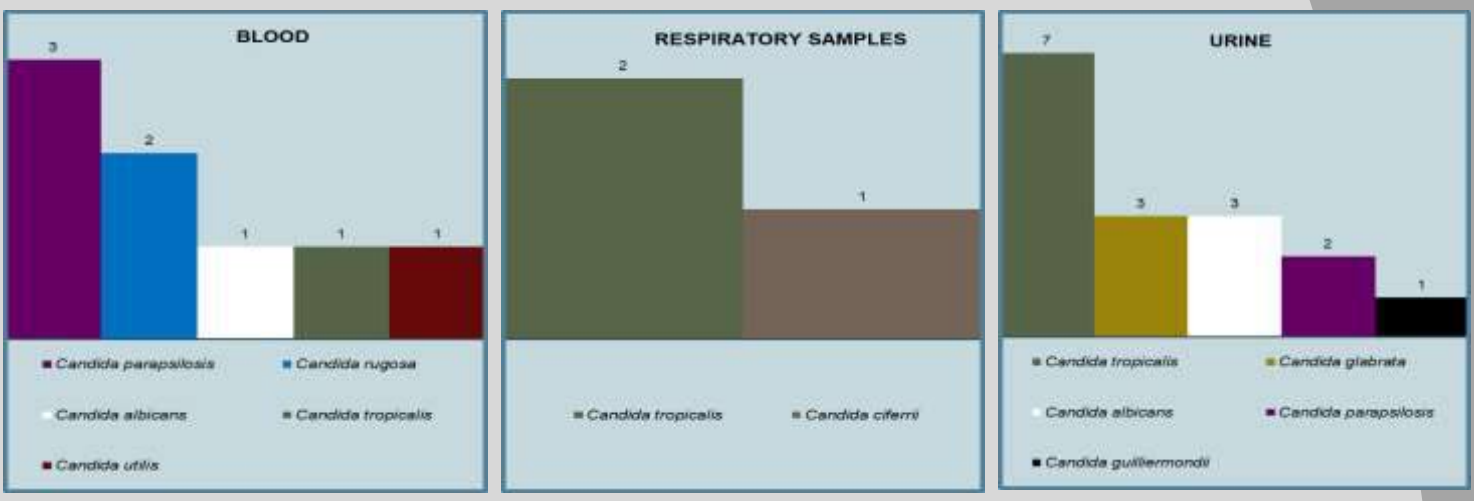


Antifungal Susceptibility Testing : was carried out only when requested

SAMPLES	ISOLATE NO.	FLUCONAZOLE	VORICONAZOLE	CASPOFUNGIN	MICAFUNGIN	AMPHO	FLUCYTCINE
URINE	6	1	1	2	2	1	1
BLOOD	2	1	1	3	3	-	-

☐ *Candida auris is* most notorious *Candida* species.

Mycology data



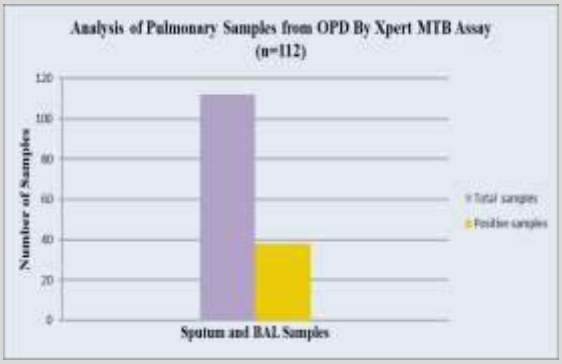
Antifungal Susceptibility Testing : was carried out only when requested

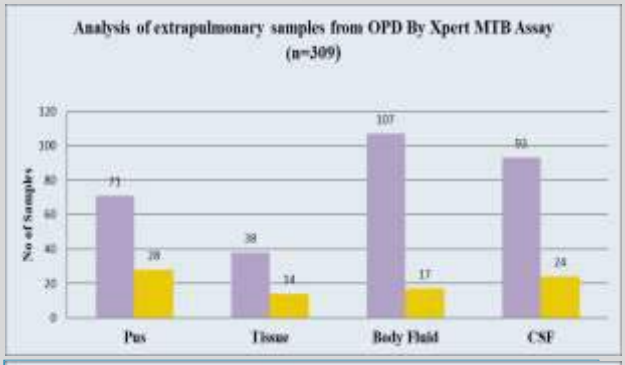
Sample	*Fungal Isolates*	Total Number of Isolates	FLC	VRC	CAS	MYC	AB	FLU
Blood	*Candida utilis*	1	1	1	1	0	1	1
	Candida tropicalis	1	-	1	-	-	-	-
	Candida parapsilosis	3	1	2	2	3	2	2
	Candida rugosa	2	1	2	-	-	1	-
	Candida albicans	1	-	-	1	1	-	-
Respiratory Samples	*Candida ciferrii*	1	-	-	-	-	-	-
	Candida tropicalis	2	1	2	1	1	2	1
Urine	*Candida albicans*	3	1	-	3	3	2	3
	Candida tropicalis	7	5	5	6	6	6	6
	Candida guilliermondii	1	-	-	-	-	-	1
	Candida prapsilosis	2	-	-	1	1	1	1
	Candida glabrata	3	-	2	1	2	3	2

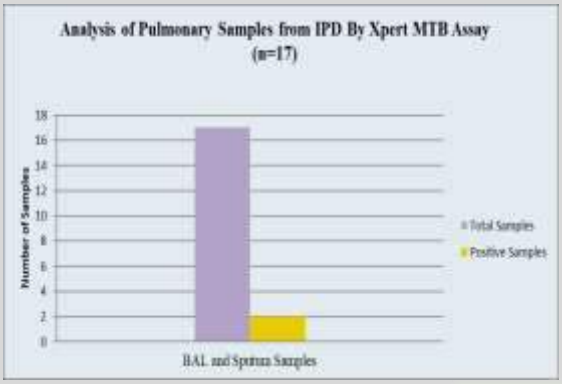
*BAL, Bronchial aspirate, Endotracheal aspirate

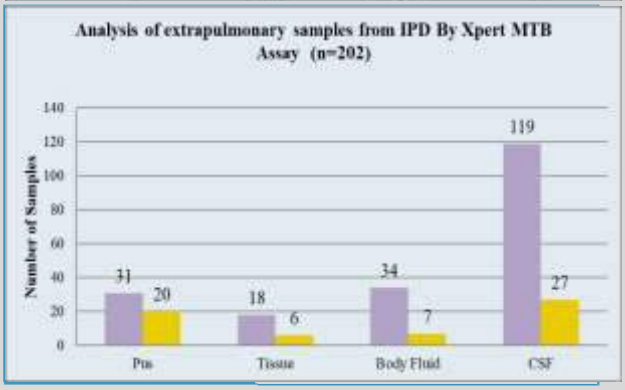
☐Most important breakthrough was identification of *Candida auris*, which has emerged as the most notorious *Candida* species.

Tuberculosis lab data

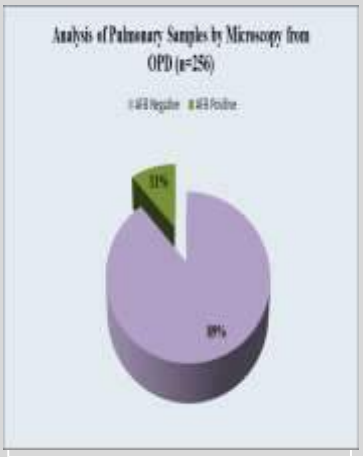


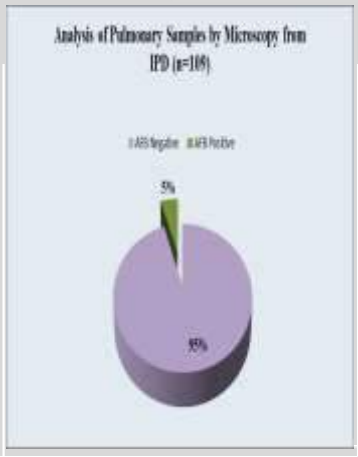


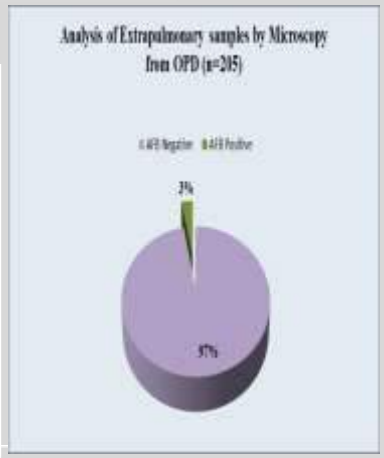


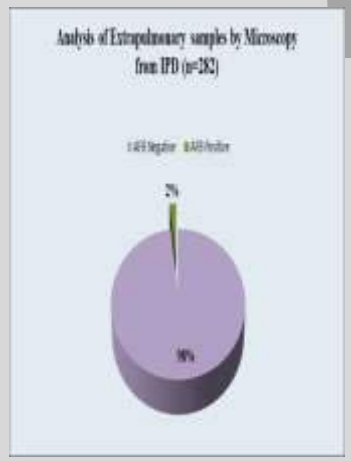


AFB MICROSCOPY DATA

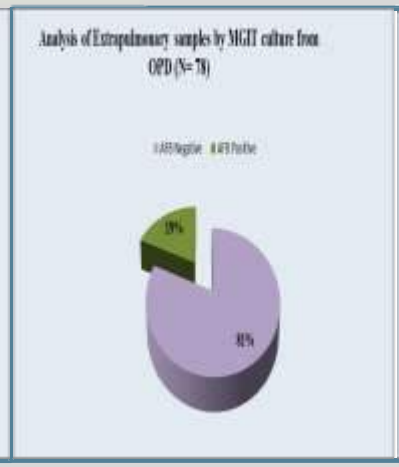


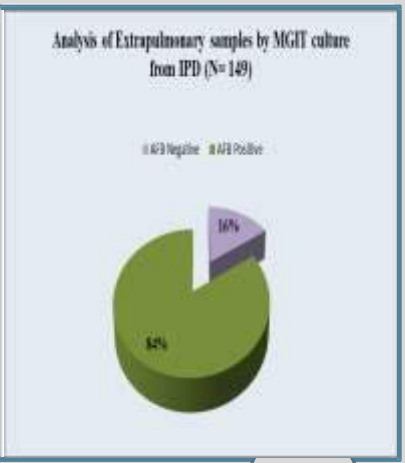






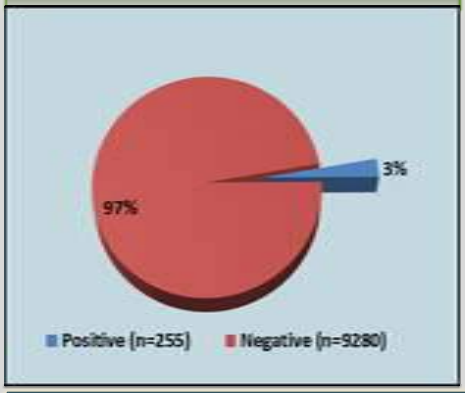
TB CULTURE DATA



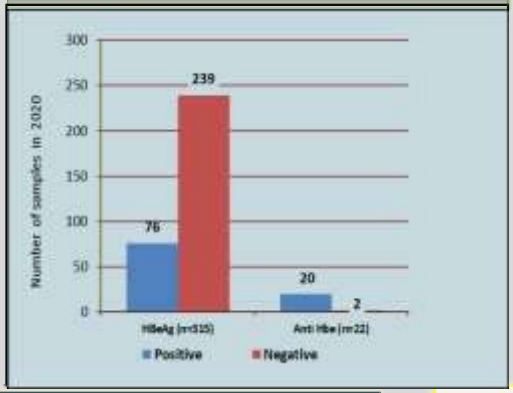


Serology/Immunology lab data, 2020

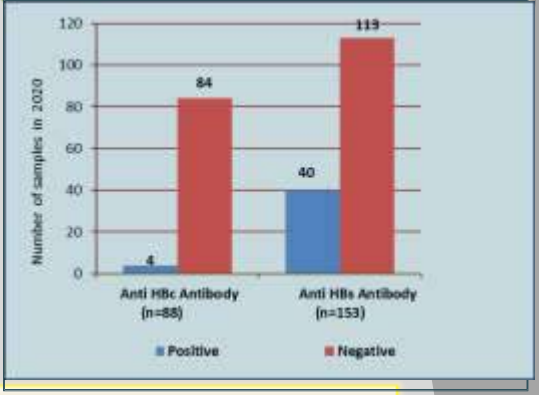
HBsAg (n=9535)



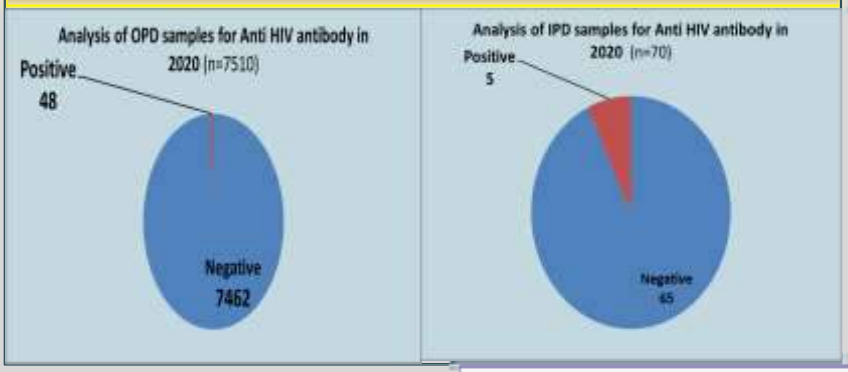
HBeAg and Anti Hbe Antibody



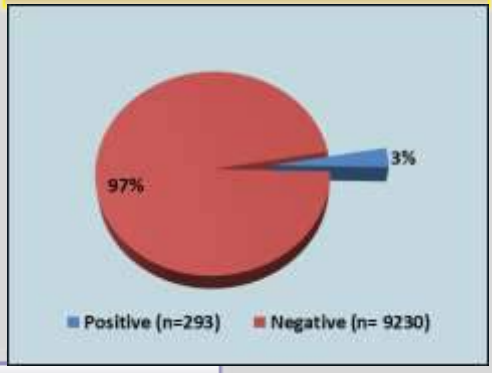
Anti HBc Antibody and Anti HBs Antibody



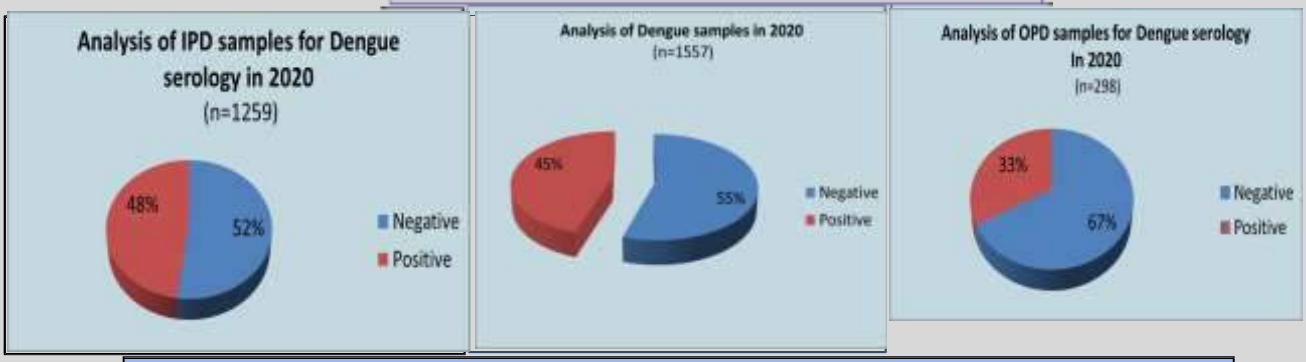
Analysis of samples for Anti HIV Antibody in 2020



Anti HCV IgM Antibody (n=19821)

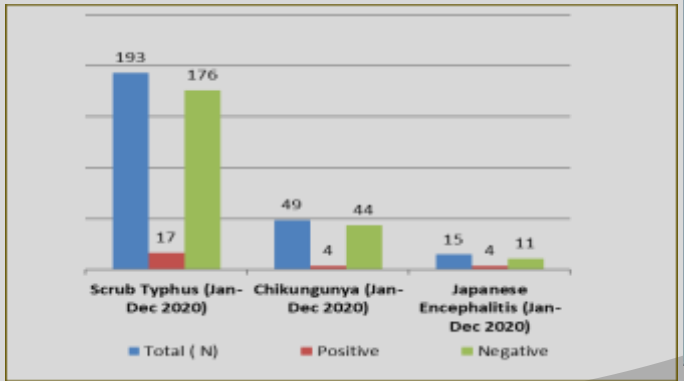


Analysis of dengue samples , 2020

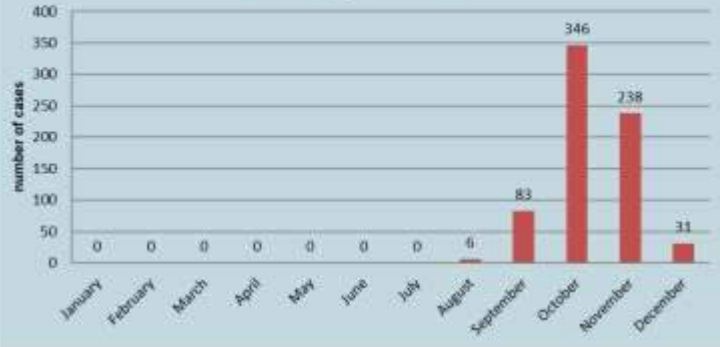


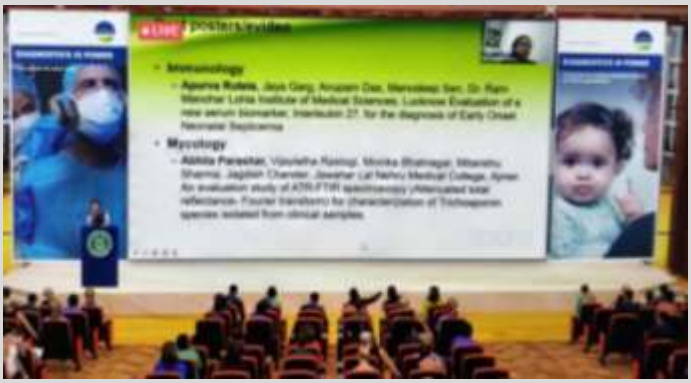
Positive include all samples positive for NS1 or positive/equivocal for IgM or both.
Maximum Dengue cases appeared during September to November 2020

Result of Scrub Typhus IgM ELISA, Chikungunya IgM ELISA and Japanese Encephalitis IgM ELISA



Monthly analysis of samples positive for Dengue serology in 2020





1. Dr. Apurva Rautela was awarded certificate for presenting the best poster In the abstract category "Immunology" on the topic: Evaluation of a new serum bio marker, Interleukin 27, for the diagnosis of Early Onset Neonatal Septicemia at the First Virtual Annual Congress of Indian Association Of Medical Microbiologists. E-Microcon 2020 held during 8-11 December 2020

Third Annual Agar art competition held in Microbiology department for the First year Junior Residents
First Position: Dr. Himanshi Srivastav Covid warrior fighting Corona virus featured on the cover page. Other entries are featured in this collage **A**: Dr. Manoj Kumar: Louis Pateur; **B:** Dr. Amit Kumar: Covid vaccination; **C**: Dr. Harshita Yadav: Barbara McClintock ; **D**: Dr. Shipra Dobhal: Antoni Van Leeuwenhoek

New test added in the Department of Microbiology

- COVID RT-PCR (Rs 600/-)
- COVID True Nat (Rs 1500/-)

COVID Molecular Diagnostic Lab - Unleashing the story of Success

COVID-19, the novel viral respiratory illness is caused by SARS-CoV-2 declared as pandemic on March 11th, 2020 by World Health Organization (WHO). Globally 94 million cases have been reported with 2 million death by January 2021. In India 10.7 million cases has been reported with 154,000 deaths till now. Uttar Pradesh alone reported 600000 cases with 8646 deaths due to COVID-19.

Diagnosis of COVID-19 infection depends on molecular test that is RT-PCR (Real time PCR). Molecular test although has high specificity and a gold standard for most of the diseases, is costly test which needs technical expertise with well-equipped BSL2 (Biosafety laboratory-2) lab. Dagnosis of infected cases and isolation is the only way to curtail the spread of this pandemic. In Uttar Pradesh, the responsibility came to the Microbiology Departments of three tertiary care institutes of which the two older and more established institutes already had established viral diagnostic BSL-2 laboratory. However we took it up as a challenge and started work with minimal resources and with the support of administration. Within 2 weeks we established COVID Molecular Laboratory (BSL-2) on first floor, RML Hospital of our Institute during the lockdown period, which was a remarkable feat in itself.

We started with standardization of COVID-19 RT-PCR test and once the quality control samples were tested with 100% accuracy, the ICMR, New Delhi approved our laboratory on 11.04.20. This was our stepping stone on the ladder of hard work and success (Image 1). Extensive training of all laboratory staff in infection control and prevention, donning/doffing etc. was undertaken. Technical support was provided by the nodal lab at KGMU, Lucknow. We acknowledge the support our lab received from department of Medical Education, Govt. of UP with deep gratitude. Till date Dr. RMLIMS Microbiology COVID Laboratory tested >8.3 lakh samples which accounts to 9% of cumulative testing performed by Uttar Pradesh.

We started testing with ~50 sample/day and this peaked to >5000/day within next 2 month, working all 3 shifts. We started with manual RNA extraction protocol with less man power and the turnaround time of reporting was nearly 16 to 18 hrs. With rise of pandemic and increased sample load we moved to automated extraction of viral RNA and decreased our turnaround time to 6-8 hours. We received COVID nasopharyngeal samples for RT-PCR from nearly 6 to 8 districts as allotted to us by Department of Health, UP government. In addition ~500 samples /day collected at sample collection booth at our Institute for RT-PCR. The challenge was not only to provide timely report but also quality report. External quality and internal quality control procedures are performed in parallel so as not to compromise quality in view of large number of samples being processed every day. We are happy to share that we have had 100% concordance in EQAS conducted by ICMR and one of theBEST 'turn around time' in the whole state in terms of 'time to positive and negative' reports. We have almost never had any sample pendency beyond 24 hours. Also, not even for a single day did our lab shut down for any reason; infact we stepped up any time a smaller laboratory needed help and handled their samples too. The entire work flow involved team of dedicated laboratory technicians, data entry operators and attendants, sweepers, ably supported by residents. It was a herculean task receiving loads of samples all through day and night, with segregation and numbering of samples, master lists were prepared for each shift for RTPCR. Everyday the work included inventory management, reporting on UP portal/ICMR portal, liaisoning with district CMOs for their samples to some mundane things like managing equipment breakdowns, power failures and poor net connectivity to name a few! Inventory management itself was huge involving PPE, PCR kits reagents, lab ware and disinfectants etc. We made sure of adequate infection control in laboratory by deep terminal cleaning, disinfection and bio medical waste disposal every night. We are extremely proud of the fact that none in our COVID laboratory staff got the infection during the entire lock down period.

Under the guidance and meticulous monitoring of testing and validation by faculty we obviated all hurdles in COVID laboratory and rose as one of the highest performing laboratory in Uttar Pradesh with >8.3 lakh samples tested with ~ 17128 positive results. December 4th was a landmark day when we were the topmost institute having performed highest test i.e 6868 tests ,among all the laboratories of UP (Image 2), our personal highest was even higher at 7212 RTPCRs tests just a day earlier on December 3rd, 2020.

Continued…..

Histogram 1 and 2 show the tests performed / month and positive cases reported by our COVID Laboratory for total samples received from state and Dr. RMLIMS institute respectively during pandemic. In India COVID pandemic peak was seen on 17th September with 97,894 cases. Graph of new COVID-19 positive cases of our institute also shows peak in month of September 2021 with 2303 cases, thus can be concluded that September was the month of highest infection period of positivity in this entire pandemic. Regarding average data of Total positivity/day reported by our lab, 5 positive cases/day were reported on April 2020, which increased to 150 cases/day in September (peak pandemic period) and decreased to ~10 cases/day in month of January 2021.At present we are testing ~2000-3000 cases/day with about 5-10 positives every day. Let's hope the world will be free of this virus soon. Emerging mutant strain can bring second wave of infection but we are ready to accept this challenge through valuable lessons learnt in our heroic journey through COVID pandemic.

Nothing is impossible when we perform a task with enthusiastic team members governed by good administration and with a determined mind

-Dr. Jaya Garg

Day of approval from ICMR

Ex Director Prof. A.K.Tripathi Sir taking round of Covid Lab

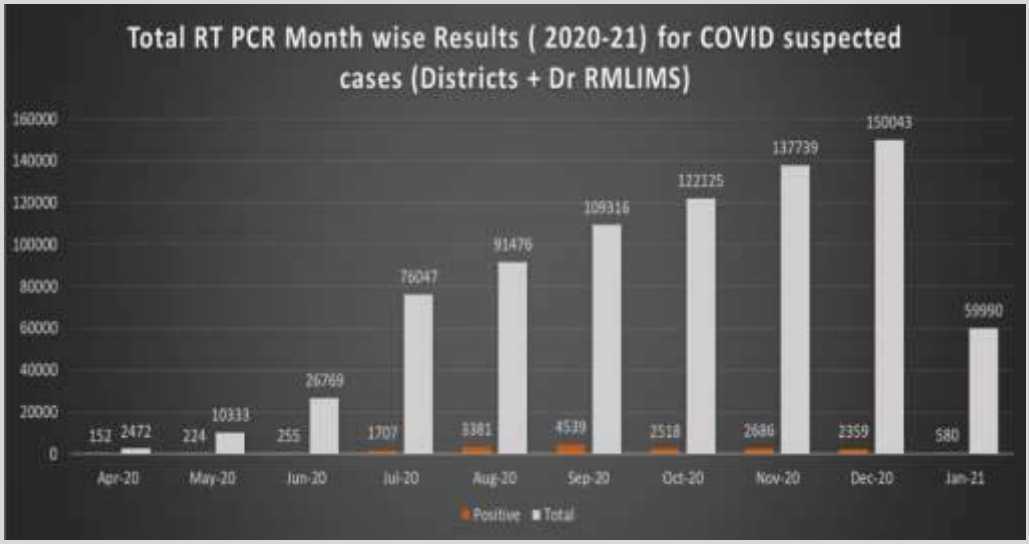
Report on number of RTPCR + CBNAAT Samples Tested on 04-12-2020 Date: 05 December 2020

Medical Colleges

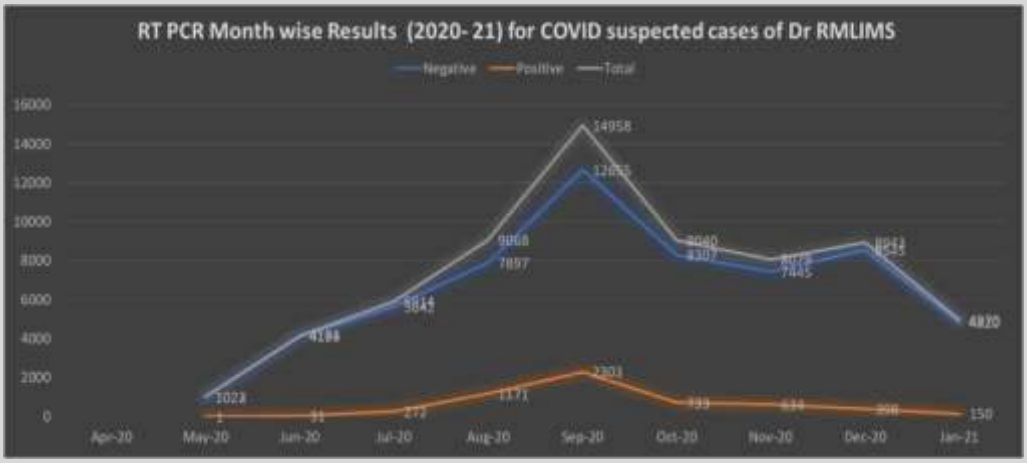
Sr. No.	Name of Lab	Cumulative number of samples tested till date	Daily Testing Capacity of the Lab	Average Tests Done by the Lab in the last 3 days	Samples tested by the Lab on the day	Cumulative number of samples tested positive by the lab till date	Samples Tested positive by the Lab on the Day	Samples Pending for less than 24hrs	Samples Pending (24hrs to 48hrs)	Samples Pending (48hrs to 72hrs)	Samples Pending for more than 72hrs
1	KGMU, Lucknow	834362	4800	5336	5284	44990	69	1937	12	0	0
2	SGPGI, Lucknow	621955	4000	6165	5498	16325	127	3802	178	0	0
3	RMLIMS, Lucknow	601766	3500	6656	6868	14405	87	622	0	0	0
4	IMS BHU, Varanasi	282084	1800	1540	1039	14149	45	2690	0	0	0
5	RMRC, Gorakhpur	239525	1680	1936	2382	5194	2	1301	36	0	0
6	GSVM Kanpur	361239	1860	2928	2865	8960	26	1126	73	0	0
7	LLRM Medical College, Meerut	469905	2520	4098	4576	15019	88	3679	69	32	0
8	BRD Medical College, Gorakhpur	263333	2000	1838	1319	7258	12	1376	0	0	0
9	SNMC, Agra	347988	1800	2861	3044	8034	32	393	0	0	0
10	UPRIMS Saifai, Etawah	323703	2000	2243	2408	7181	16	1098	0	0	0
11	MLBMC, Jhansi	251553	1500	1679	1743	6815	11	199	0	0	0
12	MLNMC, Prayagraj	357723	2500	3147	3406	9251	16	3511	10	0	0
13	G.I.M.S, Greater Noida	318203	2000	2782	4379	12334	110	2427	323	0	0
14	Super Speciality Hospital, Noida	254712	1600	2656	2183	4725	55	127	0	0	0
15	JN Medical College, Aligarh	171278	1200	1474	1372	3930	6	613	571	0	0
16	IVRI, Bareilly	136506	1260	966	813	4564	8	140	28	0	0
17	NIB, NOIDA	108302	1100	0	0	7734	0	0	0	0	0
18	ICMR- National Jalma institute	88542	1080	832	605	2145	6	675	0	0	0
19	IITR	162534	1080	892	1153	1473	5	1226	84	0	0
20	Birbal Sahni Institute of Palaeobotany	96994	720	0	0	2538	0	0	0	0	0
21	CDRI	100318	1080	539	561	5002	10	616	0	0	0
22	CSIR-NBRI	74401	600	800	780	1531	2	10	0	0	0
23	MRU lab IMS BHU	294178	1800	2658	1130	9810	57	1348	0	0	0
24	NICPR	229441	4000	231	1	8831	0	672	0	0	0
25	Mathura Veterinary Institute	45836	300	354	324	2011	17	425	90	0	0
26	Command Hospital Lucknow	19949	0	115	127	3712	18	0	0	0	1
	Total	7056330	47780	54726	53860	227921	825	30013	1474	32	1

Image 2: Table showing Dr. RMLIMS COVID lab having performed highest number of RT-PCR tests in Uttar Pradesh and highest previous 3 days average

Continued....



Histogram 1: Showing the results of RT-PCR tests performed / month



Histogram 2: Showing positive cases reported/month

TrueNat for COVID 19: A Triage for Microbiology

"**Positive**:**The most negative word of 2020**"-As the pandemic unfolded in March-April in India, thiswas the one word we all feared! Everyone was scared to deal with a COVID 19 positive patient. Health care system all over the world faced an unprecedented challenge of separating COVID19 positive & COVID 19 Negative patients, not only for emergency care of that patient but also for protecting the uninfected and the vulnerable.. To counteract & contain the pandemic; one of the key measure has been early identification of cases followed by preventive measures to curtail the spread.

RT-PCR is the gold standards in the diagnosis of SARS-CoV-2 infection. However, it takes many hours to detect the nucleic acid. By mid 2020Rapid Antigen Test (RAT)&TrueNat testing were approved by ICMR for rapid diagnosis of COVID-19, considered to provide point of care rapid diagnostics. Out of these two the efficacy of RAT is often doubted because of their reported sensitivity being as low as 50% in few studies. Therefore TrueNat(MolBioInc) a chip-based, point-of-care, portable, Real-Time micro PCR Analyzer remained the only option for confirmed rapid diagnosis of COVID 19 and it became a part and parcel of emergency care in most of the health care facilities.Infact many smaller hospitals only offered TrueNat test and not the RTPCR for COVID, because it is fully automated and easy to operate not requiring any elaborate infrastructure, not even a BSL-2 lab. And in less than an hour's time we would know if a patient is COVIDpositive or negative! The flip side with TrueNatis its limited capacity and the cost involved.

We started TrueNat facility in our institute on 18th June 2020. As per government guidelines all cases requiring emergency care including obstetrics care, had to be tested for COVID-19 by TrueNat and had to be separated into either COVID positive or COVID negative cases, so that they can be given adequate medical attention while protecting the health care workers. During this pandemic with TrueNat-Covid19 facility,Microbiology became a part of Triage system in emergency care in healthcare systems. We started with two TrueNat machines and a third one was added later in December2020.In this COVID 19 pandemic, we have performed the highest number of TrueNat tests amongst all the Government COVID Labs in the state, with approximately 24,000 tests done till date out of which more than 1500 tests were positive.Every day we are performing 100 to 150 TrueNat tests. With prompt reporting and quality checking we have one of the most efficient TrueNat laboratories in the state.

The overall percentage positivity of COVID 19 TrueNat tests at our institute had been 6.42%. The highest positivity since the start in June 2020 were in the months of August 2020 & September 2020, which tallies with the peak in COVID 19 cases in RT-PCR cases done at our COVID 19 diagnostic lab also. The figure below depicts the number of test requisitions and positivity month wise since the start.

During this pandemic with TrueNat-Covid19 facility,Microbiology became a part of Triage system in emergency care in healthcare systems. We started with two TrueNat machines and a third one was added later in December2020. In this COVID 19 pandemic, we have performed the highest number of TrueNat tests amongst all the Government COVID Labs in the state, with approximately 24,000 tests done till date out of which more than 1500 tests were positive.Every day we are performing 100 to 150 TrueNat tests. With prompt reporting and quality checking we have one of the most efficient TrueNat laboratories in the state.

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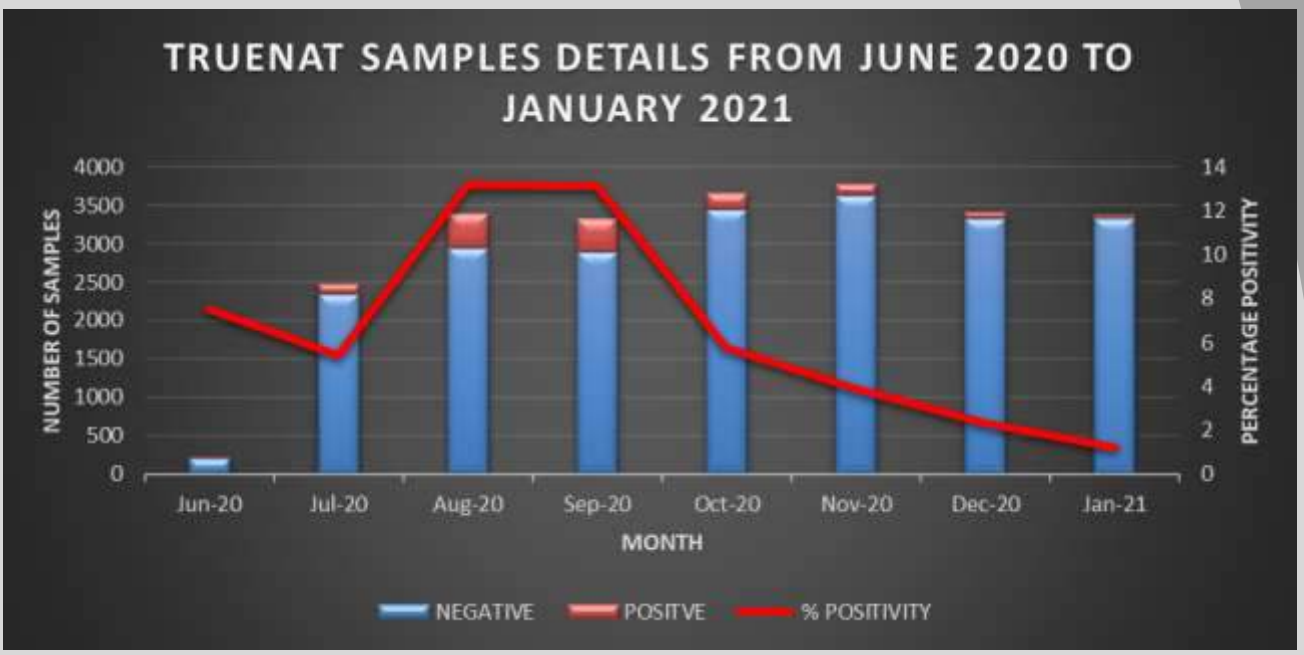
- Prof.(Jr.) Anupam Das

Continued…..

TrueNat for COVID 19: A Triage for Microbiology

Anupam Das, Jyotsna Agarwal, Department of Microbiology, Dr RMLIMS, Lucknow



Data Entry of Covid Lab managed by team Leader Mr. Neeraj

Low budget face shields made out of transparencies by our residents for our attendants safety

COVID Sample Collection Booth at RMLIMS, Lucknow

During inception of present pandemic, the sample collection for diagnosis of COVID-19 was being carried out at different areas/wards at all time, which resulted in higher requirement and use of Personal Protective Equipment (PPE). This issue was solved when Era's Medical University in collaboration with Era's Medical Devices & Services Pvt. Ltd. donated three VR Secure air conditioned Booths for efficient sample collection of novel corona virus in June, July and August 2020 respectively, during tenure of the then Director- Professor A.K. Tripathi and Professor Nuzhat Husain's intervention. These booths are very effective in minimising risk to frontline medical staff involved in sample collection with minimal requirement of PPE.

These booths are manned by a team of trained technicians 24x7, allowing us to collect samples at all time in secured manner without any risk to patients and technicians or attendants. ~500 samples/day were collected during the peak of pandemic. Help and support from Dr Manish Raj Kulshreshtha, Associate Professor, Department of Biochemistry has been invaluable in over all booth management and Covid sample collection.

Due to heavy patient sample collection load, we were facing a lot of wear and tear of the long sleeved gloves and it was turning out to be tedious and of course expensive to have them changed every week. Some good old *Indian jugaad* by technical staff came in handy. The sleeves of outer gloves were fabricated using easy to clean/disinfect but tough cloth for prolonged use without wear and tear. Disposable gloves are used over these sleeves for collection of sample.

Necessity like COVID19 pandemic is indeed the mother of invention/innovation

- Prof.. Manodeep Sen

Microbiology department of DRRMLIMS remained a apart of newspaper coverage during Covid era 2020

बन रही योजना एक साथ कई सैंपल की होगी जांच, इस तकनीक से जांच करने वाला यूपी देश का पहला राज्य होगा

कोरोना जांच में 72% खर्च कम करेगी पूल टेस्टिंग

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लखनऊ : कोरोना के बढ़ते मामले देखते हुए पूल टेस्टिंग की तैयारी है। इसके जरिए एक साथ कई सैंपल की [illegible] तक कम आएगा। लेडिया संस्थान की माइक्रोबायोलिजिस्ट ज्योत्सना अग्रवाल ने बताया कि अभी एक बार में एक सैंपल की जांच हो रही है। पूल टेस्टिंग में 5, 10 या 32 सैंपल एक बार में जांचे जाएंगे। यह बिना लक्षण वाले मरीजों की स्क्रीनिंग में भी मददगार है। किसी इलाके में कोरोना फैलने की आशंका हो तो एक साथ सभी की जांच करने में यह तरीका कारगर होगा। जर्मनी और इजराइल में पूल टेस्टिंग से जांच शुरू हो चुकी है। कोरोना निर्देशक के स्टेट नोडल अधिकारी विकासेंदु अग्रवाल के अनुसार, आईसीएमआर में इस स्टैंडर्ड ऑपरेटिंग प्रोसेजर पर काम हो रहा है। पूरे देश का पहला प्रदेश बन सकता है, जहां पूल टेस्टिंग शुरू होगी। सोमवार तक इस पर निर्णय हो सकता है।

कुछ कमियां भी : डॉ. शीतल वर्मा के अनुसार इस विधि में अगर 16 सैंपल की जांच कर रहे हैं तो यह पता नहीं चलेगा कि कौन पॉजिटिव है और कौन निगेटिव। ऐसे में सबकी अलग-अलग जांच करनी पड़ेगी। एक जांच में लगभग 12 घंटे लगते हैं। पूल में कोई पॉजिटिव आएगा तो सबकी फिर अलग-अलग जांच करनी होगी, जिसमें वक्त लगेगा।

ऐसे कम होगा खर्च : देश में हो रही जांच में 3.8 प्रतिशतही पॉजिटिव निकल रहे हैं। यानी 100 में लगभग 96 की रिपोर्ट निगेटिव आते हैं। ऐसे में अगर 8-8 के पूल में जांच हो तो 12 से 13 पूल में लगभग सौ सैंपल जांच लिए जाएंगे। चलमान प्रतिशत के मुताबिक दो या तीन पूल में ही पॉजिटिव मरीज आएंगे। ऐसे में अगर दो पूल पॉजिटिव आए तो 16 सैंपल की दोबारा जांच लिए जाएंगे। यानी 100 सैंपल को जांचने के लिए कुल 28 जांच ही करनी पड़ेंगी। ऐसे में जांच का खर्च एक चौथाई हो जाएगी।

लक्षण हैं तो बहुत प्रभावी नहीं : जिन मरीजों में कोरोना के लक्षण हैं उनके मामले में पूल टेस्टिंग प्रभावी नहीं। ऐसे मरीजों में वायरस की पुष्टि की ज्यादा संभावना रहती है। लक्षण दिखने पर अस्पतालों को मरीजों की रिपोर्ट जल्द से जल्द चाहिए। यही वजह है कि वहां अलग सैंपल की जांच ही कारगर है।

एक मरीज ठीक हुआ

■ एनबीटी स, लखनऊ: केजीएमयू में कोरोना संक्रमित एक मरीज रविवार को इस संक्रमण से मुक्त हो गया। डॉक्टरों के मुताबिक, मरीज केजीएमयू के रेजिडेंट डॉ. तौसीफ के संपर्क में आने के कारण संक्रमित हुआ था। उसे 20 मार्च को आइसोलेशन वॉर्ड में भर्ती किया गया था। दो बार रिपोर्ट निगेटिव आने के बाद केजीएमयू ने मरीज को डिस्चार्ज भी कर दिया। इस तरह यहां भर्ती मरीजों में अब तक कुल सात कोरोना के संक्रमण से मुक्त हो चुके हैं।

City's 50% patients male, in age group of 21-40 yrs

CITY'S CASE LOAD

10,141

6,835 Male patients

3,306 Female patients

सीएससी कोरोना वारियर को किया गया सम्मानित

संवाददाता

लखनऊ । सूचना और तकनीकी मंत्रालय की संस्था सीएससी ई- गवर्नेंस सर्विसेज इंडिया लिमिटेड का स्थापना दिवस सीएससी दिवसके रूप में प्रत्येक वर्ष 16 जुलाई को आयोजन किया जाता है। जिसके क्रम में इस वर्ष दिनांक 12 जुलाई से 16 जुलाई के मध्य विभिन कार्यक्रमों की शृंखला के क्रम में आज सीएससी महिलाके रूप में आयोजित किया गया। कार्यक्रम के एजेंडा में, स्वयं सहायता समूह के सदस्यों को डीजीपे-सखी योजना में नामांकित कर महिलाओं के साक्षीकरण को बढ़ावा देना। महिलाओं का प्रधानमन्त्री जनधोगी मानधन योजना (पेंशन) में पंजीकरण। महिलाओं को राष्ट्रीय पेंशन प्रणाली (एनपीएस) में नामांकित कर उनके वृद्धावस्था को सुरक्षा प्रदान करना। महिलाओं में स्वास्थ और स्वच्छता को बढ़ावा देने के उद्देश्य से स्त्री स्वाभिमान सेनेटरी पैड का वितरण। प्रत्येक सीएससी में कम से कम एक महिला को रोजगार प्रदान करना आदि। जनपद के कुल 150 सीएससी केंद संचालकों के द्वारा सीएससी महिला दिवस का आयोजन अनवरत उपरोक्त के अलावा अपने आस पास के इलाके की स्वच्छता - सफाई के साथ- साथ कोरोना महामारी के खिलाफ स्थानीय नागरिकों को जागरूक करते हुये फेस मास्क का मुफ्त वितरण भी किया गया। सीएससी जिला प्रबंधक शितिज तिवारी द्वारा बताया गया कि आज जनपद के सभी सीएससी केन्द लॉकडाउन के नियमों का पालन करते हुये सीएससी महिला दिवस मनाया गया साथ ही सीएससी पोर्टल पर उपलब्ध सभी महत्वपूर्ण सेवाओं से संबंधित सारी जानकारी दी गयी। और यह भी जानकारी दी गयी कि कोरोना जांच केंद्रों पर सीएससी डाटा कोरोना पोर्टलों की एंट्री के लिए पीजीआई, राम मनोहर लोहिया, मेडिकल कॉलेज, सहित 5 कोविड जांच हॉस्पिटलों में कार्य किया वहीं राम मनोहर लोहिया एचओडी ज्योत्सना ने सभी चौपालों को कोरोना योध्या के रूप में सम्मानित किया गया।

सीएससी कोरोना वारियर को किया गया सम्मानित

4 / 12

जनपद के कुल 150 सीएससी केंद संचालकों के द्वारा इसीएससी महिलादिवस का आयोजन अनवरत उपरोक्त के अलावा अपने आस पास के इलाके की स्वच्छता -सफाई के साथ- साथ कोरोना महामारी के खिलाफ स्थानीय नागरिकों को जागरूक करते हुये फेस मास्क का मुफ्त वितरण भी किया गया। सीएससी महिला दिवस मनाया गया साथ ही सीएससी पोर्टल पर उपलब्ध सभी महत्वपूर्ण सेवाओं से संबंधित सारी जानकारी दी गयी। और यह भी जानकारी दी गयी कि कोरोना जांच केंद्रों पर सीएससी डाटा कोरोना पोर्टलों की एंट्री के लिए पीजीआई, राम मनोहर लोहिया, मेडिकल कॉलेज, सहित 5 कोविड जांच हॉस्पिटलों में कार्य किया वहीं राम मनोहर लोहिया एचओडी ज्योत्सना ने सभी चौपालों को कोरोना योध्या के रूप में सम्मानित किया गया।

Testing behind low case positivity

UP LABS PASSED THE TEST

Total no. of tests conducted 1,00,98,896

Dengue cases among

50,000 treated by state med colleges, recovery rate 85%

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Lucknow: UP's share in the total Covid cases and death in the national figure is declining rapidly, according to an assessment undertaken by the state government on Monday. As on date, 4.24% of all cases and 4.84% of all deaths being reported in India are from Uttar Pradesh.

In the week between September 14-20 – when UP witnessed its peak – the state's share in the Covid-19 cases was 6.59% cases and 7.58% of all deaths. The state's aggressive testing strategy is being credited for bringing out the hidden cases, but quality management of patients at the state medical colleges is the reason for decline in casualties.

"Over 50,000 patients were attended and managed at state medical colleges and the hard work put in by the health team, including doctors, nurses, paramedical staff, support and cleaning associates, deserve to be lauded," ACS, medical education, Dr Rajneesh Dube said, adding, that "the recovery rate has been over 85%."

He also listed that state labs were in the forefront of Covid-19 testing through the RT-PCR, the gold standard in testing. "Of the total tests conducted so far, over 50 lakh RT PCR tests were conducted, adding that KGMU led the list with six lakh tests followed by SGPGI and RML Institute where four lakh tests each were conducted.

Meerut conducted more than three lakh RT PCR Tests.

ACS, health and family welfare, Amit Mohan Prasad said that the decline is surely good news, but there is need for caution to ensure that the Covid-19 does not raise its head again. "The number of fresh cases in the past 24 hours has gone down below 2,000 and the number of active infections continues to decline, but prevention protocol needs to be followed in public interest," he said.

SIGNS OF RECOVERY

Case fatality rate is the proportion of deaths compared to the total number of cases

INDIA UP

2.0
1.5
1.0

1.54 1.52 1.45 1.35 1.22 1.26 1.46 1.67 1.62
1.14 1.19 1.43 1.31 1.21 1.11 1.27 1.36 1.59 1.30 1.45
1.30 1.27

3-9 Aug 10-16 Aug 17-23 Aug 24-30 Aug 31 Aug-6 Sept 7-13 Sept 14-20 Sept 21-27 Sept 28 Sept-4 Oct 5-11 Oct 12-18 Oct

PERIOD

GeneXpert: a game changer in the detection of Iliac bone tuberculosis

Dr Tushar Gautam, Dr Manoj Kumar, Dr Vineeta Mittal, Dr Mridu Singh

Introduction-

Skeletal tuberculosis accounts for nearly 1-3% of all cases of tuberculosis[1]. Tuberculosis involving the pelvic bones with abscess formation is a relatively rare entity[2]. Majority of cases presented late in our set up which causes delay in management, increases number of complications and atypical presentations[3].

CASE REPORT-

A 17-year-old boy admitted in a medicine ward of a tertiary care hospital with chief complaints of difficulty in walking since 1 month. Patient also complaint of high grade fever with chills and rigor, with non-radiating lower backache in the hip region since 15 days. No History of BCG Vaccination, patient has poor nutritional status and no history of alcohol or smoking present. Patient's mother was suffering from pulmonary tuberculosis in 2006 which resolve after completing treatment of Direct observed treatment short course(DOTS). Bone marrow aspirate was collected from Right posterior iliac crest. Very low *Mycobacterium tuberculosis* complex DNA was detected through GeneXpert MTB/RIF assay in a centrifuged bone marrow sample with no resistance to rifampicin and no acid fast bacilli were seen in ziehl neelsen(ZN) staining. Treatment has been started with streptomycin only because patient is also a Known case of Guillain Barre syndrome with epilepsy and drugs like isoniazid retards the metabolism of antiepileptics.

Conclusions-

Very often skeletal tuberculosis is missed because of its uncommon localisation, its ability to mimic other diseases. we have reported this case due to the unusual site of involvement. Tuberculosis of iliac bone is difficult to diagnose but bone marrow aspirate remains an essential part of microbiological diagnosis. GeneXpert can detect *Mycobacterium tuberculosis DNA* even in ZN stain negative bone marrow aspirate making it more useful tool in diagnosis of Iliac bone tuberculosis, than other methods. With the use of GeneXpert, cases, missed with smear microscopy, could be sought and exact incidence of the diseases could be revealed.

Reference-

1. Trikha V, Varshney MK, Rastogi S. Tuberculosis of the ilium: is it really so rare? Acta Orthop Belg. 2005 Jun;71(3):366-8

2. Satischandra H, Anuradha, Virupaxappa T K: A Case Report - Iliac Bone Tuberculosis With Iliopsoas Abscess: Ind J Radiol Imag 2005 15:2:255-258.

3. Chaudhary I, Ali S.,Mallhi A,: An Unusual Presentation of Tuberculosis of Iliac Bone: Pak J Med Sci October-December 2005 Vol. 21 No. 4 489-490

ICTC-Services at Dr.RMLIMS

An individual's knowledge of his/her HIV status is crucial to the success of the national program. Through the existing approaches, only about two-thirds of the estimated people infected with HIV have been diagnosed. Thus, to reach the remaining HIV infected population, the HIV Counseling& Testing Services (HCTS) are extremely important. HCTS are the key entry point to prevention, treatment & care of people who are infected with HIV.

Chronology of HCTS

1997- HCTS in the form of VCTC (Voluntary Counseling& Testing Centre)were started in India.

2002- PPTCT (Prevention of Parent to Child Transmission) started.

2006- Under NACP III, VCTC & PPTCT services were remodeled as a hub of **Integrated Counseling & Testing Centre (ICTC)** to provide services to all clients under one roof.

Purpose of ICTC:

An ICTC is a place where a person is counseled and tested for HIV, either on his own free will or as advised by a health provider and confidentiality is strictly maintained for all the clients. State AIDS Control Society provides training to staff, HIV Testing kits on availability & Logistic Support.

Functions of ICTC are broadly: - Conducting HIV diagnostic tests.

- Counseling& providing basic information on the modes of HIV transmission, and promoting behavioral change to reduce vulnerability.

- Link people with other HIV prevention care & treatment services.

ICTC Types:

- **Stand Alone ICTC :** - A full-time counselor and laboratory technician on Contract Basis.
- **Facility Integrated ICTCs** :- Existing staff such as the auxiliary nurse midwife/ laboratory technician/pharmacist are expected to undertake HIV counseling and testing.
- **ICTC-PPP** : - Established in Private Sector Hospital and their Staff will do the Counseling & Testing.

At Dr. RMLIMS, Lucknow we have Stand Alone ICTC centre located in the first floor of Hospital Block. The centre was started in 2009 and following merger the centre has been handed over to the Department of Microbiology, Dr. RMLIMS in May 2020. We have a full-time counselor and laboratory technician appointed via Uttar Pradesh State AIDS Control Society (UPSACS). In our ICTC we are providing counseling and testing services to the walk-in clients (Self- initiated),patients referred by physicians of the institute (Provider Initiated Testing and Counselling), sspouse/partner of those with positive result & Children of HIV infected mothers, high risk group clients referred by NGOS. The clients are first subjected to Pre-test counseling and informed consent is taken and then HIV testing, sharing of test result is done. For HIV positive client Post-test counseling, screening for STI/RTI, & referral for TB and other co-infections, linkage to other health services including ART Centre is undertaken as indicated

Continued..

ICTC-Services at Dr.RMLIMS

Our ICTC centre have performed testing & counseling of nearly 14000 clients in the year 2020

After taking charge of ICTC centre, we have started **CD4 testing** by PIMA CD4 counter (a cartridge based rapid test) in the Department of Microbiology for the patients attending ART centre at Dr. RMLIMS. Each month we are testing CD4 count 50 to 100 patients referred by our ART centre.

ICTC Technician performing test

ICTC Counsellor counselling a client

Departmental Projects, Publications & Awards in last one year

Ongoing Research Projects

I.COVID RELATED

1.Project title: Lymphopenia in COVID-19: implication in pathogenesis and disease management" (Proposal Reference Number: IUSSTF/VN-COVID/011/2020)
Funded by: DST, New Delhi, under **IUSSTF COVID-19 Networks** (Indo-US Science and technology Forum) for 18 months, sanctioned in August2020
Role- Principal Investigator- Prof Jyotsna Agarwal

2.Project Title: Validation of 'Hi-Screen' test for COVID-19 developed at SGPGI . A multi centre project in collaboration with Department of Molecular medicine and Biotechnology at SGPGIMs, Lucknow. sanctioned in June2020
Funded by: SGPGIMS lko
Role- Co-investigator- Prof Jyotsna Agarwal

3.Project title: To assess knowledge and practice of PPE use and role of buddy system among health Care workers during COVID19 Pandemic---an interventional study.
Funded by- Dr.RMLIMS
Role- Co Investigator - Dr Anupam Das

4.Project title- Evaluation of Seroprevalence of COVID-19 in Health Care Worker in a Tertiary Care Institute.(Ongoing)
Funded by- Dr. RMLIMS
Role- Principal investigator - Dr Jaya Garg

5.Project title: Relation between Viral RNA in load in blood and clinical presentation and outcome in Covid-19 patients: a time course analysis
Funded by: Dr. RMLIMS for 2 years from June 2020
Role- Principal Investigator - **Prof Jyotsna Agarwal, Co Investigator- Dr Jaya Garg**

6.Project title: Clinical course and outcomes in SARS- CoV 2 infected patients with diabetes, hypertension and cardiovascular disease: A prospective, observational case control study.
Funded by- Dr.RMLIMS
Role- Co-investigator- Dr Jaya Garg

II. NON-COVID RELATED

3.Project Title: Burden of tuberculosis in household paediatrics contacts of pulmonary TB patients
Funded by: Dr. RMLIMS for 2 years from 2020
Role-Co-investigator- Prof Vineeta Mittal

4.Project Title: Evaluation of effect of radiation on oropharyngeal flora in patients with oropharyngeal cancer and its correlation with salivary metabolites : A Pilot Study
Funded by: Dr. RMLIMS for 2 years from Feb 2019
Role- Principal Investigator: Prof. Manodeep Sen

2.Project Title: HCV core Antigen: An evolving marker for evaluating treatment response in patients with Hepatitis C infection
Funded by: Dr. RMLIMS for 2 years from October 2019
Role- Principal Investigator: Dr Jaya Garg (Associate Professor)

Continued….

Ongoing Research Projects

Extramural Project

1. **Project Title:** Evaluation of TB LAMP (Loop Mediated Isothermal Amplification) assay for diagnosis of Central Nervous System Tuberculosis (CNS TB)
Approved by: CST UP
Duration- 2 year from 2020
Role- Principal Investigator: Prof. Vineeta Mittal

2. Project title: A prospective observational multi-centric clinical trial to evaluate microscopic examination of various clinical samples by Artificial Intelligence based
Sponsored by: Sevamob Ventures Limited, Lucknow
Duration: 1 year from January 2020
Site Role- Principal Investigator - Prof. Jyotsna Agarwal; Prof. Vineeta Mittal, Prof. Anupam Das ((Professor Junior Grade)

3. Project Title: Child Health and Mortality Prevention Surveillance (CHAMPS) Program. A multi national project.
Duration: 3 years
Collaborator and Source of funding: Emory Global health Institute**,** Emory University, Atlanta, GA
Site Role- Principal Investigator - Prof. Jyotsna Agarwal

Departmental Projects, Publications & Awards in last one year

P.

Publications from the Department of Microbiology

I. COVID RELATED

1. Jaya Garg, Vikramjeet Singh, PranshuPandey, AshishVerma, ManodeepSen, Anupam Das, JyotsnaAgarwal. Evaluation of sample pooling for diagnosis of COVID-19 by Real time PCR- A resource saving combat strategy, First published: 01 September 2020, https://doi.org/10.1002/jmv.26475
2.ICMR COVID Study Group COVID Epidemiology & Data Management Team, COVID Laboratory Team, VRDLN Team, Laboratory surveillance for SARS-CoV-2 in India: performance of testing & descriptive epidemiology of detected COVID-19. Indian J Med Res. 2020;151(5):424. doi: 10.4103/ijmr.IJMR_1896_20.
3.Garg A, **Garg J**. Evaluation of Coronavirus Disease 2019 (COVID-19) RT-qPCR Tests in Multi-sample Pools. Clinical Infectious Diseases. 2020 Aug 5.

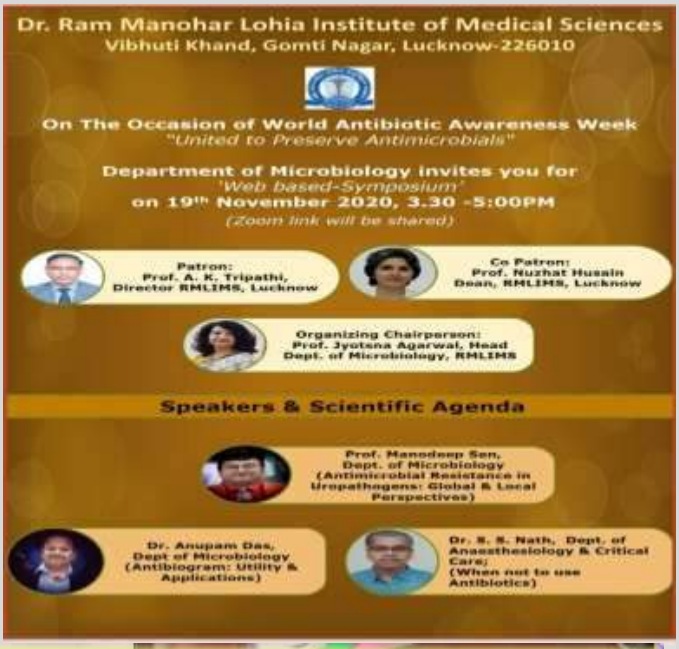
II. NON-COVID RELATED

1. ***Bordetellabronchiseptica* infection in an intensive care unit patient,** Sana Islahi, ManodeepSen, Anupam Das, Akansha Gupta, ShaliniTrivedi, yotsnaAgarwal.**MGM Journal of Medical Sciences** | Volume 6 | Issue 3 | July-September 2019 **Received**: 21-01-2020 **Accepted**: 21-01-2020 **Published**: 16-03-2020

2. Rastogi S, **Mittal V,** Singh A. (2020) In Vitro Evaluation of Probiotic Potential and Safety Assessment of Lactobacillus mucosae strains isolated from Donkey's Lactation. in Probiotics and antimicrobial proteins Journal https://doi.org/10.1007/s12602-019-09610-0

3. Maurya R, Sen M, Rastogi M, Sanyal S. Alteration in Oral Flora and Effect of Mucositis in Head and Neck Cancer Patients Undergoing Chemo-radiotherapy. J Pure ApplMicrobiol. 2020;14(3):2129-2135**. doi: 10.22207/JPAM.14.3.53.**

7th issue of Microbiology Newsletter was released.on 4th May 2020 on the eve of World Hand Hygiene Day



Celebrating World Antibiotic Awareness Week on/ Web based Symposium arranged by Department of Microbiology on the occasion of World Antibiotic Awareness Week, 19th November 2020

Online Zoom classes conducted for MBBS students during Covid lockdown period

Seminar on Biomedical Ethics on 19th September 2020

लोहिया में 'कोविड सैम्पल कलेक्शन बूथ' खुला

Inauguration of Collection Booth by our honorable Dean Prof. Nuzhat Hussain, and Chief Medical Superintendent , 2020

Standard Precautions, Hand Hygiene & Biomedical Waste Management" module conducted by Department of Microbiology for new Academic residents of institute under Resident Development Program, 15th Feb 2020

Multidisciplinary COVID Seminar on 7-8th Oct, 2020 as part of Faculty and Resident development Programme

Clinical Grand Round (CGR) on the topic "An Audit of Blood Stream Infection and Antimicrobial/Diagnostic Stewardship at RMLIMS" was conducted on 29th Feb 2020

First MD Batch Final Year examination- Faculty with External Examiner Prof. Ujjala Ghosal

BMW Training given by Prof. Manodeep sen to COVID Lab staff

National Tuberculosis Elimination Programme and Covid Update Panel Discussion March 2020

Prof and HOD Jyotsna Agarwal and Prof. Vineeta Mittal delivered a valuable talk in UP-UK Microcon 2020

Departmental Celebrations

लोहिया संस्थान में 5 लाख आरटीपीसीआर जांचें पूरी

■ एनबीटी, लखनऊ: डॉ. राम मनोहर लोहिया आयुर्विज्ञान संस्थान के माइक्रोबायोलॉजी विभाग ने पांच लाख से ज्यादा आरटीपीसीआर जांच पूरी कर ली है। यहां 10 अप्रैल से कोरोना की आरटीपीसीआर जांच शुरू हुई थी। मंगलवार को पांच लाख जांचें पूरी होने पर संस्थान निदेशक प्रो. एके त्रिपाठी ने पूरी टीम को बधाई दी। इस दौरान डॉ. मनोदीप, डॉ. अनुपम दास, डॉ. जया आदि मौजूद रहे।

Celebrating completion of 5Lac RT-PCR Tests

Holi Celebration 2020 (Pre-COVID)

Diwali Celebration in Covid Lab and Microbiology Department 2020

Various Covid warriors Felicitation Programs

COVID Lab Heroes

26th August 2020
"COVID HERO"

Dr Mohammad Saquib

Dependable, confident Senior Resident of the department, initially managed Hospital Infection Control work of 200 Bedded Covid Hospital with elan

These days he is managing Covid Laboratory work with equal maturity. A symbol of calmness; everyone in Covid laboratory looks up to him.

Indeed an asset to the department.

13th July 2020
"COVID HERO"

Dr Vikramjeet Singh, SR

कार्यक्षेत्र से अधिक व जिम्मेदारियों से बढ़कर सराहनीय कार्य करने के लिये। एक सेनापति की भांति मौके पर कुशल निर्णय ले कर सम्पूर्ण टीम के लिये समयबद्ध कार्य की सम्पन्नता को सुनिश्चित किया।
हम सबको आपपे गर्व है।

Dr. Peetam Singh

21st July 2020
"COVID HEROES"

Dr. Kriti Maurya

They were given a challenging task to prove themselves in the war against Covid19, and they did it!!
The Exam going PGs of Our Batch 2017 JRs not only managed the newly started TruNat facility, in fact they solved all the teething problems that occurred in the first few weeks, including efficient & timely reporting of TruNat tests, guiding & training newly recruited technical staffs.

Dr. Amit Kumar Singh

Dr. Shalini Trivedi

18th August 2020
"COVID HERO"

Mr Neeraj Mishra

कार्यक्षेत्र से अधिक व जिम्मेदारियों से बढ़कर सराहनीय कार्य करने के लिये।
18th August को नीरज मिश्रा ने बहुत ही अच्छी तरह से बहराइच मेडिकल कॉलेज के डेटा एंट्री ऑपरेटर्स को ट्रेनिंग दिया।
बहुत ही कॉन्फिडेंस के साथ उन्होंने अपने अनुभव को शेयर किया।
आपने शुरुआत से ही सराहनिय कार्य किया है हम सबको आपपे गर्व है।
हमे अपेक्षा है कि कोविड लैब डॉ राम मनोहर लोहिया आयुर्विज्ञान संस्थान के सभी कर्मी इसी तरीके से अपने अच्छे काम द्वारा लैब, संस्थान व अपना नाम आगे बढ़ाएंगे।